

# Innovation Connections Project Contract

A completed and signed version of this document (which includes the terms stated in the **Standard Terms** section), together with each set of Project Details, forms an Agreement between the Research Provider and the Research Recipient.

## PROJECT DETAILS

Item	Name	Description
1	Parties	The <b>Research Provider</b> and the <b>Research Recipient</b>
2	Research Provider	<p>The University of Queensland</p> <p>ABN: 63 942 912 684</p> <p><b>Address for notices:</b></p> <p>Director, Research Partnerships</p> <p>The University of Queensland, Brisbane QLD 4072</p> <p><a href="mailto:director.partnerships@research.uq.edu.au">director.partnerships@research.uq.edu.au</a></p>
3	Research Recipient	<p>Residue Solution Pty Ltd</p> <p>ABN: 61 093 883 991</p> <p><b>Address for notices:</b></p> <p>1/7 Clunies Ross Ct, Eight Mile Plains QLD 4113</p> <p><a href="mailto:david.frazer@phibion.com">david.frazer@phibion.com</a></p>
4	Funding Recipient	Research Provider
5	Project Title	Development of Dielectric Sensor System on Intelligent Amphirols for Mud Farming Tailings Facilities
6	Project Activities	<p>The aim of the project is to develop a method for quantifying in real time the density of soil waste and soft soil based on electromagnetic measurement results to improve TSF management and safety. In this one-year project, a specific designed RF architecture in the proof-of-concept level will be developed in the EM simulation and laboratory environment, in the same time, a minimum viable product (MVP) prototype will be built and tested in the real environment.</p> <p>As a future plan after this Innovation Connections program, the proposed contactless dielectric measurement system will be integrated on Phibion's Mud-master vehicle for the purpose of evaluating the density and water saturated condition of soil.</p> <p>The following research and development activities will be carried out in this one-year Innovation Connections:</p>

Item	Name	Description
		<p><b>WP 1: Project startup and definition of system capabilities</b></p> <p>Key Activities:</p> <ul style="list-style-type: none"> <li>• Site visit at Phibion (Eight Mile Plains, Queensland) and its remote factories to clarify the feature of the environment and Mud-master platform in which the system is to be developed and installed.</li> <li>• Familiar with the dielectric properties of the inspected soil of various types and the relation with its density (include water saturation).</li> <li>• Establish a three-dimensional (3D) numerical analysis program (based on electromagnetics propagation model) to determine the optimum range of working frequency and required RF power level.</li> <li>• Conduct a link budget analysis to determine the antenna aperture size of the dielectric sensor and its distance to inspected soil surface.</li> </ul> <p>Expected Outcomes:</p> <ul style="list-style-type: none"> <li>• Understanding the working environment of the Mud-master platform and determine the possible positions to be installed with dielectric sensors.</li> <li>• Acquiring the dielectric properties (permittivity and conductivity) of the inspected soil from database and imported those data into the numerical analysis model.</li> <li>• Quantitative understanding of the electromagnetics propagation characteristics in the soil as well as its response to the dielectric properties.</li> <li>• Specified the working frequency, RF power level and antenna type to be applied on the dielectric sensor.</li> </ul> <p>Start date: Commencement Date</p> <p>End date: 2 months from the Commencement Date</p> <p><b>WP 2: Contactless dielectric sensor designing and modelling in full-wave simulation environment</b></p> <p>Key Activities:</p> <ul style="list-style-type: none"> <li>• Implement the antenna design in terms of its working frequency and near-field characteristics.</li> <li>• Design the RF circuit of sensor in connect to the designed antenna structure.</li> <li>• Optimize the sensor geometry by computational EM simulator in order to achieve an acceptable impedance balance, near-field pattern, efficiency, and frequency-domain response</li> <li>• Evaluate the sensitivity and reliability of the dielectric sensor in terms of different soil properties.</li> </ul> <p>Outcomes:</p> <ul style="list-style-type: none"> <li>• Preliminary design and configuration of the sensor geometry and dimension are determined.</li> <li>• Specify the 3D topology and design parameters of the sensor, along with its feeding circuit.</li> <li>• Confirm the sensor performance in realistic full-wave simulation environment and the dynamic range of dielectric measurement.</li> </ul>

