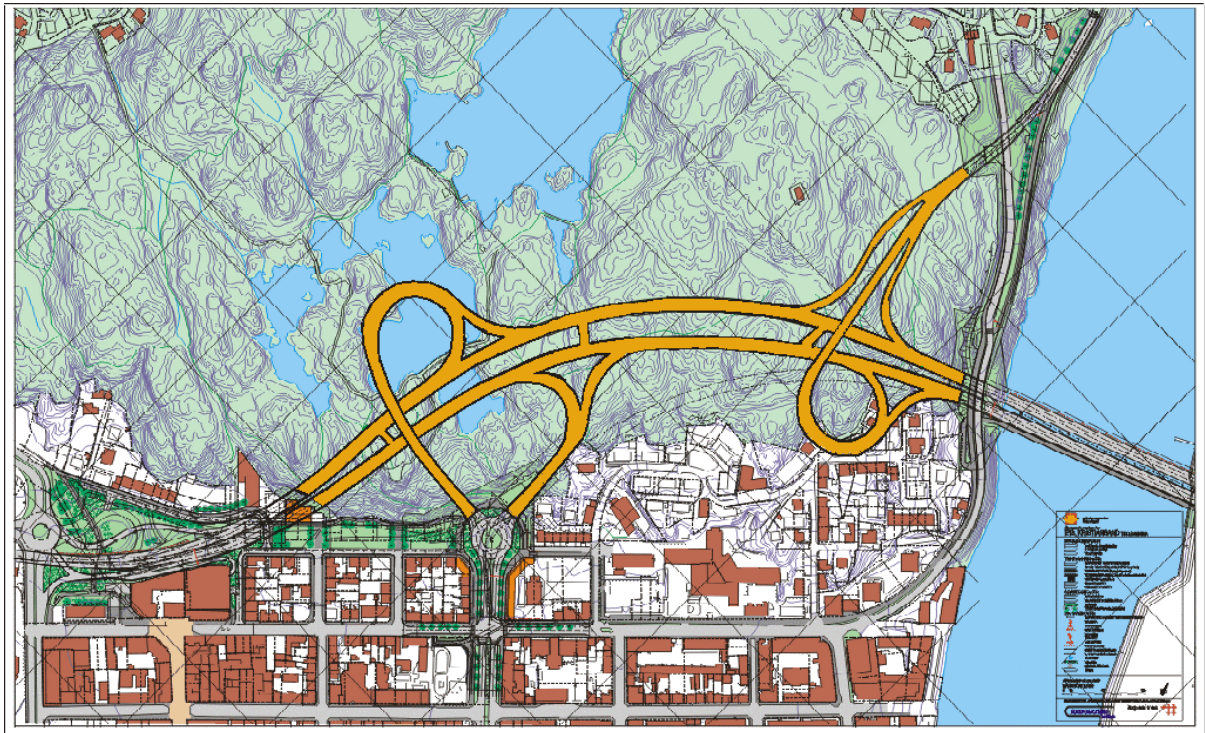
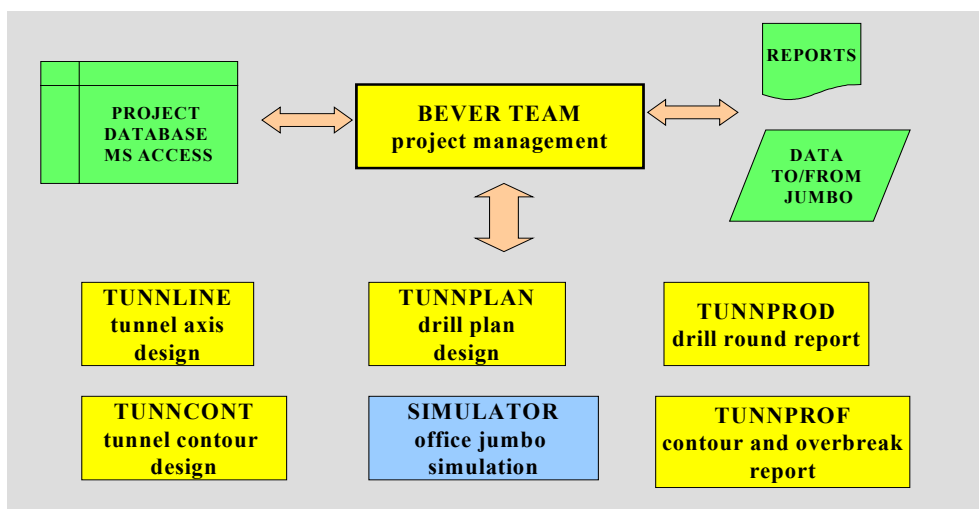


