

Green Walls & Rooftop Gardens Project



Summary of Validation Feedback, Responses and Actions March 2020

This project includes the development of three new units of competency and three new skill sets within the AHC Agriculture, Horticulture, Conservation and Land Management Training Package. The final draft materials were developed as a result of feedback provided by stakeholders and Subject Matter Experts (SMEs) during the validation period 7 February - 1 March 2020.

A validation meeting was held on the 26 February 2020, where all documents were validated through this process. Validation feedback was also received from a variety of stakeholders around the country via phone and emails. The table below provides an overview of the groups and jurisdictions that have provided feedback during this phase of the project.

| | ACT | NSW | NT | Qld | SA | Tas | Vic | WA | National |
|---|-----|-----|----|-----|----|-----|-----|----|----------|
| Industry (employer / employee) | | | | | | | | | |
| Industry association | | | | | | | | | |
| Union | | | | | | | | | |
| Registered Training Organisation (RTO) | | | | | | | | | |
| Government department | * | | | | | * | | | |

** Note: Feedback received from Government and an Industry Advisory Body confirmed there were no interested stakeholders in the Australian Capital Territory and Tasmania for this project.*

Below is a summary of the issues raised for the draft units of competency and skill sets developed and reviewed for the Green Walls and Rooftop Gardens project, and how these issues have been dealt with. This involves a consideration of the information provided, views of industry stakeholders and from people who are part of the Subject Matter Expert Working Group process. Resolutions are constructed to consider the needs and views of stakeholders to the extent possible, and to comply with the Standards for Training Package 2012. The resolutions may represent a compromise on one or more stakeholder views with the aim of a workable outcome for industry, State and Territory Training Authorities (STAs) and training providers.

Acronyms – APP – Application, PC – performance criteria, FS – Foundation Skills, PE – performance evidence, KE – knowledge evidence, AC – assessment conditions, SME-WG – Subject Matter Expert Working Group.

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Summary of general validation feedback

General Feedback

| Stakeholder Comments and Identified Issues | | Consideration and Proposed Resolution |
|---|---|--|
| VIC RTO | <p>Please find attached some feedback for the three new units. The concern about the size of the units and the suggestion to split the units into two specialist areas remains (rooftop gardens specialist unit and vertical garden and green facade specialist unit), as does the concern that there will be barriers to delivery of these units.</p> <p>Have noted the inclusion of the three new units into existing qualifications as electives (new units will not be orphaned). All three units have not been included in any one qualification. Suggest that the unit AHCGRIXX2 and perhaps AHCGRIXX1 be included in AHC52016 Diploma of Landscape Project Management.</p> | <p>Thank you for your feedback. The feedback was provided to the SME WG, who confirmed retaining the units to include roof gardens, as well vertical gardens and green facades. Please note KE has been reduced in the Design and Construct units assisting delivery concerns.</p> <p>Thank you for your feedback. Recommended unit placement has been recorded and will be included as part of the upcoming Landscape project. Units may be utilised in other qualifications where packaging rules enable imported.</p> |
| SME-WG Industry QLD, NSW, VIC, NAT RTO QLD, WA Industry Association QLD, NAT | <p>Add AHCGRIXX1 into Cert IV Landscape as elective - then all 3 units sit in 1 qual.</p> | <p>Thank you for your feedback. Recommended unit placement has been recorded and will be included as part of the upcoming Landscape project.</p> |