Item	Name	Description
		<p>Start date: 3 months from the Commencement Date</p> <p>End date: 7 months from the Commencement Date</p> <p><b>WP 3: Build up the proof-of-concept MVP prototype</b></p> <p>Key Activities:</p> <ul style="list-style-type: none"> <li>• Build up the antenna designed from WP2 and measure its near- and far-field radiation performance.</li> <li>• Implement the RF feeding networks designed from WP2 and integrate it with the antenna body.</li> <li>• Connect the developed sensor to the vector network analyser and capture the data over the specified frequency (from WP1) in both free space and homogeneous medium for calibration purpose.</li> <li>• Install the MVP onto the mud-master platform and capture some raw RF signal from real application scenario.</li> <li>• Interpret the collected RF signal and map the data with soil properties.</li> </ul> <p>Outcomes:</p> <ul style="list-style-type: none"> <li>• Verification of the 3D simulation model to present the realistic laminates with high reliability.</li> <li>• Quantitative understanding of the system reliability and sensitivity of measuring the soil properties.</li> <li>• IP protected, and a next-stage development and commercialization plan is proposed.</li> </ul> <p>Start date: 8 months from the Commencement Date</p> <p>End date: 12 months from the Commencement Date</p>
7	<b>Deliverables</b>	<p>3 months from the Commencement Date: Report outlining design parameters of the dielectric sensor</p> <p>7 months from the Commencement Date: Reporting outlining design of the dielectric sensor and validation of sensor performance using computational studies</p> <p>12 months from the Commencement Date: Report outlining system reliability and sensitivity of measuring soil properties</p>
8	<b>Commencement Date</b>	Date that is specified in the Commonwealth Funding Agreement
9	<b>End Date</b>	Date that is specified in the Commonwealth Funding Agreement
10	<b>Project Term</b>	<p>The Project will be for a term of 12 months, commencing on the Commencement Date and ending on the earlier of:</p> <p>(a) the End Date; and</p>

Item	Name	Description		
		(b) the effective date of termination, if the Agreement is terminated earlier in accordance with clause 7 of the <b>Standard Terms</b> .		
11	Project Supervisor	Dr Yifan Wang Associate Professor Alexander Scheuermann Professor Amin Abbosh		
12	Researcher(s)	To be recruited.  If the Researcher(s) becomes unavailable, the Research Provider must immediately notify the Research Recipient, and, subject to approval from the Research Recipient, replace with personnel with similar expertise and ability to those of the Researcher(s).		
13	Project Location(s)	The Research Project will be undertaken at The University of Queensland.		
14	Research Provider Contribution	Time for supervision from Project Supervisor valued at: Dr Yifan Wang at 0.1FTE Associate Professor Alexander Scheuermann at 0.1FTE Professor Amin Abbosh at 0.1FTE Provided to this Project as in-kind contribution.		
15	Research Recipient Contribution	N/A		
16	Project Fees	Research Recipient cash contribution: \$50,000  Research Provider contribution: N/A  Commonwealth funding: \$50,000  Total Project Value: \$100,000  The Parties acknowledge that the Commonwealth funding will be provided directly to the Research Provider.  Project Fees are exclusive of GST.		
17	Payment Method	The Research Recipient will pay the Project Fees (exc GST) to the Research Provider in accordance with the following schedule: <table><tr><td>Invoicing date</td><td>Payment amount (AUD ex GST)</td></tr></table>	Invoicing date	Payment amount (AUD ex GST)
Invoicing date	Payment amount (AUD ex GST)			

