

APPENDICES

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APPENDIX A – List of Drillholes

Holes outlining the Ixtaca Main Zone are highlighted

HOLE	EASTING	NORTHING	ELEVATION	Hole Length (m)
CA-11-001	619100.90	2176535.30	2302.30	410.87
CA-11-002	619148.11	2176789.80	2402.17	597.77
CA-11-003	619147.74	2176790.16	2403.33	575.46
CA-11-004	619154.90	2176474.60	2298.50	276.76
TU-10-001	618734.70	2176006.60	2247.50	349.91
TU-10-002	618751.50	2176045.20	2248.40	377.34
TU-10-003	618726.10	2175977.20	2244.40	391.67
TU-10-004	618753.70	2176128.70	2278.70	446.60
TU-10-005	618753.70	2176128.70	2278.70	490.12
TU-10-006	618834.80	2176219.10	2323.70	529.74
TU-10-007	618777.90	2175748.90	2245.40	442.54
TU-10-008	618644.40	2175987.60	2252.10	559.61
TU-10-009	618646.40	2176057.90	2264.60	341.90
TU-10-010	618646.60	2175990.60	2252.60	611.43
TU-10-011	618790.20	2176155.60	2277.70	458.72
TU-10-012	618751.50	2176045.20	2248.40	544.98
TU-10-013	618790.20	2176155.60	2277.70	559.07
TU-10-014	618751.50	2176037.40	2246.44	361.49
TU-11-015	618916.80	2176140.30	2252.20	291.39
TU-11-016	618978.70	2175835.20	2375.70	480.36
TU-11-017	618916.80	2176140.30	2252.20	468.78
TU-11-018	618964.10	2176158.20	2253.50	302.97
TU-11-019	618978.70	2175835.20	2375.70	455.98
TU-11-020	618964.10	2176158.20	2253.50	356.86
TU-11-021	619004.50	2176206.60	2255.00	319.43
TU-11-022	619004.50	2176206.60	2255.00	392.58
TU-11-023	618793.40	2175702.98	2243.80	465.12
TU-11-024	619002.30	2176209.90	2255.10	389.53
TU-11-025	619260.60	2176009.30	2382.10	438.42
TU-11-026	619055.30	2176223.60	2253.30	319.43
TU-11-027	619092.80	2176248.00	2255.20	340.46
TU-11-028	618659.20	2175993.80	2250.50	282.24
TU-11-029	618863.25	2176122.30	2244.04	324.31
TU-11-030	618602.40	2175894.08	2246.20	230.43
TU-11-031	618806.97	2176043.89	2242.90	344.12
TU-11-032	619154.90	2176474.60	2298.50	356.01
TU-11-033	618509.50	2176044.90	2285.40	406.60
TU-11-034	618779.10	2175987.80	2243.30	316.38
TU-11-035	618700.72	2176020.35	2245.20	401.12

TU-11-036	618745.96	2175925.12	2242.21	166.73
TU-11-037	618512.46	2175852.96	2263.82	437.69
TU-11-038	618739.65	2175798.95	2241.21	285.90
TU-11-039	618962.37	2176161.65	2252.40	263.04
TU-11-040	618450.56	2176157.40	2298.56	198.12
TU-11-041	619241.11	2176587.53	2327.99	569.37
TU-11-042	618244.68	2175915.65	2269.83	639.26
TU-11-043	619311.04	2176678.66	2374.59	407.82
TU-11-044	619100.90	2176535.30	2302.30	276.76
TU-11-045	618791.29	2175575.38	2231.13	480.36
TU-11-046	619241.11	2176587.53	2327.99	301.14
TU-11-047	619161.37	2176320.10	2262.40	243.23
TU-11-048	618916.80	2176140.30	2252.20	365.15
TU-11-049	619091.07	2175947.99	2410.11	465.12
TU-11-050	619164.04	2176319.31	2263.80	304.19
TU-11-051	618914.70	2176144.40	2250.88	316.38
TU-11-052	619091.27	2176252.37	2253.45	167.03
TU-11-053	618863.70	2176122.61	2244.04	410.87
TU-11-054	619040.03	2176028.18	2392.35	471.22
TU-11-055	619052.21	2176227.51	2251.21	231.04
TU-11-056	618829.90	2176092.90	2243.06	392.58
TU-11-057	618806.97	2176043.89	2242.90	480.97
TU-11-058	619082.10	2176028.70	2385.65	187.76
TU-11-059	618979.23	2175834.90	2371.00	701.34
TU-11-060	618758.23	2175983.00	2237.90	176.17
TU-11-061	618743.77	2175929.00	2239.70	420.01
TU-11-062	618758.23	2175983.00	2237.90	292.00
TU-11-063	618795.80	2175650.00	2232.90	432.21
TU-11-064	618782.92	2175888.24	2260.66	285.90
TU-11-065	618754.18	2175860.52	2243.76	420.01
TU-11-066	618979.23	2175834.90	2371.00	630.02
TU-11-067	618730.44	2175904.32	2237.56	261.52
TU-11-068	618803.94	2175953.38	2269.96	234.09
TU-11-069	618749.80	2175736.77	2237.57	465.73
TU-11-070	618832.54	2175999.74	2271.01	319.43
TU-11-071	618820.40	2175620.41	2236.10	255.42
TU-11-072	619022.54	2175897.56	2403.24	486.46
TU-11-073	618832.51	2175901.98	2300.06	219.15
TU-11-074	618819.30	2175495.40	2234.40	288.95
TU-11-075	618792.10	2175575.61	2227.00	477.93
TU-11-076	618851.70	2175955.88	2294.90	238.66
TU-11-077	618795.50	2175440.40	2236.30	453.54
TU-11-078	618877.90	2176036.30	2312.20	309.68

TU-11-079	619035.90	2175935.80	2409.90	359.66
TU-11-080	619795.60	2175994.20	2393.60	432.21
TU-11-081	618913.60	2176081.90	2320.80	325.53
TU-11-082	619035.70	2175937.80	2408.90	462.08
TU-11-083	618831.60	2176091.70	2247.08	365.15
TU-11-084	619302.70	2176484.90	2331.90	429.16
TU-11-085	619089.90	2175950.80	2413.90	532.18
TU-11-086	618913.60	2176081.90	2320.80	288.95
TU-11-087	619301.40	2176485.60	2330.70	298.09
TU-11-088	618831.80	2176091.40	2246.50	517.55
TU-11-089	619088.50	2175950.10	2413.10	221.28
TU-11-090	619240.50	2176626.30	2321.00	243.23
TU-11-091	618937.70	2176081.90	2322.50	274.76
TU-11-092	619091.20	2175948.70	2413.70	239.57
TU-11-093	619238.90	2176628.90	2320.70	209.70
TU-11-094	619198.10	2176586.50	2309.80	246.28
TU-11-095	618937.70	2176081.90	2322.50	224.94
TU-12-096	618883.70	2176125.60	2251.52	401.73
TU-12-097	618977.90	2176157.10	2250.00	413.92
TU-12-098	619235.90	2176510.50	2326.96	404.77
TU-12-099	619151.20	2176032.30	2396.50	474.27
TU-12-100	619235.90	2176510.50	2326.96	267.61
TU-12-101	618883.70	2176125.60	2251.52	538.89
TU-12-102	618964.10	2176158.20	2253.50	292.00
TU-12-103	619232.80	2176513.50	2325.50	401.73
TU-12-104	618964.10	2176158.20	2253.50	264.57
TU-12-105	618791.30	2175575.40	2231.13	346.25
TU-12-106	619235.90	2176510.50	2326.40	343.20
TU-12-107	618919.10	2176136.80	2254.90	465.73
TU-12-108	619040.90	2176208.50	2258.70	325.53
TU-12-109	619235.90	2176510.50	2326.40	368.20
TU-12-110	618450.80	2176157.50	2305.00	331.01
TU-12-111	619044.60	2176208.50	2254.10	295.05
TU-12-112	619000.50	2176193.30	2253.20	413.92
TU-12-113	619237.70	2176515.40	2333.40	325.53
TU-12-114	618510.00	2176047.30	2288.90	425.50
TU-12-115	619044.60	2176208.50	2254.10	365.15
TU-12-116	619299.20	2176482.80	2330.80	197.51
TU-12-117	619000.50	2176193.30	2253.20	307.24
TU-12-118	618510.00	2176047.30	2288.90	321.87
TU-12-119	618685.90	2176257.90	2374.10	615.09
TU-12-120	618940.60	2176142.30	2257.40	331.62
TU-12-121	619000.50	2176193.30	2253.20	267.61

TU-12-122	618506.50	2175961.00	2283.00	395.02
TU-12-123	618813.10	2176076.20	2247.10	356.01
TU-12-124	618940.60	2176142.30	2257.40	356.01
TU-12-125	618693.04	2176334.10	2376.90	404.77
TU-12-126	618813.10	2176076.20	2247.10	393.19
TU-12-127	618940.60	2176142.30	2257.40	420.01
TU-12-128	618506.50	2175961.00	2283.00	425.50
TU-12-129	618732.40	2176365.60	2377.80	444.40
TU-12-130	618813.10	2176076.20	2247.10	288.95
TU-12-131	618506.50	2175961.00	2283.00	431.60
TU-12-132	618940.60	2176142.30	2257.40	273.71
TU-12-133	618813.10	2176076.20	2247.10	261.52
TU-12-134	618732.40	2176365.60	2377.80	438.30
TU-12-135	618813.10	2176076.20	2247.10	438.30
TU-12-136	618939.90	2176143.10	2252.90	185.32
TU-12-137	618621.50	2175965.70	2247.90	331.01
TU-12-138	618834.20	2176293.00	2358.80	404.77
TU-12-139	618705.70	2175991.60	2247.70	349.30
TU-12-140	619082.70	2176389.60	2274.40	218.85
TU-12-141	618544.70	2175894.40	2263.20	362.10
TU-12-142	618705.70	2175991.60	2247.70	443.79
TU-12-143	619082.70	2176389.60	2274.40	200.56
TU-12-144	618834.20	2176293.00	2358.80	307.24
TU-12-145	619051.20	2176453.70	2295.50	441.35
TU-12-146	618705.70	2175991.60	2247.70	248.72
TU-12-147	618564.10	2175964.80	2256.90	296.57
TU-12-148	618705.70	2175991.60	2247.70	312.72
TU-12-149	618853.10	2176343.20	2353.70	340.77
TU-12-150	618677.90	2175882.90	2245.30	294.44
TU-12-151	619051.20	2176453.70	2295.50	392.58
TU-12-152	618563.20	2176043.90	2268.10	319.43
TU-12-153	618613.80	2176265.30	2348.10	334.67
TU-12-154	618646.60	2175813.20	2239.60	259.38
TU-12-155	619051.20	2176453.70	2295.50	380.39
TU-12-156	618673.20	2175759.90	2238.70	270.05
TU-12-157	618518.50	2176161.10	2312.30	423.06
TU-12-158	618639.10	2175999.90	2252.50	145.69
TU-12-159	619051.20	2176453.20	2295.50	371.25
TU-12-160	618640.40	2175720.50	2239.40	382.83
TU-12-161	618914.70	2176351.30	2330.00	282.85
TU-12-162	619051.20	2176453.20	2295.50	395.63
TU-12-163	618469.30	2175923.20	2277.70	432.21
TU-12-164	618730.70	2176004.10	2244.50	327.96

TU-12-165	618914.70	2176351.30	2330.00	407.82
TU-12-166	619051.20	2176453.20	2295.50	453.54
TU-12-167	618405.00	2176026.00	2267.90	487.07
TU-12-168	618734.10	2176005.90	2246.50	373.68
TU-12-169	618946.40	2176414.40	2308.50	413.92
TU-12-170	618984.30	2176547.10	2323.60	392.58
TU-12-171	618435.90	2175974.50	2272.00	444.40
TU-12-172	618745.60	2176037.90	2246.00	571.80
TU-12-173	618946.40	2176414.40	2308.50	416.97
TU-12-174	618984.30	2176547.10	2323.60	407.82
TU-12-175	619001.70	2176403.90	2299.00	313.33
TU-12-176	618407.50	2176026.90	2272.60	535.84
TU-12-177	618604.70	2175820.10	2247.40	416.36
TU-12-178	618984.30	2176547.10	2323.60	426.11
TU-12-179	619001.70	2176403.90	2299.00	349.91
TU-12-180	618984.30	2176547.10	2323.60	420.01
TU-12-181	619001.70	2176403.90	2299.00	224.94
TU-12-182	618569.60	2175756.10	2245.50	446.84
TU-12-183	618408.31	2176025.50	2272.60	264.57
TU-12-184	618982.70	2176546.50	2323.60	434.04
TU-12-185	618408.31	2176025.50	2272.60	167.03
TU-12-186	619166.30	2176320.60	2262.00	352.96
TU-12-187	618408.00	2176026.90	2272.60	200.56
TU-12-188	618416.10	2175932.00	2273.80	443.79
TU-12-189	618404.50	2176024.40	2270.90	490.12
TU-12-190	619006.00	2176498.30	2312.40	413.92
TU-12-191	619165.40	2176319.80	2265.30	395.63
TU-12-192	618446.00	2175860.50	2273.00	316.38
TU-12-193	618427.70	2176204.10	2302.30	130.45
TU-12-194	619006.00	2176498.30	2312.30	407.82
TU-12-195	618427.70	2176204.10	2302.30	325.53
TU-12-196	619074.90	2176389.50	2271.00	383.44
TU-12-197	618423.40	2176205.70	2302.30	215.80
TU-12-198	618417.50	2176112.00	2286.90	316.38
TU-12-199	619006.00	2176498.30	2312.30	480.97
TU-12-200	618417.50	2176112.00	2286.90	160.93
TU-12-201	619074.90	2176389.50	2271.00	413.92
TU-12-202	618568.40	2176189.60	2327.10	484.02
TU-12-203	618414.40	2176115.20	2286.90	182.27
TU-12-204	619074.90	2176389.50	2271.00	453.54
TU-12-205	619002.20	2176499.80	2312.80	368.20
TU-12-206	618675.70	2176200.30	2361.70	205.13
TU-12-207	618565.40	2176189.80	2326.70	263.96

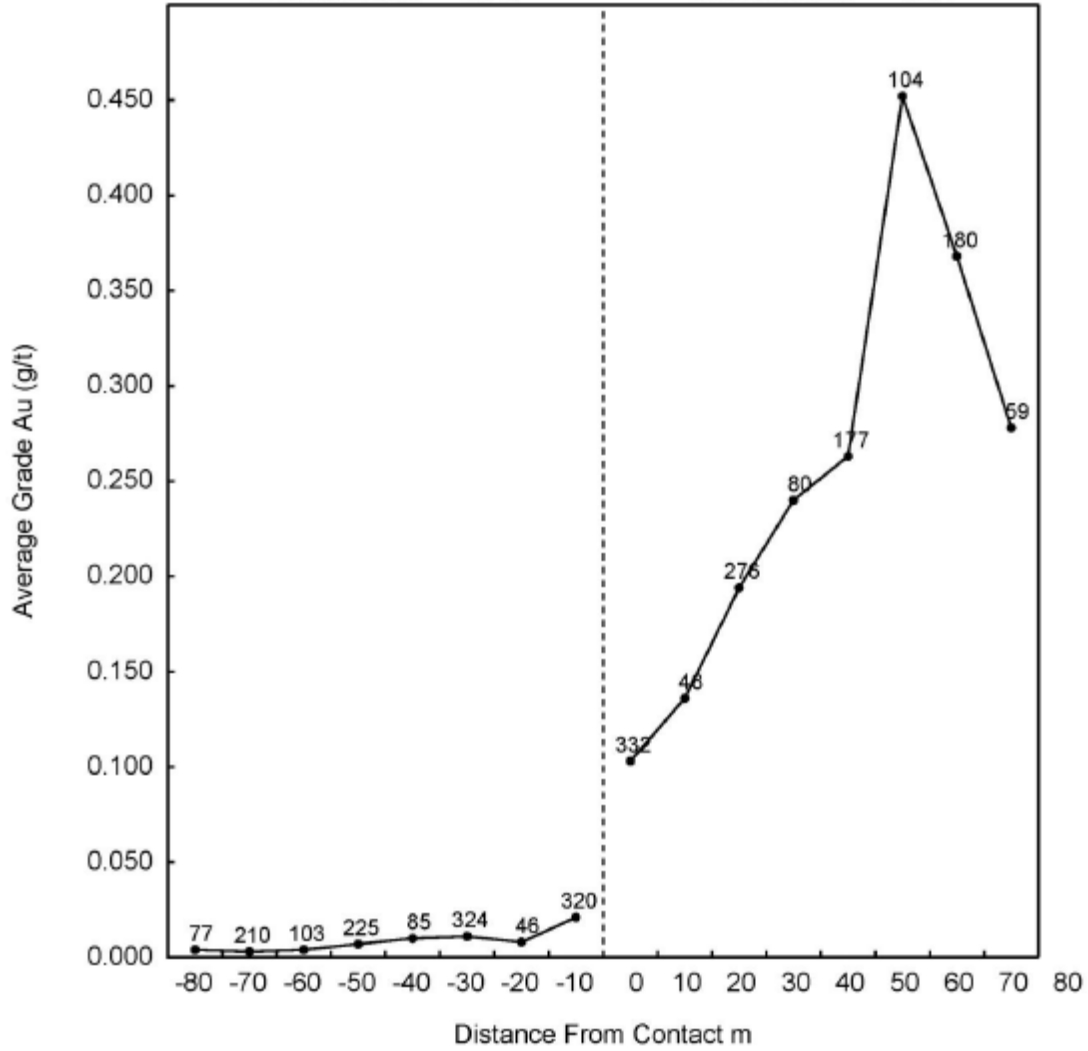
TU-12-208	619083.80	2176389.60	2271.00	368.20
TU-12-209	618675.70	2176200.30	2361.70	258.47
TU-12-210	619049.20	2176453.30	2291.60	319.43
TU-12-211	618703.40	2175953.70	2242.50	322.48
TU-12-212	618808.70	2176079.40	2244.90	313.33
TU-12-213	619214.50	2176220.80	2298.40	304.19
TU-12-214	619046.70	2176450.80	2292.50	337.72
TU-12-215	618948.30	2176416.70	2307.90	605.94
TU-12-216	619214.50	2176220.80	2298.40	404.77
TU-12-217	618808.70	2176079.40	2244.90	235.61
TU-12-218	619050.70	2176453.90	2287.90	295.05
TU-12-219	619211.60	2176220.30	2301.80	203.61
TU-12-220	619211.60	2176220.30	2301.80	282.85
TU-12-221	618948.30	2176416.70	2307.90	548.03

APPENDIX B – Contact Plots

AU- BASH VS LGASH - 3m Comp

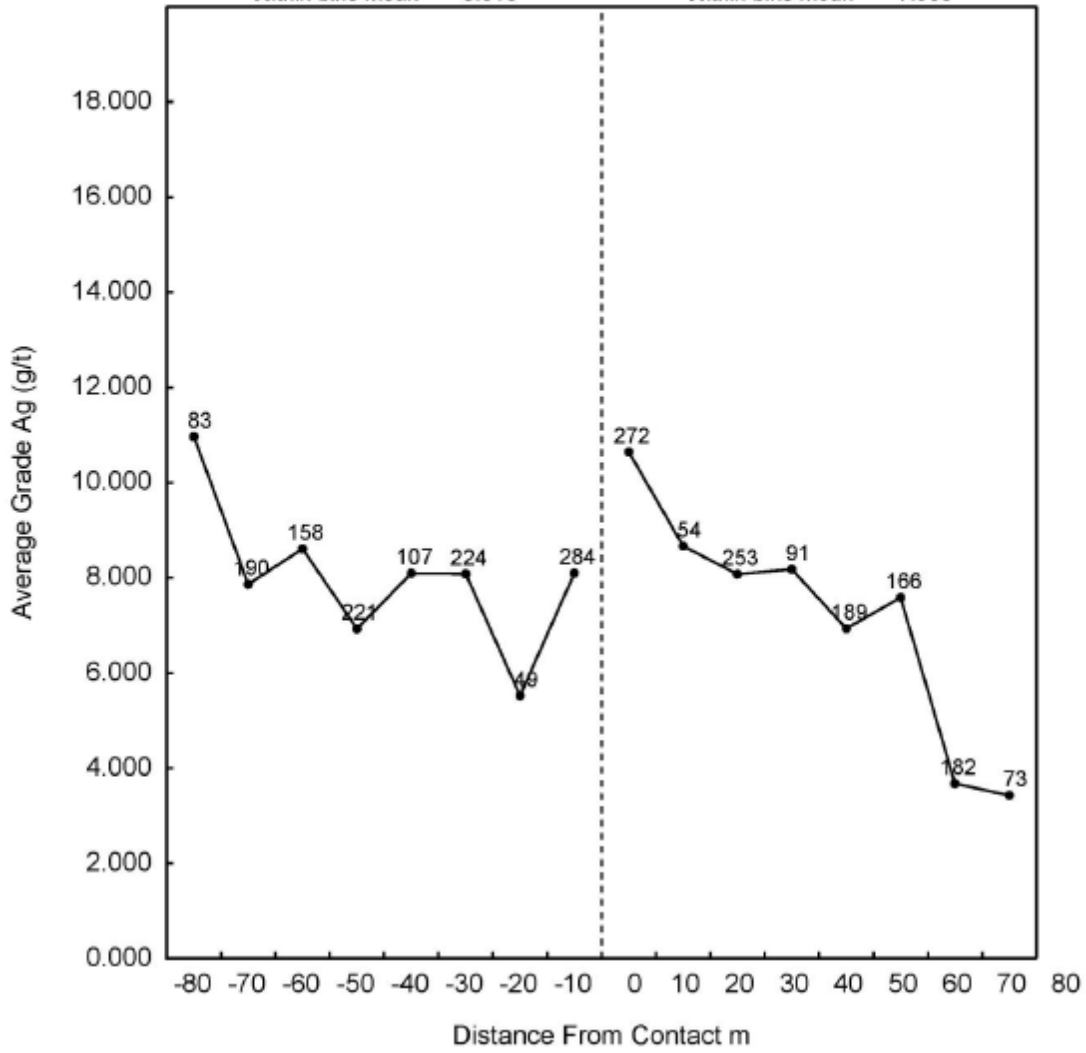
BASH
Overall N= 2305
Overall mean= 0.007
Within bins N= 1390
Within bins mean= 0.010