Summary of validation feedback on Skill Sets

New skill sets

| Stakeholder Comments and Identified Issues | | Consideration and Proposed Resolution |
|---|--|---|
| AHCSS00114 Design Roof Gardens, Vertical Gardens and Green Facades Skill Set | | |
| <p>SME-WG Industry QLD, NSW, VIC, NAT RTO QLD, WA Industry Association QLD, NAT</p> | <p>Suggestion to change SS title - remove "Plan and".</p> <p>Description: change wording of "local government" to be consistent with units.</p> <p>Pathways: update as per table proposing where units can be places as electives.</p> <p>Target Group: change to wording used in Design unit.</p> | <p>Adopted: Thanks for your feedback. Skill Set title changed 'Plan and' removed.</p> <p>Adopted: specific reference to only 'local' government has been amended to 'national, state, territory and local authorities'.</p> <p>Adopted: Pathways updated to include AHC42016 Certificate IV in Landscape, enabling all three new units to be included in one qualification.</p> <p>Adopted: wording of target group updated to include landscape designers.</p> |
| <p>Industry, SA</p> | <p>Update licencing statement.</p> <p>Include designers in target group.</p> | <p>Adopted: Thank you for your feedback. The licencing statement has been changed to reflect that licencing requirements may be relevant in some jurisdictions.</p> <p>Adopted: Thank you for your feedback. Landscape designers have been included in the wording for the Target Group.</p> |
| AHCSS00115 Construct Roof Gardens, Vertical Gardens and Green Facades Skill Set | | |
| <p>SME-WG Industry QLD, NSW, VIC, NAT RTO QLD, WA Industry Association QLD, NAT</p> | <p>Update licencing to be consistent with other documents and update target group.</p> <p>Statement of Attainment change "building" to "constructing" to match title of skill set.</p> | <p>Adopted: Thanks for your feedback. Changes have been made to wording of Target group 'experienced horticultural, landscaping and/or construction workers and/or builders who construct green infrastructure..' and the licencing information wording changed to reflect that licencing or certification requirements may apply in some jurisdictions.</p> <p>Adopted: wording changed to 'constructing' to reflect change to skill set title from draft 1.</p> |

| Stakeholder Comments and Identified Issues | | Consideration and Proposed Resolution |
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| Industry, SA | Pathways information AHC50616 Diploma of Landscape Design - not construction. | Thank you for your feedback. Recommended unit placement has been recorded and will be included as part of the upcoming Landscape project |
| AHCSS00117 Maintain Roof Gardens, Vertical Gardens and Green Facades Skill Set | | |
| SME-WG Industry QLD, NSW, VIC, NAT RTO QLD, WA Industry Association QLD, NAT | Update licencing statement Update pathway information | Thank you for your feedback. Adopted. Licencing information wording changed to accommodate possibility that licencing or certification requirements may apply in some jurisdictions. Pathway information has been updated to reflect the SMEWG decision to include the AHCGRI301 Maintain roof gardens, vertical gardens and green facades in the Certificate IV in Landscape qualification. |

Summary of validation feedback on Units of Competency

New units of competency

| Stakeholder Comments and Identified Issues | | Consideration and Proposed Resolution |
|---|---|---|
| AHCGRI501 Design roof gardens, vertical gardens and green facades (formerly known as AHCGRIX1) | | |
| RTO, VIC | <p>Note the amendments made and reduction in numbers of PCs, however this is a big unit.</p> <p>APP: "The unit applies to individuals with existing horticultural and or landscaping experience..." May need to strengthen this statement regarding the level of experience required.</p> <p>KE: "• relevant legislation, standards and codes including the National Construction Code (NCC) " Does this point include applicable building and local government regulations and high risk work licencing requirements? Apart from regulatory knowledge consider adding knowledge of system/component suppliers, job roles of building professionals (architects and engineers) and other specialists (role of local councils) to support the PCs and PE (and Skill Set Description). It is important that the designer understands the design process limitations and boundaries - when to refer etc.</p> | <p>Thank you for your feedback. The feedback was provided to the SMEWG who acknowledged the 'size' of the unit and confirmed retaining the unit as a single unit including roof gardens, vertical gardens and green facades.</p> <p>Thank you for your feedback. The feedback was discussed with the SME WG, who discussed and confirmed, with an amendment to include 'landscape design and/or construction experience' that wording specifying years of experience of any particular type may be problematic and restrictive. RTOs involved in discussions confirmed that RTO requirements to assess individuals' skills and experience prior to enrolment could address this issue.</p> <p>Thank you for your feedback. The feedback was discussed with the SMEWG who confirmed it was sufficient. However, knowledge of 'professional practice requirements in green infrastructure design' has been clarified to specify knowledge of 'limitations and boundaries' and 'roles and responsibilities of building professionals and authorities'.</p> |
| Industry, SA | <p>Landscape designers in some states (eg: SA) cannot specify - they are not licensed to "specify" they can offer "artistic impression" and have a qual specialist sign off on it - document.</p> | <p>Thank you for your feedback. The licencing statement has been changed to reflect that licencing requirements may be relevant in some jurisdictions. Additionally, PCs 3.7, 4.7 and 5.6 have been amended to include 'Prepare design plans, specifications, maintenance program and</p> |