Item	Name	Description				
		<table><tr><td>Upon the execution of this agreement</td><td>\$25,000</td></tr><tr><td>End Date</td><td>\$25,000</td></tr></table>	Upon the execution of this agreement	\$25,000	End Date	\$25,000
Upon the execution of this agreement	\$25,000					
End Date	\$25,000					

**18 Intellectual Property Background Material**

The Research Provider has the following Background Material:

- i. NA

The Research Recipient has the following Background Material:

- i. Detailed information on MudMaster® operation in a range of commodities that provides fundamental information on how AMC can be optimised for any tailings/soft-soil. Data extracted the Research Recipient's MudMasters® while operating on client operations is subject to confidentiality between the Research Recipient and the Client. It is a pre-condition of access that the data is de-identified by the Research Provider to ensure the client remains anonymous. Data is to be identified by commodity only.

Access of any Background Material and Confidential Information provided by the Research Recipient is limited to the Project Supervisor (Item 11) and Researchers (Item 12), unless approved in writing by the Research Recipient.

Use of any Background Material, stated above, by the Research Recipient from the Research Provider for purposes other than the project will be subject to separate commercial arrangements between the Research Recipient and the Research Provider.

**Developed Material**

- i. Intellectual Property in the Deliverables

Ownership of, and all Intellectual Property Rights in, the Developed Material will vest in the Research Provider and the Research Recipient as tenants in common in equal shares.

Subject to the Research Recipient not being in breach of any provision of this agreement, the Research Provider, to the extent of its ownership in the Developed Material, grants the Research

Item	Name	Description
		<p>Recipient an exclusive, perpetual, sub-licensable, royalty-free worldwide licence to use and commercialise the Developed Material in the fields of tailings management, dredge spoil management and soft soil recovery (“Phibion Exclusive Fields”).</p> <p>The Research Recipient, to the extent of its ownership in the developed Material, grants the Research Provider:</p> <ul style="list-style-type: none"> <li>(a) a non-exclusive, perpetual, sub-licensable, royalty-free worldwide licence to use the Developed Material in any field for research and education purposes; and</li> <li>(b) an exclusive, perpetual, sub-licensable, royalty-free worldwide licence outside of Phibion Exclusive Fields.</li> </ul>
19	Publication	<p>Any subsequent intentions to publish are subject to clause 6.3.</p> <p>The Research Recipient acknowledges that the Research Provider may publish and otherwise disclose the results of the Project. The Research Recipient will have 30 days upon receipt from the Research Provider to review the manuscript and request removal of any Confidential Information from the manuscript.</p>
20	Insurance	<p>Public Liability: \$10,000,000 to be maintained for the Project Term.</p> <p>Professional Indemnity: \$10,000,000 to be maintained for the Project Term and a period of 1 years afterwards.</p> <p>The parties may agree to accept alternative forms of insurance which, whilst not precisely making reference to categories described in this clause, offer equivalent insurance cover.</p>
21	Reports	<p>Reports will provided on a regular basis by the Research Provider at regular intervals agreed between the Research Provider and Research Recipient.</p> <p>The Research Recipient shall submit to the Commonwealth:</p> <ul style="list-style-type: none"> <li>(a) a Progress Report at 6 months from the Commencement Date; and</li> <li>(b) a Final Report within 4 weeks of the End Date.</li> </ul>

## SIGNATURES

Executed as an agreement:

**EXECUTED** by RESIDUE SOLUTIONS PTY LTD by its duly authorised representative:



Signature of authorised  
representative



Signature of witness

04/04/2019

Date

DAVID FRASER

Name of authorised  
representative (block letters)

DEAN BEAGLEY

Name of witness (block letters)

**SIGNED** for THE UNIVERSITY OF QUEENSLAND by its duly authorised representative:



Signature of authorised  
representative



Signature of witness

8 April 2019

Date

JOE MCLEAN  
DIRECTOR (RESEARCH PARTNERSHIPS)

Name of authorised  
representative (block letters)

CONSTANTIN DE BOISSESON

Name of witness (block letters)

## **STANDARD TERMS**

### **1. Performance of the Project**

#### **1.1 Project commencement**

The parties agree to commence the Project promptly upon the Commonwealth's execution of the Funding Agreement and, in any event, no later than 14 days after the Commencement Date specified in the Funding Agreement (or other period of time approved by the Commonwealth in writing).

