DRAFT REPORT

SUPPLEMENT TO THE WASTE ROCK FACILITY SITE ALTERNATIVES ANALYSIS

Amulsar Gold Project, Republic of Armenia

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Golder Associates

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1.0 INTRODUCTION

A Waste Dump Facility (WDR) Site Alternatives Analysis (SAA) report, dated May 15, 2013, was prepared by Golder Associates Inc. (Golder) for Lydian International Ltd. (Lydian) to summarize the evaluation process conducted for 27 potentially viable sites for the location of a WDF for the Amulsar gold project in central Armenia.

This intent of this supplementary report is to incorporate additional analysis in support of selection of the WRD location, which is now referred to as the Barren Rock Storage Facility (BRSF), as included in the current Feasibility Study (FS) and Environmental and Social Impacts Assessment (ESIA). The revised location of the BRSF is in part a result of the impacts of the amendment to resolution N 143-N adopted by the Government of the Republic of Armenia (RA) on July 18, 2013. That amendment changed the definition of the immediate impact zone defined as the "Catchment Basin" of Lake Sevan and applied a restricted zone of 3,000 meters on each side of the Vorotan-Sevan tunnel for mineral processing facilities. While this does not strictly apply to the siting and selection of the BRSF, the new regulation does have an impact on the site selection process due to the relocation of the HLF for the project to a location further from the open pits.

The 2013 WDF SAA was coordinated by Golder with collaboration from various discipline specialists (e.g., geotechnical, geology, environmental, water, communities, and HLF design engineers). External technical input and support were provided by various technical specialists, which included biodiversity review and input from Jo Treweek (Treweek Environmental Consultants), cultural heritage input from Emlen Myers (ERM), landscape and visual impact review by Sam Oxley and Dan Walker (LUC), social and environmental review by specialist consultants Judy Kreps (Gone Native) and Liz Wall (Shared Resources), and input from Lydian in-house specialists. The WDF SAA was prepared to comply with international best practices with regard to assessment of alternative locations for major Project infrastructure components.

This supplementary report should be read in conjunction with the original WDF SAA prepared by Golder dated May 15, 2013. The original WDF SAA included an initial high-level desktop-based screening assessment that included field reconnaissance and a fatal flaw analysis; an initial screening assessment; a semi-quantitative rating of sites that advanced beyond the first selection process; followed by a more detailed evaluation based on design layouts prepared by Golder.

The initial screening analysis described in the WDF SAA (Golder 2013) resulted in elimination of 12 of the 27 sites considered due to fatal flaws and 11 sites eliminated due to significant adverse impacts. Figure 1 presents an overview of all sites considered, and the updated 3,000-meter buffer zone on either side of the Vorotan-Sevan tunnel. The remaining four sites, consisting of Sites 11, 13, 19 and 27 were evaluated as part of a semi-quantitative rating assessment in the 2013 WDF SAA (Golder 2013).

Those sites were ranked in order of preference by the scoring as follows:

- Highest ranking sites, (tie) with 77 points each, Sites 13 and 27
- 3rd highest ranked site with 83 points, Site 11
- 4th highest ranked site with 97 points, Site 19

The 2013 WDF SAA concluded that Sites 13 and 27 were the most optimal sites for development of the BRSF for the Amulsar project. The report indicated that additional studies would be completed for these selected sites. Site 13 had been evaluated in 2013 in support of the studies performed for the Amulsar Project FS and ESIA. Site 27 was also investigated further in the fall of 2013 during additional site geotechnical investigations.

Lydian commissioned Golder to develop conceptual designs and cost estimates for the Site 27 BRSF and Site 28 HLF that were completed by Golder in December 2013. Lydian then commissioned Global Resource Engineering (GRE) to develop feasibility-level designs for both the Site 27 BRSF and Site 28 HLF. This supplementary SAA provides a re-evaluation of the semi-quantitative assessment performed in the 2013 WDF SAA based on the additional information gained during the more recent field observations and site investigation by Golder in the fall of 2013 and the observations and evaluation of the sites by GRE during 2014 to advance the engineering design. Section 2.0 provides an overview of the re-evaluation performed by Golder after consideration and review of the design and planned mitigation developed by GRE as part of the BRSF design.

