

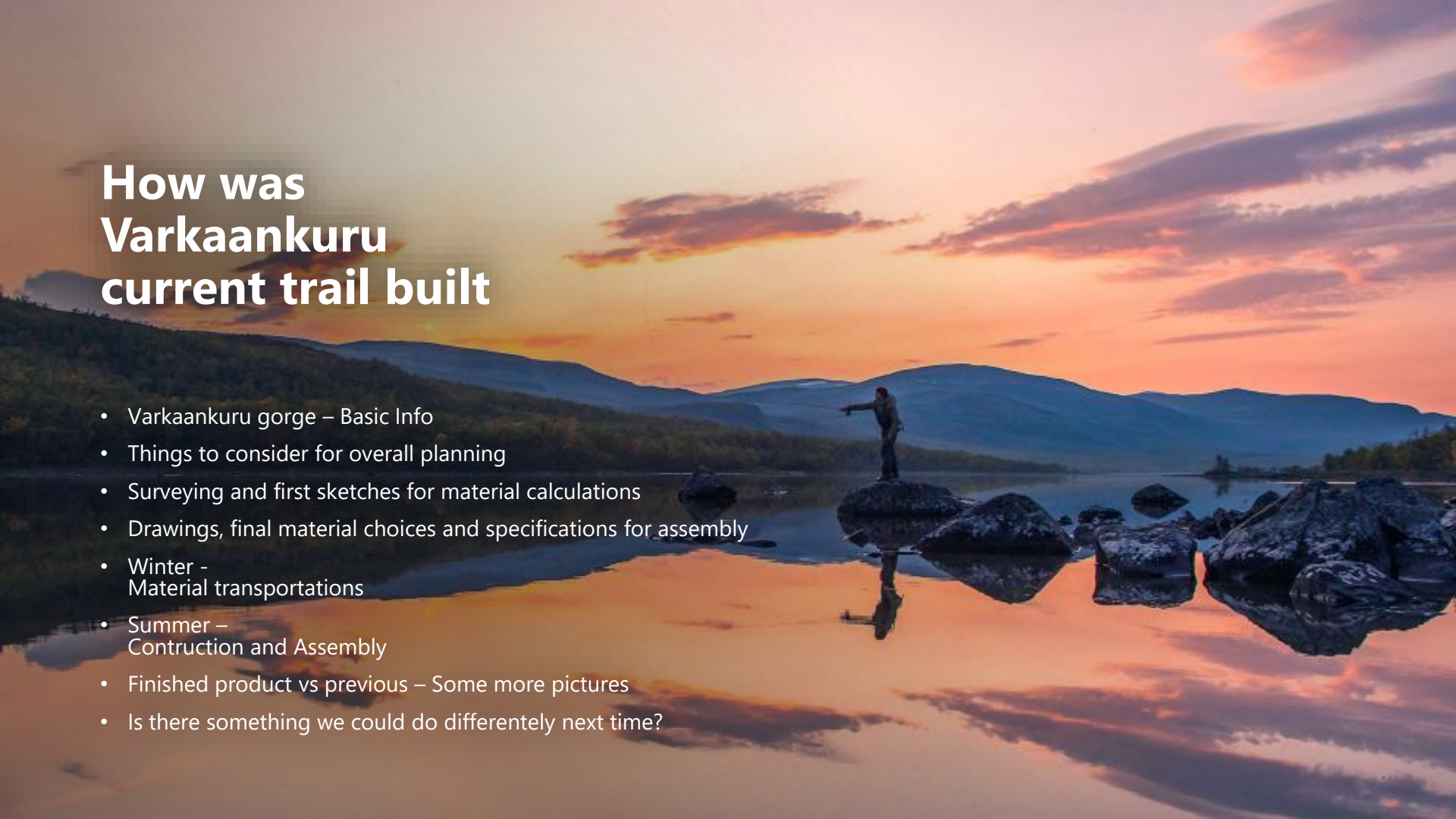
How was Varkaankuru current trail built

Climate smart trail
building –workshop



How was Varkaankuru current trail built

- Varkaankuru gorge – Basic Info
- Things to consider for overall planning
- Surveying and first sketches for material calculations
- Drawings, final material choices and specifications for assembly
- Winter –
Material transportations
- Summer –
Construction and Assembly
- Finished product vs previous – Some more pictures
- Is there something we could do differently next time?