#### **1.2 Research Provider's obligations**

During the Project Term, the Research Provider agrees to:

- a) provide the Researcher, and access to Research Infrastructure, to the Research Recipient to perform the Innovation Connections Project at the Project Location, in accordance with Item 13 of the Project Details;
- b) ensure that the Researcher performs the Innovation Connections Project:
  - i. in accordance with this Agreement and the Funding Agreement;
  - ii. diligently and with reasonable care and skill; and
  - iii. cooperatively with the Research Recipient;
- c) continue to pay the Researcher's salary and any other benefits the Researcher is entitled to under his or her terms of employment and maintain appropriate workers compensation insurance in respect of the Researcher; and
- d) provide the Research Provider Contribution (if any) described in Item 14 of the Project Details to the Researcher and/or the Research Recipient (as applicable).

#### **1.3 Research Recipient's obligations**

During the Project Term, the Research Recipient agrees to provide:

- a) the Research Recipient Contribution (if any) described in Item 15 of the Project Details to the Researcher; and
- b) reasonable access and assistance to the Researcher to permit the Researcher to perform the Innovation Connections Project in accordance with this Agreement and the Funding Agreement.

### **2. Project Fees**

#### **2.1 Research Recipient contribution**

- a) The Research Recipient must pay the Project Fees to the Research Provider in accordance with Items 16 and 17 of the Project Details.
- b) Where the Research Recipient is the party receiving the Commonwealth Funding from the Commonwealth, the Research Recipient will be able to use the Commonwealth Funding as part of the payment of the Project Fees.
- c) Where the Research Provider is the party receiving the Commonwealth Funding from the Commonwealth, the Research Provider will accept the Commonwealth Funding as part payment for the Project Fees.



## **2.2 Tax Invoices**

- a) The Research Provider must provide the Research Recipient with a Tax Invoice for any supply made by the Research Provider under this Agreement.
- b) All Tax Invoices issued by the Research Provider must be paid by the Research Recipient within 30 days of the invoice date.
- c) If the Research Recipient fails to pay an invoice within 30 days of the invoice date as required under clause 2.2(b), the Research Recipient must pay interest on the outstanding amount (excluding any amount that the Research Provider has received from the Commonwealth), calculated daily at 10% per annum from the due date until the date the outstanding amount is paid.

## **3. Commonwealth Funding Agreement**

### **3.1 Acknowledgment of Commonwealth funding**

The parties acknowledge and agree that:

- a) subject to the terms of the Funding Agreement, the Commonwealth will provide the Commonwealth Funding in order to fund up to 50% of the Project payable to the Researcher Provider for the Research Project, up to a maximum of \$50,000 (excluding GST), by paying that amount to the Funding Recipient; and
- b) the Commonwealth may vary, withhold, cease or require repayment of the Commonwealth Funding under clause 8 of the Funding Agreement.

### **3.2 Effect of breach of the Agreement on Funding Agreement**

The parties acknowledge that if either party breaches this Agreement or the Researcher acts in a manner inconsistent with this Agreement or the Funding Agreement:

- a) the Funding Recipient must notify the Commonwealth immediately; and
- b) the Commonwealth may decide to terminate the Funding Agreement.

### **3.3 Assistance to enable Funding Recipient to comply with the Funding Agreement**

The Research Recipient or Research Provider (as applicable) agrees to provide the Funding Recipient with all reasonable assistance to enable the Funding Recipient to comply with its obligations under the Funding Agreement.