2.0 SUPPLEMENTAL ASSESSMENT OF THE BRSF SELECTION

The numerical ranking process is discussed in detail in the 2013 WDF SAA (Golder 2013), which includes ranking each site using a numeric system with a weighting evaluation that considers the relative importance of a variety of sub-categories. Based on the results of the additional site information obtained in December, 2013 and in 2014, some of the scores developed in the 2013 semi-qualitative SAA ranking for Sites 13 and 27 require revision and an update. This includes ranking factors related to the General Location, Technical, and Infrastructure Factors.

The factors that warranted a review and re-scoring are presented below as shown on Table 1 relative to Site 27. The revised Semi-Quantitative Ranking Assessment is presented on Table 2. The basis for the revised scoring by Golder used to rank each site indicator is provided in the Comments column on Table 1.

Table 1 Semi-Quantitative Assessment (2014 Re-Assessment of Site 27)

Factor	Indicator	2013 Score	Revised Score	Comments
General Location	Within Rock Allocation Area	-3.0	0.0	Indicator changed to "Within Mining License Boundary. The distinction of the Rock Allocation Area had less significance to this assessment.
Infrastructure	Radial Distance from the Open Pit – changed to "Haul Road Distance from the Open Pit to Centroid of BRSF"	-1.0	-0.5	A (-1) score had previously been assigned to sites between 1-3km of the open pits by radial distance. A more appropriate measure is now considered to assess this factor based on a direct haul road route. Based on direct haul routes, the distance by road to Site 27 was determined to be slightly over 1km whereas the distance to Site 13 was just under 3km. The scores were changed to -0.5 and -1.5 respectively to make a greater distinction in the scoring.
Technical	Suitable Space for ARD Management and WWTP	-3	0	The results of the revised design by GRE resulted in a location suitable for a WWTP near Site 27. The original (-3) ranking had considered the need for a large WWTP footprint and large evaporation pond. The passive treatment proposed by GRE does not require the same footprint as an active WWTP.
Technical	Avoids Management of Shallow Groundwater, Seeps, and Springs	-3	-2	The more detailed site investigations performed in the fall of 2013 revealed a lesser degree of springs and seeps at Site 27 compared to Site 13.

The four remaining sites, Sites 13, 27, 11, and 19 were re-ranked as viable WDF sites for consideration by Lydian and the various stakeholders. The results of the SAA weighted re-ranked semi-quantitative rankings that resulted in Site 27 as the preferred site for BRSF development, followed by Site 13, Site 11, and then Site 19 as the least preferred location.

Table 2 Semi-Quantitative Ranking Assessment

Factor	Indicator	Rating Scale	Weighting	Site11	Site13	Site19	Site27	Notes
Biodiversity Environmental	Outside of Lake Sevan Non-Immediate Impact Zone	-3 or 0	3	-3	-3		-3	Yes or No - binary
				-9	-9		-9	
	Beyond 1km Sanitary Protection Zone for Communities	-3 or 0	3					Yes or No - binary
	Outside Area of Supporting Habitat for IBA	-3, -2, -1 or 0	3	-1	-3		-1	Specialist Assessment
				-3	-9		-3	
	Outside Natural Habitat	-3, -2, -1 or 0	2	-1	-3		-1	Specialist Assessment
				-2	-6		-2	
	Outside Potential Critical Habitat	-3, -2, -1 or 0	3	-2	-3	-1	-1	Specialist Assessment
				-6	-9	-3	-3	
General Location	Within Mining License Boundary	-3 or 0	1	-3				Yes or No - binary
				-3				
	Within Exploration License Area	-3 or 0	2	-3				Yes or No - binary
				-6				
Infrastructure	Haul Road Distance from the Open Pit to Centroid of Dump	-3, -2, -1 or 0	5	-2	-1	-1.5	-.5	-3=>6km, -2=3-6km, -1=1-3km, 0=< 1km
				-1	-5	-8	-3	
	Haul Route Avoids River Crossing	-3, -2, -1 or 0	4					-3=2 or More Rivers, -2= One River, -1=Stream, 0=No
	Haul Route Avoids Impacts Near or Crossing a Paved Road	-3, -2, -1 or 0	4					-3=3 Roads, -2=2 Roads, -1=1 Road, 0=No
	Avoids Gas Pipeline Crossing	-3 or 0	1	-3				Yes or No - binary
				-3				
	Avoids Spandaryan-Kechut Tunnel Crossing by Conveyor	-3 or 0	1					Yes or No - binary
	Adequate Heavy Equipment Access	-3, -2, -1 or 0	4	-1		-3		-3=Difficult, -2=Moderate, -1=Reasonable, 0=Nearby
				-4		-12		
Social & Cultural	Proximity to Settlements	-3, -2, -1 or 0	4			-3		-3=< 2km, -2=2-5km, -1=5-10km, 0=>10km
						-12		
	Visibility to Settlements	-3, -2, -1 or 0	3	-3		-3		Yes or No - binary
				-9		-9		
	Presence of Community Water Supply Point/Source	-3 or 0	2	-3				Yes or No - binary
				-6				
	Potential to affect Cultural Heritage/Archeological Sites	-3 or 0	3					-3=Confirmed Arch Sites Present, -2=High Arch Potential, -1=Medium Arch Potential, 0=Low Arch Potential
	Avoids Physical Resettlement of Local Human Inhabitants	-3 or 0	5					Yes or No - binary
	Avoids Economic Displacement	-3, -2, -1 or 0	3	-2	-3	-2	-1	-3=LACP/Herders, -2=Herders, -1=minor, 0=No
				-6	-9	-6	-3	
Technical	Suitable Space for ARD Management & WWTP	-3, -2, -1 or 0	5	-2		-1		-3=No Suitable Locations, -2=Multiple Locations, -1=Poor Location, 0=Yes
				-1		-5		
	No Apparent Geotechnical Flaws	-3, -2, -1 or 0	3		-2	-3	-1	-3=Landslides, -2=Poor, -1=Localized Wet Conditions, 0=Favorable Conditions
					-6	-9	-3	
	Constructability	-3, -2, -1 or 0	3	-2	-2	-3	-2	-3=Very Difficult, -2=Moderate, -1=Localized Challenges, 0=Good
				-6	-6	-9	-6	