LGASH
Overall N= 2681
Overall mean= 0.280
Within bins N= 1256
Within bins mean= 0.231



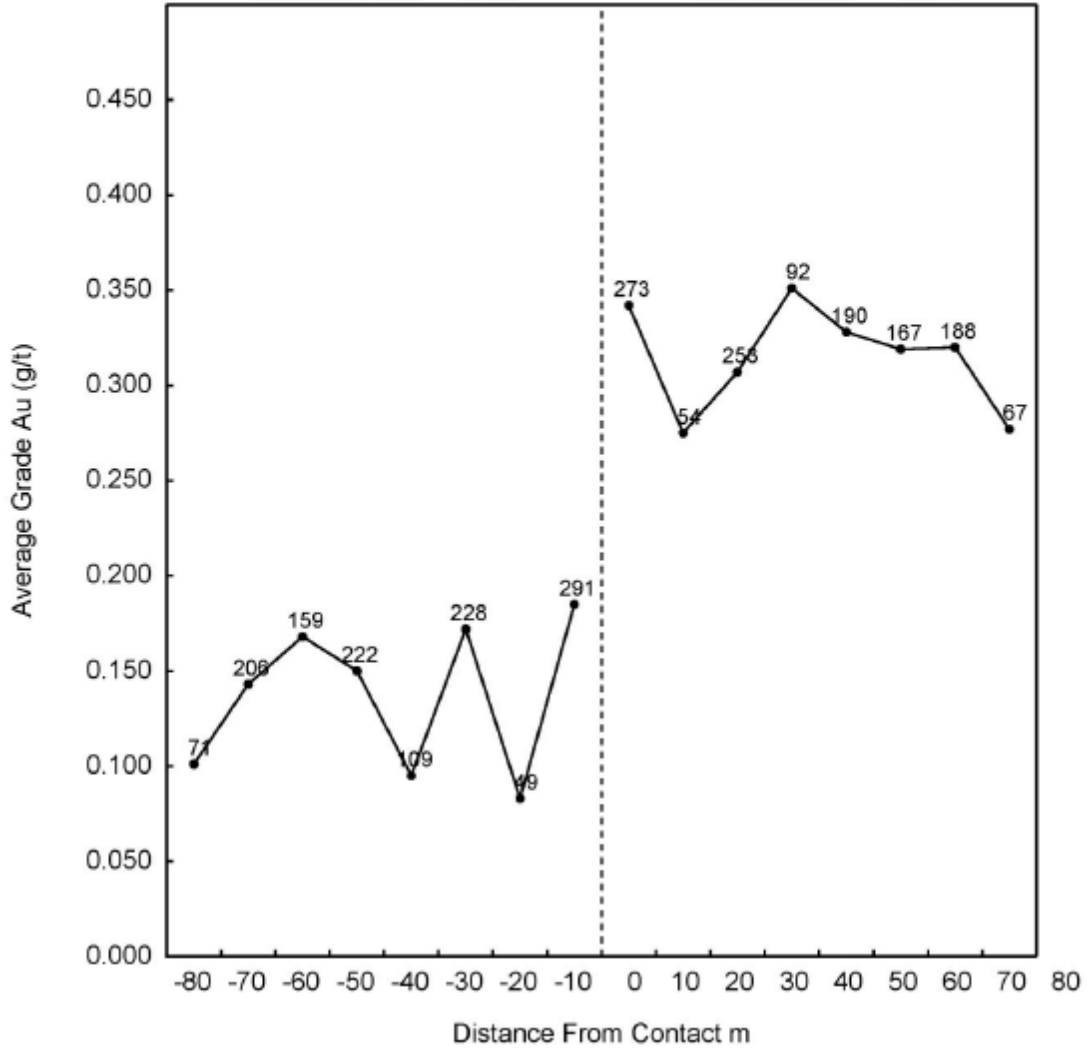
AG- LGLS VS LGASH - 3m Comp

LGLS	LGASH
Overall N= 9155	Overall N= 2675
Overall mean= 6.979	Overall mean= 4.940
Within bins N= 1316	Within bins N= 1280
Within bins mean= 8.010	Within bins mean= 7.530



AU- LGLS VS LGASH - 3m Comp

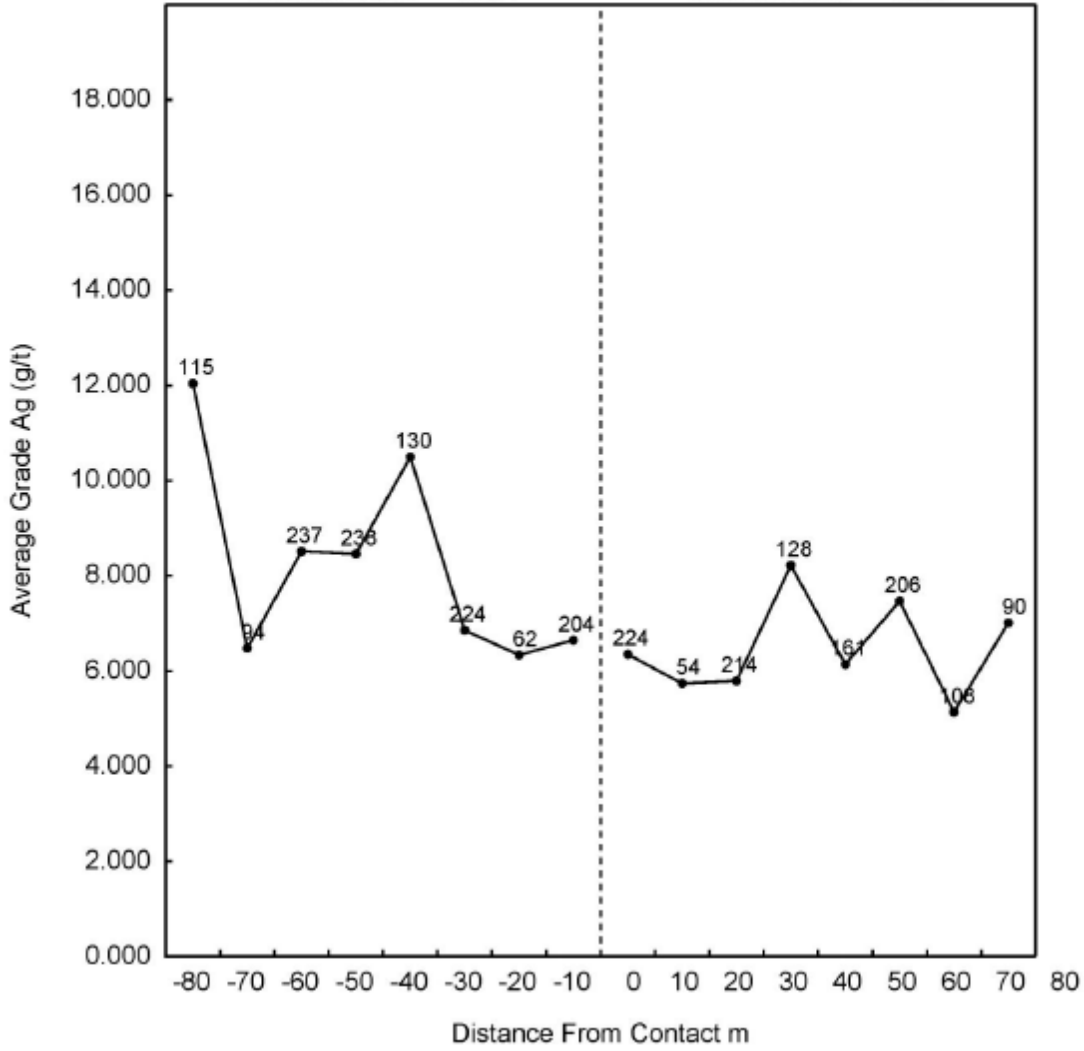
LGLS		LGASH	
Overall N=	9305	Overall N=	2681
Overall mean=	0.139	Overall mean=	0.280
Within bins N=	1335	Within bins N=	1284
Within bins mean=	0.153	Within bins mean=	0.321



AG- LGLS VS NELGSH - 3m Comp

LGLS
 Overall N= 9154
 Overall mean= 6.979
 Within bins N= 1304
 Within bins mean= 8.184

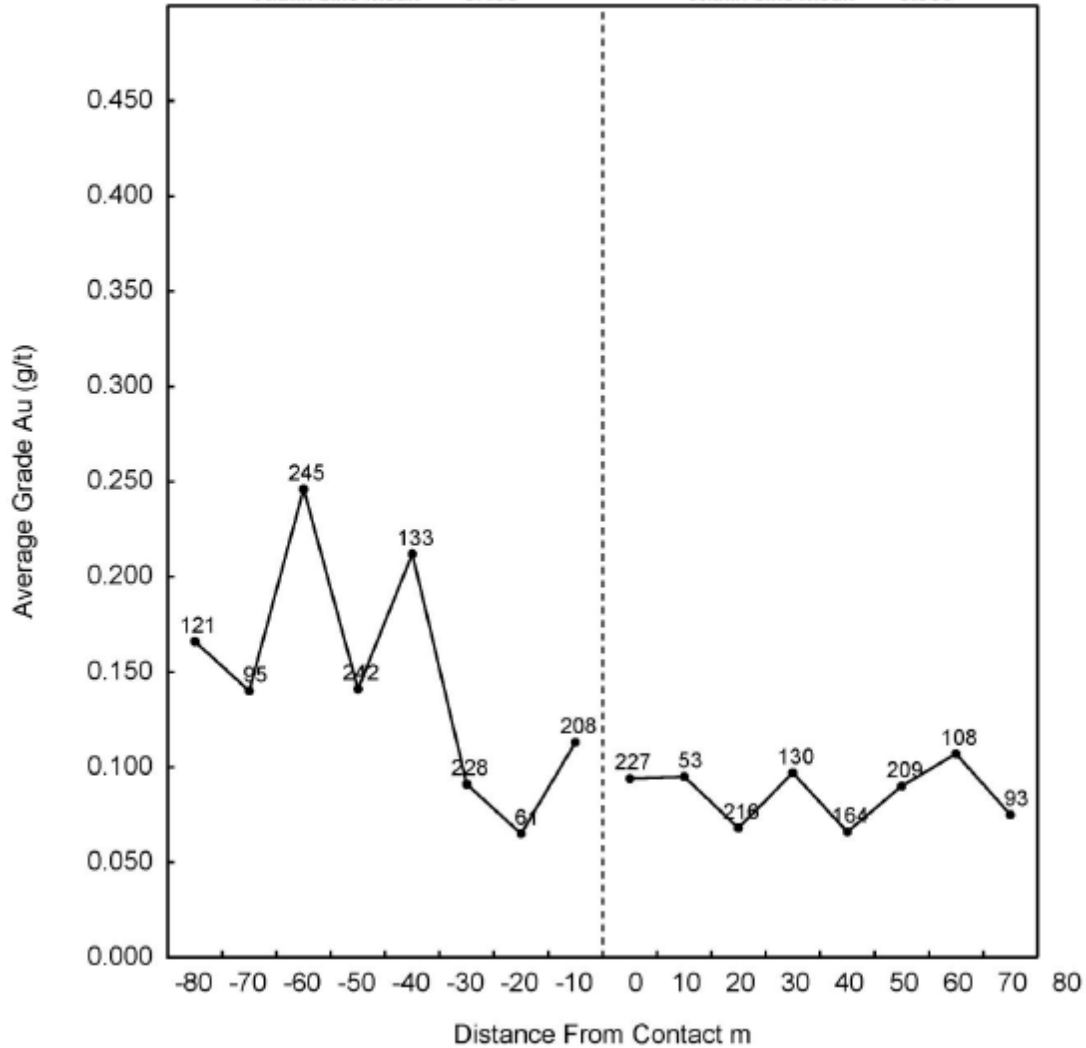
NELGSH
 Overall N= 3571
 Overall mean= 5.349
 Within bins N= 1185
 Within bins mean= 6.527



AU- LGLS VS NELGSH - 3m Comp

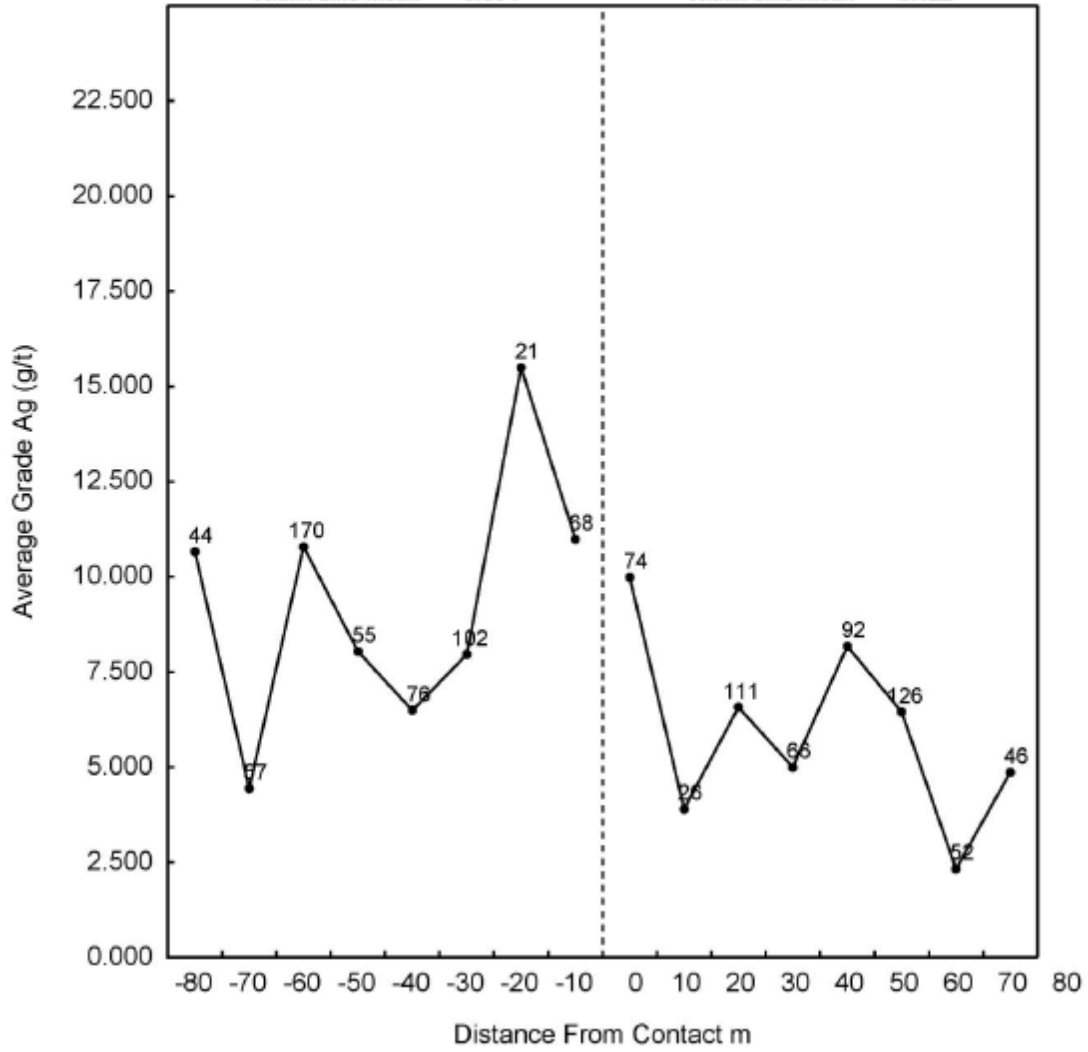
LGLS
 Overall N= 9304
 Overall mean= 0.139
 Within bins N= 1333
 Within bins mean= 0.153

NELGSH
 Overall N= 3588
 Overall mean= 0.072
 Within bins N= 1200
 Within bins mean= 0.085



AG- LGSH VS LGLS - 3m Comp

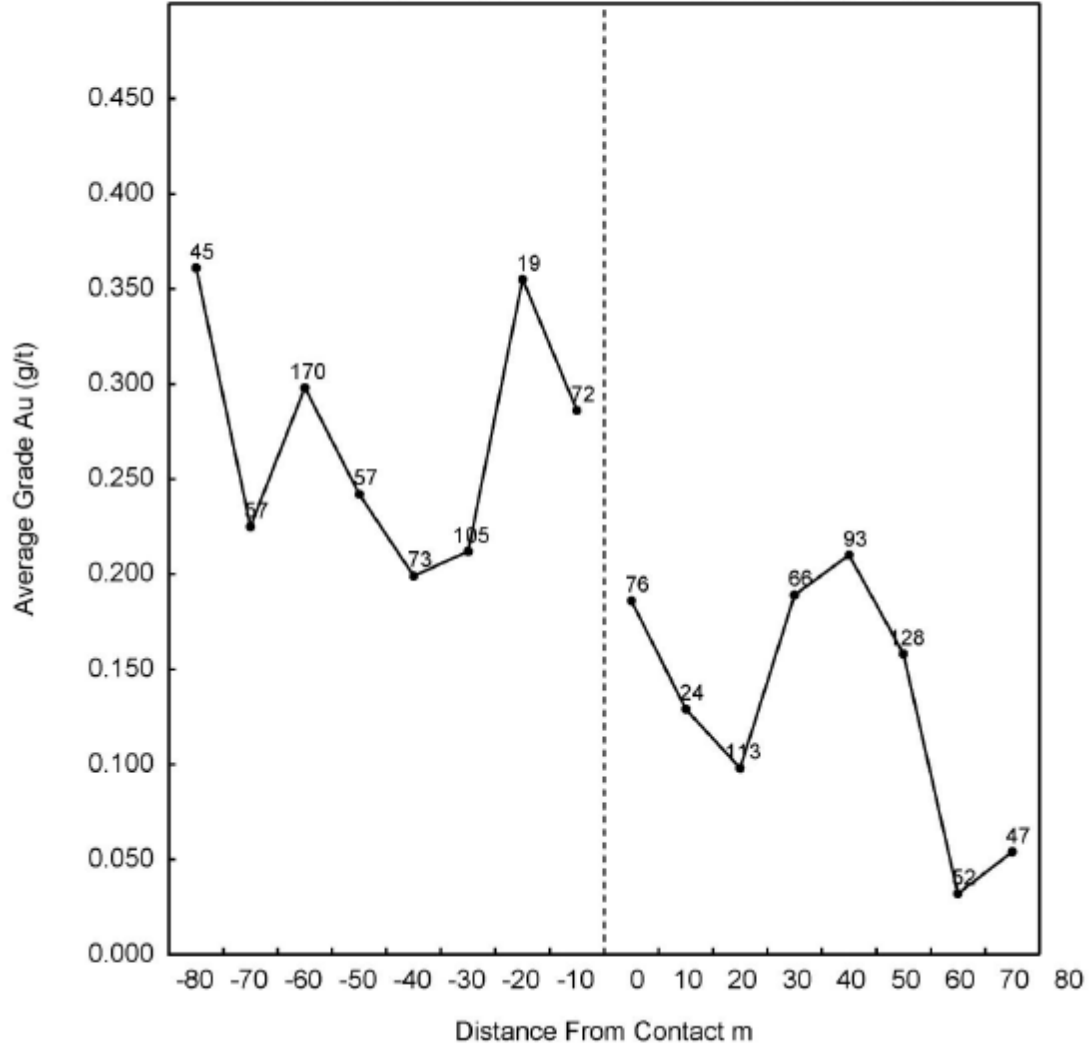
LGSH Overall N= 1873 Overall mean= 5.569 Within bins N= 593 Within bins mean= 9.064	LGLS Overall N= 9154 Overall mean= 6.979 Within bins N= 593 Within bins mean= 6.422
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AU- LGSH VS LGLS - 3m Comp