| Stakeholder Comments and Identified Issues | Consideration and Proposed Resolution |
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| <p>KE: They should be providing an estimate not quote on the project costs.</p> <p>Question around delivery, if this was a workplace. All assessors would be required to hold a builders' license and/or supervisory ticket and have been demonstrated to be able to do all the work for a period of 2 years and signed off by a supervisor.</p> <p>Size of the unit is too big, not enough time to deliver the necessary knowledge. Suggest breaking up the unit into 2 units, roof separate to walls or facades. Change the unit to roof or wall or facade.</p> <p>APP: include landscape design experience</p> <p>PC 3.1 Acquire engineering plan re-drainage outlets and weight limits. Depth available</p> <p>PC 3.3 This needs to be reversed. They system is dependent on the plants that can be grown.</p> <p>FS: Reading - include plans.</p> | <p>estimated costs... for documenting by a qualified specialist, if required' to address jurisdictional variations.</p> <p>Thank you for your feedback. KE amended to 'used measurements and formulas to calculate material quantities, weights and estimated project costs'.</p> <p>Thank you for your feedback. The Assessment Conditions enable the unit to be assessed 'in a design workplace, or an environment that accurately represents workplace conditions'. As per comment above, PCs 3.7, 4.7 and 5.6 have been amended to include provision for designs to be documented by a qualified specialist where this is a requirement in specific jurisdictions.</p> <p>Thank you for your feedback. The feedback was provided to the SMEWG who acknowledged the 'size' of the unit and confirmed retaining the unit as a single unit including roof gardens, vertical gardens and green facades.</p> <p>Adapted. Wording has been amended to '...individuals with existing horticultural, landscaping, landscape design and/or construction experience'.</p> <p>Thank you for the feedback. PC 3.1 has been added 'Acquire engineering plans to determine drainage outlets, available depths and weight limits'.</p> <p>Thank you, PC 3.3 (which is now 3.4) has been amended to 'Consult growing media specialist and select media and plants based on the location conditions and maintenance requirements' and PC 4.3 has been amended to 'Consult growing media specialist to determine media characteristics and functionality, and select plants based on the location conditions and maintenance requirements'.</p> <p>Included, FS amended to 'Reading and interpreting plans'.</p> |

| Stakeholder Comments and Identified Issues | | Consideration and Proposed Resolution |
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| | <p>Oral Communication - "ensure compliance" question to what?</p> | <p>FS Oral Communication wording has been amended to clarify requirement to: 'Consult with clients, architects, engineers and suppliers to determine design and regulatory requirements for green infrastructure'.</p> |
| <p>Industry Association, NT</p> | <p>I refer to the final draft of AHCGRIX1 Design roof gardens, vertical gardens and green facades and am surprised that there is no mention of Digital Literacy skills in elements 3, 4, and 5 – even under the Foundation Skills section.</p> <p>In any field of design, I suspect that applying digital literacy through use of software programs would be fundamental to ensuring that work can be produced in an efficient and effective way. Just a thought... cheers.</p> | <p>Thank you for your feedback. Foundation skills do include writing skills to develop relevant documentation using digital technology. Feedback from consultation on draft 1 advised that digital or technology based design was not a design requirement.</p> <p>Writing FS includes use of digital technology 'Develop relevant documentation using digital technology'.</p> |
| <p>SME-WG Industry QLD, NSW, VIC, NAT RTO QLD, WA Industry Association QLD, NAT</p> | <p>Application: add "construction" to second paragraph for existing experience.</p> <p>Edit fourth paragraph reference to "local government".</p> <p>PC 1.2 as above edit "local government".</p> <p>2.3 remove "building".</p> <p>3.1 replace "size" with "dimensions".</p> | <p>Thank you for your feedback. Wording in second paragraph has been amended to add construction, as well as accommodate other feedback to add landscape design: 'The unit applies to individuals with existing horticultural, landscaping, landscape design and/or construction experience.'</p> <p>Reference to 'local government' has been expanded to include 'national, state, territory and local government'. Reflected throughout document.</p> <p>PC 1.2 amended wording to 'Access and interpret building regulations, standards and codes and relevant national, state, territory and local authority...'</p> <p>Thanks for your feedback. 'Building' has been removed.</p> <p>Adopted. PC 3.1 now moved to 3.2 and reworded to: 'Accurately measure and record overall dimensions of proposed green roof space'</p> |