Varkaankuru gorge

- Varkaankuru gorge trail meanders in a lush forest.
- The 3,5 km trail starts from Yllästunturi Visitor Center Kellokas and has about 100 000 visits per year. Varkaankuru gorge is a restriction zone and is a home to several rare species.
- The gorge “floods” every year.
- Trail was renewed a few years ago. New structures include gravel trail and planks of wood and metal. (Gravel 2,5km + wood-metal structures 1 km)



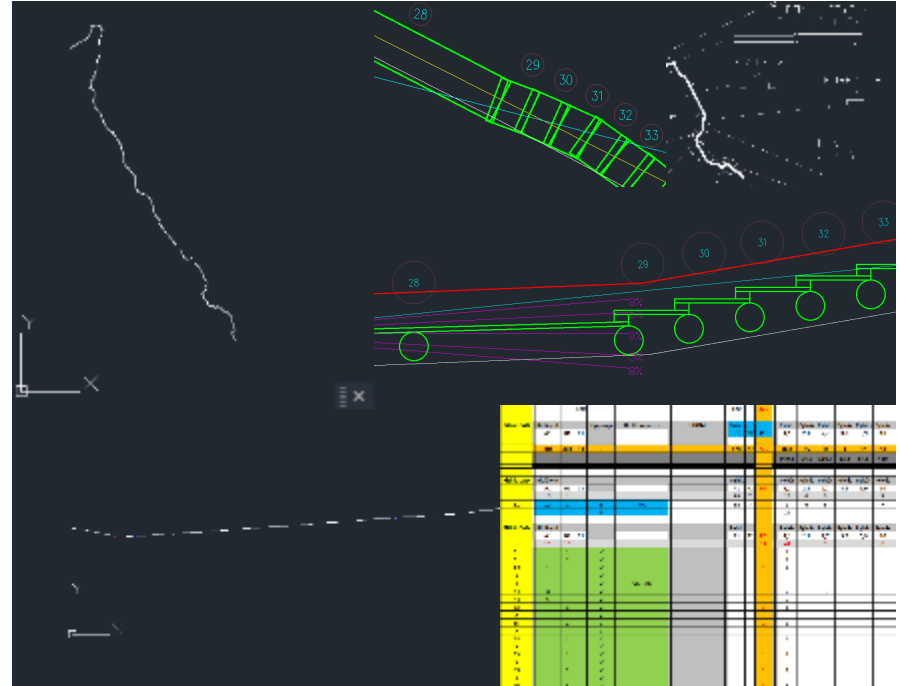
Things to consider for overall planning

- New structures should follow the current trail if possible due to the restriction zone
- Must allow free waterflow under the structures (visual check on site and notations for worst places)
- New Structures should guide and help the visitors to stay on the trail better than old ones
- Non-slippery surface and safety for all types of visitors
- Quick assembly for short summer
- Lifespan + durability



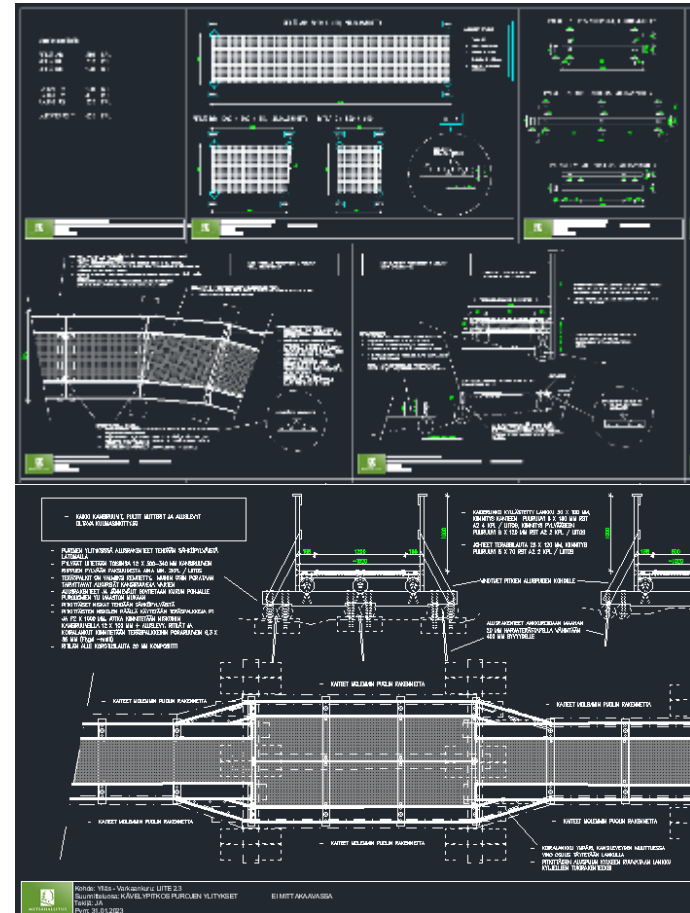
Surveying and first sketches for material calculations