Factor	Indicator	Rating Scale	Weighting	Site11	Site13	Site19	Site27	Notes
	Acceptable Haul Road Route	-3, -2, -1 or 0	3			-3		-3=Steep Topo, -2= Moderate Terrain, -1=Reasonable, 0=Yes
						-9		
	Capacity for 180 Mt with Potential Increase to 240 Mt	-3 or 0	5				-3	Yes or No - binary
							-15	
	Does Site have Capacity for 100 Mt Assuming Multi-Site Scenario	-3 or 0	5					Yes or No - binary
	Avoids Management of Shallow Groundwater, Seeps, Springs	-3, -2, -1 or 0	3		-3	-3	-2	-3=Extensive Seeps & Shallow GW, -2=Moderate, -1=Localized Springs & Seeps, 0=None
					-9	-9	-6	
	Avoids Potentially Difficult Closure Constraints	-3, -2, -1 or 0	3		-3	-3	-2	-3=Extensive Underdrain System, -2=High Visibility/Moderate Seeps, -1=Localized Seeps, 0=No Constraints
					-9	-9	-6	
			GRAND TOTAL	**-83**	**-77**	**-1**	**-59**	
			SITE RANK	**3**	**2**	**4**	**1**	

3.0 USE OF THIS REPORT

Golder has prepared this report exclusively for the use of Lydian for the specific application to siting of the BRSF for the Amulsar project. The analyses reported herein, or referenced from previous reports performed, were developed in accordance with accepted standard of care practices, based on the information available at the time the study was completed. No third-party entity shall be entitled to rely on any of the information, conclusions, or opinions contained in this report without the written approval of Lydian and Golder.

Golder appreciates the opportunity to support Lydian on this task. Please contact the undersigned with any questions or comments on the information contained in this report.

GOLDER ASSOCIATES INC.