LGSH
Overall N= 1883
Overall mean= 0.185
Within bins N= 598
Within bins mean= 0.264

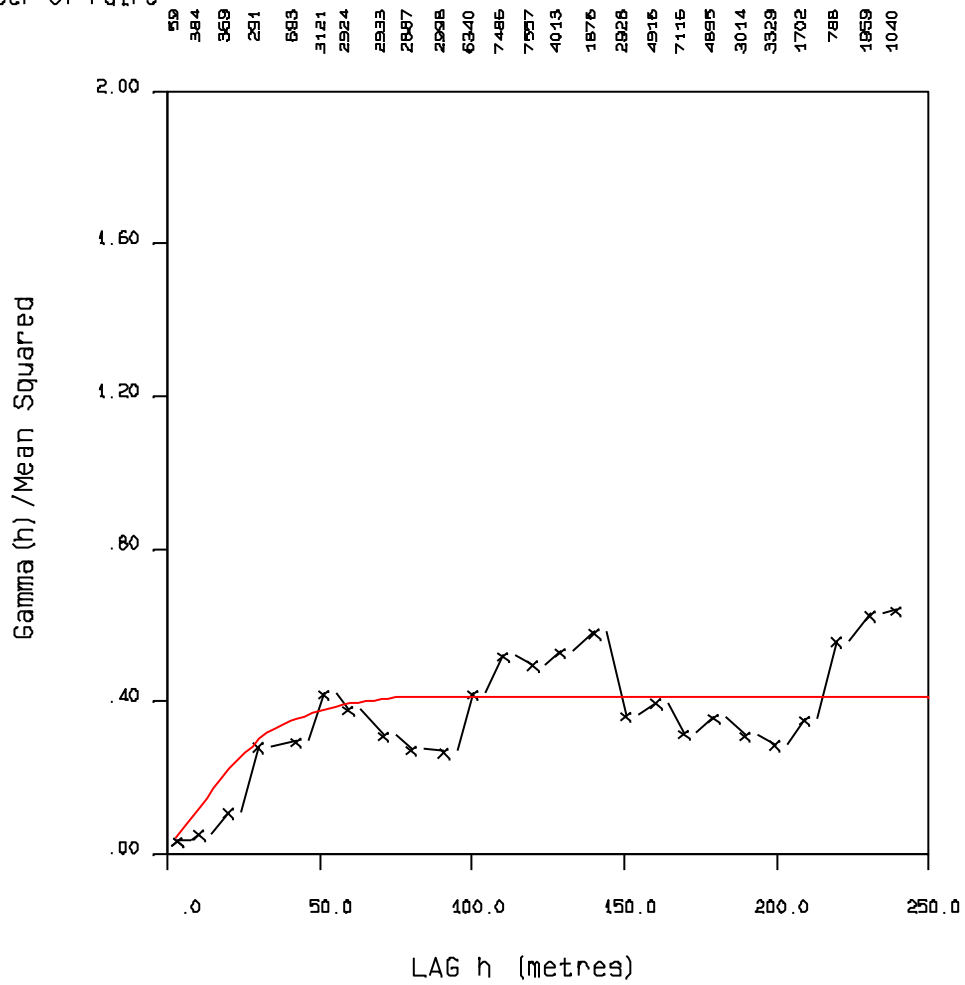
LGLS
Overall N= 9304
Overall mean= 0.139
Within bins N= 599
Within bins mean= 0.142



APPENDIX C – Semivariograms

C0 = .010
 C1 = .200
 C2 = .200
 A1 = 40.0
 A2 = 80.0

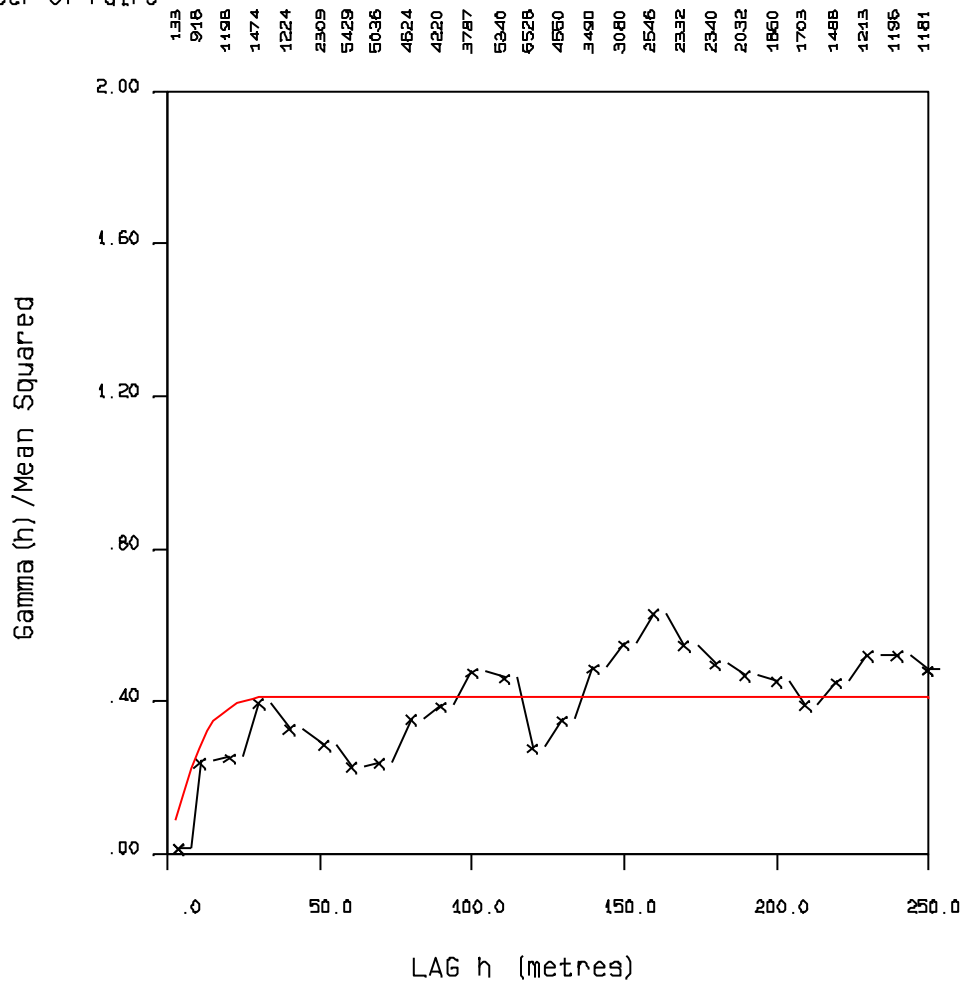
Number of Pairs



BARREN ASH AU - AZ 45 DIP 0

C0 = .010
 C1 = .200
 C2 = .200
 A1 = 15.0
 A2 = 30.0

Number of Pairs

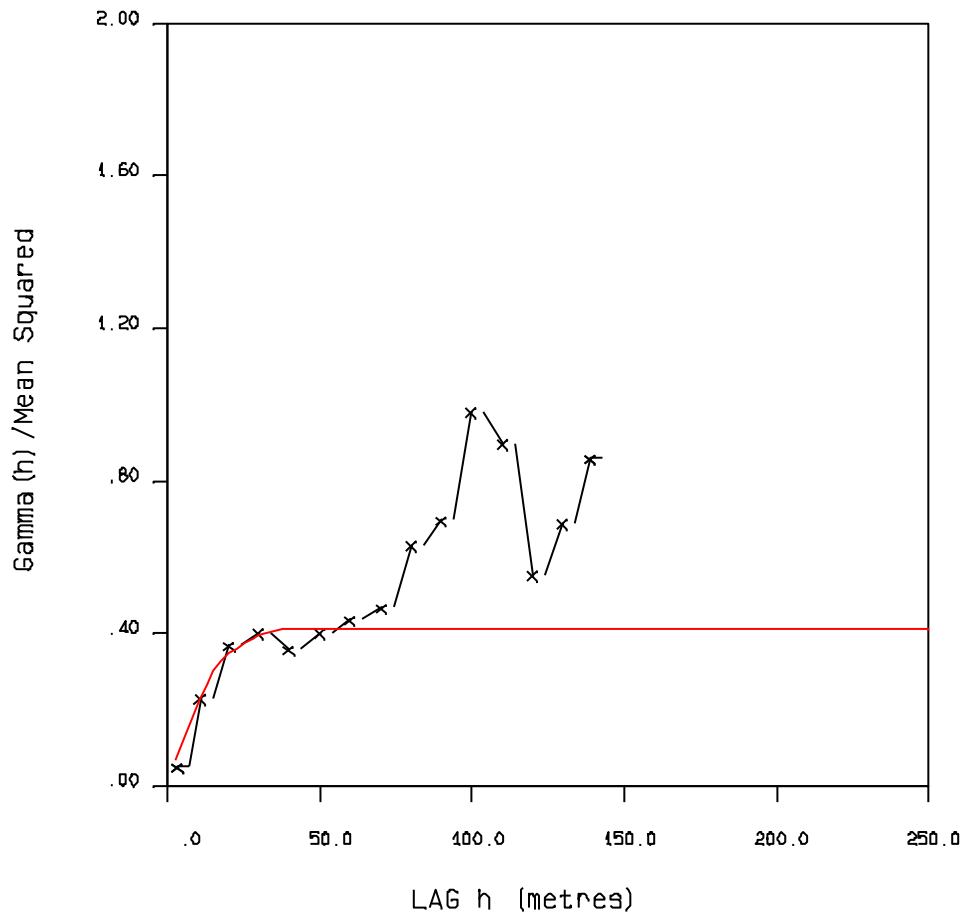


BARREN ASH AU - AZ 135 DIP 0

C0 = .010
 C1 = .200
 C2 = .200
 A1 = 20.0
 A2 = 40.0

Number of Pairs

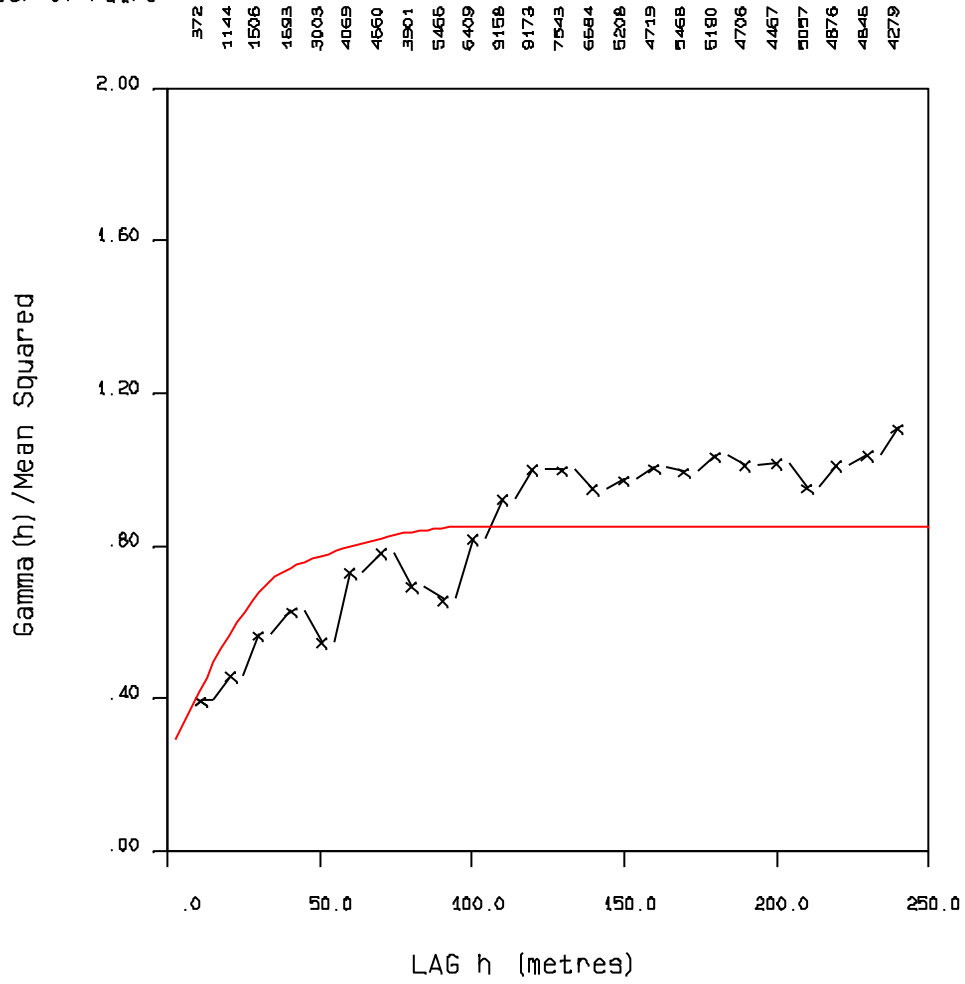
65
 334
 393
 346
 282
 232
 177
 200
 209
 188
 162
 127
 102
 82
 50



