

## TERMS OF REFERENCE

### for additional engineering and geological surveys at the site of "Copper-pyrite tailings dump of Madneuli MPP

N	Design intent	Content and requirements	Responsible person
1	Name of site	Copper-pyrite tailings dump of Madneuli MPP	
2	Location	Village Kazreti, Bolnisi Municipality, Republic of Georgia	
3	Type of site	Production site	
4	Customer	JSC RMG Copper Identification code 225358341. Registered address: village Kazreti, Bolnisi region 1103, Georgia Postal (actual) address: village Kazreti, Bolnisi region 1103, Georgia Tel./fax: (+99532) 2474545 E-mail: <a href="mailto:info@richmetalsgroup.com">info@richmetalsgroup.com</a>	
5	Contractor	To be determined after the tender process	
6	Basis for execution of works	1. Minutes of the technical meeting of JSC RMG Copper and Migroup Project Ltd. dated 11.10.2022. 2. Recommendations of Migroup Project LLC to carry out additional laboratory tests to determine the strain modulus of the rinsed tailings at loads corresponding to their depth of occurrence.	
7	Scope of works	Additional engineering and geological surveys to be carried out: 1. Drilling of three monitoring wells up to 60 m deep, with sampling of soil of undisturbed structure - 10 samples per stripped EGE in accordance with the scheme adopted in the archival documents of NGPS LLC: EGE1, EGE5, EGE6, EGE8, EGE9, TEGE10. Total: tentatively - 60 pcs. Borehole No.1 to be drilled in the area of piezometer No.8 and archive well No.5 of NGPS LLC, from the crest of the 15 <sup>th</sup> deck of the bund wall (height of the crest of the 15 <sup>th</sup> deck - 744.6 m). Well No. 2 to be drilled in the area	Contractor



		<p>2014.</p> <p>5. Preservation of boreholes.</p> <p>After completion of field works the boreholes and workings should be liquidated by backfill method with layer-by-layer soil compacting.</p> <p>The results shall be followed up with a representative of the JSC RMG Copper by drawing up a Report on the liquidation of the workings. The report shall be placed in the technical report.</p> <p>Note: The scope of work does not include laboratory testing of the soil samples.</p>	
8	Input data to be provided by the Customer	<p>a) Situation plan of the Madneul copper-pyrite tailings dump;</p> <p>b) Results of past engineering surveys carried out at the tailings dump;</p> <p>c) Other information necessary for work execution shall be provided upon request.</p>	<p>RMG</p> <p>RMG</p> <p>RMG</p>
9	Special conditions during work execution	<p>The area of the operating mining company.</p> <p>Special natural climatic conditions - seismicity of the area is 9 points on the MSK-64 scale.</p>	
10	Preliminary description of the expected impacts of urban development on the natural environment	<p>Possible types of impacts on all components of the natural environment throughout construction and operation:</p> <ul style="list-style-type: none"> <li>- mechanical;</li> <li>- chemical;</li> <li>- physical.</li> </ul>	
11	Coordinate system	<p>Rectangular coordinate system - UTM WGS84</p> <p>Elevation system - Baltica 1977</p>	
12	Seismic intensity in points (seismicity) for the construction area	<p>Seismicity of the construction area according to PN01.01-09 "Seismic Construction" is 9 points on the scale of MSK-64 seismic hazard map</p>	
13	Requirements for work organization	<p>Types and scopes of works to be appointed based on requirements of SP 47.13330.2016, SP 11-105-97 (Parts 1, 2, 3):</p> <ol style="list-style-type: none"> <li>1. Reconnaissance survey of the work site.</li> <li>2. Development of a detailed schedule of works execution.</li> <li>3. Development of the engineering and geological survey program in</li> </ol>	<p>Contractor</p> <p>3 RMG</p>