| Stakeholder Comments and Identified Issues | | Consideration and Proposed Resolution |
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| | <p>3.4 reorder placement of words to "Document specifications for waterproofing, irrigation and drainage systems, and or lighting, including recommended suppliers".</p> <p>4.4 make same as 3.4.</p> <p>5.1 replace "depth" with "dimensions".</p> <p>Foundation Skills remove "paraphrasing" from Oral Communication.</p> <p>PE: change all square metres to 4 per type.</p> <p>Second bullet edit "local government" to match as above.</p> <p>Fourth bullet change to "used measurements and formulas to calculate material quantities, weights and estimated project costs"</p> <p>Last bullet change to "developed and documented a maintenance program to ensure sustainability of the green infrastructure."</p> <p>KE: change fourth bullet to 'recirculating and non-recirculating/flood-drain vertical garden system'.</p> | <p>Thank you for the feedback. Wording in PC (now 3.5) has been reordered to put 'waterproofing' first, as well as enable flexibility regarding lighting.</p> <p>As above.</p> <p>Adopted: 'depth' changed to 'dimensions'.</p> <p>Thank you for your feedback. Adopted.</p> <p>Thank you for your feedback. 'Volume' of PE for roof gardens, vertical walls and green roofs has been changed to a minimum of four square metres each.</p> <p>Thank you for your feedback. Wording of bullet point has been expanded beyond 'local government' to include '<i>relevant regulatory authorities</i>'.</p> <p>Thanks for your feedback. The PE has been amended to include calculating weights, and 'estimating' project costs.</p> <p>Thanks for the feedback. Adopted. Wording has been changed.</p> <p>Adopted. Wording has been amended to accommodate jurisdictional variations in terminology.</p> |
| AHCGRI401 Construct roof gardens, vertical gardens and green facades (formerly known as AHCGRIX2) | | |
| RTO, VIC | <p>Completion of the general construction induction training program specified by the model Code of Practice for Construction Work (White Card) is required for any person who is to carry out construction work ."</p> | <p>Thank you for your feedback.</p> <p>The licencing statement of all units and skills sets has been amended to indicate that licencing, legislative or certification requirements may apply to the work being performed, the</p> |

| Stakeholder Comments and Identified Issues | | Consideration and Proposed Resolution |
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| | <p>Should there be reference here to other high risk work licencing/construction 'tickets' that may be required?</p> <p>PE: Note that the SME-WG supports the inclusion of all three construction types in the one unit. While there has been a reduction in the minimum area for the roof top garden, the PE required for three different construction situations to meet the requirements of this one unit is likely to present a delivery barrier to at the TAFE level.</p> | <p>location of the project and/or the equipment being used, and may vary across jurisdictions.</p> <p>Thank you for your feedback. As noted above, the feedback was provided to the SMEWG who confirmed retaining the unit as a single unit including construction of each of roof gardens, vertical gardens and green facades. Further discussions confirmed that the 'volume' of PE for roof gardens, vertical walls and green roofs could be satisfactorily demonstrated to industry standards at a minimum of four square metres each. RTOs in the SME-WG agreed that this volume was reasonable.</p> |
| Industry, SA | <p>Question on licensing, ensure correct ticketing PE: under supervision.</p> | <p>Thank you for your feedback. The licencing statement has been amended to indicate that licencing, legislative or certification requirements may apply to the work being performed, the location of the project and/or the equipment being used, and may vary across jurisdictions.</p> |
| SME-WG Industry QLD, NSW, VIC, NAT RTO QLD, WA Industry Association QLD, NAT | <p>Application: add in additional licensing statement information for state based licensing.</p> <p>PC 1.1 change to 'Read and interpret design plans and specifications, check permits and resolve any discrepancies with designer and/or associated specialists if applicable'.</p> <p>2.5 replace 'Compact' with 'Consolidate'. 4.4 as above.</p> | <p>Thanks for your feedback. Adopted. Licencing statement has been included in unit : 'Licensing, legislative or certification requirements may apply to this unit in some jurisdictions depending on the location of the work and/or plant and equipment used. Users are advised to check with the relevant regulatory authorities.'</p> <p>Adopted. '<i>if applicable</i>' has been added to PC 1.1.</p> <p>Thank you. 'Compact' has been replaced with 'Consolidate' for clarity of PCs. Thank you. 'Compact' has been replaced with 'Consolidate' for clarity of PCs</p> |