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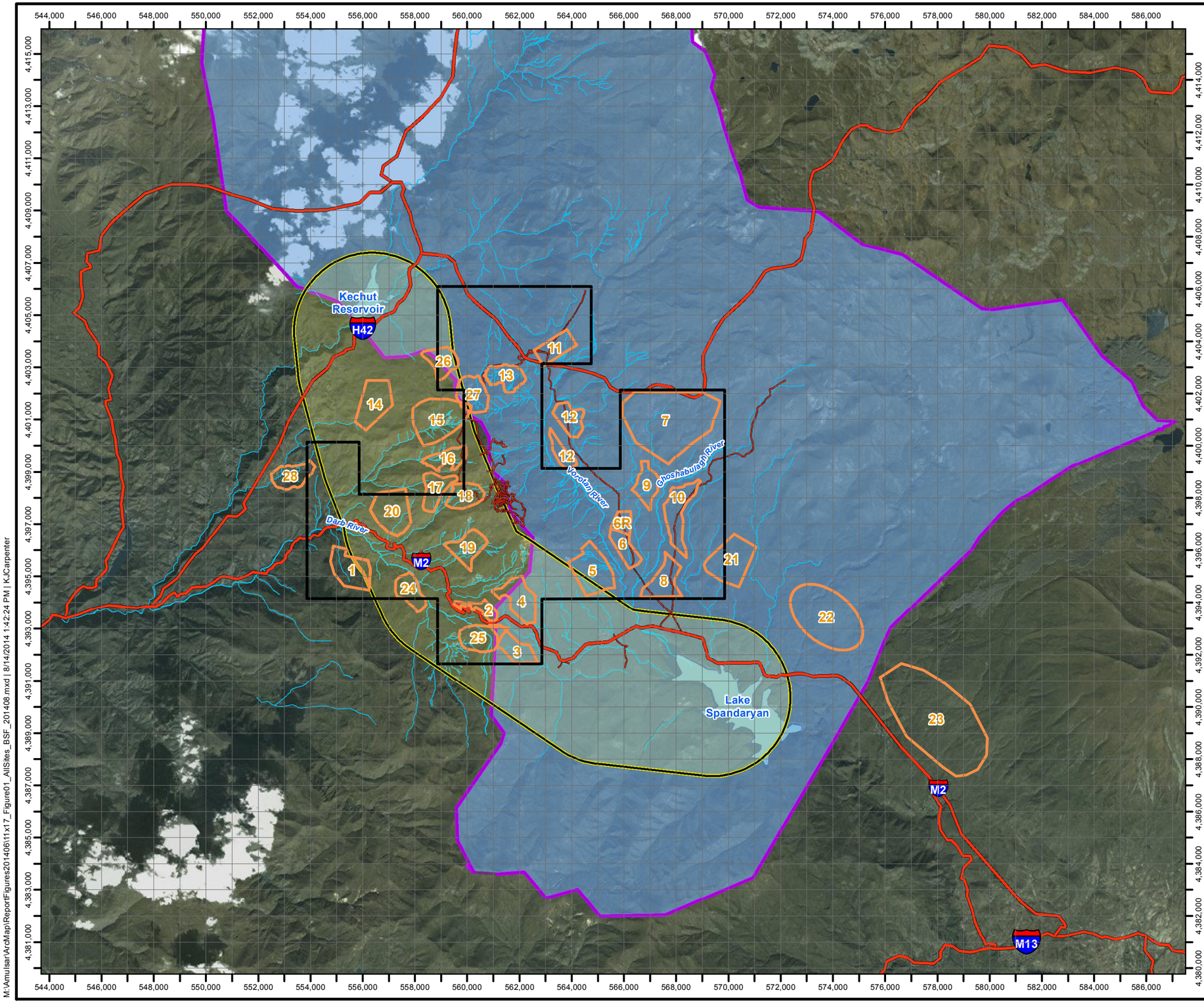
REK/BRB/rjg

FIGURE



LEGEND

- POTENTIAL BRSF SITES
- HIGHWAY
- SECONDARY ROAD
- STREAM
- MAJOR RIVER
- NON-IMMEDIATE IMPACT ZONE
- SPANDARYAN-KECHUT TUNNEL BUFFER ZONE (3 KM)
- EXPLORATION LICENSE BOUNDARY

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REFERENCES

Coordinate System: WGS 1984 UTM Zone 38N.

N

3,000 1,500 0 3,000 METERS

SCALE 1:150,000 1 CENTIMETER = 1.5 KILOMETERS
WHEN PRODUCED AT SIZE 11X17IN

PROJECT

LYDIAN INTERNATIONAL LTD.
AMULSAR GOLD PROJECT

TITLE

POTENTIAL BRSF SITES

Golder Associates
Denver, Colorado

PROJECT No.		11381597	FILE No.	
DESIGN	RK	12/5/2012	SCALE AS SHOWN	REV 0
GIS	KJC	8/14/2014		
CHECK	RK	8/14/2014		
REVIEW	BRB	8/14/2014		

FIGURE 1

M:\Amulsar\ArcMap\Report\Figures20140611\11x17_Figure01_AllSites_BSF_201408.mxd | 8/14/2014 1:42:24 PM | KJCarpenter

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

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