# Bever Team – Office support

## Efficient drill and blast management. Planning and reporting software to support drilling jumbo's



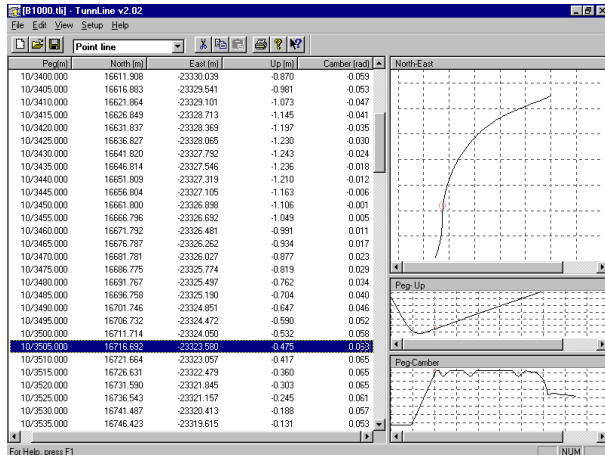
Tunnelling jobs with simple or complex geometry can be easily managed using Bever Team software. This highway project has ramps and variations on cross-sections as a challenge.



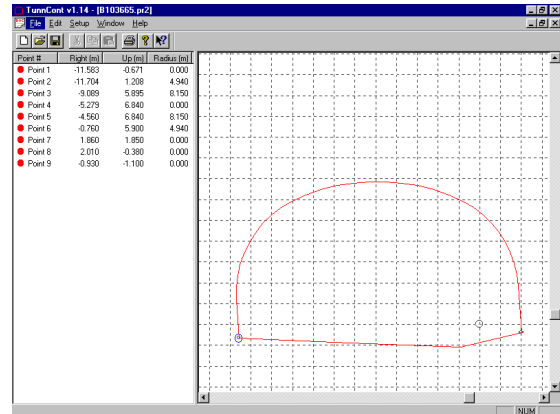
### BEVER TEAM

The planning and reporting software is modular and the customer apply what is needed for the application.

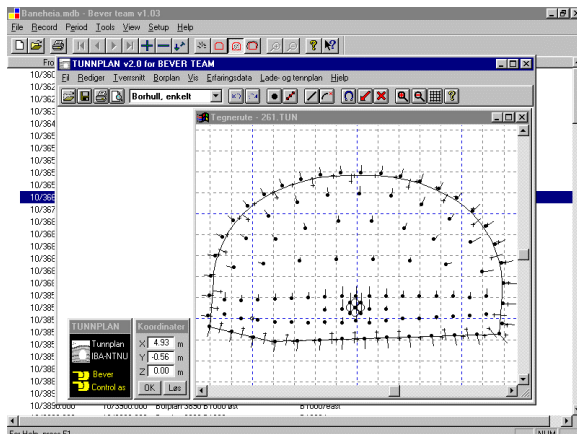
## Tunnel geometry and drillplan design



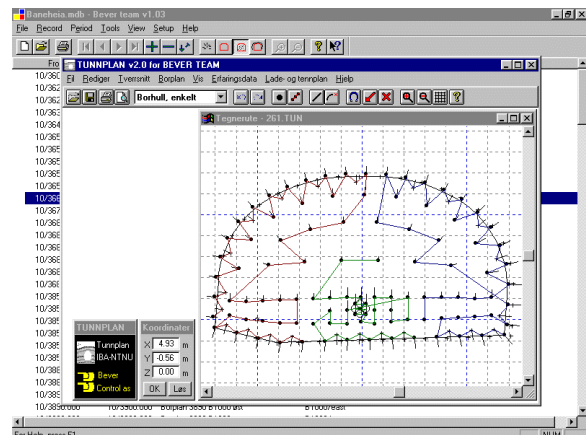
Step one in planning is to define the tunnel axis. The data is available from the surveyors department. The display shows tunnel line in X, Y, Z coordinates and camber with reference to peg number on the tunnel



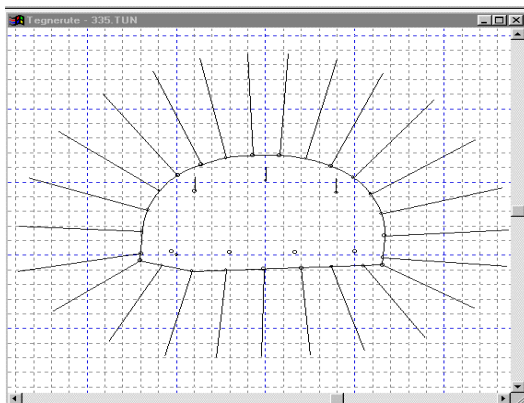
Step two in planning is to define cross-section for blasting. Contour is defined by arc segments. If variations in cross-section Bever Team will interpolate if needed



Step three is to design drill plan. You can place holes along the line, and import cut hole pattern. Blasting parameters is proposed in the program