| Stakeholder Comments and Identified Issues | Consideration and Proposed Resolution |
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| <p>4.5 add in "or install" after Plant.</p> <p>4.6 remove "and ensure connection with Building Information Management (BIM) system, if applicable".</p> <p>PE: change all square metres to 4 per type.</p> <p>Sixth bullet change "public" to "community".</p> <p>Seventh bullet add "and regulatory requirements" at end.</p> <p>KE: edit fifth bullet to be : "• components of green infrastructure construction: roof • wall • facade".</p> <p>Eighth bullet update "local government" language to be consistent.</p> <p>Remove "organisational policies and procedures" as covered on the job.</p> <p>Remove bullet thirteen and sub bullets as covered in bullet ten.</p> | <p>Thank you for your feedback. 'or install' has been added.</p> <p>Thank you for your feedback. The wording relating to connection of sensor equipment to BIM system has been removed.</p> <p>Thank you for this feedback. SMEWG discussions, including RTOs confirmed that the 'volume' of PE for roof gardens, vertical walls and green roofs could be satisfactorily demonstrated to industry standards at a minimum of four square metres each.</p> <p>Adopted changed wording from 'public' to 'community'</p> <p>Thank you for your feedback. Compliance with '...and regulatory requirements' has been added.</p> <p>Thank you for your feedback. The KE bullet point 'components and layers of roof gardens' has been amended to 'components of green infrastructure' and include sub-bullets for roof, wall and facade infrastructure.</p> <p>Adopted. Wording amended to 'national, state, territory and local authority regulations, policies and procedures and permits'.</p> <p>Thanks for your feedback. Removed knowledge of organisational policies and procedures.</p> <p>Thank you for your feedback. The duplicated 'workplace safety' bullet point has been removed and is covered in existing bullet point 10: 'current and relevant work health and safety and environmental requirements'.</p> |

AHCGRI301 Maintain roof gardens, vertical gardens and green facades (formerly known as AHCGRIX3)

| Stakeholder Comments and Identified Issues | | Consideration and Proposed Resolution |
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| RTO, VIC | <p>licensing statement - Carrying out maintenance in some situations may need one or more high risk work licences/ working from elevated platform/working at heights. Is it enough to be included in the KE or should some statement be included in the Application?</p> <p>PC 2.6 Identify pests and diseases - Has not been included under plant maintenance in KE.</p> <p>PE "• maintained climate and weather records or charts of the local environment" Not in PCs.</p> | <p>Thanks you for your feedback. As noted in resolutions above, the licencing statement has been amended to indicate that licencing, legislative or certification requirements may apply to the work being performed, the location of the project and/or the equipment being used, and may vary across jurisdictions. KE of 'certification requirements for operation of plant and equipment' has been added to KE of 'functional and operational features of plant, equipment, hand and power tools'</p> <p>Thank you for your feedback. 'pests and diseases' has been added to the required KE of 'plant maintenance and cultural requirements of plants'.</p> <p>Thanks you for your feedback. This PE bullet point has been removed.</p> |
| Industry, SA | <p>What tickets? Working at heights: scissor lift or EWP with spotter, scaffolding.</p> <p>Gap, prepare a quote for cost of ongoing maintenance and timelines.</p> <p>PE: too much in one unit if in a classroom/site setting</p> | <p>Thanks for your feedback. The licencing statement has been amended to indicate that licencing, legislative or certification requirements may apply to the work being performed, the location of the project and/or the equipment being used, and may vary across jurisdictions. KE has been amended to 'functional and operational features of plant, equipment, hand and power tools including certification requirements for operation'.</p> <p>Thank you for your feedback. It was discussed with the SMEWG that the maintenance unit is intended to be about undertaking maintenance of the green infrastructure, rather than tendering or quoting for work, or operating as a contractor. Identified gaps in job roles will be provided to the IRC for consideration in future projects.</p> <p>Thank you for your feedback. The SMEWG has confirmed that all components of the unit are necessary for the skill of maintaining green infrastructure, and that further skills in the maintenance of green infrastructure must be undertaken over a period of time to demonstrate competency.</p> |