- Surveying with tachometer for horizontal and vertical positions along the trail.
- (Major difficulties with GPS signals at that time at the bottom of the gorge...)
- Trail data transfer to Autocad
- Excel spreadsheets for broad-minded material calculations matching with CAD sketches



Drawings, final material choices and specifications for assembly

- Galvanized Metal grid deck with anti-skid property for safety and durability
- Wood planks on both sides for visual guidance (and for dogs)
- Galvanized Steel beams for good lifespan, with pre-drilled holes
- Wood composite pieces for levelling the steel deck with wood planks
- Handrails if needed
- Basic assembly with long screws through the whole set
- Powerline poles for footing



Winter - Material transportations

- All material was hauled to the gorge with a snowmobile and a sled
- Hauling was the most labour intensive part of the whole project
- Materials were delivered to the right locations with specific gps –coordinates for every calculated set
- Locations were marked with poles on the site with corresponding gps tags for good workflow when hauling materials
- (Dismanteled old structure was also hauled out same winter, and leftover materials next winter after the project)



Summer – Contruaction and Assembly 1/2

- Work started 8.6.2023
- Work was finished 14.7.2023
- Five week total, with workgroup of 2-4 persons, mostly 2 persons
- Additional Stairways were made to both ends of the trail with excess materials, taking about one week each with material being hauled



Summer – Contruccion and Assembly 2/2

- Decks were built at least double the height of the old structure
- Hand rails were installed for every water crossing and also other places if needed
- Assembly was fast and effective with materials being dropped to the right locations at winter and with pre-drilled holes in steel beams



Finished product vs previous 1/2

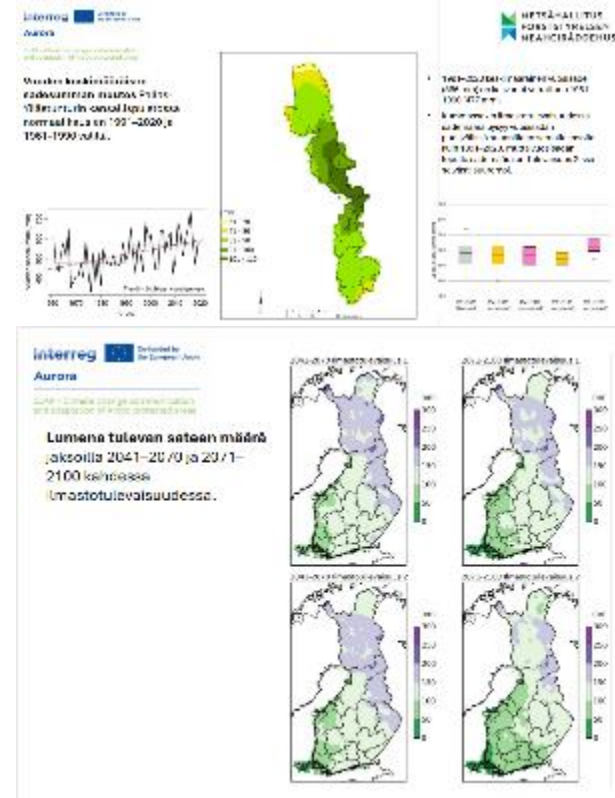


Finished product vs previous 2/2



Is there something we could do differently next time?

- Varkaankuru current trail Project
 - Surveying?
 - Materials?
 - Structural planning?
- What if it rains double the current level?
 - Flash flood –events?
 - Falling trees and loose material blocking the flow?
 - Long term Erosion under footings?
 - Overall location of the trail?





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