BARREN ASH - AU - AZ 0 DIP -90

C0 = .250
 C1 = .350
 C2 = .250
 A1 = 40.0
 A2 = 100.0

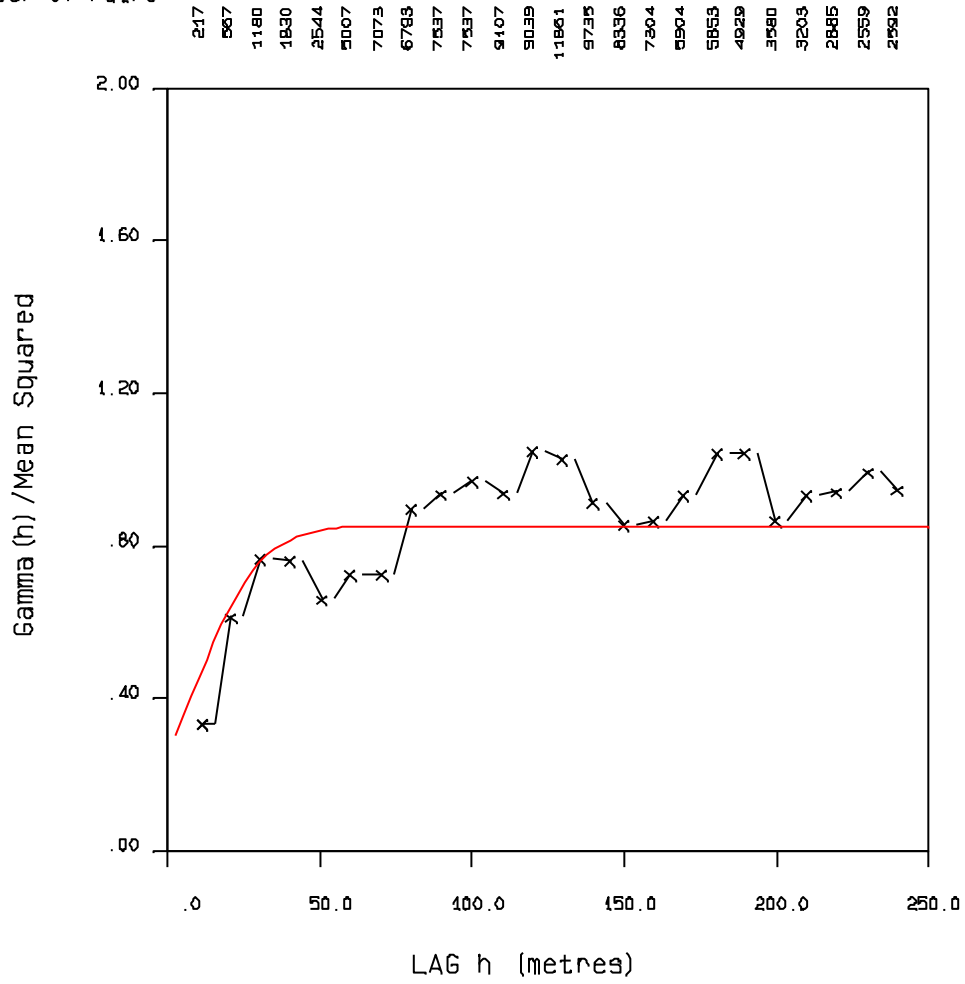
Number of Pairs



LOW GRADE ASH AU - AZ 90 DIP 0

C0 = .250
 C1 = .350
 C2 = .250
 A1 = 36.0
 A2 = 60.0

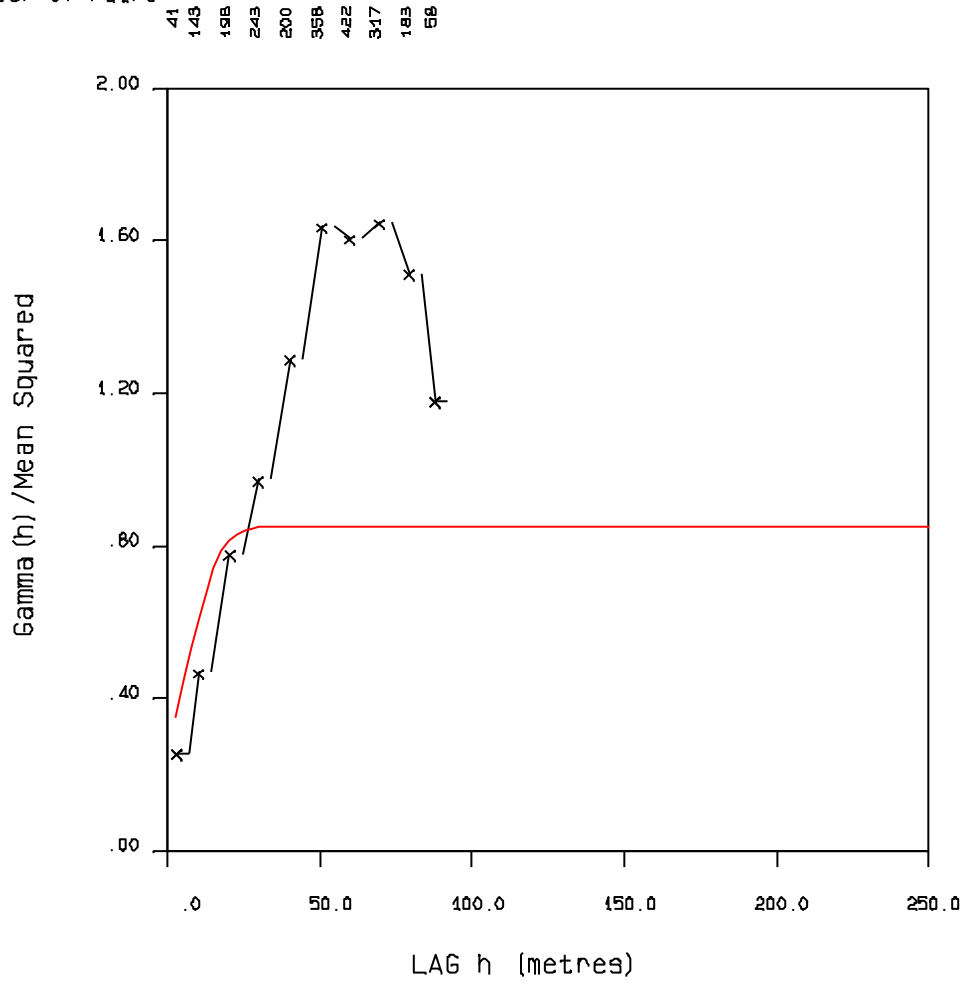
Number of Pairs



LOW GRADE ASH AU - AZ 0 DIP 0

C0 = .250
 C1 = .350
 C2 = .250
 A1 = 20.0
 A2 = 30.0

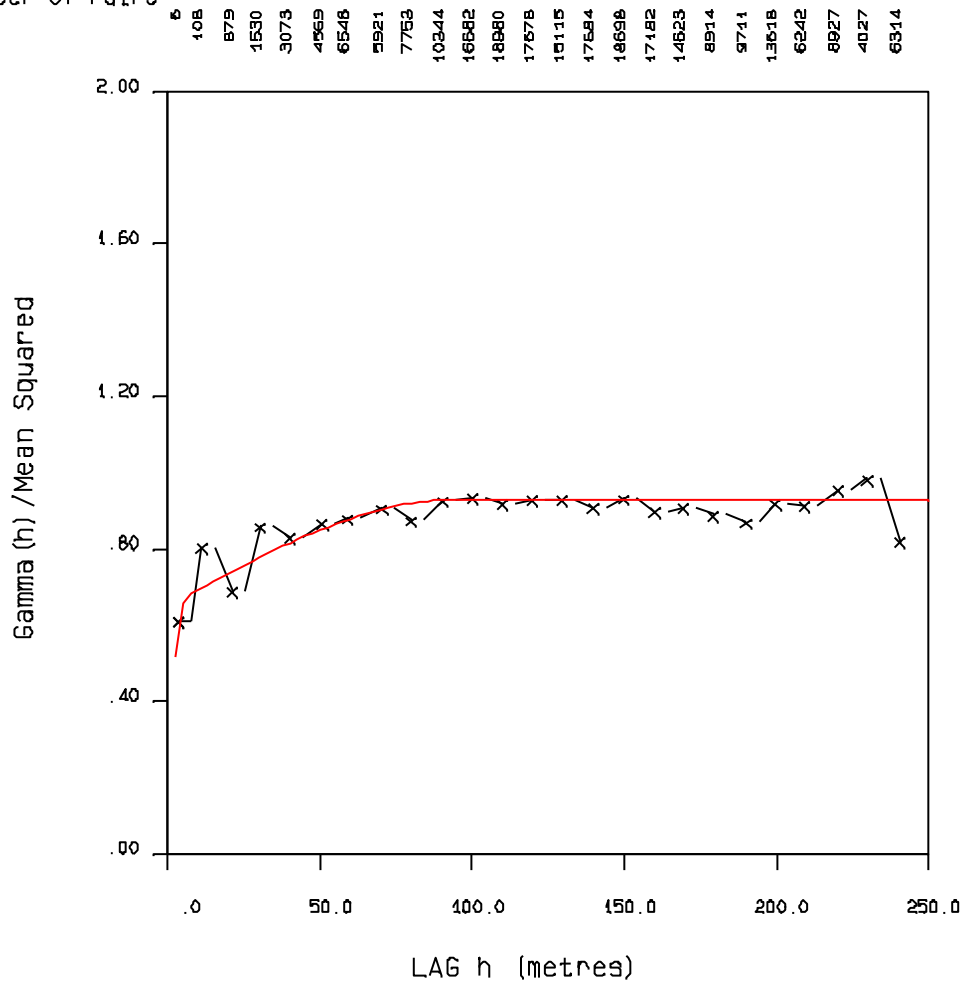
Number of Pairs



LOW GRADE ASH AU - AZ 0 DIP -90

C0 = .300
 C1 = .350
 C2 = .280
 A1 = 5.0
 A2 = 95.0

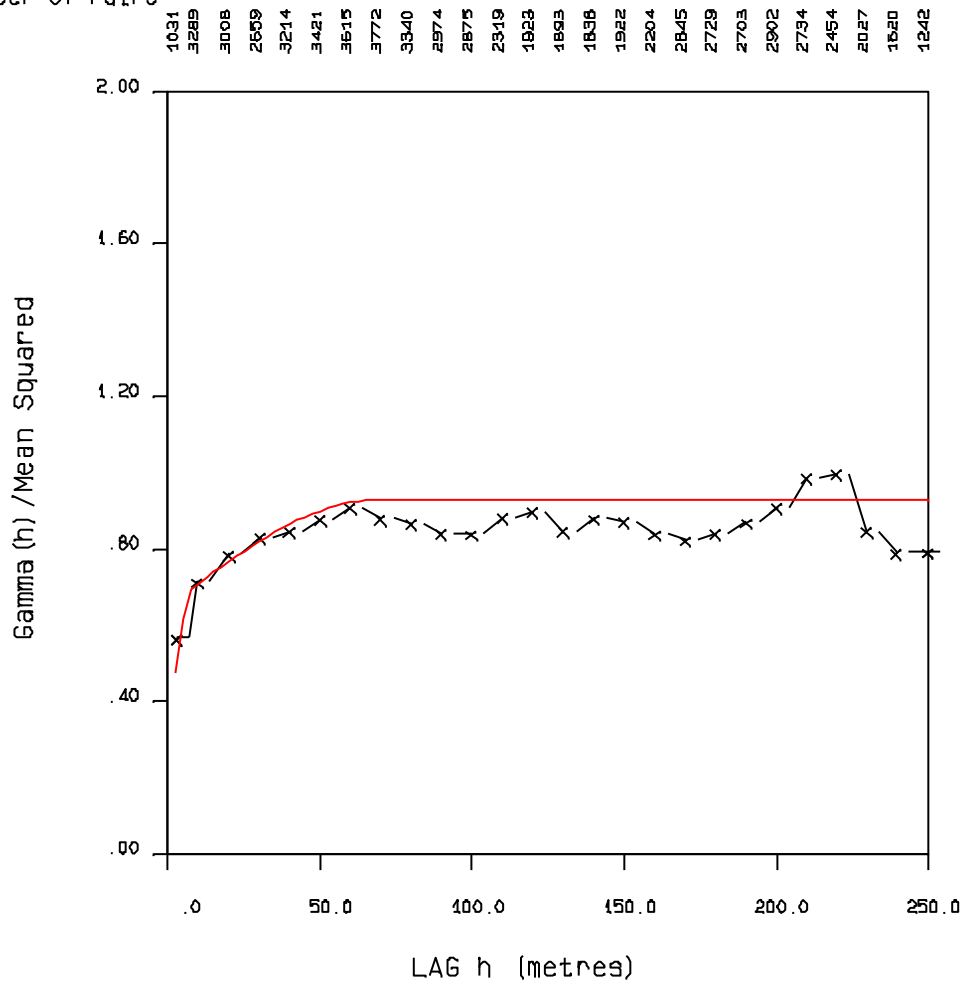
Number of Pairs



MAIN ZONE HG AU - AZ 60 DIP 0

C0 = .300
 C1 = .350
 C2 = .280
 A1 = 8.0
 A2 = 70.0

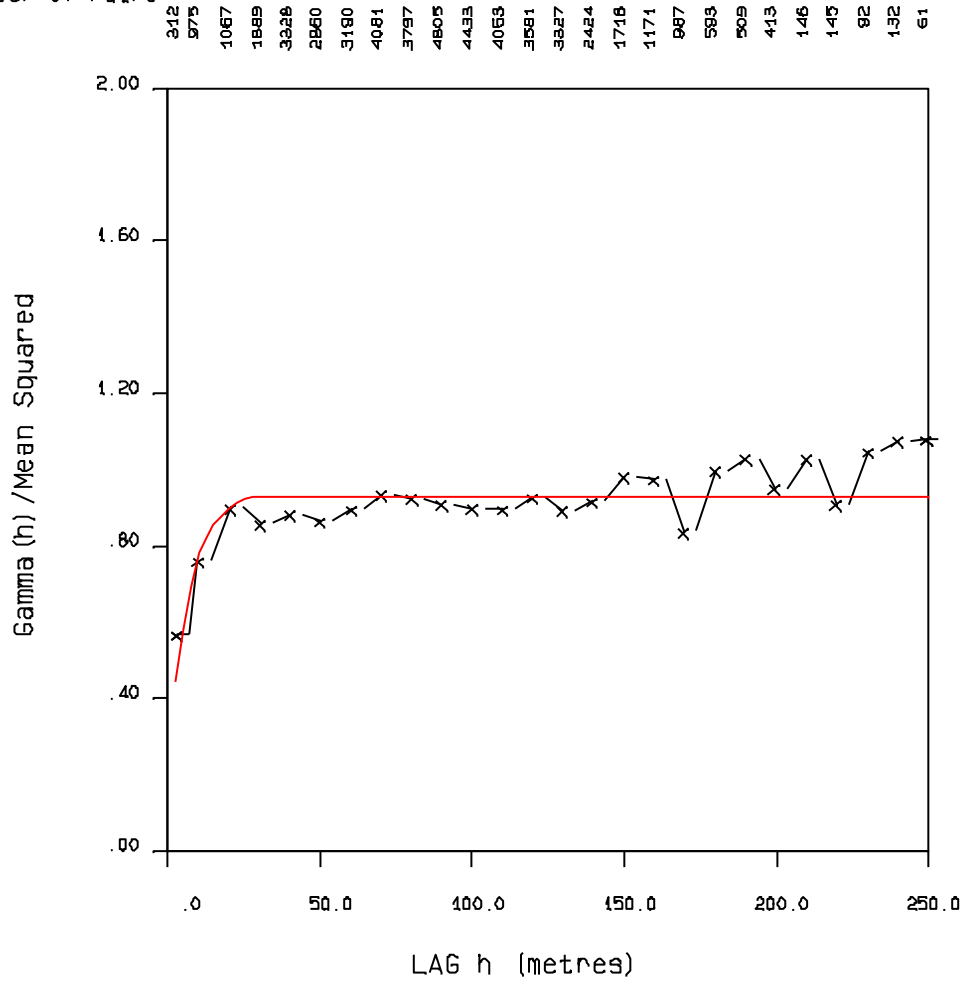
Number of Pairs



MAIN ZONE HG AU - AZ 150 DIP -35

C0 = .300
 C1 = .350
 C2 = .280
 A1 = 12.0
 A2 = 28.0

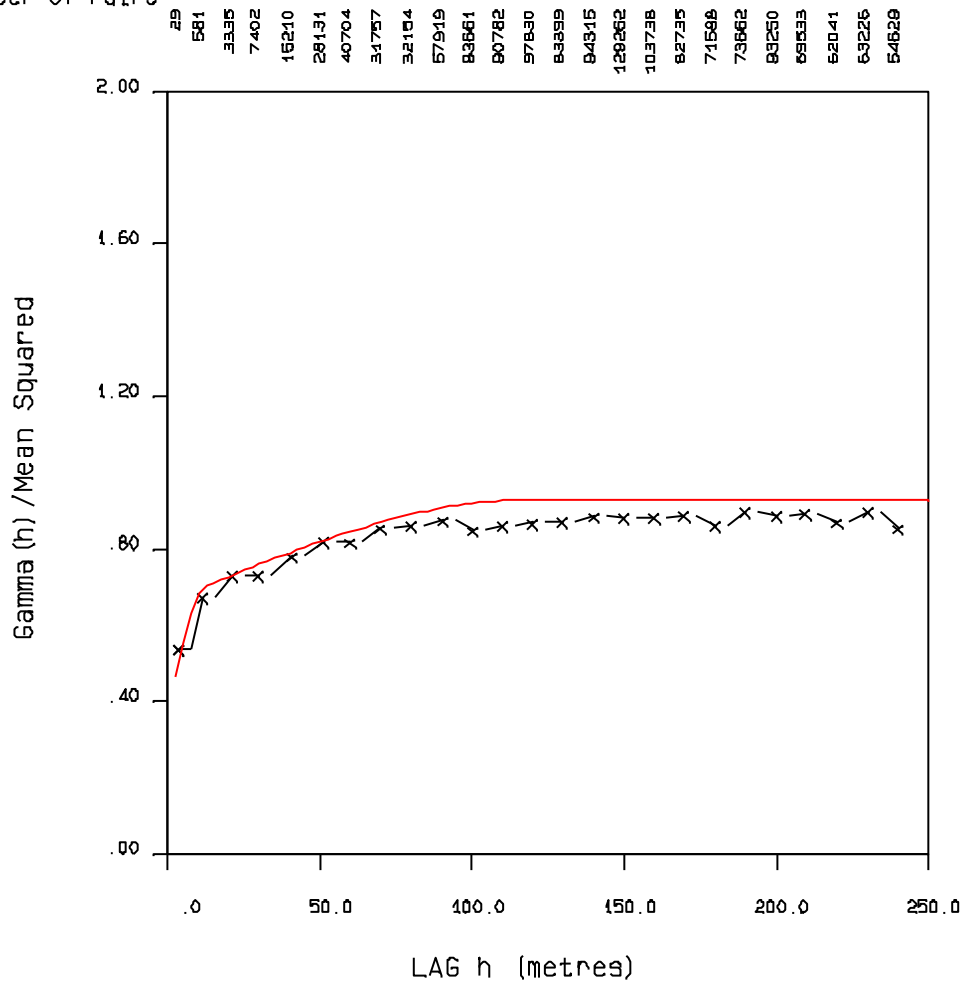
Number of Pairs



MAIN ZONE HG AU - AZ 330 DIP -55

C0 = .360
 C1 = .300
 C2 = .270
 A1 = 12.0
 A2 = 120.0

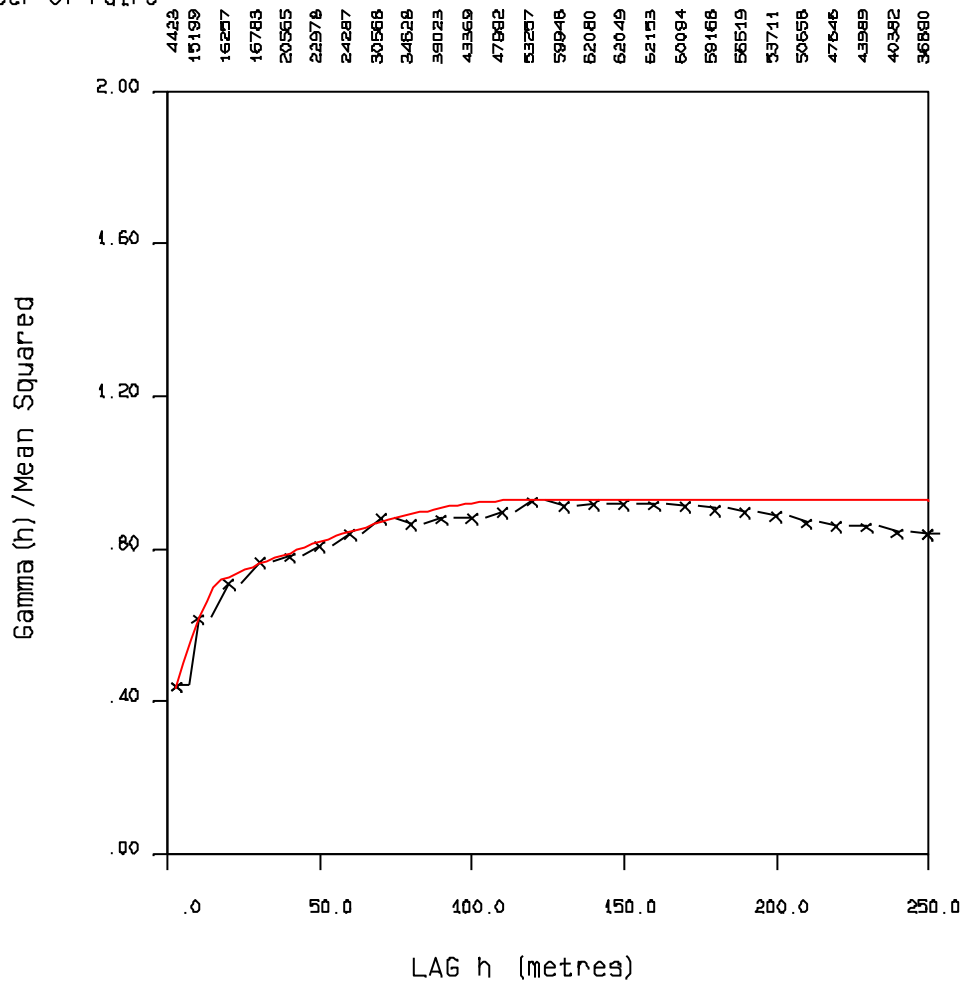
Number of Pairs



LOW GRADE LIMESTONE AU - AZ 60 DIP 0

C0 = .360
 C1 = .300
 C2 = .270
 A1 = 18.0
 A2 = 120.0

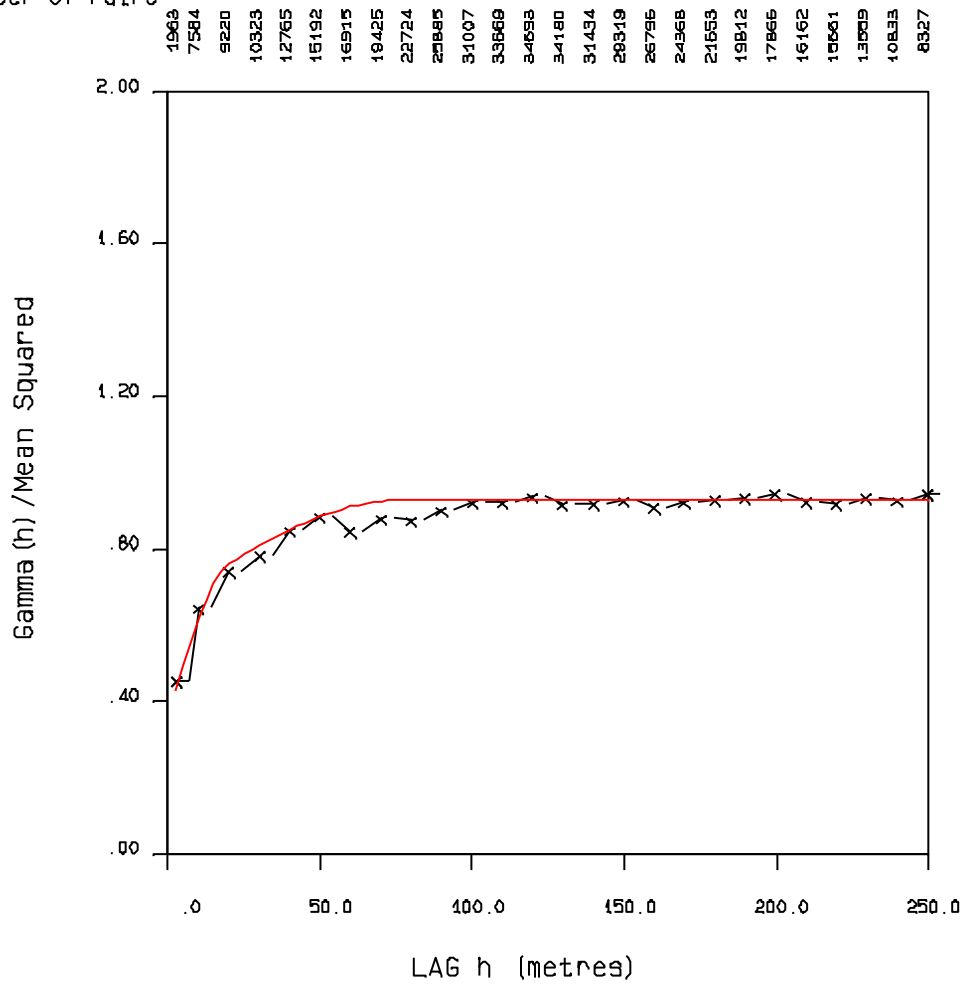
Number of Pairs



LOW GRADE LIMESTONE AU - AZ 150 DIP -35

C0 = .360
 C1 = .300
 C2 = .270
 A1 = 20.0
 A2 = 78.0

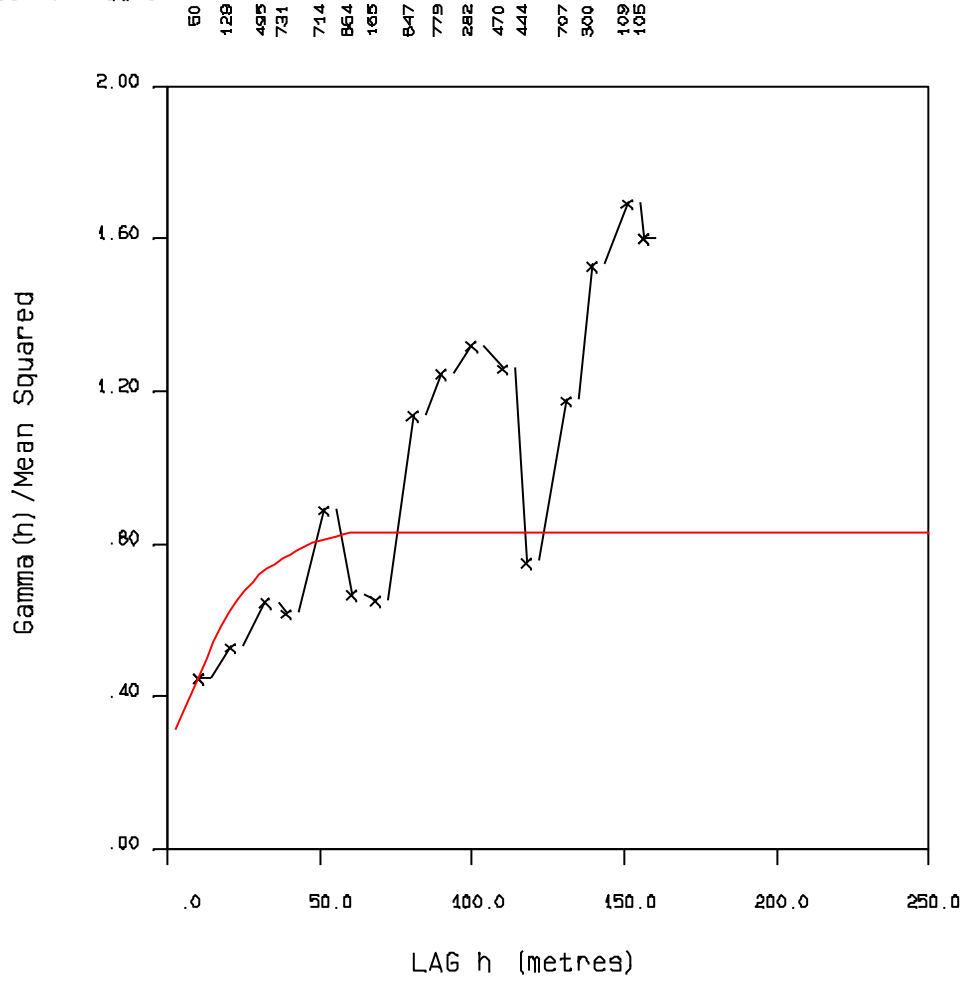
Number of Pairs



LOW GRADE LIMESTONE AU - AZ 330 DIP -55

C0 = .260
 C1 = .250
 C2 = .320
 A1 = 30.0
 A2 = 64.0

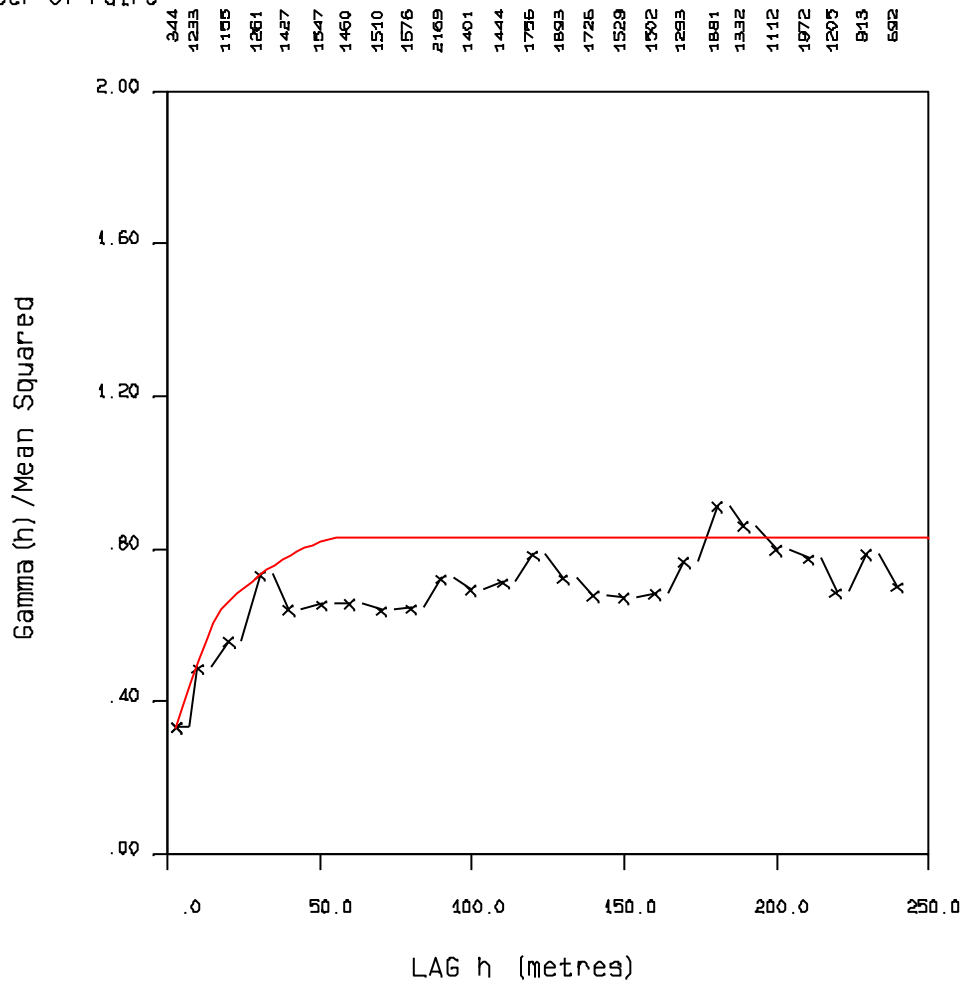
Number of Pairs



LOW GRADE SHALE AU - AZ 60 DIP 0

C0 = .260
 C1 = .250
 C2 = .320
 A1 = 20.0
 A2 = 60.0

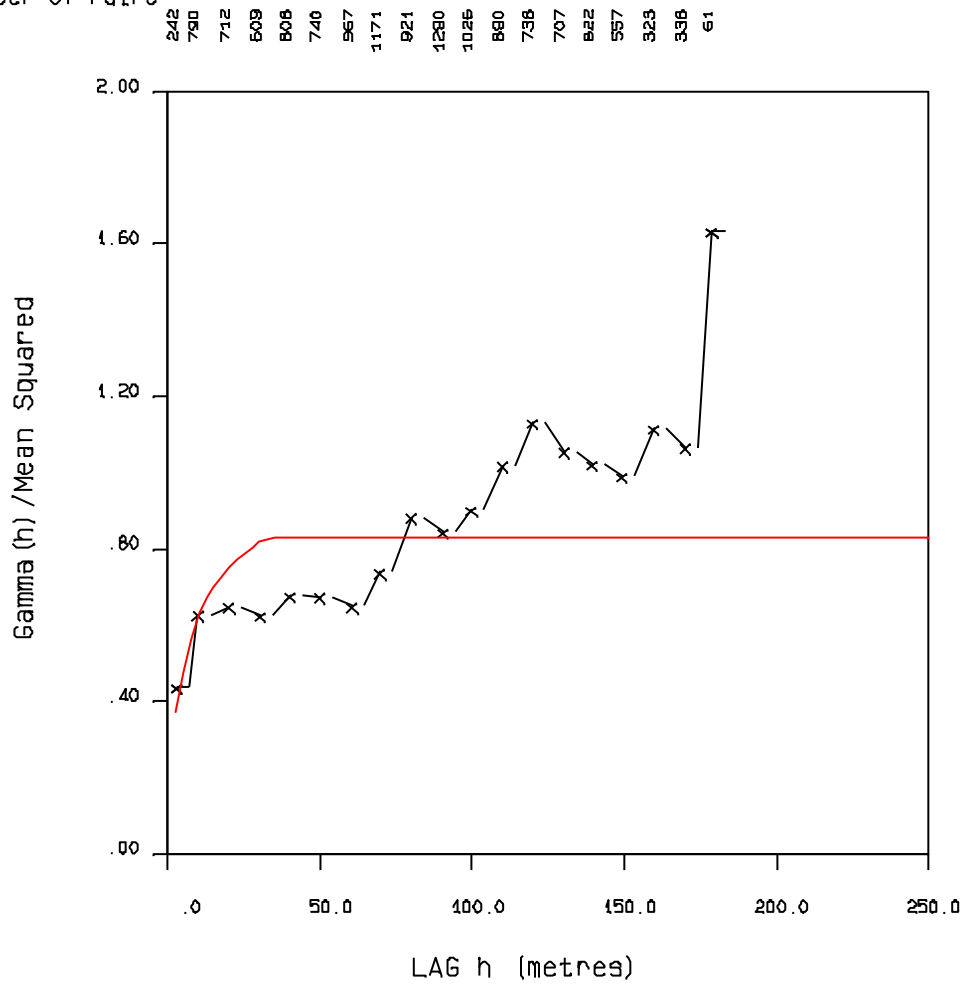
Number of Pairs



LOW GRADE SHALE AU - AZ 150 DIP -35

C0 = .260
 C1 = .250
 C2 = .320
 A1 = 12.0
 A2 = 36.0

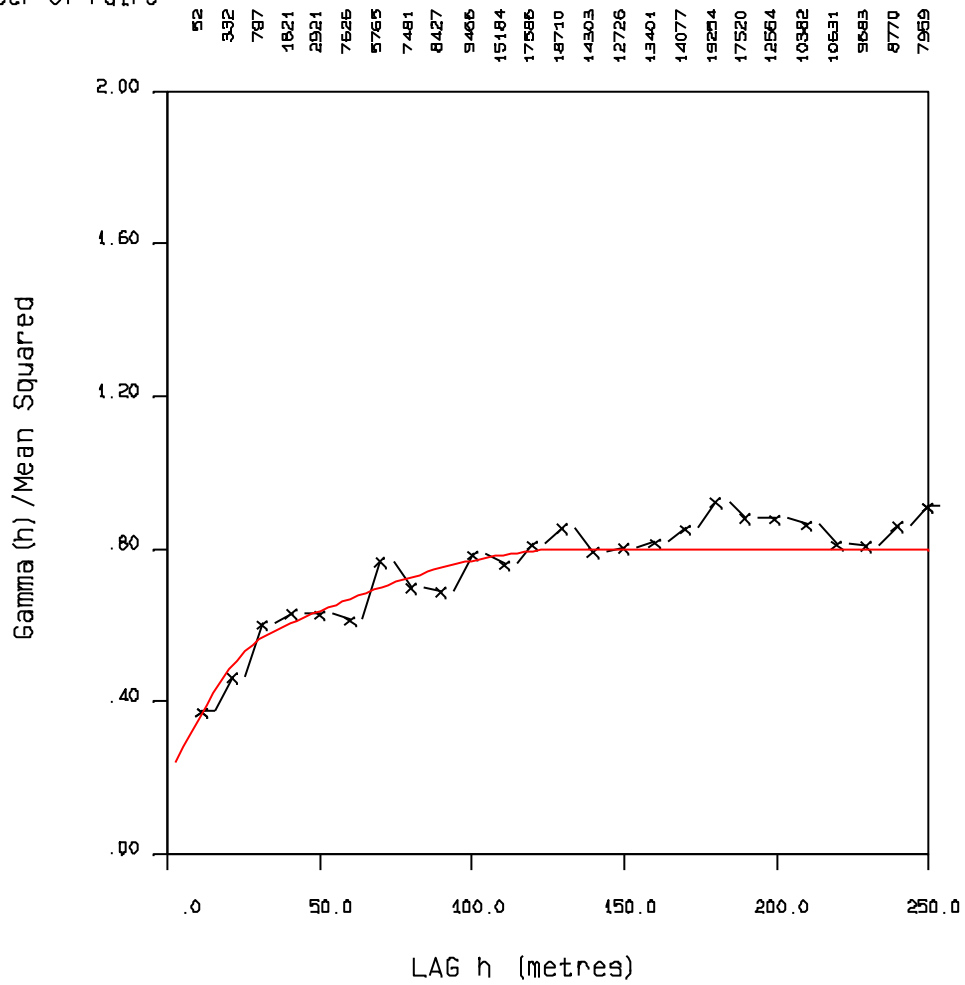
Number of Pairs



LOW GRADE SHALE AU - AZ 330 DIP -55

C0 = .200
 C1 = .250
 C2 = .350
 A1 = 32.0
 A2 = 134.0

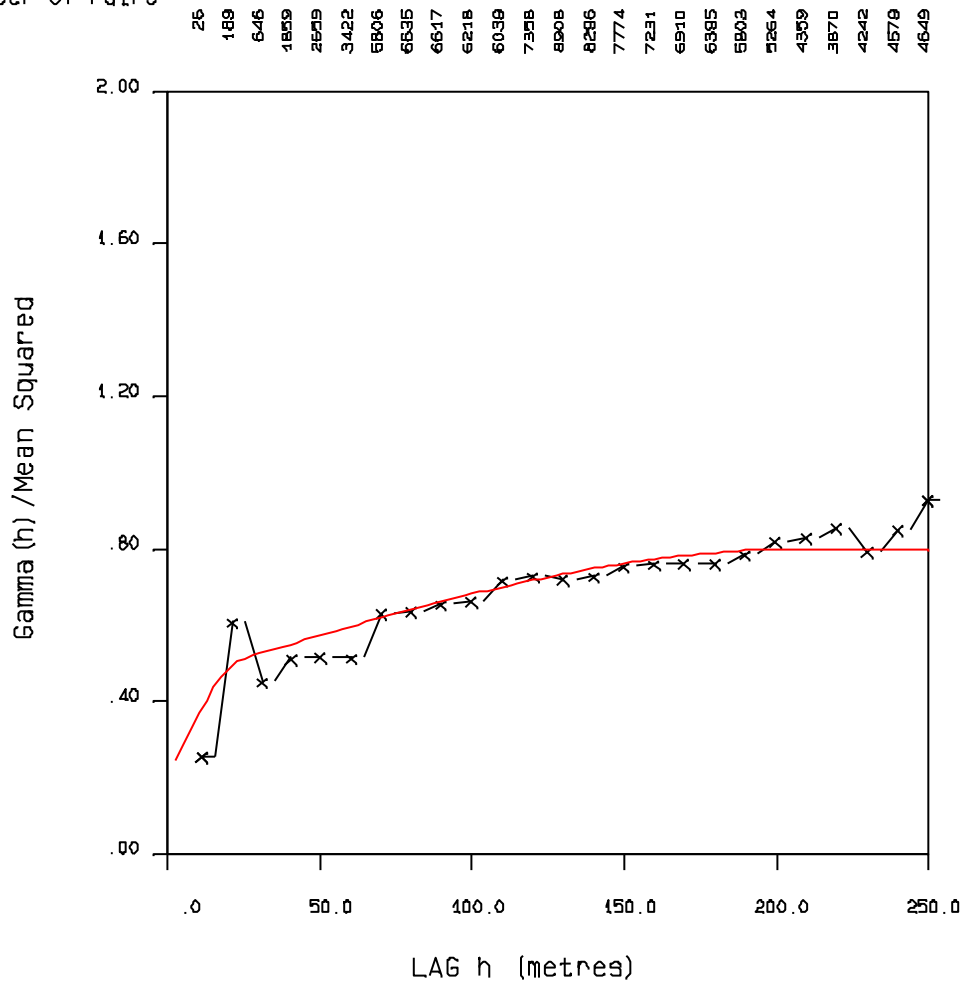
Number of Pairs



NE LG SHALE AU - AZ 347 DIP 0

C0 = .200
 C1 = .250
 C2 = .350
 A1 = 25.0
 A2 = 210.0

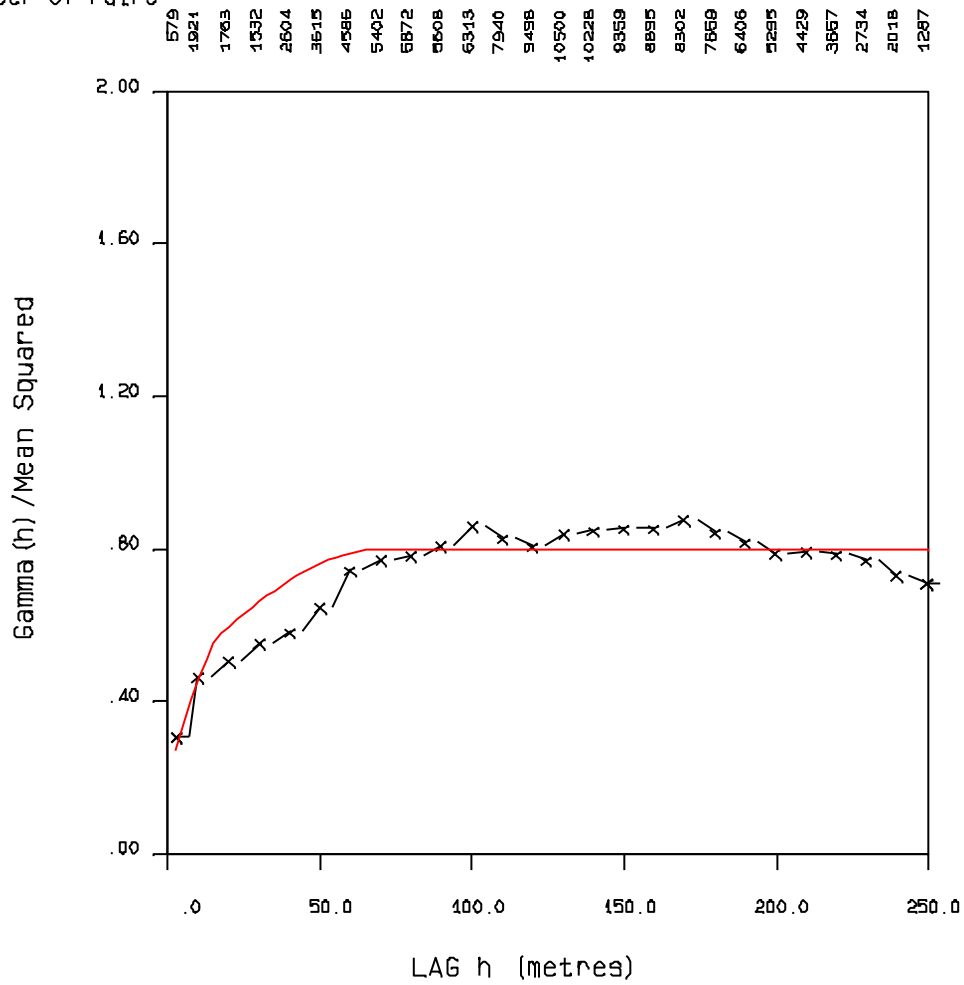
Number of Pairs



NE LG SHALE AU - AZ 257 DIP -55

C0 = .200
 C1 = .250
 C2 = .350
 A1 = 18.0
 A2 = 70.0

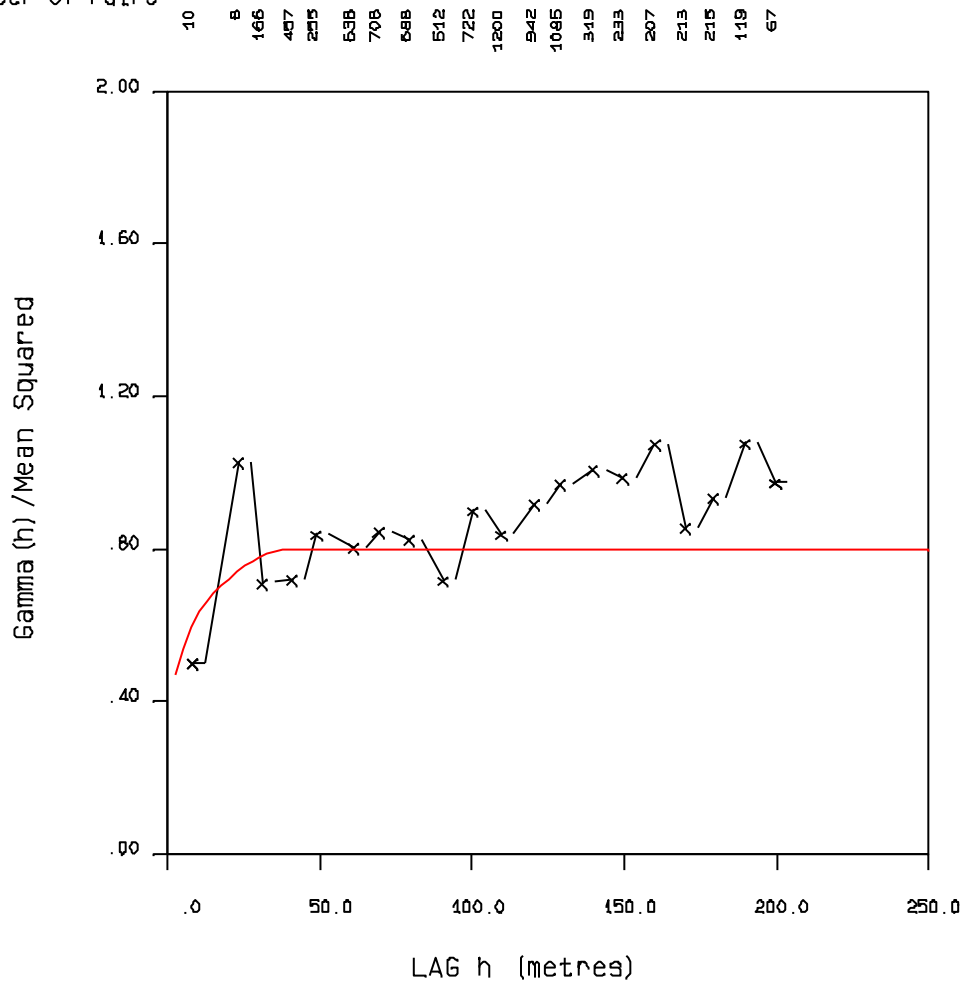
Number of Pairs



NE LG SHALE AU - AZ 77 DIP -35

C0 = .400
 C1 = .150
 C2 = .250
 A1 = 12.0
 A2 = 40.0

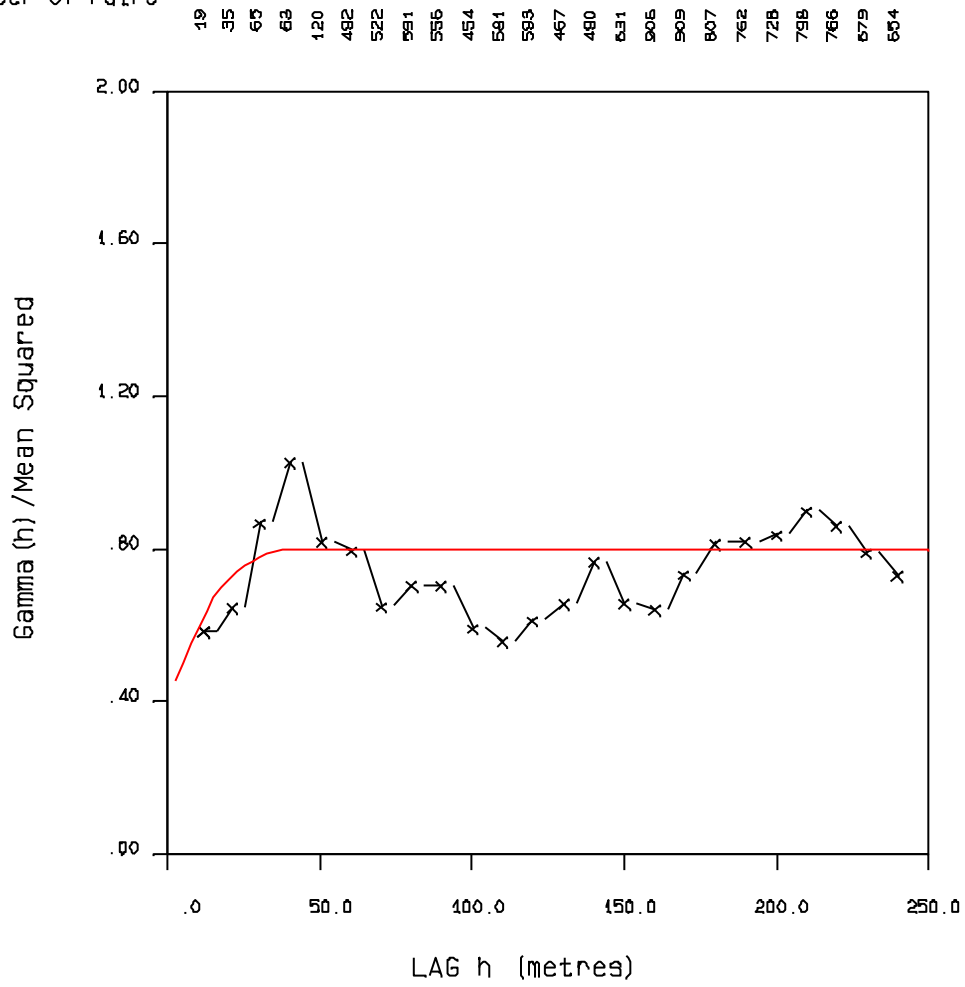
Number of Pairs



NE HG AU - AZ 347 DIP 0

C0 = .400
 C1 = .150
 C2 = .250
 A1 = 20.0
 A2 = 40.0

Number of Pairs

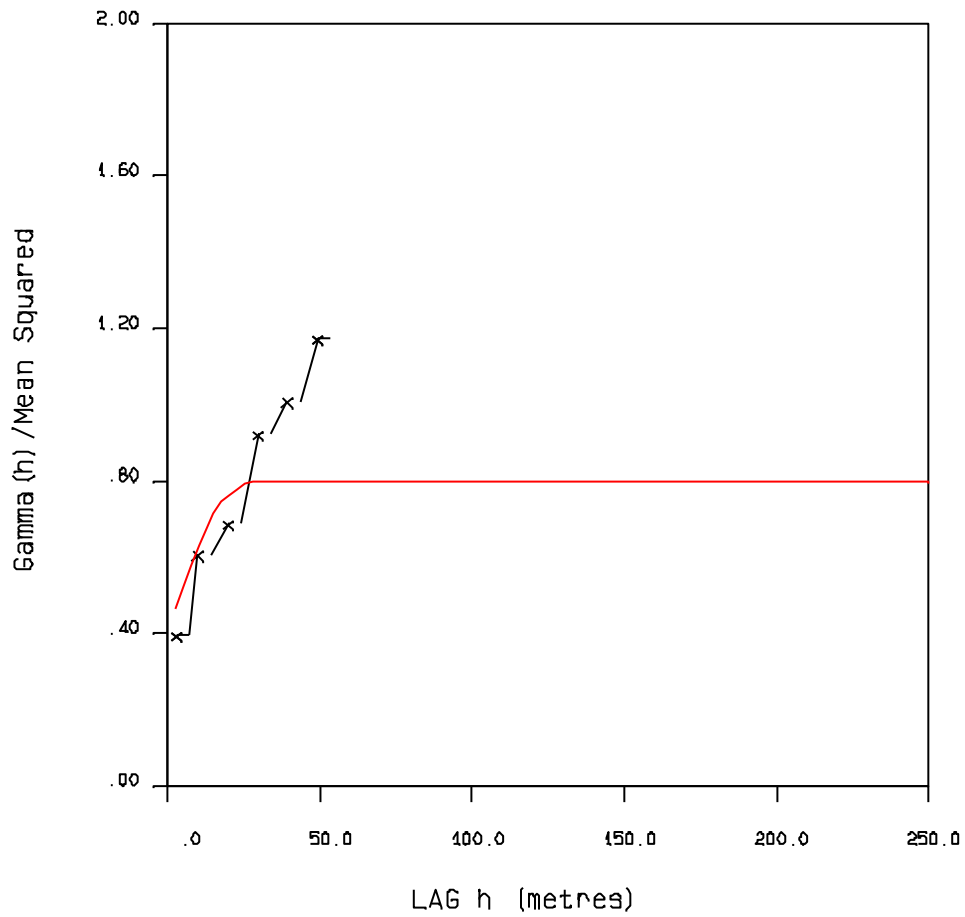


NE HG AU - AZ 257 DIP -55

C0 = .400
 C1 = .150
 C2 = .250
 A1 = 18.0
 A2 = 30.0

Number of Pairs

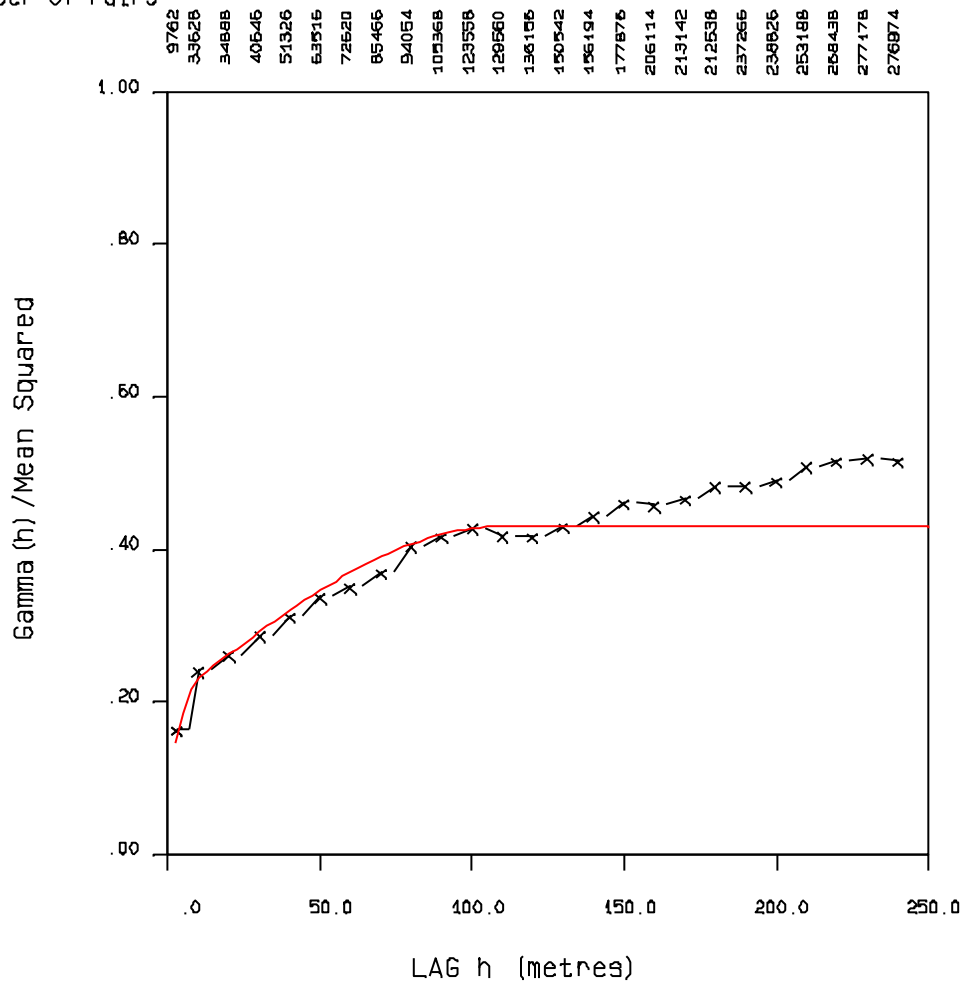
67
 27B
 239
 148
 73
 39



NE HG AU - AZ 77 DIP -35

C0 = .100
 C1 = .100
 C2 = .230
 A1 = 10.0
 A2 = 110.0

Number of Pairs



WASTE AU - OMNI DIRECTIONAL

APPENDIX D – LG Pit Resource Tables

LG Run Nam Short Description

LG21 **Dore** updated March 03 2014 parameters

LG21 optimized using AuTOT and AgTOT

LG21 stored in ixta13.p21 (UPDATE March03)															insitu mill tonnes and undiluted grades									
CASE	PIT	Au price	Ag price	NSP_AU	NSP_AG	MillFeed kT COG > NSRd 11.24				WASTE	TOTAL	sr	years @ 30ktpd	total contained metal		Revenue	ore cost (\$x1000)	waste cost (\$x1000)	Cost	Profit				
						kTONNES	NSR (\$/t)	AuTot g/t	AgTot g/t	kTONNES	kTONNES			Au (oz)	Ag (oz)	\$x1000	\$x1000	\$x1000	\$x1000					
40%	04	\$ 520.00	\$ 8.80	16.3	0.203	6,465	38.99	0.557	39.897	10,085	16,550	1.56	0.6	115,693	8,292,821	332,840	81,718	14,119	95,837	237,004				
50%	05	\$ 650.00	\$ 11.00	20.5	0.267	52,815	36.28	0.583	32.228	123,218	176,033	2.33	5.0	989,794	54,724,798	#####	667,582	172,505	840,087	1,650,575				
60%	06	\$ 780.00	\$ 13.20	24.7	0.331	74,967	34.07	0.537	31.042	175,277	250,244	2.34	7.0	1,294,068	74,819,251	#####	947,583	245,388	1,192,971	2,135,320				