## **4. Intellectual property**

### **4.1 Intellectual Property Rights**

- a) Each party agrees that:
  - i. any Background Material of a party, and all Intellectual Property Rights in any such material, will remain the property of that party;
  - ii. each party grants to the other party a non-exclusive, worldwide and royalty-free licence to use, modify, exploit that party's Background Material for the purposes of performing the Innovation Connections Project during the Project Term described in Item 10 of the Project Details; and
  - iii. all Intellectual Property Rights in the Developed Material will vest in the party described in Item 18 of the Project Details on creation and will be subject to any licence arrangements described in Item 18 of the Project Details in favour of the other party.

- b) The parties must do all things necessary to ensure that the ownership of the Developed Material, and all Intellectual Property Rights in that Developed Material, vests in accordance with clause 4.1 a (iii).
- c) Each party warrants that it is entitled to provide the licences contemplated by this clause.

## 5. Audit and access

### 5.1 Access to Commonwealth auditors

The parties must give the Commonwealth, the Auditor-General and persons authorised by the Commonwealth (collectively, “**those permitted**”) access to premises at which records are stored or work in connection with the Project is undertaken at all reasonable times and allow those permitted to inspect and copy records in their possession or control for purposes associated with this Agreement or the Funding Agreement or any review of performance under this Agreement or the Funding Agreement, including without limitation, to audit the performance of the Innovation Connections Project.

### 5.2 Reasonable assistance

The parties must provide all reasonable assistance to those permitted for the purposes of performing the audits contemplated in clause 5.1

## 6. Publicity and promotion

### 6.1 Acknowledgements

The parties agree that:

- a) each party and the Researcher must make the details and outcome of the Project available to the Commonwealth for use as an Innovation Connections Project case study and for other purposes relating to the Commonwealth’s evaluation of the Programme;
- b) each party must ensure that the Commonwealth Funding is acknowledged when carrying out any publicity or promotional activities regarding the Innovation Connections Project.

### 6.2 Publicity

Each party must not publicly use the other’s name or trademarks without its written permission.

### 6.3 Publicity

Each party will request and receive written approval from the other prior to publishing any paper(s) relating to the Project. A reply to request to publish must occur within 30 days. Each party will not withhold approval from the other, except where the publication may prejudice rights to IP or Confidential Information.

## 7. Termination

### 7.1 Termination

Either party has the right to terminate this Agreement by notice in writing to the other party if:

- (a) the Commonwealth notifies the party to whom it made the offer of Commonwealth Funding that it will not proceed with executing the Funding Agreement; or
- (b) the Funding Agreement is terminated.

### 7.2 Parties’ obligations on termination

On termination of this Agreement, each party will:

- (a) stop participation in the Project as specified in the notice of termination;

- (b) take all available steps to minimise loss resulting from that termination; and
- (c) protect Agreement Material and the Developed Material and Background Material of the other party (if any) and:
  - i. deal with Agreement Material as reasonably directed by that party; and
  - ii. deal with the Developed Material, Background Material and Confidential Information of the other party (if any), as reasonably directed by that party.

## 8. Insurance

- a) Each party must maintain the insurance policies specified in the Project Details.
- b) Each party must provide evidence of insurance promptly on request by the other party.

## 9. Records and reporting

Without limiting clause 3.3, the Research Recipient or Research Provider (as applicable) agrees to provide the Funding Recipient with all reasonable assistance required by the Funding Recipient in order to satisfy the Funding Recipient's record keeping and reporting obligations under the Funding Agreement, including by providing any Reports specified in Item 21 of the Project Details.

## 10. General

- a) Clauses 5, 6, 7 and 9 survive the expiry or termination of this Agreement.
- b) A party may only assign its rights or novate its rights and obligations under this Agreement with the prior written consent of the other party.
- c) This Agreement is governed by the law of the Australian Capital Territory.

