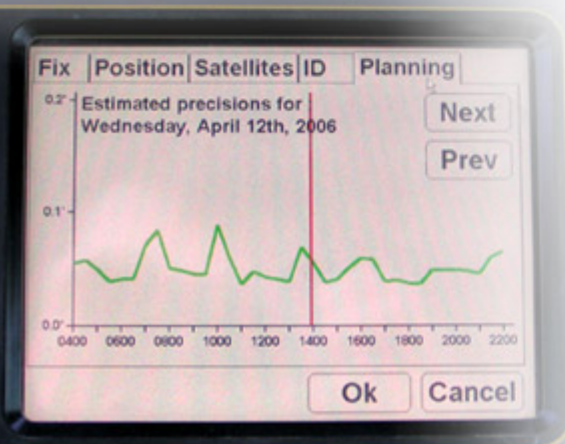


# AUTOMATED MACHINE GUIDANCE

## Specifications: How Much Information is Enough?



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**Lou Barrett**



# Specifications

- **Most requested information / data / examples**
- **Everyone's specs are different**
- **Gather from numerous State Transportation Agencies (STA) then cut and paste.**



## Do We Rewrite Current Specs?

- Are tolerances too loose or too tight?
- Are you providing a pay item for equipment?
- Are you changing any materials?



# Current Specifications

**Subgrade prep for aggregate base course, the elevation of the finished surface at the time the next layer is placed, shall not vary by more than 15 mm (0.05 foot) above or 30 mm (0.1 foot) below the prescribed elevation at any point where measurement is made.**



## Current Specifications

**Subgrade prep for aggregate wearing course, the elevation of the finished surface ... shall not vary by more than 30 mm (0.1 foot) from the prescribed elevation at any point where measurement is made.**

**Subgrade prep for surface course, the elevation of the finished surface ... shall not vary by more than 15 mm (0.05 foot) from the prescribed elevation at any point where measurement is made.**

## Where is AMG Used?

**The Contractor shall utilize machine control for all grading and blue top work in Earthwork Balance Number 5, as well as during the construction of the storm water treatment pond. Based on the success of this work, the Engineer and Contractor may mutually agree to continue this machine control usage on the remainder of the Project or to adjust the Construction Staking item to provide for conventional staking of the remainder of the Project. Such adjustments to the Construction Staking Item shall be made in accordance with the provisions of Mn/DOT 1904.**

## Where is AMG Used?

The Contractor shall utilize machine control for all grading on this Project, except for subcut and cut-and-fill grading around all bridge abutments.

The contractor shall utilize machine control for grading on the mainline alignments between stations: 10+45 to 15+85, 17+13 to 24+76.

## What Type of Data is Provided?

- (A) Background graphics file with centerlines, edges of pavement, and hull of ponds, wetlands, sensitive areas.
- (B) 3D files of proposed finish grade from tie down point to tiedown point, and grading grade between intersection with inslope and continuing along bottom of topsoil to the tiedown point in rural (shoulder, no curb) areas.
- (C) 3D files of proposed finish grade from tiedown point to tiedown point, and grading grade between intersection with ½:1 subcut. If the grading grade intersects the inslope, the model will include the grading grade and continue along bottom of topsoil to the tiedown point in urban (curb) areas.
- (D) 3D files of ponds, if applicable.



## Equipment

Systems that have been approved are:

Trimble GPS system (Site Vision Office)

TOPCON GPS system (3D-GPS+)

The Contractor may request approval of another system, but its use will only be approved if the Survey Equipment-Machine Control System will work with the data in the form Mn/DOT currently produces.

## Disclaimer

Please note that Mn/DOT believes this electronic data to be accurate, but does not guarantee it. The documents originally provided with the Contract remain the basis of the Contract, and the electronic data being provided is for informational use only in order to assist the Contractor with the use of machine control. Therefore, if use of this data causes an error, any costs to the Contractor in time or money to make corrections as a result of this error will not be considered Extra Work as that term is defined in Mn/DOT Standard Specifications for Construction, 2000 Edition.

## Disclaimer

Delay due to satellite reception of signals to operate this system will not result in any adjustment to the “Basis of Payment” for any construction items or to Contract time.

## What About Changes?

Any changes to the initial model furnished will require a minimum of seventy-two (72) hours to complete and are at the discretion of Mn/DOT.

Mn/DOT shall also have three (3) working days to update any files after the Department approves any Contractor requested changes.

Mn/DOT may require traditional staking methods if updated models are not provided.

## Miscellaneous Items

- The system equipment will remain the property of the Contractor.
- All machine control work shall be considered incidental work for which no direct payment will be made.

## **AMG Not Supported or Not Used**

- The Contractor may make use emerging technologies of machine control of the grading equipment for this Project. Mn/DOT does not intend to share files or models with the Contractor.
- The Contractor is hereby advised that this Project is located in an area of the State that does not have adequate GPS reception to support the use of GPS technologies.

# AUTOMATED MACHINE GUIDANCE

Questions?

[www.aashtotig.org](http://www.aashtotig.org)