70%	07	\$ 910.00	\$ 15.40	28.8	0.394	93,659	32.40	0.510	29.556	223,178	316,837	2.38	8.8	1,536,025	88,999,733	#####	1,183,850	312,449	1,496,299	2,458,503				
80%	08	\$ 1,040.00	\$ 17.60	33	0.458	112,035	30.96	0.483	28.586	280,415	392,450	2.50	10.5	1,739,060	102,967,611	#####	1,416,122	392,581	1,808,703	2,717,333				
90%	09	\$ 1,170.00	\$ 19.80	37.2	0.521	118,694	30.49	0.477	28.012	304,051	422,745	2.56	11.1	1,821,817	106,897,221	#####	1,500,292	425,671	1,925,964	2,794,107				
100%	10	\$ 1,300.00	\$ 22.00	41.4	0.585	124,649	30.08	0.473	27.488	329,506	454,155	2.64	11.7	1,896,387	110,080,240	#####	1,575,563	461,308	2,036,872	2,850,166				
110%	11	\$ 1,430.00	\$ 24.20	45.5	0.649	128,878	29.75	0.469	27.069	349,265	478,143	2.71	12.1	1,944,567	112,161,686	#####	1,629,018	488,971	2,117,989	2,877,473				
120%	12	\$ 1,560.00	\$ 26.40	49.7	0.712	134,053	29.46	0.464	26.849	388,548	522,601	2.90	12.6	2,000,669	115,717,271	#####	1,694,430	543,967	2,238,397	2,908,219				
130%	13	\$ 1,690.00	\$ 28.60	53.9	0.776	139,455	29.21	0.462	26.524	439,296	578,751	3.15	13.1	2,069,185	118,923,215	#####	1,762,711	615,014	2,377,726	2,928,492				
140%	14	\$ 1,820.00	\$ 30.80	58	0.84	142,189	29.05	0.460	26.301	464,226	606,415	3.26	13.4	2,102,894	120,235,245	#####	1,797,269	649,916	2,447,185	2,931,718				
150%	15	\$ 1,950.00	\$ 33.00	62.2	0.903	144,523	28.93	0.459	26.141	491,212	635,735	3.40	13.6	2,132,301	121,465,431	#####	1,826,771	687,697	2,514,468	2,929,729				

INCREMENTAL PIT TONNAGES

Pit #	Pit % of Base	millFeed kT COG > NSRd 11.24				Total Waste	Stripping	incremental profit	Cumulative	
		kTonnes	NSR(\$/t)	AuTot(g/t)	AgTot(g/t)				profit \$k	kTonnes
40%	04	6,465	38.99	0.557	39.897	10,085	2.34	156,234	156,234	6,465
50%	05	46,350	35.91	0.587	31.158	113,132	2.38	920,041	1,076,274	52,815
60%	06	22,152	28.79	0.427	28.215	52,060	2.50	284,849	1,361,123	74,967
70%	07	18,691	25.70	0.403	23.595	47,902	2.38	177,079	333,313	25,156
80%	08	18,376	23.60	0.344	23.645	57,236	2.50	121,234	454,547	43,532
90%	09	6,659	22.63	0.387	18.352	23,637	2.56	33,458	1,394,581	81,626
100%	10	5,956	21.89	0.389	16.632	25,455	2.64	19,474	1,414,055	87,582
110%	11	4,229	20.07	0.356	15.304	19,759	2.71	3,767	1,417,822	91,811
120%	12	5,175	22.22	0.335	21.366	39,283	2.90	(5,415)	1,412,408	96,986
130%	13	5,401	22.98	0.395	18.450	50,748	3.15	(15,217)	1,397,191	102,387
140%	14	2,735	20.92	0.384	14.922	24,930	3.26	(12,270)	1,384,921	105,122
150%	15	2,334	21.96	0.393	16.429	26,986	3.40	(16,032)	1,368,889	107,456

APPENDIX E – Smelter and Refining Terms

Almaden Ixtaca



Dore NSP, IXTACA PEA Update March 2014

	Gold Price	\$1,250	\$US/oz		
	Silver Price	\$20	\$US/oz		
Dore Terms	AU Payable	99.8 %			
	AG Payable	90.0 %			
	AU Refining	\$10.00	US\$/Oz		
	AG Refining	\$0.60	US\$/Oz		
	AU Transport	\$1.00	US\$/Oz		
	AG Transport	\$1.00	US\$/Oz		
Dore NSP:	NSP Au Dore	\$39.8	\$/g	\$1,237	\$/oz
	NSP Ag Dore	\$0.527	\$/g	\$16.4	\$/oz

Almaden Ixtaca



Concentrate NSP

Net Smelter Revenues and Prices, IXTACA PEA Update March 2014											
Description	Variable	Calculation	Values	Units	Source	Description	Variable	Calculation	Values	Units	Source
Prices						Prices					
Gold Price	AUPRC	Input	\$1,250	US\$/oz	MMTS-JA March03_14	Silver Price	AGPRC	Input	\$20	US\$/oz	MMTS-JA March03_14
Gold Price	AUCDN	=AUPRIC/XRATE/gpoz	40.189	US\$/gm		Silver Price	AGCDN	=AGPRIC/XRATE/gpoz	0.643	US\$/gm	
Concentrate Specs						Concentrate Specs					
Gold Grade	ConAu	Input	5	g per dmt	TM - est LOM apr2014	Silver Grade	ConAg	Input	280	g per dmt	TM - est LOM apr2014
Moisture	cmoi	Input	8%	%	mmts-daniel	Moisture	cmoi	Input	8%	%	mmts-daniel
Pounds per tonne conversion	ppt	Constant	2204.62	lb/tonne		Pounds per tonne conversion	ppt	Constant	2204.62	lb/tonne	
Grams per ounce conversion	gpoz	Constant	31.1033	gr/oz		Grams per ounce conversion	gpoz	Constant	31.1033	gr/oz	
Smelter Terms						Smelter Terms					
