

Modification history

Release	Comments
Release 2	This version released with AHC Agriculture, Horticulture, Conservation and Land Management Training Package Version 4.0.
Release 1	This version released with AHC Agriculture, Horticulture, Conservation and Land Management Training Package Version 1.0.

AHCTRF501	Plan the establishment of sports turf playing surfaces
Application	<p>This unit of competency describes the skills and knowledge required to establish sports turf playing surfaces and develop a design for the site, its specifications and works procedures, planning processes involved in establishing turf in new constructions and major renovations of existing sports turf surfaces.</p> <p>It applies to individuals who analyse information and exercise judgement to complete a range of advanced skilled activities and demonstrate deep knowledge in a specific technical area. They have accountability for the work of others and analyse, design and communicate solutions to a range of complex problems.</p> <p>No occupational licensing, legislative or certification requirements are known to apply to this unit at the time of publication.</p>
Prerequisite Unit	Nil
Unit Sector	Turf (TRF)

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Conduct site assessment and develop a performance brief for sports turf playing surface	1.1 Liaise with client to determine requirements for establishing sports turf playing surface 1.2 Assess site for hydrological, biophysical and chemical characteristics and effect on sports turf establishment 1.3 Assess and evaluate the current drainage and irrigation conditions and calculate drainage design rate 1.4 Establish a site survey to locate existing features, levels and services according to workplace and client requirements 1.5 Investigate and selected turf grass species and cultivars suitable for turf establishment according to client requirements and sport play standards 1.6 Investigate and select turf area construction techniques suitable to client requirements and site characteristics 1.7 Investigate legislative and regulatory implications and solutions for proposed works 1.8 Determine environmental impact on proposed works and recommend actions to minimise impact according to legislative and regulatory requirements 1.9 Compile results and recommendations, and develop performance brief for client approval

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
2. Evaluate and select sports turf profile and construction materials	2.1 Investigate and evaluate sports turf profile options consistent with client brief 2.2 Identify and select a reliable source of materials for sports turf profile options 2.3 Conduct tests to determine chemical and physical characteristics of profile materials according to industry standards 2.4 Compare test results against known performance benchmarks 2.5 Identify corrective measures to improve performance of profile materials 2.6 Assess materials against performance brief and select acceptable profile 2.7 Ensure selected sports turf profile structure is consistent with available materials and performance brief
3. Develop concept design for sports turf playing surface	3.1 Develop and design sports turf profile consistent with drainage and irrigation designs, and performance brief 3.2 Document turf establishment concept design and present to client for approval
4. Determine requirements for turf establishment works	4.1 Determine turf establishment procedures consistent with the concept design, site factors and available resources and equipment 4.2 Reviewed and confirmed concept designs for profile, drainage system and irrigation system meets performance brief and industry standards 4.3 Determine resources and contractor requirements for construction of turf playing surface, planting of turf and turf establishment 4.4 Prepare a list of materials, costs and confirm availability with suppliers 4.5 Determine achievable timelines and contingencies for preparation and construction phase
5. Prepare and document turf establishment plan and specification	5.1 Compile technical data for design, and reconcile against performance brief and concept plans 5.2 Prepare and ensure final profile design meets client needs, performance brief and industry standards 5.3 Produce scale drawings of designs according to client requirements and industry standards 5.4 Prepare specifications for tenders based on the requirements of turf establishment work 5.5 Develop and document procedures and schedules for establishment of sports turf playing surface according to workplace and industry standards

Foundation Skills	
<i>This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.</i>	
Skill	Description
Reading	<ul style="list-style-type: none"> Critically analyses technical documentation from a range sources to consolidate information into turf grass profile plans and designs
Writing	<ul style="list-style-type: none"> Generates complex written texts, demonstrating control over a range of writing styles and purpose for developing concepts, designs and specifications
Oral communication	<ul style="list-style-type: none"> Determines client requirements through open ended questioning, active listening, paraphrasing and summarising
Numeracy	<ul style="list-style-type: none"> Analyses and synthesises mathematical information in a broad range of contexts for testing materials, sizing drainage pipes and flow rates, developing root zone profile designs and estimating and costing materials for a turf grass profile project
Get the work done	<ul style="list-style-type: none"> Uses digital technologies for investigative, design and documentation activities

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCTRF501 Plan the establishment of sports turf playing surfaces	AHCTRF501 Plan the establishment of sports turf playing surfaces	<p>New Element 2 and 3 added</p> <p>Changes made to elements and Performance Criteria for clarity</p> <p>Updated Performance Evidence and Knowledge Evidence</p>	No equivalent unit

