

Sterling Highway MP 44.5-58

Protraction Notes

10.1.19/jfb

1. Received official protraction diagrams for project townships from DNR (Larry King) Verified protraction diagram NAD 27 values with NAD 27 values produced from BLM SDMS Protraction Utility. Larry notes that the NAD 83 values produced by the BLM SDMS utility are based on Epoch 86 and that this must be considered to accurately translate to NAD 27 or any other projection or it may result in an error of about 5 feet.
2. The Sterling MP 44.5 to 58 protractions were obtained from the BLM SDMS site, Tools & Utilities, "Query Protracted and Surveyed Township and Section Corners." (See General Notes, Sterling Highway MP 58-79 Base Map, Plat 2014-34 SRD, Sheet 58 fo 62)
3. NAD 83 & NAD 27 Protractions were run for T5N, R2-5W, SM. Run reports to html, then cut & paste lines to excel spreadsheet. Delete all except decimal degrees latitude & longitude. I used the html report instead of CSV due to a problem aligning data columns.
4. Save protraction lats & longs to text file to be used for Global Mapper Input.
5. Create Global Mapper Projection file "Anchorage 2015" using Horizontal Control Statement data.
6. Global Mapper v18
 - o **Input:** 9.30.19 SDMS NAD 27 Lat Long GM Input File.csv
9.30.19 SDMS NAD 83 EPOCH 86 Lat Long GM Input File.csv

Note: Both BLM Utility NAD 27 & NAD 83 Lat/Longs were processed to verify the coordinate values. Unknown Input projection: Select "Geographic (Latitude/Longitude)"; Datum: NAD 83; Units: Arc Degrees; Central Longitude: 0

Output: 9_30_19 SDMS NAD 27 Lat Long GM Batch Convert.dwg
9_30_19 SDMS NAD 83 EPOCH 86 Lat Long GM Batch Convert.dwg

Note: Specify Projection: Load from file – "Anchorage 2015.prj" Output was made to a .dwg format as I was unable to output to a CSV file with more than 2-decimal place precision.

Modified

Output: NAD 27 Converted.csv
NAD 83 Converted.csv
NAD 27 Converted.txt
NAD 83 Converted.txt

To obtain converted output files in a .csv and .txt format I uploaded the .dwg files into Global Mapper and then exported them to .csv with a 6-decimal place precision. Then I

copied the files and renamed them as .txt files.

7. Global Mapper Conversion Quality Control Check

- CP1 and CP35 lat/long from Horizontal Control Statement, Sterling Highway MP 45-60 SCD, Plat 2019-10, SRD for coordinate conversion quality control QC.
- CP1 Northing 180079.8766; (R) 180079.8763 (C) – 0.0003 difference
CP1 Easting 225080.3846 (R); 225080.3839 (C) – 0.0007 difference
CP35 Northing 179225.1198 (R); 179225.1195 (C) – 0.0003 difference
CP35 Easting 154679.8171 (R); 154679.8165 (C) – 0.0006 difference
- Comparing the NAD 83 vs NAD27 SDS Data conversions, the difference is generally less than 0.001’.
- The Sterling MP 58-79 base map also used the BLM protraction Utility to generate protracted latitudes and longitudes. It is unclear what software was used to process the projection translation. The .dwg base map file for MP 58-79 contains the node for “GPS CP34” (STH 58.0 2002). This point is also referenced in the MP 44.5-58 base map drawing. After importing the nodes and lines for the protractions into the current base map, I compared the perpendicular distances from CP34 to the north and west protracted section lines in each drawing. The difference was 0.67’ to the west line and 0.66’ to the north line with the protractions having shifted south and east compared to the MP 58-79 protractions.