| Stakeholder Comments and Identified Issues | | Consideration and Proposed Resolution |
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| <p>SME-WG Industry QLD, NSW, VIC, NAT RTO QLD, WA Industry Association QLD, NAT</p> | APP: update licensing as per construct unit. | Thank you for your feedback. The licencing statement in the unit has been amended to align with the other green infrastructure units and reflect that 'Licensing, legislative or certification requirements may apply to this unit in some jurisdictions, depending on the location of work and/or plant and equipment used. Users are advised to check with the relevant regulatory authorities'. |
| | PC 1.2 & 1.3 swap order. | Adopted. PC order changed. |
| | Remove 2.3 "Identify and remove weeds" as duplicated in 2.4. | Thank you for your feedback. Element 2 has been re-sequenced to align to the order of maintenance work. PC 2.3 'identify and remove weeds' has been deleted |
| | Move 2.7 to 2.3. | PC 2.7 'clear drainage areas...' has been moved to 2.3. |
| | Remove 2.4. | PC 2.4 'removed decaying vegetation...' has been deleted as it duplicated (now) PC 2.3 'clear drainage areas...', (now) PC 2.4 'prune or remove unwanted vegetation...' and added PC 2.7 Test and adjust irrigation system, if required. |
| | Renumber and update 2.5 to 2.4 "Prune or remove Unwanted vegetation to encourage growth and Minimise the risk of fire and other hazards". | |
| | Update 2.6 to 2.5. | Updated. |
| | Update 2.8 to 2.6. | Updated. |
| | Add 2.7 "Test and adjust irrigation system, if required". | Adopted. |
| | 3.1 add "if applicable" to end. | Adopted. 'if applicable' added to PC 3.1. |
| 3.3 add "and update maintenance plan" to end. | Adopted. PC 3.3 amended to 'Record maintenance activity undertaken, schedule next required maintenance activity and update maintenance schedule'. | |

Stakeholder Comments and Identified Issues

Consideration and Proposed Resolution

PE: edit the number of times they maintain to 3 per type.

PE has been amended to reflect requirement to maintain green infrastructures (roof gardens, vertical walls and green facades) on at least 3 occasions over a period of time (to allow for maintenance to be required)
Without being prescriptive about the period of time, the PE had been reworded to:
'There must be evidence that the individual has maintained on at least three separate occasions for each, and over a period of time consistent with the maintenance schedule:

- one roof garden
- one vertical garden, and
- one green façade'.

AC: add in information reflecting period of time for maintenance to be carried out.

Wording of the 'specifications' in the Assessment Conditions has been included to require maintenance schedules to be for a minimum of two months.

Remove bullet "carried out seasonal pruning".

Adopted. Bullet point removed.

Remove bullet "maintained climate and weather records or charts of the local environment".

Adopted. Bullet point removed.

KE: Add in under fourth bullet a sub bullet "pest and diseases".

As per feedback above (VIC, RTO) 'pests and diseases' has been added to the required KE of 'plant maintenance and cultural requirements of plants'.

Add in bullet for sensory data.

To achieve PC 1.3 'Check sensors and review data for anomalies, if applicable', KE of 'sensor devices and equipment, data collection and analysis' has been added.

Remove "workplace safety" and sub bullets.

Thank you for your feedback. The duplicated 'workplace safety' bullet point has been removed and is covered in existing bullet point 7: 'current and relevant work health and safety and environmental requirements'.