au payable	payau	Input	98.00%	%	mmts-daniel	ag payable	payag	Input	91.3%	%	mmts-daniel
smelting	smelt	Input	\$70.00	US\$/DMT	mmts-daniel	smelting	smelt	Input	\$0.00	US\$/DMT	mmts-assumption
au refining	refau	Input	\$10.00	US\$/oz	mmts-daniel	ag refining	refag	Input	\$0.00	US\$/oz	mmts-assumption
Dry Concentrate tonnes	DMT	= 1-cmoi	92%			Dry Concentr DMT	DMT	= 1-cmoi	92%		
Net Gold Revenue per Tonne Conc.						Net Gold Revenue per Tonne Conc.					
Au in Conc	NetAu	= DMT*ConAu	4.60	gm/WMT		Ag in Conc	NetAg	= DMT*ConAg	257.60	gm/WMT	
Net payable Au in Concentrate	NPpAu	= payau*NetAu	4.51	gm/WMT		Net payable NPyAg	NPpAg	= payag*NetAg	235.19	gm/WMT	
Net payment Au in Concentrate	PayAu	=NPpAu*AUCDN	\$181.17	US\$/WMT		Net payment PayAg	NPpAg*AGCDN		\$151.23	US\$/WMT	
Refining Au	AuRef	= NetAu*refau/XRATE/gpoz	\$1.48	US\$/WMT		Refining Ag	AgRef	= NetAg*refag/XRATE/gpoz	\$0.00	US\$/WMT	
Net Revenue Gold	NRAu	= PayAu-AuRef	\$179.69	US\$/WMT		Net Revenue NRAg	NPpAg-AgRef		\$151.23	US\$/WMT	
Offsites, Freight, and Distribution						Offsites, Freight, and Distribution					
Smelting	smelt	smelt*DMT/XRATE	\$70.00	US\$/WMT		Smelting	smelt	smelt*DMT/XRATE	\$0.00	US\$/WMT	
Trucking	ftruck	Input	\$30.00	US\$/WMT	assume 100km @ 0.3 USD/t/km	Trucking	ftruck	Input	\$0.00	US\$/WMT	
Terminal	frail	Input	\$0.00	US\$/WMT		Terminal	frail	Input	\$0.00	US\$/WMT	
Ocean Freight	focean	Input	\$0.00	US\$/WMT		Ocean Freight	focean	Input	\$0.00	US\$/WMT	
Other Offsite Costs & Penalties	other	Input	\$34.96	US\$/WMT	MMTS March25_13	Other Offsite	other	Input	\$0.00	US\$/WMT	
Offsites, Frgt, Distr. Total	OFD	= Sum (Smelt : Other)	\$134.960	US\$/WMT		Offsites, Frgt, OFD	OFD	= Sum (Smelt : Other)	\$0.000	US\$/WMT	
Royalties						Royalties					
Royalty1		Input	0.0%			Royalty1		Input	0.0%		
Royalty2		Input	0.0%			Royalty2		Input	0.0%		
Net Smelter Return per Tonne Conc. (Wet)						Net Smelter Return per Tonne Conc. (Wet)					
NSR Gold	NSRAu	= NRAu - OFD	\$44.73	US\$/WMT		NSR Silver	NSRAg	= NRAg - OFD	\$151.23	US\$/WMT	
Net Smelter Price (to Mine Gate)						Net Smelter Price (to Mine Gate)					
Gold	NSPAu	= NSRAu/NetAu	\$9.72	US\$/gm		Silver	NSPAg	= NSRAg/NetAg	\$0.59	US\$/gm	
Gold			\$302.46	US\$/oz		Silver			\$18.26	US\$/oz	

APPENDIX F – Dilution Memo



Memo

From: Suzanne Butterfield
To: Jesse Aarsen
Date: April 14, 2014
Re: Almaden-Ixtaca Dilution review update

Introduction:

This memo presents a review and an opportunity for discussion on methods of determining internal and external dilution for the Ixtaca 3D model as provided by Gary Giroux.

Internal Dilution

Internal dilution is uneconomic volume and grade included in the final model block estimate for feed grade and volume.

Normally an analysis to determine the amount of internal dilution would include a comparison of composites and the interpolated block values. As well, various interpolation methods such as Nearest Neighbour and volume corrected values could be compared and analyzed. For this project, the model was provided by Gary Giroux with an assay database. Since there is no composite information provided, the internal dilution is based on visual observations only.

The model items Gary provided include; total, mineralized, and waste model grades i.e. AuTOT, AuMin, and AuWst. The AuTOT is a weighted average gold grade for the total block which includes both the mineralized and waste portion.

$$AU_TOT = ((PC_MIN * AU_MIN) + (PC_WASTE * AU_WASTE)) / BTOPO$$

In Area1, AuTOT (whole block) and AuMIN (mineralized block) grades are the same because these blocks do not border the outside edge of the geological boundary as shown in Area 2. In Figure2: the yellow stippled line shows the HG domain estimated with geological wireframes (source: Ixtaca). Along this boundary it is obvious the AuTOT is reduced in grade and affected by internal dilution.