		<p>accordance with the present TOR and requirements of the current normative building regulations and recommendations, coordination of the Work Program with the project executors and the Customer.</p> <p>When planning the types and scope of work to take into account all materials of the previously performed works.</p> <p>Reliability of the used materials of the works to be confirmed by the documentation.</p> <ol style="list-style-type: none"> <li>4. The layout of the control boreholes network on the geodetic basis.</li> <li>5. To carry out test drilling to a depth of 60m with sampling of undisturbed soils.</li> <li>6. To carry out a set of field surveys of the soils.</li> <li>7. Office study of test results.</li> <li>8. Drawing up a technical report (based on the technical report on geotechnical survey performed by NGPS Ltd.</li> </ol>	4, 5, 6, 7, 8 Contractor
14	Requirements for the content of survey report documentation	<p>To prepare a Technical Report on the results of the engineering survey to the extent of the work carried out.</p> <p>The geotechnical survey report shall include the following main sections:</p> <p><b>Introduction</b> - the basis for the survey, objectives of the engineering-geological survey, location of the technological complex facilities, data on the facility, types and scope of work performed, terms of work, methods of individual types of work, composition of the executors, deviations from the program and their justification;</p> <p>The state of exploration of engineering-geological conditions - the nature, purpose and boundaries of the sites of previous engineering surveys and investigations, the name of the executing organizations, the period of production and the main results of the work, the degree of their use with confirmation of the reliability;</p> <p><b>Physical-geographical and anthropogenic conditions</b> - climate,</p>	Contractor together with Migroup

		<p>relief, geomorphology, hydrography, anthropogenic impact.</p> <p><b>Soil properties</b> - characteristics of composition, condition, physical and mechanical properties of selected types (layers) of soils.</p> <p><b>Conclusion</b> – findings of engineering and geological surveys.</p> <p><b>References</b> - a list of library and published materials used in compiling the technical report.</p> <p><b>Graphic annexes</b> to the Technical Report.</p> <p>When compiling the graphical part of the technical report conventional symbols should be used in accordance with GOST 21.302-2013.</p> <p>Text annexes to the technical report shall contain:</p> <ul style="list-style-type: none"> <li>- the Terms of Reference;</li> <li>- the work program;</li> <li>- certificates and approvals;</li> <li>- tables and graphs of the results of field determinations of the indicators of soil properties with the results of their statistical processing in accordance with GOST 20522-2012;</li> <li>- catalogues of coordinates and marks of survey points and other materials (based on the survey materials of previous years and other sources);</li> <li>- photographic records of fieldwork.</li> </ul>	
15	Requirements for the accuracy, reliability, validity and security of the data and characteristics obtained in engineering surveys	The requirements for the accuracy, reliability and validity of the data obtained are established in accordance with the requirements of regulatory documentation SP 47.13330.2016, SP 11-105-97 in compliance with all GOST requirements for each type of work.	
16	Reporting format and number of copies	<p>Reporting documents shall be submitted to the Customer for approval (delivery and acceptance) in accordance with the terms and conditions of the Contract and its annexes.</p> <p>Reporting documents shall be submitted in hard copy and</p>	Contractor together with Migroup

		<p>electronically on a USB flash drive in Georgian and Russian languages.  3 hard copies and 1 copy on a USB flash drive shall be sent to the Client:</p> <ul style="list-style-type: none"> <li>- graphic materials - in AutoCad (version 2008 at least) and Acrobat format (file format*.pdf).</li> <li>- text materials - in MSOffice; *.pdf (Acrobat) formats.</li> </ul> <p>Timing of work: according to the schedule.</p>	
17	Control and acceptance procedures for fieldwork and office studies	<ul style="list-style-type: none"> <li>a) The Contractor shall submit materials requested by the Customer (copies of drill logs, copies of field test logs, copies of laboratory work logs, etc.) for review and approval.</li> <li>b) The Contractor shall provide the Customer with information about the actual work carried out.</li> <li>c) The Contractor shall notify the Customer of any complex natural, technogenic conditions or other force majeure situations identified in the course of the engineering survey that prevent the performance of the work.</li> <li>d) Upon completion of the fieldwork the Contractor shall deliver them by a certificate to the Customer.</li> </ul>	