

**Eliot Sinclair & Partners Ltd**  
Sam Cech

CLIENT: Blackfish Ltd

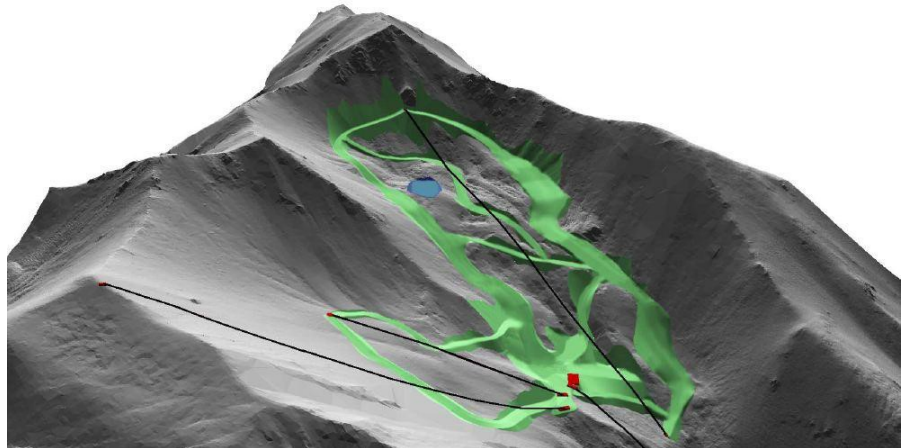
SCOPE:

Adapting road design tools for the design of ski trails

12d DIMENSIONS:

- Design

# Porters Ski Field Design



## Project Summary

A ski field expansion project which also included access roads, lifts and village design (these sections followed more typical 12d Model processes than the areas described below).

## The Challenge

The requirements for balancing cut/fill volumes and drafting presentations on a ski trail are similar to a road design process. However, unlike roads, ski trails vary in width, x-fall and grade across and along the entire trail.

## The Solution

The team at Eliot Sinclair & Partners decided to use 12d Model software for this project because of its ability to quickly analyse DTM triangles by slope - a feature used to mark on the design the various ski trails, classified from beginner to advanced skier. Their existing 12d Model drafting processes were utilised to produce necessary plans to communicate the design to the client.

They used Super Alignments and Apply Many templates functions to achieve desirable ski trails.

Modifiers to TIN, Modifiers to String, and offset Modifiers in height were used to model ski

trails in 2 metre strips along the length of the control alignment.

Tin analysis - colouring triangles by slope - was used to confirm the critical slope criteria were met.

The process was repeated until the cut/fill volumes balanced and trails achieved desired slope.

Presentation plans were created, showing coloured contours by height, cut/fill and coloured triangles by slope as well as 3D perspective views.

## Conclusion

The use of 12d Model on this project assisted the team with meeting the specific design needs of this interesting endeavour - 'thinking outside the box' turned out to be the right choice.

## For more information

To find out more about how you can create better designs faster with the 12d Model solution for civil engineering design, visit [www.12d.com](http://www.12d.com).



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## Roads and Highways

12d Model's design option is the smarter solution for the design, modification and maintenance of Road and Highway projects.

Enjoy advanced 3D tools to design local and major roads, intersections, roundabouts, highways, interchanges and much more.



## Ports and Dredging

12d Model is the solution for port infrastructure and dredging, easily managing the very large datasets and complex volume calculations often required by these projects.

A complete range of flexible and customisable volume calculation tools allow teams to extract and present the information quickly and easily.



## Land Development

12d Model is the most versatile solution for the creation of sustainable land development projects, including residential, commercial and industrial developments, recreational areas, landfills, and agriculture projects.

Easily manage all aspects of your land development project from earthwork quantities, road design utilities and drainage design.



## Airport Infrastructure

12d Model provides a solution for the design, construction and analysis of new airports, as well as the upgrade and maintenance of existing runways and airport infrastructure.

Easily manage large airport infrastructure projects and share data across multi-disciplinary teams.



## Rail

12d Track has been specifically designed for the survey, design and construction of light, heavy and high speed rail projects.

Extensive railway tools in 12d Track allow the rail designer to quickly and easily design their projects. These options are built on the existing 3D modelling and design tools available in 12d Model.



## Mining Infrastructure

12d Model's powerful set of exploration, site investigation, survey and analysis tools are crucial for the initial design, construction and ongoing operation of mining projects.

Comprehensive tools for the survey, design and construction of access roads, railways, earthworks and services allow for the coordinated design and management of mining infrastructure from within 12d Model.



## Drainage, Sewer and Utilities

12d Model provides comprehensive tools for the design, analysis and optimisation of stormwater and sewer projects using rational, dynamic (hydrograph) and 2d drainage methods.

Powerful clash detection management allows for efficient 3D modelling of service networks such as gas, electricity, telecommunications and water prior to construction.



## Surveying

12d Model is a complete surveying package providing the tools to manage all facets of surveyed data including LIDAR, topographical, as-built, conformance, traversing, geodetics, data mapping, labelling and much more.

The 12d Field option runs on a ruggedized tablet and gives the user access to full 12d Model functionality, allowing you to take the entire project into the field with the most comprehensive pick-up and set-out tools.



## Oil and Gas

12d Model assists with the design, construction and mapping of oil and gas pipelines, original site exploration and the wide range of infrastructure required for oil and gas projects.

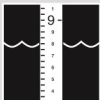
Accurate 3D modelling and the ability to share data between users allow teams to quickly and easily coordinate designs.



## Construction

12d Model is the ultimate software for construction with powerful set-out options, direct interfaces to machine control and detailed conformance reporting and auditing.

Manage 3D data and control volumes, quantities and progress claims with 12d Model. Set-out your project and undertake conformance and as-built surveys live on-site using 12d Field.



## Rivers, Dams and Hydrology

12d Model handles very large datasets and interfaces with a wide range of analysis packages, making it perfect for flood studies and the management of rivers and dams.

12d has partnered with industry leading analysis software, allowing users to apply 2D drainage analysis from within 12d Model.



## Environmental

12d Model's ability to handle very large datasets combined with flexible and comprehensive 3D analysis and modeling tools make it perfect for a wide variety of environmental projects.

Existing workflows can adopt 12d Model easily as it allows users to directly interface with GIS systems and most software packages and file formats.

## Why Choose 12d?

- Powerful data processing & intelligent functionality.
- Modular, easy to update & completely customisable.
- Seamless integration with major industry software and hardware.
- Used in over 55 countries worldwide.
- Friendly support & training from industry experts.

[www.12d.com](http://www.12d.com)

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