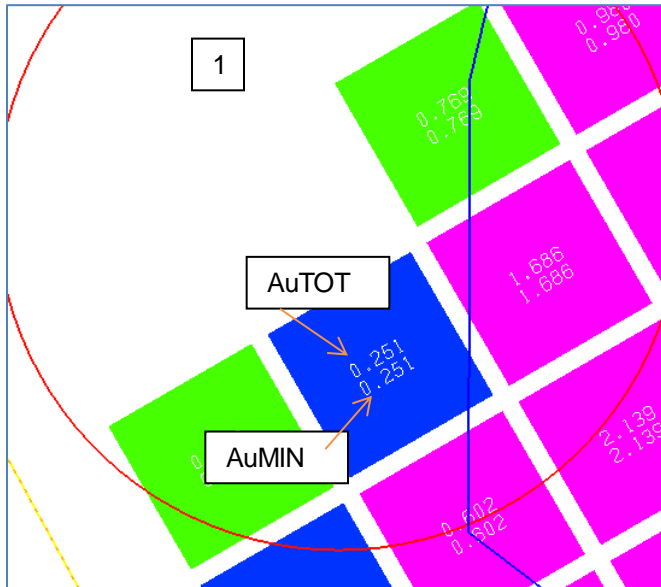


Figure 1: Area1 with identical AuTOT and AuMIN block grades

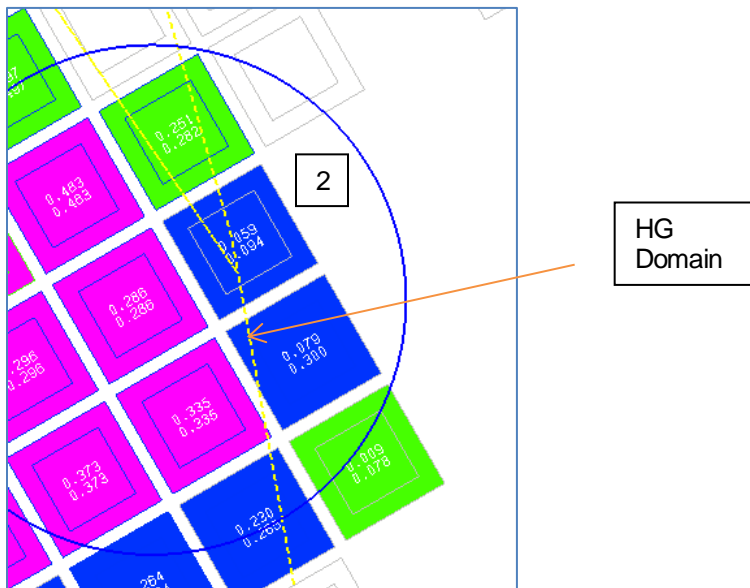


Figure 2: Area2 with different AuTOT and AuMIN block grades

Assay Interval m	auppm
0.5	0.109
0.5	0.152
0.5	0.170
0.5	0.086
0.5	0.244
0.5	0.096
1.0	0.017
0.5	0.480

	grade	Total length
"ore"	0.262	2.0
waste	0.065	2.5
internal dilution		
	16%	

The internal dilution is estimated that the “ore” grades in the assays that intersect the block is 0.262 ppm, which results in an internal dilution for this block of 16%

It should be noted that with a reasonable SMU that closely compares with the 10x10x5 m block dimensions, good visual and selective mining opportunities may be afforded.

1.1 Mining Loss and Dilution

Dilution only happens along a waste/ore contact. For this deposit, the economic material based on the NSR cutoff may be considered fairly contiguous throughout the mineable area based on visual cross-sectional review of the block model.

Therefore an estimated minimum Mining (operational) dilution of 3% based on industry standards should be included in all resource estimates.

Dilution grades for the operational dilution is estimated using “skins” along an estimated NSR boundary or “grade-shell”.

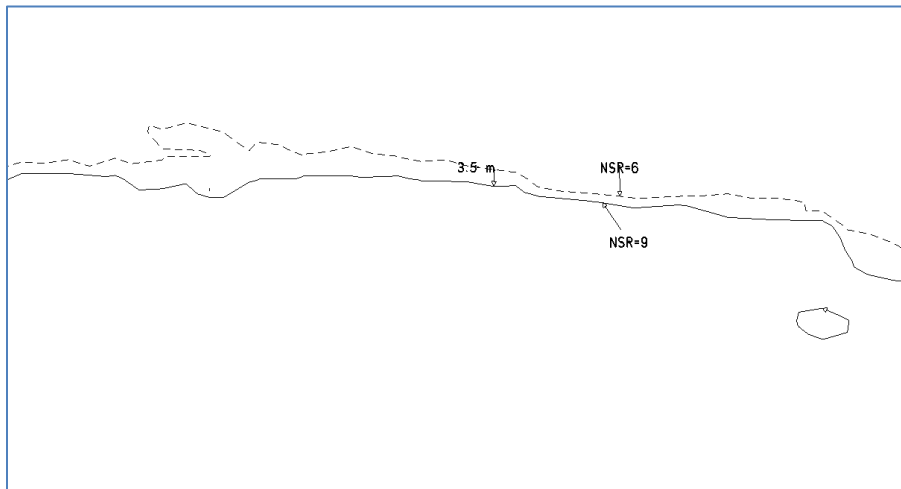


Figure 7 – NSR “skins” along ore contact

Furthermore, in addition to NSR grade binning used for stockpiling opportunities, this deposit has four distinct metallurgical domains. The following table gives the estimated diluted grades for each grade bin per metallurgical domain as derived using the “skin” analysis.

	NSR6-9			NSR9-14			NSR14-20		
	NSRd	AuTOT	AgTOT	NSRd	AuTOT	AgTOT	NSRd	AuTOT	AgTOT
	\$/t	g/t	g/t	\$/t	g/t	g/t	\$/t	g/t	g/t
Volcanic	7.45	0.151	4.23	11.81	0.242	6.57	17.27	0.351	9.77
High Grade	7.65	0.108	7.95	12.40	0.164	13.69	17.57	0.238	18.94
Limestone	7.41	0.110	7.27	11.73	0.173	11.58	17.31	0.257	17.22
Black Shale	7.45	0.093	8.65	11.75	0.147	13.62	17.27	0.215	20.02

Table 2: Dilution Grades per metallurgical domain

1.2 Operational Loss

Additional ore loss is applied to account for the following:

Mining losses are due to:

- Carry back.

Mining rock is hard and clean (no clay) so carry back in frozen boxes should be minimal.

- Stockpile reclaim

In the event a stockpile will be built up and reclaimed in each year of operation to prevent mill stoppages during extreme weather conditions. It is reasonable to assume that a 1 m base of this stockpile will be wasted as it mixes with stockpile foundation material.

The base of the low grades stockpile will also likely be wasted

- Misdirected loads

Misdirected loads occur in all mines, particularly where there is no visual distinction between waste and ore.

Total Mining losses due to operational losses are estimated to be 3.0%:

Carry back	1.0%	
Stock pile reclaim	1.0%	
Misdirected loads	1.0%	
Total		3.0%

Although these loss estimates are difficult to quantify, they can be considered conservative since effective practice can ensure or reduce these levels of mining loss

APPENDIX G – DBM – Rock Storage

April 24, 2013

File No.:VA201-415/2-A.01
Cont. No.:VA13-00724



Mr. Morgan Poliquin
President
Almaden Minerals Ltd.
1103-750 West Pender Street
Vancouver, BC V6C 2T8

Dear Morgan,

Re: Ixtaca Project - Preliminary Tailings Management Facility Alternatives Assessment

1. INTRODUCTION

Knightsold Ltd. (KPL) has completed a preliminary assessment of potential Tailings Management Facility (TMF) alternatives for the Ixtaca Project, a gold-silver deposit in Puebla State, southern Mexico, approximately 150 kilometers east of Mexico City (see Figure 1). This letter presents the results of the assessment and identifies the preferred TMF for inclusion in the Preliminary Economic Assessment (PEA).

2. SCOPE AND METHODOLOGY

TMF alternatives were assessed by implementing the preliminary steps of an alternatives assessment, a process used to identify the most appropriate/suitable option(s) for mine waste storage from technical, environmental, economic, and socio-economic perspectives. Alternative assessments have been used to facilitate mine planning and permitting for many years and are useful as a transparent and defensible method of identifying preferred waste management alternatives. The preliminary steps implemented for this assessment include:

- Identification of candidate alternatives.
 - Develop a list of possible candidate TMF alternatives including storage locations and technologies.
- Pre-screening assessment.
 - Identify any "fatal flaws", i.e. characteristics that, if considered individually, would eliminate the option as a candidate.
- Characterisation of alternatives.
 - Characterise the remaining alternatives using project specific characterisation criteria. The characterisation criteria can generally be placed under one of four categories including environmental, technical, economic, and socio-economic.
- Completion of a multiple accounts ledger.
 - A multiple accounts ledger is a decision making tool which identified the elements for differentiating the alternatives and provides a basis for qualifying or quantifying the elements. An example of an identifiable element would be potential for expansion, where the value of the expansion potential is provided.

There are a number of remaining steps to complete the alternatives assessment, such as completion of value based decision making from the multiple accounts ledger, completion of a sensitivity analysis, and documentation. While the steps above are presented in order, it should be acknowledged that this is an iterative process. As additional information is ascertained over the life of the project it is often necessary to re-evaluate the assessment inputs.

3. PROJECT DESCRIPTION

The topography of the project area is typical of this region of Mexico and consists of moderately steep valleys with wide valley floors in the lower reaches and sparse vegetation throughout. River channels are deeply

incised reflecting the rapid rainfall-runoff relationships prevalent in this region. Runoff is described as spate-type, responding rapidly to the convective storm systems that drive much of the precipitation in the region. Stream channels tend to be dry when it is not raining. The mean annual precipitation is 610 mm, of which approximately 80% occurs between June and October.

The ultimate mineable resource had not been established at the time this study was undertaken. For the purpose of this assessment, the base case storage capacity was set at 150 million tonnes (Mt) of tailings at an estimated average tailings dry density of 1.3 t/m³ (approximately 115 Mm³) plus an allowance for 5 m of freeboard.

4. PRELIMINARY ALTERNATIVES ASSESSMENT

Six potential TMFs were identified during a site visit by Wilson Muir and Cameron Butt on November 28, 2012 (see Figure 2). The potential TMFs identified include the following:

- TMF 1
- TMF 2
- TMF 3
- TMF 4
- TMF 5A, and
- TMF 5B.

A preliminary multiple accounts ledger of the six potential TMFs was completed with consideration of the characterization criteria presented below. Each TMF was rated based on the characterization criteria using a relative scale from most favourable (green) to least favourable (red), with a range in between (yellow and orange).

The characterisation criterion for selecting the preferred TMF(s) includes:

- **Proximity to Open Pit**
TMFs located close to the Open Pit rated the most favourable due to reduced capital and operating costs for ore and/or tailings transportation (depending on the Mill Site location) and, provided embankments are constructed with material from the Open Pit, embankment construction.
- **Change in elevation between the Open Pit and the ultimate embankment crest**
This criterion was rated according to the elevation difference between the TMF and Open Pit with smaller elevation gains to the TMF rated the most favourably.
- **Embankment size**
Smaller embankments rated the most favourable as initial and sustaining capital construction costs will be lower. Embankment quantities were not calculated for this study; ratings are based on the embankment crest length and ultimate embankment height.
- **Catchment area**
TMFs with smaller catchment areas rated the most favourable as environmental impacts are reduced and water management may be simplified.
- **Potential for expansion**
TMFs that can be expanded to provide additional storage of tailings were rated the most favourable.
- **Current Land Use**
TMFs which exclude land currently used for agriculture and infrastructure (roads) rated the most favourable.
- **Land Tenure Potential**
TMFs for which land tenure is not expected to be problematic were rated the most favourable.

Table 1 - Preliminary Multiple Accounts Ledger for the TSF

Characterization Criteria	TMF 1	TMF 2	TMF 3	TMF 4	TMF 5A	TMF 5B
Location	East of OP	Southeast of OP	North of OP	Northwest of OP	Northwest of OP	Northwest of OP
Proximity to Open Pit (m)	3700 m	2400 m	2900 m	3500 m	2600 m	2500 m
Change in Elevation b/t the OP and Ultimate Embankment Crest (m)	265 m	30 m	475 m	135 m	150 m	240 m
Embankment Size	225 m High/ 1050 m Long	135 m High/ 1450 m Long	190 m High/ 2000 m Long	110 m High/ 1020 m Long	125 m High/ 3370 m Long	185 m High/ 2500 m Long
Catchment Area (ha)	1100	2900	370	1990	600	350
Potential for Expansion	High	High	Low	High	Moderate	Moderate
Current Land Use	Agriculture and Infrastructure (Roads)	Agriculture and Infrastructure (Roads)	Minimal	Agriculture and Infrastructure (Roads)	Minimal	Minimal
Land Tenure Potential	Low	Low	Moderate	Low	High	High

5. CONCLUSIONS AND RECOMMENDATIONS

Results of the preliminary assessment indicate that TMFs 5A and 5B are preferred, mainly due to their proximity to the Open Pit, small catchment areas, minimal land use in the catchment, and the anticipated ease of obtaining land tenure compared to other alternatives.

Assessments of alternative tailings technologies, waste rock disposal locations, and mill site locations have not been considered in the preliminary TMF assessment but are important considerations for integration in subsequent studies. The configuration of the TMF should also be optimized once the mineable resource is defined.

We trust that this preliminary assessment of TMF alternatives satisfies your requirements at this time. Please do not hesitate to contact the undersigned if you have any questions or concerns.

Yours truly,
KNIGHT PIESOLD LTD.

Signed:
Cameron Butt, P.Geo., PMP
Senior Scientist

Reviewed:
Alexis McPherson, BE, M.Sc., EIT
Project Engineer

Approved:
Ken Brouwer, P.Eng.
President

Attachments:

Figure 1 Rev 0 Project Location
Figure 2 Rev 0 Preliminary Tailings Management Facility Alternatives

Copy To: Jim Gray (MMTS) & Jesse Aarsen (MMTS)

/cb



Saved: M:\2010\0415\02\GIS\Figs\Fig1_Ixtaca_Project_Location.mxd; Apr 22, 2013 9:45 AM; amadad@alena

LEGEND:

★ PROJECT LOCATION

NOTES:

1. BASE MAP: (C) NATIONAL GEOGRAPHIC MAPS.
2. COORDINATE GRID IS IN METRES.
COORDINATE SYSTEM: WGS 1984 WEB MERCATOR AUXILIARY SPHERE.
3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:6,000,000 FOR 8.5x11 (LETTER) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

ALMADEN MINERALS LTD.

IXTACA PROJECT

PROJECT LOCATION

Knight Piésold
CONSULTING

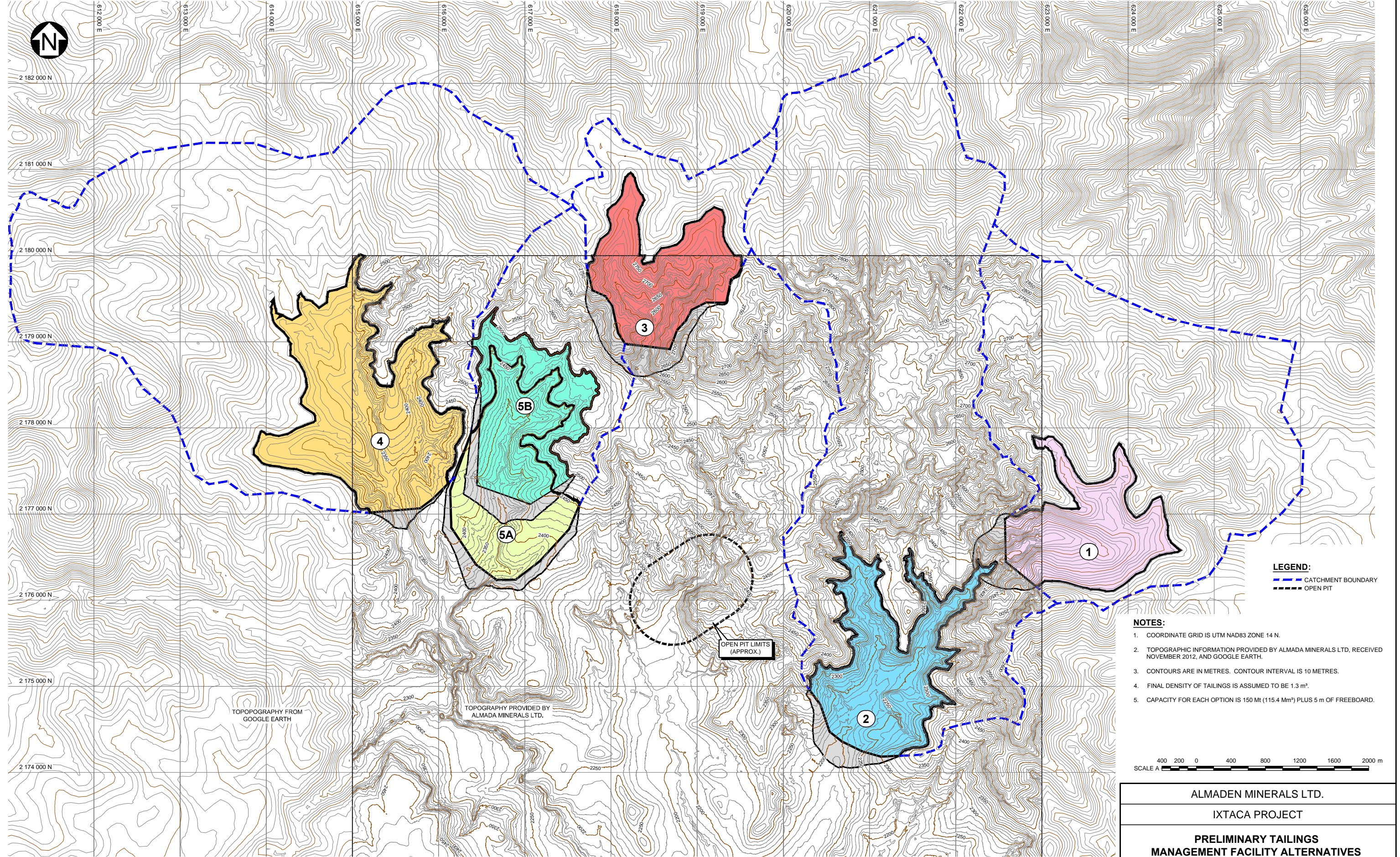
PIANO: VA201-415/2

REF NO: VA13-00724

Page 56
FIGURE 1

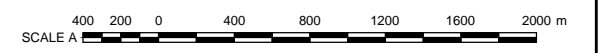
REV 0

REV	DATE	DESCRIPTION	AM DESIGNED	DM DRAWN	AM CHK'D	KJB APP'D
0	19APR13	ISSUED WITH LETTER				



LEGEND:
 - - - - - CATCHMENT BOUNDARY
 - - - - - OPEN PIT

- NOTES:**
- COORDINATE GRID IS UTM NAD83 ZONE 14 N.
 - TOPOGRAPHIC INFORMATION PROVIDED BY ALMADA MINERALS LTD, RECEIVED NOVEMBER 2012, AND GOOGLE EARTH.
 - CONTOURS ARE IN METRES. CONTOUR INTERVAL IS 10 METRES.
 - FINAL DENSITY OF TAILINGS IS ASSUMED TO BE 1.3 m³.
 - CAPACITY FOR EACH OPTION IS 150 Mt (115.4 Mm³) PLUS 5 m OF FREEBOARD.



TOPOGRAPHY FROM GOOGLE EARTH

TOPOGRAPHY PROVIDED BY ALMADA MINERALS LTD.

OPEN PIT LIMITS (APPROX.)

ALMADEN MINERALS LTD.

IXTACA PROJECT

PRELIMINARY TAILINGS
MANAGEMENT FACILITY ALTERNATIVES

Knight Piesold
CONSULTING

P/A NO. VA201-415/2	REF NO. VA13-00724
FIGURE 2	
REV	0

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0	03APR 13	ISSUED WITH LETTER	CB	SIR/DP	CB	KJB
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHKD	APPD

APPENDIX H – Capital Costs



CAPITAL SUMMARY All figures in USD.

