

JULY 1, 2001

**MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF LAND MANAGEMENT
SURVEYING AND MAPPING SECTION
PHOTOGRAMMETRY UNIT**



SPECIAL PROVISIONS FOR:

**GROUP 3: DIGITAL TERRAIN MODEL/DIGITAL
ELEVATION MODEL PRODUCTS AND SERVICES**

***DIGITAL SURFACE MODEL COMPILATION
(COARSE/ \geq 2 FT. C.I.)***

INTRODUCTION

This Specification is established to provide the Minnesota Department of Transportation (MN/DOT) with “Photogrammetry Products and Services” from Private Photogrammetric Partners (Contractor).

SCOPE OF WORK

These Specifications set forth the minimum standards to be met and general procedures to be followed in the production of digital photogrammetric and remote sensing products.

Specific photogrammetric and remote sensing services authorized by this specification include the following:

- Production of a Digital Surface Model that will support Planning, Preliminary Design, RD, RS and RX Detail Design, Project Documentation and Facility Management activities for transportation projects.
- This intent of this specification is to produce a digital surface model that will be used as the basis of a “Surface TIN Model”, capable of generating contours and/or cross-sections utilizing “GEOPAK” highway design software.

ITEMS PROVIDED AND/OR COMPLETED BY MN/DOT

Specific information to be supplied for each project includes the following:

- Work Order Contracts. Each Work Order Contract will include the following information:
 - Project designation or numbers.
 - Project location.
 - Project limits.
 - Accuracy Requirements.
 - Units of measurement.
 - Coordinate Datum/Projection/Adjustment.
 - Match File Requirements.
 - Specific Project Deliverables.
 - Deliverables Schedule/Evaluation.
 - Electronic File Naming Convention/ Tiling Scheme/File Size Requirements.
 - List of materials for stereo compilation (that will be provided by MN/DOT).
 - Special Requirements.
 - Start date.
 - Completion date.
 - Invoice, Incentive/Disincentive Schedule.
 - Test review area.
 - Total project cost payable to Contractor.
- Contact Prints/ Diapositives/ Digital Images, if applicable.
- Mapping Limit Diagram.
- Project Seed Files.
- Mn/DOT Digital Map Symbols Manual.
- List of control points, if applicable.
- List of analytical control points, if applicable.

Please be advised: It is the Contractor’s responsibility to provide safe storage and prompt return for all items supplied by MN/DOT. The Contractor is liable for lost or damaged items.

DELIVERABLES BY CONTRACTOR

Specific deliverables authorized by this specification include the following:

Terrain accuracy will be specified in the Work Order Contracts. The terrain accuracy for this specification will not require better than a 2' C.I. The NSSDA reporting method will be used to evaluate the terrain data. Mn/DOT reserves the right to specify different accuracy requirements for varying terrain/ ground cover areas.

Scope: elevations at “well-defined” points. Vertical accuracy of all surface models will be tested by creating a “Geopak” .TIN file. The generated elevation will be compared to the ground surveyed elevation at the same X,Y location.

PROCEDURAL BASED SPECIFICATIONS

All products and services authorized under this specification will be completed in accordance with the following procedural specifications and as directed by the Photogrammetric Engineer.

GENERAL

Where these specifications, the Work Order Contract and contract documents describe portions of the work in general terms, but not in complete detail, it is understood that only “Best Industry Practices” are to prevail.

EQUIPMENT

The equipment used to complete the project will be the equipment listed in the Contractor’s proposal unless specific permission is granted by MN/DOT to use alternate equipment. Any product that is completed using non-approved equipment may be rejected and recompiled at the Contractor’s expense, as determined by the Photogrammetric Engineer.

DATA FILE FORMAT/REQUIREMENTS

The global origin for the map files will be in the lower left corner of the design plane ((0,0,0) for 3D files).

File naming convention will be specified in the Work Order Contract, based on the tiling scheme,

The Contractor is required to keep a back-up of all electronic files produced for the project for 1 year after final acceptance is made.

PRODUCTION TECHNIQUES

The production techniques used to complete the project will be the techniques listed in the Contractor’s proposal unless specific permission is granted by MN/DOT to use alternate techniques. Any product that is completed using non-approved production techniques may be rejected and recompiled at the Contractor’s expense, as determined by the Photogrammetric Engineer.

PROJECT EVALUATION/ ACCEPTANCE

Upon completion of the project and initial edit, the Contractor will submit the project to MN/DOT for review. MN/DOT will spot check the work and note items that require correction, if any (MN/DOT will not “flag” every item, only representative examples of corrective action required). The Contractor will make a concerted effort find and correct all features not meeting specifications.

MN/DOT will review the “Contractor’s Final” delivered files and will make all necessary edits to bring the project within specification. MN/DOT reserves the right to deduct monies, due to the Contractor, the actual cost incurred to bring a sub-standard project into specification. The cost of corrective action performed by MN/DOT is specified in the Special Conditions.