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| **Project:**  |
| **Title: PhD student placement opportunity –** *“Can the modelling of coal tip landslips be used to accurately assess their impact potential? “* |
| Following the events of the Tylorstown landslip, February 2020, Welsh Government committed to reviewing the current regime and legislative framework for disused coal tips in Wales. This review concluded that current legislation is not fit for the safe management of disused coal tips. As such, the First Minister (FM) has included a new coal tip safety bill within the programme for government for the current Senedd term. Work on this policy area is led by the Coal Tip Safety (CTS) team in Welsh Government, sitting under the portfolio of the Minister for Climate Change. The team work closely with key internal and external stakeholders, including across local government, Natural Resources Wales (NRW) and the Coal Authority (CA). General information on the CTS programme can be found at [Coal tip safety | GOV.WALES](https://gov.wales/coal-tip-safety)**Purpose of the Post**There are a multitude of elements to consider in delivering a regime to ensure the safe, effective management of disused coal tips in Wales. The ability to assess the potential impact of a slope stability hazard will be critical across the policy area, including in:* Emergency preparedness and contingency planning
* Inform and support the future risk categorisations system
* Prioritisation of resourcing and targeting of maintenance and capital works
* Assist in identifying sites to be considered as part of any future reclamation programme

‘Rapid’ landslide failures (e.g. debris flows, debris slides and flow slides) are the most prominent failure type experienced in coal tips, specifically in terms of perception. However, whilst characterising some of the more ‘catastrophic’ failure events observed in Wales, they do not necessarily represent the dominant failure types experienced. The characterisation of the different failure types, and their impact potentials, therefore, is critically important in the policy development and in informing any future regime. The post-holder will, where applicable, be granted access to a database of information held by Welsh Government, whilst also being supported in pursuing information from external partners, notably local authorities and the Coal Authority. It is recognised that not one tip is the same and each site will likely have conditions unique to itself; as such, it is proposed that the study will include an agreed scope of disused coal tips, to be determined upon appointment. It is expected that works to assess debris mapping and inform impact potential will be driven by analytical modelling, including:* Slope Stability Modelling – to determine scales, modes and drivers of failure etc.
* Debris Modelling – subject to the result of the slope stability modelling and assessing other contributing factors (e.g. geomorphology).

Findings need to be robust and conclusive, and are to be substantiated with detailed study, analysis, interpretation and assessment. Factors for consideration:* Back-analysis of recorded tip failures
* Driving influences of tip failure
* Modelling of tip construction, material and engineering performance
* Limitations to analyses - what information is needed and what is available
* Safety critical infrastructure (e.g. drainage channels)
* Engineering judgement
* Rainfall forecasting, threshold values and potential triggers

The post-holder will actively support the development of longer-term policy direction in developing a new coal tip safety regime. This area of research overlaps with other critical work streams and the results will be influential across the policy area.**Key Tasks*** Review of disused coal tips dataset and selection of candidate sites with Welsh Government
* Engagement with internal and external stakeholders
* Detailed analysis to support the development of an approach to assess the impact potential of tip instability
* Drafting of a technical paper to support policy direction
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| **Details**  |
| **Skills required:** | **Key Skills*** Excellent research skills and the ability to analyse complex information and data
* A background in geotechnical engineering/engineering geology with experience in slope stability and debris flow modelling
* Ability to write clearly and concisely and present technical material in an accessible format
* Presentation skills
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| **Outputs:** | As agreed with line manager and in relation to the above priorities |
| **Host organisation:**  | Welsh Government |
| **Placement Start Date** | ASAP |
| **Development Opportunities** | The placement provides an opportunity to gain insight into the functioning of Welsh Government and evidence-based policy development at the highest level. The post-holder will work in an interesting and diverse team, contributing to the delivery of a cross-government programme in an area of policy in which, through its legislative framework, Wales leads the UK. The post-holder will be expected to work independently within parameters and guidelines provided by the Welsh Government. Working closely with a wide range of colleagues the successful candidate will build valuable working relationships, broaden their knowledge of public policy-making and enhance their existing transferable skills.This is an interesting and diverse role, working on a high-profile programme across Welsh Government portfolios which will allow the student to gain a broad knowledge and understanding of Welsh Government policy work. With support from their WG supervisor, the student will be expected to take responsibility for managing and delivery of work commitments during the placement period. |
| **Duration, location, working arrangements and environment:**  | The role will be full-time and is normally based with the policy team in one of Welsh Government’s regional offices. In view of current Covid-19 restrictions, the post-holder will be required to work from home in-line with working arrangements for all Welsh Government employees and it is unlikely that this will change for the foreseeable future. Post-holders will be provided with a laptop to facilitate regular contact with the policy team members and line management, other policy teams and external partners. Due to the remote nature of working, the policy team will ensure that the post-holder is fully supported during the placement and endeavour to ensure that the placement is as close to the in-team office-based experience as possible.The placement will be for a 3 month period and will focus on delivering the objectives set out in the job specification. The option to extend for a further 3 months is possible if the project team feel there is merit in doing so and if it is compatible with the post-holder’s university research schedule and DTP/CDT arrangements. The Welsh Government is a bilingual organisation and Welsh language skills are considered an asset to the organisation. We encourage and support staff to use their Welsh language skills during a placement. Start date will be agreed following successful Welsh Government security clearance. |
| **Funding** |
| The placement will be funded by Welsh Government and will match the current UKRI PhD stipend rate, payable in one sum at the beginning of the placement (to minimise financial administration). The payment process aims to compliment PhD student university stipend payment structures, i.e. WG pay the university and the funds are passed-on to the student’s account. To avoid delays to students receiving payments, it is preferable that the student’s PhD stipend is not paused during the placement and that, instead, it continues and that WG reimburse the university for the time the student is not undertaking research. **Please note:  we do not pay students directly** |
| **Contact**  |
| **Name:**  | ResearchPlacements@gov.wales |
| **Application process**  |
| **Please submit CV and covering letter****All applicants must seek approval from the academic supervisor before applying**If you have an impairment or health condition, or use British Sign Language and need to discuss reasonable adjustments for any part of the placement programme, or wish to discuss how we will support you if you are to be successful, please contact ResearchPlacements@gov.wales as soon as possible to discuss your requirements and any questions you may have. |