Base Case
30kT/day

SUMMARY TOTALS		\$000's
A	SITE INFRASTRUCTURE, POWER and OTHERS	\$20,365
C	TMF and WATER MANAGEMENT	\$44,673
E	PRE-STRIPPING	\$163,081
M	MINING EQUIPMENT	\$16,266
P	PROCESSING AND PLANT	\$187,000
Z	INDIRECT, EPCM, CONTINGENCY, AND OWNER'S COSTS	\$64,141
PROJECT TOTAL		\$495,526

10% contractor mobilization fee

25%

Category	Item	Quantity	Unit	Lbr Mhrs	Lbr Rate	Lbr Cost \$	Equip Hrs	Equip Rate	Equip Cost \$	Mat Cost \$	Freight \$	LINE TOTAL	
A	SITE INFRASTRUCTURE, POWER and OTHERS												
	A1	Road and Road Upgrades	20	km	8400	\$25.00	\$210,000	8400	\$200.00	\$1,680,000	\$100,000	\$0.00	\$1,990,000
	A2	Fuel Storage and Distribution	1		1700	\$25.00	\$42,500	100	\$200.00	\$20,000	\$195,000	\$0.00	\$257,500
	A3	Truck Shop and Warehouse	1		27000	\$25.00	\$675,000	2000	\$200.00	\$400,000	\$4,511,500	\$0.00	\$5,586,500
	A4	Administration Building, Mine Dry, Lab Facility	1		10940	\$25.00	\$273,500	1400	\$200.00	\$280,000	\$1,650,000	\$0.00	\$2,203,500
	A5	Security, Gatehouse, Fence	1		425	\$25.00	\$10,625	50	\$200.00	\$10,000	\$197,500	\$0.00	\$218,125
	A6	Truck Wash	1		7650	\$0.00	\$191,250	50	\$0.00	\$10,000	\$797,000	\$0.00	\$998,250
SITE INFRASTRUCTURE TOTALS						56115		\$1,402,875	12000	\$2,400,000	\$7,451,000	\$0.00	\$11,253,875
B	POWER AND COMMUNICATIONS												
	B1	Powerline, Cable, Phone	35	km	56000	\$25.00	\$1,400,000	0	\$0.00	\$0	\$4,200,000	\$0.00	\$5,600,000
	B2	Backup Genset	1	unit	0	\$0.00	\$0	0	\$0.00	\$0	\$1,200,000	\$0.00	\$1,200,000
	B3	In-Pit wireless data network	1	lot	0	\$0.00	\$0	0	\$0.00	\$0	\$500,000	\$0.00	\$500,000
	B4	Radio Handsets	1	lot	0	\$0.00	\$0	0	\$0.00	\$0	\$50,000	\$0.00	\$50,000
POWER AND COMMUNICATIONS TOTALS						56000		\$200.00	\$0	\$5,950,000	\$0.00	\$7,350,000	
C	TMF and WATER MANAGEMENT												
	C1	TMF Earthworks - clearing, grubbing, lining and placing				\$0.00	\$0.00	0	\$0.00	\$0.00	\$17,519,750	\$0.00	\$17,519,750
	C2	CTMF Earthworks				\$0.00	\$0.00	0	\$0.00	\$0.00	\$15,085,000	\$0.00	\$15,085,000
	C3	TMF Mechanical Pump and Pipeworks				\$0.00	\$0.00	0	\$0.00	\$0.00	\$3,914,250	\$0.00	\$3,914,250
	C4	CTMF Mechanical Pump and Pipeworks				\$0.00	\$0.00	0	\$0.00	\$0.00	\$158,500	\$0.00	\$158,500
	C5	TMF Water Management				\$0.00	\$0.00	0	\$0.00	\$0.00	\$3,325,000	\$0.00	\$3,325,000
	C6	Open Pit Water Management	0	0		\$0.00	\$0.00	0	\$0.00	\$0.00	\$4,670,000	\$0.00	\$4,670,000
	C7		0			\$0.00	\$0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0
	C8		0			\$0.00	\$0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0
WATER MANAGEMENT TOTALS						0		\$0.00	\$0.00	\$44,672,500	\$0.00	\$44,672,500	
D	OTHER ITEMS												
	D1	Shop Tooling	1	unit		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000,000	\$0.00	\$1,000,000
	D2	Office Furniture, Computer Etc Allowance				\$0.00	\$0.00	0	\$0.00	\$0.00	\$341,500	\$0.00	\$341,500
	D3	Mine Engineering				\$0.00	\$0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$420,000
OTHER ITEMS TOTALS										\$0.00	\$1,341,500	\$0.00	\$1,761,500
E	PRE-STRIPPING												
	E1	Pre-strip Material	90,100	k tonnes	0	0	0	0	\$1.81	\$/tonne	0	0	\$163,081,000
	E2		0	0	0	0	0	0	0	0	0	0	\$0
MATERIAL MOVEMENT TOTALS						90,100						163,081,000	
M	MINING EQUIPMENT												
	M1	Haul Trucks	30	unit	CAT 789	\$0.00	\$0.00	0	\$0.00	\$3,800,000	\$0.00	incl	\$114,000,000
	M2	Shovels	3	unit	EX5500	\$0.00	\$0.00	0	\$0.00	\$10,200,000	\$0.00	incl	\$30,600,000
	M3	Support Fleet	1	lot	lot	\$0.00	\$0.00	0	\$0.00	\$17,558,336	\$0.00	incl	\$17,558,336
	M4	Others	1	Unit	OCS, Fleet Mngmt	\$0.00	\$0.00	0	\$0.00	\$500,000	\$0.00	incl	\$500,000
MINE MOBILE FLEET TOTALS												\$162,658,336	
P	PROCESSING AND PLANT												
	P1	Process Plant 30ktpd	1	Lot		\$0.00	\$0.00	0	\$0.00	\$0.00	\$179,000,000	\$0.00	\$179,000,000
	P2	Dore facility	1	Lot		\$0.00	\$0.00	0	\$0.00	\$0.00	\$8,000,000	\$0.00	\$8,000,000
	P3	-				\$0.00	\$0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0
PROCESSING AND PLANT TOTALS									\$0.00	\$187,000,000	\$0.00	\$187,000,000	
Z	INDIRECT, EPCM, CONTINGENCY, AND OWNER'S COSTS												
	Z1	Project Indirects	1										\$22,773,075
	Z2	Project EPCM	1										\$2,138,364
	Z3	Owner's Costs	1										\$2,036,538
	Z4		1										
	Z5		1										
	Z6	Contingency	1										\$37,193,094
INDIRECT, EPCM, CONTINGENCY, AND OWNER'S COSTS TOTALS												\$64,141,071	

Source: Preliminary Initial Scoping Study RevC.xls

	unit	Rate	Amount	Cost
1111 Clearing-Grubbing TMF Embankment Footprint	m2	\$2.50	1,125,000	\$2,812,500
1112 Topsoil Stripping TMF Embankment Footprint	m3	\$6.75	337,500	\$2,278,125
1122 Waste Rock - Spreading and Compaction	m3	\$1.00	30,000,000	\$30,000,000
1123 Bedding Layer - Load/Haul/Place/Spread/Compact	m3	\$15.00	172,500	\$2,587,500
1131 TMF liner - supply deliver and install	m2	\$15.00	575,000	\$8,625,000
1132 Geotextile - Supply and install	m2	\$2.50	575,000	\$1,437,500
1140 Geotechnical instrumentation	LS	\$100,000	5	\$500,000
TMF Earthworks sub-total				\$48,240,625
1211 Clearing/Grubbing of CTMF Footprint	m2	\$2.50	330,000	\$825,000
1212 Topsoil Stripping of CTMF Footprint	m3	\$6.75	99,000	\$668,250
1213 Reshaping of CTMF Basin	m3	\$7.50	125,000	\$937,500
1222 Waste Rock - Spreading and Compaction	m3	\$1.00	3,200,000	\$3,200,000
1223 Bedding Layer - Process, Load, Haul, Place, Spread and Compact	m3	\$15.00	135,000	\$2,025,000
1231 Geomembrane - Supply, Deliver and Install	m2	\$15.00	450,000	\$6,750,000
1232 Geotextile - Supply and Install	m2	\$2.50	450,000	\$1,125,000
1240 Geotechnical Instrumentation	LS	\$100,000	2	\$200,000
CTMF Earthworks sub-total				\$15,730,750
1310 Tailings Delivery Pipeline Allowance	m	\$265	1,400	\$371,000
1320 Fittings and valves allowance	m	\$133	1,400	\$185,500
1330 Reclaim water system	LS	\$500,000	1	\$500,000
TMF Mechanical and Pump-works sub-total				\$1,056,500
1410 Tailings Delivery Pipeline Allowance	m	\$30	200	\$6,000
1420 Fittings and Valves Allowance	m	\$15	200	\$3,000
CTMF Mechanical and Pump-works sub-total				\$9,000
1510 Diversion and Runoff collection channels	m	\$100	1,600	\$160,000
1530 Seepage collection ditch	m	\$50	1,700	\$85,000
1540 Seepage management pond	LS	\$250,000	2	\$500,000
1550 CTMF Supernatant Pond Water Management System	LS	\$250,000	3	\$750,000
Water Management Sub-total				\$1,495,000
2131 Deep Vertical Wells	ea	\$250,000	5	\$1,250,000
2132 Vertical Perimeter Wells	ea	\$125,000	10	\$1,250,000
2133 Horizontal Drains	ea	\$15,000	210	\$3,150,000
Open-Pit Water Management Sub-total				\$5,650,000
Sub-total				\$72,181,875
Contingency		30%		\$21,654,563
TOTAL SUSTAINING CAPITAL - for 150M tonnes mill feed				\$93,836,438
Estimated % reduction to 130M tonne capacity				0%
Estimated sustaining capital for 130M tonnes mill feed				\$93,836,438
Mine Life	yrs			12
TMF and Water Management sustaining capital	\$/yr			\$7,819,703.13

\$7,820

Truck Capital \$114,000,000
 Shovel Capital \$30,600,000

FLEET SIZE	PP	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13
Truck	30													
Shovel	3													
drill	2													
Water Truck	1													
Dozer	3													
Grader	1													
Wheel dozer	1													
Stemming Loader	1													
FEL	1													
Excavator	1													
Fuel/Lube truck	1													
40t crane	1													
pickup trucks	12													
light plants	6													

SUSTAINING CAPITAL	PP	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13
Truck		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Shovel		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
drill		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Water Truck		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Dozer		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Grader		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Wheel dozer		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Stemming Loader		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
FEL		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excavator		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fuel/Lube truck		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
40t crane		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
pickup trucks		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
light plants		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

rebuild costs estimated at 10% of capex spread over 5yrs

Truck Rebuild
 Shovel Rebuild

ment Sustaing Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0



ALMADEN MINERALS LTD
IXTACA GOLD PROPERTY
 CAPITAL COST ESTIMATE

received in email from Cameron on April 04, 2014 *Preliminary Initial Scoping Study RevC.xls*

C		Quantity	Unit	Lbr Mhrs	Lbr Rate	Lbr Cost \$	Equip Hrs	Equip Rate	Equip Cost	Mat Cost \$	Freight \$	LINE TOTAL
C1	TMF Earthworks - clearing, grubbing, lining and placing									\$17,519,750		\$17,519,750
C2	CTMF Earthworks									\$15,085,000		\$15,085,000
C3	TMF Mechanical Pump and Pipeworks									\$3,914,250		\$3,914,250
C4	CTMF Mechanical Pump and Pipeworks									\$158,500		\$158,500
C5	TMF Water Management									\$3,325,000		\$3,325,000
C6	Open Pit Water Management									\$4,670,000		\$4,670,000
C7										\$0		\$0
C8										\$0		\$0
										\$0		\$0
										\$0		\$0
C	Water Management Totals			0	\$0.00	\$0.00	0	0	0	\$44,672,500	\$0	\$44,672,500



ALMADEN MINERALS LTD
IXTACA GOLD PROPERTY
 CAPITAL COST ESTIMATE

Infrastructure Estimate

Existing roads to site from Apizago, HWY 119. Paved Road, 40km - ASSUME NO UPGRADE

Existing road from HWY 119 at Hacienda Santa Maria to Site - Gravel Road - 20km - ASSUME UPGRADE

Assume road is 15m R.o.W. Upgrade to 25m R.O.W.

A1	Access Road Upgrade	Quantity	Unit	Lbr Mhrs	Lbr Rate	Lbr Cost \$	Equip Hrs	Equip Rate	Equip Cost \$	Mat Cost \$	Freight \$	LINE TOTAL
	1 Clear and Grub 10,000m2/km	200,000	m2	2400	\$25	\$60,000	2400	\$200	\$480,000			\$540,000
	2 Aggregate Base	150,000	m3	6000	\$25	\$150,000	6000	\$200	\$1,200,000			\$1,350,000
	3 Culverts									\$100,000		\$100,000
A1	Santa Maria to Site Road Upgrade	20	km	8,400		\$210,000	8,400		\$1,680,000	\$100,000	-	\$1,990,000
A2	Fuel Storage and Distribution	Quantity	Unit	Lbr Mhrs	Lbr Rate	Lbr Cost \$	Equip Hrs	Equip Rate	Equip Cost \$	Mat Cost \$	Freight \$	LINE TOTAL
	1 Excavation and Pad	2000	m3	100	\$25	\$2,500	100	\$200	\$20,000			\$22,500
	2 Concrete	150	m3	1600	\$25	\$40,000	0	\$200	\$0	\$45,000		\$85,000
	3 Fuel Tanks and Dispensing System	1		0	\$25	\$0	0	\$200	\$0	\$150,000		\$150,000
A2	Fuel Storage and Distribution	1	Fuel Storage and Distribution	1,700		\$42,500	100		\$20,000	\$195,000	-	\$257,500
A3	Truckshop and Warehouse	Quantity	Unit	Lbr Mhrs	Lbr Rate	Lbr Cost \$	Equip Hrs	Equip Rate	Equip Cost \$	Mat Cost \$	Freight \$	LINE TOTAL
	1 Earthworks	2875	m2	12000	\$25	\$300,000	2000	\$200	\$400,000			\$700,000
	2 Concrete	1705	m3	15000	\$25	\$375,000				\$511,500		\$886,500
	3 Architectural and Mechanical Com	1								\$4,000,000		\$4,000,000
A3	Truckshop and Warehouse	1	Truckshop and Warehouse	27,000		\$675,000	2,000		\$400,000	\$4,511,500	-	\$5,586,500
A4	Admin, Lab, and Mine Dry	Quantity	Unit	Lbr Mhrs	Lbr Rate	Lbr Cost \$	Equip Hrs	Equip Rate	Equip Cost \$	Mat Cost \$	Freight \$	LINE TOTAL
	1 Earthworks	800	m2	3200	\$25	\$80,000	1400	\$200	\$280,000			\$360,000
	2 Concrete	860	m3	7740	\$25	\$193,500				\$258,000		\$451,500
	3 Architectural and Mechanical Com	1								\$1,392,000		\$1,392,000
A4	Admin, Lab, and Mine Dry	1	Admin, Lab, and Mine Dry	10,940		\$273,500	1,400		\$280,000	\$1,650,000	-	\$2,203,500
A5	Security, Gatehouse, Fence	Quantity	Unit	Lbr Mhrs	Lbr Rate	Lbr Cost \$	Equip Hrs	Equip Rate	Equip Cost \$	Mat Cost \$	Freight \$	LINE TOTAL
	1 Earthworks	50	m2	200	\$25	\$5,000	50	\$200	\$10,000			\$15,000
	2 Concrete	25	m3	225	\$25	\$5,625				\$7,500		\$13,125
	3 Architectural and Mechanical Com	1								\$90,000		\$90,000
	4 Fence	2000	m							\$100,000		\$100,000
A5	Security, Gatehouse, Fence	1		425		\$10,625	50		\$10,000	\$197,500	-	\$218,125
A6	Truck Wash	Quantity	Unit	Lbr Mhrs	Lbr Rate	Lbr Cost \$	Equip Hrs	Equip Rate	Equip Cost \$	Mat Cost \$	Freight \$	LINE TOTAL
	1 Earthworks	900	m2	3600	\$25	\$90,000	50	\$200	\$10,000			\$100,000
	2 Concrete	450	m3	4050	\$25	\$101,250				\$135,000		\$236,250
	3 Architectural and Mechanical Com	1								\$162,000		\$162,000
	4 Washbay water pumps, tanks, dra	1								\$500,000		\$500,000
A6	Truck Wash	1		7,650		191,250	50		\$10,000	\$797,000	-	\$998,250



**ALMADEN MINERALS LTD
IXTACA GOLD PROPERTY
CAPITAL COST ESTIMATE**

B		Quantity	Unit	Lbr Mhrs	Lbr Rate	Lbr Cost \$	Equip Hrs	Equip Rate	Equip Cost	Mat Cost \$	Freight \$	LINE TOTAL
B1	powerline	35	km	56000	\$25.00	\$1,400,000				\$4,200,000		\$5,600,000
B2	Backup Genset	1	unit							\$1,200,000		\$1,200,000
B3	In-Pit wireless data network	1	lot							\$500,000		\$500,000
B4	Radio Handsets	1	lot							\$50,000		\$50,000
B	Power and Communications Totals			56000	\$25.00	\$1,400,000	\$0	\$0	\$0	\$5,950,000	\$0	\$7,350,000



**ALMADEN MINERALS LTD
IXTACA GOLD PROPERTY
CAPITAL COST ESTIMATE**

D1	Shop Tooling	Quantity	Unit	Lbr Mhrs	Lbr Rate	Lbr Cost \$	Equip Hrs	Equip Rate	Equip Cost	Mat Cost \$	Freight \$	LINE TOTAL
	1 Shop Tooling	1	unit	0	\$25.00	\$0				\$1,000,000		\$1,000,000
D1	Shop Tooling									\$1,000,000		\$1,000,000
D2	Office Allowance	Quantity	Unit	Lbr Mhrs	Lbr Rate	Lbr Cost \$	Equip Hrs	Equip Rate	Equip Cost	Mat Cost \$	Freight \$	LINE TOTAL
	1 Office Furniture	35	unit	0	\$25.00	\$0				\$87,500		\$87,500
	2 Office Computers	36	unit	0	\$25.00	\$0				\$54,000		\$54,000
	3 IT Equipment, Servers, Software	1	unit							\$100,000		\$100,000
	4 Other Software or Equipment	1	Unit							\$100,000		\$100,000
D2	Office Allowance			-		\$0	\$0		\$0	\$341,500	-	\$341,500
D3	Mine Engineering	Quantity	Unit	Lbr Mhrs	Lbr Rate	Lbr Cost \$	Equip Hrs	Equip Rate	Equip Cost	Mat Cost \$	Freight \$	LINE TOTAL
	1 MineSight Open Pit suite	1	unit	0	\$25.00	\$0				\$300,000		\$300,000
	2 Surveying Equipment, Software	1	unit	0	\$25.00	\$0				\$120,000		\$120,000
D3	Mine Engineering			-		\$0	\$0		\$0	\$420,000	-	\$420,000



ALMADEN MINERALS LTD
IXTACA GOLD PROPERTY
CAPITAL COST ESTIMATE

E		Quantity	Unit				Rate	unit		Cost
E1	Pre-strip Material	90,100	k tonnes				\$1.81	\$/tonne		\$163,081,000
E2										\$0
E	Material Movement Totals									\$163,081,000



ALMADEN MINERALS LTD
IXTACA GOLD PROPERTY
CAPITAL COST ESTIMATE

M	Fleet	Quantity	Unit	Name	Lbr Rate	Lbr Cost \$	Equip Hrs	Equip Rate	UNIT COST	Freight 5%	LINE TOTAL
	1 Haul Trucks	30	unit	CAT 789					\$3,800,000	incl	\$114,000,000
	2 Shovels	3	unit	EX5500					\$10,200,000	incl	\$30,600,000
	3 Support Fleet	1	lot	lot					\$17,558,336	incl	\$17,558,336
	4 Others	1	Unit	OCS, Fleet Mngmt					\$500,000	incl	\$500,000
M	Mining Equipment Totals										162,658,336

	Quantity	Unit	Name	Cost	Total
3 Support Fleet	2	PV275	drill	\$2,462,046	\$4,924,092
	1	777F	Water Truck	\$2,158,666	\$2,158,666
	3	D9	Dozer	\$1,274,985	\$3,824,955
	1	16M	Grader	\$987,170	\$987,170
	1	834H	Wheel dozer	\$1,274,985	\$1,274,985
	1	IT28	Stemming Loader	\$162,252	\$162,252
	1	988E	FEL	\$1,086,750	\$1,086,750
	1	345D	Excavator	\$582,010	\$582,010
	1		Fuel/Lube truck	\$985,096	\$985,096
	1		40t crane	\$959,400	\$959,400
	12		pickup trucks	\$38,000	\$456,000
	6		light plants	\$26,160	\$156,960
				\$17,558,336	



**ALMADEN MINERALS LTD
IXTACA GOLD PROPERTY
CAPITAL COST ESTIMATE**

Z1	Project Indirects		FACTOR	INDIRECTS
	A	Site Infrastructure, Power and Others	20%	\$4,073,075
	C	Water Management	0%	\$0
	E	Material Movement	0%	\$0
	M	Mining Equipment	0%	\$0
	P	Processing	10%	\$18,700,000
Z1	INDIRECTS TOTALS			\$22,773,075

Z2	Project EPCM		FACTOR	EPCM
	A	Site Infrastructure, Power and Others	10.5%	\$2,138,364
	C	Water Management	0%	\$0
	E	Material Movement		\$0
	M	Mining Equipment	0%	\$0
	P	Processing		\$0
			0	
Z2	Project EPCM Totals			\$2,138,364

Z3	Owner's Costs		FACTOR	Owner's Costs
	A	Site Infrastructure, Power and Others	10%	\$2,036,538
	C	Water Management	0%	\$0
	E	Material Movement		\$0
	M	Mining Equipment	0%	\$0
	P	Processing	0%	\$0
	0		0	
Z3	Owner's Cost Totals			\$2,036,538

Z4	Contingency		FACTOR	Owner's Costs
	A	Site Infrastructure, Power and Others	25%	\$5,091,344
	C	Water Management	30%	\$13,401,750
	E	Material Movement		\$0
	M	Mining Equipment	0%	\$0
	P	Processing	10%	\$18,700,000
	0		0	
Z4	Contingency Totals			\$37,193,094