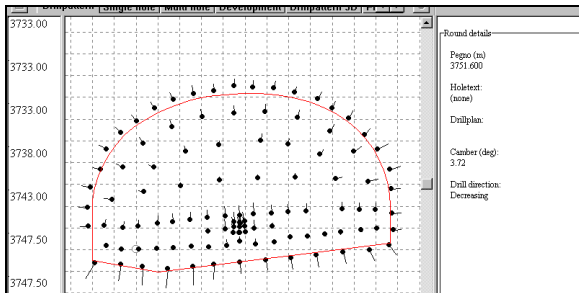
Drill pattern with sequence program for boom motions. A part of the planning when using automatic positioning is the pre-planned sequence for each boom to move.



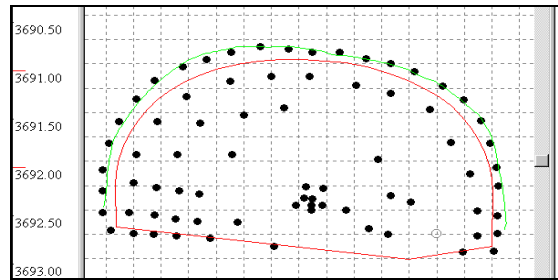
Injection umbrella or bolting can be planned and drilled as normal drilling. Rod insert function is available in jumbo so a total hole record can be made

# Report from production.

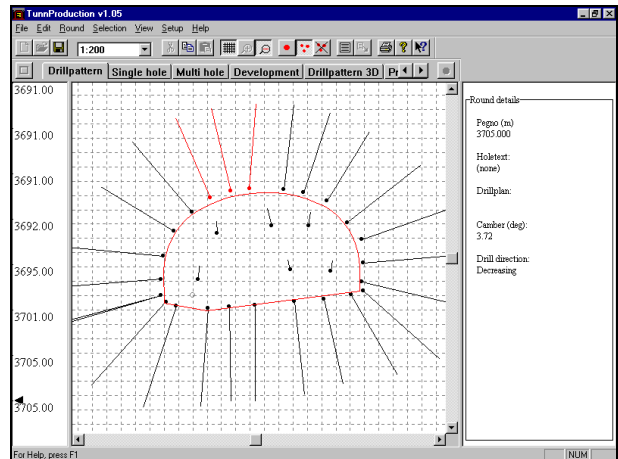
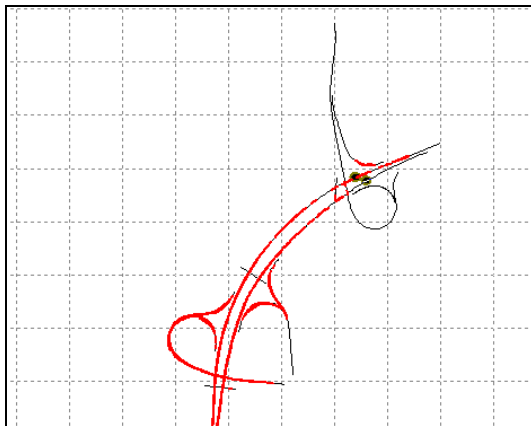
Efficient blast and drill management. Bever system on drill rigs automatic records data for production control



Geometric round report gives information on actual drilled pattern, no of holes and meter drilled



Surveying data on excavated profile can be compared to actual drill pattern. This is a tool for analysis of drilling accuracy and blasting efficiency



Injection umbrella as drilled in one round. Detail on drilling parameters can be studied on red marked holes.

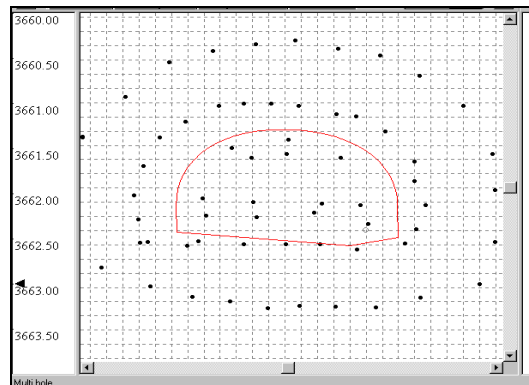
Project: Baneheia E18  
 Parrall: B100041i  
 Sign: J. Madsen  
 Date: 200202  
 Comment: Hovedunnel B1000

Bever Control AS  
 Postboks 30  
 NO-2410 Lura Angen, Høyre  
 Telefon: 02 85 39 00  
 Fax: 02 85 39 40  
 Web: www.bever.no  
 E-mail: mail@bever.no