## 11. Definitions and interpretation

### 11.1 Definitions

In this Agreement, except where the contrary intention is expressed, the following definitions are used in addition to the terms defined in the Project Details:

<b>Agreement Material</b>	all reports and other information which are required by the Commonwealth under this Agreement. For the avoidance of doubt, the Agreement Material does not include the results of the research undertaken by the Researcher(s).
<b>Background Material</b>	means material which existed prior to the Commencement Date or any material which is, or has been, created independently of the Innovation Connections Project and includes any modification, enhancement or improvement made to that material as a result of the Innovation Connections Project.
<b>Commencement Date</b>	means the date on which this Agreement commences, as specified in the Project Details.
<b>Commonwealth</b>	means the Commonwealth of Australia as represented by the Department of Industry, Innovation and Science ABN 74 599 608 295.
<b>Commonwealth Funding</b>	means the funding provided by the Commonwealth to the Funding Recipient under the Funding Agreement.
<b>Confidential Information</b>	means information that is by its nature confidential and:  a) is designated by a party as confidential; or  b) a party knows or ought to know is confidential,  but does not include:  c) information that is or becomes public knowledge otherwise than by breach of this Agreement or any other confidentiality obligation.
<b>Customer Information Guide</b>	the guidelines for the programme provided to you by the Commonwealth, as amended by the Commonwealth from time to time.
<b>Developed Material</b>	means all intellectual property which:  a) is created by one or both parties in the course of carrying out the Activities;  b) is described and/or subsists in the Deliverable(s), and  c) excludes general skills and capability.
<b>Programme</b>	means the Commonwealth's Entrepreneurs' Programme.
<b>Funding Agreement</b>	means the agreement between the Funding Recipient and the Commonwealth under which the Commonwealth provides the Funding Recipient funding for the Research Project.
<b>Infrastructure</b>	means the assets, facilities and services which support research across the innovation system and which maintain the capacity of

	researchers to undertake research and deliver innovation outcomes.
<b>Innovation Connections Project</b>	means the placement of the Researcher(s) with the Research Recipient for the purpose of performing the Innovation Connections Project as detailed in the Activity Schedule in Item B.2 of the Funding Agreement and on the term and conditions set out in this Agreement.
<b>Intellectual Property Rights</b>	means all intellectual property rights including current and future registered and unregistered rights in respect of copyright, designs, circuit layouts, trademarks, trade secrets, know-how, confidential information, patents, invention and discoveries and all other intellectual property as defined in Article 2 of the convention establishing the World Intellectual Property Organisation 1967.

## 11.2 Interpretation

In this Agreement, except where the contrary intention is expressed:

- a) the singular includes the plural and vice versa, and a gender includes other genders;
- b) a reference to a party is to a party to this Agreement, and a reference to a party to a document includes the party's executors, administrators, successors and permitted assignees and substitutes;
- c) a reference to a person includes a natural person, partnership, body corporate, association, governmental or local authority or agency or other entity;
- d) a reference to a statute, ordinance, code or other law includes regulations and other instruments under it and consolidations, amendments, re-enactments or replacements of any of them;
- e) the meaning of general words is not limited by specific examples introduced by including, for example or similar expressions;
- f) a reference to month is a reference to a period commencing at the beginning of a day of one of the 12 months of the year and ending immediately before the beginning of the corresponding day of the next month (for example, one month starting 19 June ends 18 July) or, if there is no such corresponding day, ending at the expiration of the next month; and
- g) headings are for ease of reference only and do not affect interpretation.

## 11.3 Priority of Agreement documents

If there is inconsistency between any of the documents forming part of this Agreement, those documents will be interpreted in the following order of priority to the extent of any inconsistency:

- a) Standard Terms;
- b) the Activity Schedule;
- c) the Project Details; and
- d) the Innovation Connections Customer Information Guide.