Links	<p>Companion Volumes, including Implementation Guides, are available at VETNet:</p> <p>https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72</p>
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TITLE	Assessment requirements for AHCTRF501 Plan the establishment of sports turf playing surfaces
Performance Evidence	
<p>An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit. There must be evidence that the individual has on at least one occasion demonstrated the ability to plan the establishment of sports turf playing surface taking into consideration the soil profile ensuring they have:</p> <ul style="list-style-type: none"> • liaised with client and allied professional to establish the scope of the turf establishment project • assessed the hydrological, biophysical and chemical characteristics and their impact on turf establishment site and playing surface design • assessed and evaluated drainage and irrigation requirements for sports turf playing surface • established a site survey depicting key features, benchmarks, levels and services • investigated and selected each of the following for inclusion in performance brief: <ul style="list-style-type: none"> • turf area construction technique suitable for client requirements and site characteristics • turf grass species and cultivars suitable playing surface • identified conflicts with legislative and regulatory requirements and proposed solutions • identified environmental impact of turf establishment and recommended actions of proposed works • investigated and selected sports turf profile options • developed a performance brief for a sports turf surface and presented to client for approval • sourced, tested and evaluated materials suitable for sports turf profile including conducted the following tests: <ul style="list-style-type: none"> • saturated infiltration • porosity • volumetric moisture retention • bulk density • moisture release curve • particle size and distribution • pH • selected suitable materials for turf grass profile construction consistent with performance brief and industry best practice • developed and designed profile consistent with irrigation and drainage design requirements and performance brief • documented concept design and presented to client for approval • determined turf establishment procedures • confirmed profile, irrigation and drainage concept designs are consistent with performance brief • produced scale drawings and plans for the design of turf establishment project, including: <ul style="list-style-type: none"> • elevations and views consistent with industry standards • section drawings of sports turf profile • prepared documentation to accompany turf establishment plan, including: <ul style="list-style-type: none"> • a schedule of works • details of construction • specifications for construction • prepared a list of materials • identified sub-contracted works • prepared work procedures for turf establishment activities and practices • prepared maintenance procedures for turf establishment phase. 	
Knowledge Evidence	
<p>An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:</p> <ul style="list-style-type: none"> • establishing and maintaining sports turf playing surfaces <ul style="list-style-type: none"> • construction procedures, turf species selection and cultural practices for sports turf playing surfaces • growth habits and cultural requirements of specific turf plant species and cultivars under a range of soil and environmental conditions 	

Knowledge Evidence
<ul style="list-style-type: none"> • Crop Factor • Readily Available Water Estimates (RAW) • best practices in turf grass profile design including: <ul style="list-style-type: none"> • United States Golf Association (USGA) method • California method • National best practice • Local practices • irrigation, drainage and the interrelationship of soil air, water and the physical structure of existing and manufactured soils and sports turf mixes • considerations for establishment of type and depth of soil profiles including: <ul style="list-style-type: none"> • retaining existing soil profile and infrastructure • remedial action on existing profile • full renovation/replacement of soil profile • sources of irrigation water including <ul style="list-style-type: none"> • source, volume and quality of water supply • relative cost • irrigation demand and specifications (flow rate, pressure, water quality testing) • hydrological characteristics of soil profile, materials and tests for root zone profiles including: <ul style="list-style-type: none"> • saturated infiltration rate and testing procedures • sub-soil stability and moisture content • perched water table • climate and rainfall and impact on soil moisture and growth rate • factors for establishing 'drainage design rate' (drainage modulus) • volumetric moisture retention (water holding capacity) and moisture release • precipitation rate • infiltration rate and depth of soil profile • computations for soil profile design and specifications including: <ul style="list-style-type: none"> • calculating areas and volumes • hydrological calculations, flow rates, infiltration rate, precipitation rates, 'Hooghoudts' equation, • costing and documenting a list of materials • biophysical environment of the turf establishment site including: <ul style="list-style-type: none"> • microbial activity (pests, diseases, beneficial organisms) • competition with weeds • shade trees shade trees • physical and chemical characteristics of the soil on turf grass establishment including: <ul style="list-style-type: none"> • compaction, porosity and bulk density of profile materials • pH, salinity and nutrition and their respective standards for measuring • soil profiles, texture, soil type and particle size distribution • soil sampling techniques • field testing techniques for soils • legislation and regulations relating to sports turf sites and turf establishment works including national and international standards for sports turf surfaces • maintenance requirements and practices for specific turf plant species and cultivars prior to and after initial establishment • site evaluation techniques including analysis of the condition of soils, plants and the site for turf establishment activities <ul style="list-style-type: none"> • surveying principles and techniques • surveying services • basic surveying techniques and equipment for establishing main features, services and levels • basic geospatial and digital surveying techniques • basic plan drawing skills • role of project briefs and client consultation processes in planning turf establishment works <ul style="list-style-type: none"> • client liaison and negotiation skills • working with consultants and professional services • preparation of plans, specifications and list of materials including: <ul style="list-style-type: none"> • drawing skills, views, scale, dimensions and documentation

Knowledge Evidence	
<ul style="list-style-type: none"> calculating areas, volumes, rates costing materials documenting a list of materials plan development including manual and digital drawing principles industry standards for drawing plans identifying resource implications including: <ul style="list-style-type: none"> availability and use of tools, equipment and machinery used in preparing new turf surfaces turf establishment treatments and costs delivery and management of raw materials during construction accessing specialist consultants and professional services. 	
Assessment Conditions	
<p>Assessment of skills must take place under the following conditions:</p> <ul style="list-style-type: none"> physical conditions: <ul style="list-style-type: none"> skills must be demonstrated in a typical workplace environment or an environment that accurately represents workplace conditions access to a site suitable for establishing a sports turf surface resources, equipment and materials: <ul style="list-style-type: none"> manual and digital drawing programs and drawing equipment computers and software for searching information and preparing documentation specifications: <ul style="list-style-type: none"> workplace documents including work instructions, turf area construction plans local, national and international standards for turf grass establishment reports, results and testing equipment for soil, plant tissue and biophysical characteristics of the site meteorological data to assess climatic conditions of site plans and maps of the site location and levels relationships: <ul style="list-style-type: none"> client, sports turf professional and contractor. <p>Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.</p>	
Links	<p>Companion Volumes, including Implementation Guides, are available at VETNet: https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72</p>