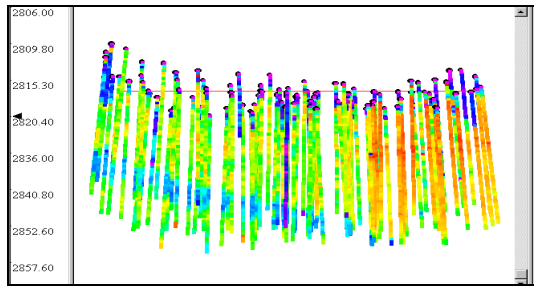
## Date: 20000403 20:39 Period report - selected

From		Total				Boom 1	Boom 2	Boom 3
To								
At peg		10/3691.00 - 3776.70						
Started	(t:mm)	-1/-1 -1/-1	-1/-1 -1/-1	-1/-1 -1/-1	-1/-1 -1/-1			
Ended	(t:mm)	12:02 02:03	12:02 02:03	04:02 18:37	12:02 01:56			
Roundtime	(t:mm)	86:53	85:00	00:18	83:34			
Normal drilling	(t:mm)		21:17	00:11	20:16			
Slow drilling	(t:mm)		20:46	00:01	21:13			
End insert	(t:mm)		10:25	00:00	14:13			
Other time	(t:mm)		18:14	00:00	16:46			
Moving	(t:mm)		14:03	00:05	11:00			
Number of holes		229	108	7	114			
Length	(m)	5228.22	2599.62	22.20	2606.40			

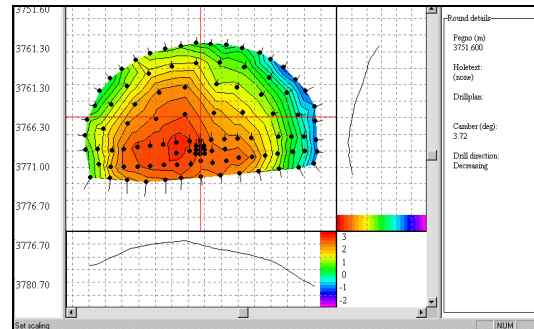
Round and summary reports is produced. Gives information on total performance as drifter capacity on each boom, drifter settings and utilisation. Statistics on drilled meters and number of holes. A overview of the hole project indicates where drilling logs are available.



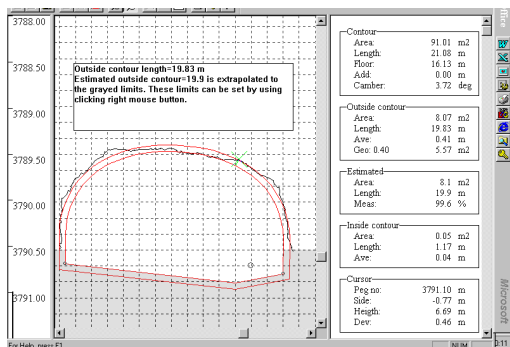
Injection umbrella. At a specific peg no we can display the hole pattern on overlapping rounds. This will also work in curves.



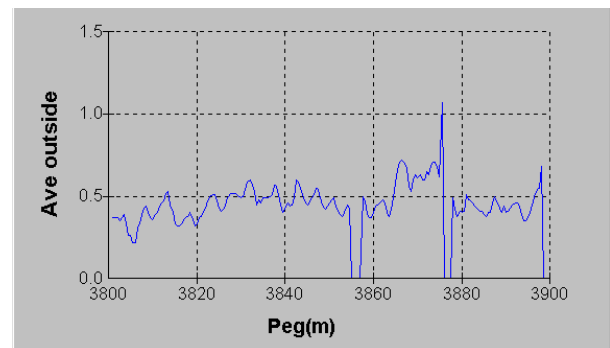
While drilling, we also record drilling speed and other drilling parameters. This 3D display give indication on hard and soft rock.



Face map. It shows the face geometry after last blast. The map is based on data from the normal round log.



Contour after blasting is presented and information on overbreak and volumes are calculated. Data is based on Bever 3D Profiler scan and from imported contour coordinates from a total station.



Trend graph of overbreak as function of peg no. In this example the average overbreak is 0.3 – 0.6 meter outside contract contour

## Bever Control Products

- Bever Win 2000 Automatic boom control and drill pattern – fitted to AMV CC jumbos
- Bever Win 2000 Manual boom control and drill pattern – fitted to AMV CR rigs or upgrade of Bever Data systems on Atlas Copco or Tamrock rigs
- Bever 3D Profiler – fitted to all type of rigs, AMV, Atlas Copco and Tamrock
- Bever Team Planning and Reporting support for software for office PC

## Bever Control Story

Norwegian contractors introduced the concept of computer controlled drilling as early as 1979. The first AMV computer controlled jumbo was set in operation in 1979. Bever Control is the pioneer company for this technology world wide. We have delivered our system to more than 140 drill rigs and has set the standard for the performance of computer controlled drilling rigs system.

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