



Inland Rail - Parkes to Narromine

The Inland Rail - Parkes to Narromine (P2N) project presented the problem of large-scale open areas, requiring fast applications and effective germination in poor quality topsoil along some 103km's of rail corridor.

Abstract

Large-scale rail constructions often have the problem of highly variable and poor-quality topsoils. The Inland Rail - Parkes to Narromine project (P2N) was constructed on approximately 103 kms of existing rail corridor, replacing the rail and revegetating the disturbed surfaces.

The ability to ameliorate the soils in-situ, along with covering large areas in a short-time frame became paramount in delivering a successful project result and therefore client hand-over.

This case study aims to identify how methodologies and processes can be developed to successfully establish annual, perennial and native grasses in generally poor quality materials over some 2,000,000 m².

Project Scope and Constraints

The Inland Rail - Parkes to Narromine Project (P2N) was carried out by InLink (BMD and Fulton Hogan JV). Stretching over 103.7kms, the P2N project involved a full rebuild of the track, supporting structures and the rail formation throughout the rail corridor. With the exception of the capping/ ballast/ rail and the single access track, the remainder of the area was to be revegetated by means of hydromulch.

The specifications for revegetation were unfortunately inadequate, requiring collaboration between the ARTC, InLink and Valley Hydramulch and Revegetation (VHR) to develop an appropriate methodology to ensure an appropriate outcome is achieved, and reworks not undertaken or required. Watering and establishment were also determined to be an issue. Due to the large scale of the project, there would not be sufficient water along the alignment, nor would it be logistically feasible.

It was agreed that trials on the North-West Link (5.3km section) would be undertaken to determine the viability of the best practice approach. Following the results of North-West Link, the application methodology would be adopted for the remainder of the works.



Application of Ameliorated Hydromulch



Haying off of Annuals/ Perennial Strike

The process is a simple one, work out what the soil requires and include it within the mix.

The approach taken and accepted was a simple one. Testing the soil in locations over the length of the project where a variation in soil type was encountered and alter the mix to suit the results where required. The soil amendments (ameliorants) would then be applied to the prepared soils in-situ, requiring no manual or mechanical mixing-in of ameliorants.

The application, in accordance with soil test results, would incorporate fine and micro-fine ingredients to ensure penetration into the soil surface, but also to work their way down the soil profile as the root systems begin to develop.

This approach would ensure that not only the short-term, annual grasses would stabilise the area, but also that the soil structure and ‘kick-started’ natural regeneration processes would continue to support the perennial and native grasses in the long-term, permanently.

Maintenance, Watering and Results

A general allowance for 15ml/week (plus evaporation) is acceptable for maintenance watering for revegetated areas. For the 2,000,000m², this equates to 30ML weekly. This is a prohibitively large quantity, and logistically impossible.

A solution was required that would remain dormant on the surface until adequate rainfall arrived, and would also not require maintenance. An application tailored to the site soil was required, with the ability to ameliorate the soil to effectively out-compete emerging weeds with sustained short and long-term cover.

The applications on the project achieved both sustainable short and long term growth (and therefore stabilization) by ensuring the application suited the soil requirements.



Perennial & Native Germination



Long-Term Growth - Native Grasses