SECTION 3:

TOPOGRAPHIC SURVEYS

Last reviewed/updated
March, 2003

TOPOGRAPHIC MAPS – Survey control schematics

All Topographic mapping projects survey requests that have determine alignment specified on the Survey request form will have a survey control schematic created. The survey control schematic shall cover the area that was requested and will be tied into our GPS control network.

These map(s) will begin with the second sheet of the topographic map set. These map(s) will be based on found monumentation, and record information. These map (s) will have the same borders and title block as the other topographic map sheets.

The Survey control schematic map will be created at whatever scale that will allow the control traverse to fit on to a standard 24 x 36 sheet size, "D" size sheet. A section containing the project statements will be located in the bottom left hand corner whenever possible. The notes will include:

STANDARD STATEMENTS

Basis of Bearing

Basis of Stationing

Horizontal Datum

Curve Data Table

Monument Notes

References

Surveyor's Notes

These map(s) will be done to Record of Survey standards and will show both measured and record data. See additional requirements under the Record of Survey section of this document. Submit this map along with necessary documentation to verify its accuracy. See Record of Survey section specifications for the required documentation procedures.

ALIGNMENT STATIONING – Stationing will only be listed at street intersections, BC, EC, and angle points. Alignment stationing will be placed so that stationing runs from south to north and west to east unless specifically requested by the requestor. Stationing should also be placed so that it can be read from the bottom of the page on the right-hand side.

Stationing -	font	weight	color
Regular	33	3	0
Cardinal	33	2	2

General Processing notes:

NOTE: 1) **Coordinate values are to be three significant figures for all shown GPS points. All other points at two significant figures.**

2) **Bearings, on all Topographic Mapping projects will be listed as either NW or NE and rounded to the nearest second.**

Cells - All cells for topographic maps are placed from Microstation graphics cell libraries named Geomatics.cel and survey-m.cel. These cell libraries contain cells for various commonly used items such as north arrow, title block, borders and biler plate licensed surveyors stamps. A description of each cell and its correct placement is detailed below.

Graphics Scale – This feature is placed using the correct scale that corresponds to the requested scale of the drawing. For example if the requested scale is 20 scale then the cell from Geomatics.cel would be S20F, if the correct metric scale is 250 scale then the cell from Geomatics-m.cel would be S250M.

North Arrow – The north arrow will be placed above the graphics scale cell whenever possible.

Sheets – All sheets are generated from a cell named bord*. These are placed in the design file at the requested scale so that the final drawing when plotted will be the scale requested on the survey request. Border cells are placed on a separate level for each sheet needed to cover the specified area i.e., sheet 3 border will be placed on level 3 and sheet 4 border will be placed on level 4 and so on to cover the limits of the project. All sheets are to be placed either horizontally or vertically in the design plane, unless significantly fewer sheets can be realized using rotated sheets.

Title Block – The title block contains all project specific information and is automatically set as to font, color, weight and text height criteria due to the use of data fields, except the project title and the description. Below the project title, the project description will be placed.

GRID LINES – All grid lines are placed at 10 times the plotting scale for instance a 20 scale map would have grid placed at 200 foot intervals. All grid lines will also be placed using the grid lock to assure correct placement. Grid lines are placed on the same level as the borders. Grid lines are to be contiguous from one side of the border to the other regardless of any topo feature. Each grid line will be placed with line code-0; weight=0. The color and level of the grid lines will be determined by what sheet number the grid is to be placed on (i.e. sheet 3 grid will be placed on level 3 with color 3).

GRID ANNOTATION – All grid annotation will be placed as to be read from the north and from east (bottom or right hand side of the page). These grid annotations will be placed at every other grid line with the following characteristics font=0, weight=1, color=0.

LEGEND – A legend will be included on all topographic maps. This legend will contain all font or cell used as symbols for features collected in the field survey. These symbols will be placed in a box with weight=1, color=0. The title will be font=7, color=0, weight=1, and will be underlined with a line of weight=1. The legend box will be placed on the same level as the corresponding sheet level. These symbols will be placed in alphabetical order. All text will be font=11, weight=1, oclor=0, in addition at the bottom of the box, a statement – SEE REPORT FILES FOR SUPPLEMENTAL DATA; will be placed with font=190, weight=2, color=0.

PROCESSING NOTE: - **All cells for project specific notes will only be placed on the title sheet and the Survey Control Schematic.**

Listing of Topo Features by level:

LEVEL	ELEMENT
25	ROLLED CURB BACKS, TOPS OF CURBS
26	NO TOPO FEATURES
27	BRIDGE DECKS, DRIVEWAYS, EDGES OF PAVEMENTS, EDGES OF ROADS, CONCRETE PATTERNS, ROAD STRIPING, TRAFFIC CENSORS.
28	PEDESTRIAN ACTIVATORS, PEDESTRIAN SIGNALS, RAILROAD SIGNAL ARMS, RAILROAD SIGNALS, RAILROAD CONTROL BOXES, TRAFFIC SIGNALS, TRAFFIC SIGNALS WITH LIGHTS.
29-34	NO TOPO FEATURES
35	CHANNEL LININGS, WALLS, HEADWALLS, WEIR TOPS, WING WALLS.
36	EDGE OF LAKES, EDGE OF MARSHES, FLOW LINES, GRADELINES, HINGE POINTS, WEIR BOTTOMS.
37	ABUTMENTS, PIERS, SOFFITS
38	DROP INLETS, GRATE INLETS, PIPE INLETS/OUTLETS, REINFORCED CONCRETE BOXES
39-44	NO TOPO FEATURES
45	BUSHES, BUSH ROWS, IRRIGATION AREAS, TREES, TREE OUTLINES
46	BUILDING CORNERS, BUILDING OUTLINES, BUS STOPS, CATCH BASINS, FOOTINGS, HAND RAILS, PADS, PATIOS, ROOF OVERHANGS, SIDEWALK CURVERTS, STAIRS, TANKS WALKS.
47	BUSH OUTLINES, FENCES, GRASS AREAS, GUARD RAILS, IRRIGATION GRASS AREAS, IRRIGATION STAND PIPES, PLANTERS, RAILROAD TRACKS, RETAINING WALLS, ROCK AREAS, TREE DRIPLINES, TREE ROWS.
48	ANTENNAS, FIRE HYDRANTS, FLAG POLES, GATES, HOSE BIBS, MAIL BOXES, OIL WELLS, PILASTERS, POSTS, ROCKS/BOULDERS, SIGNS, SIGN BOARDS, VALVES.

49	BOOM GUYS, GUY ANCHORS, GUY POLES, LIGHT POLES, UTILITY POLES, YARD LIGHTS.
50-54	NO TOPO FEATURES
55	BENCH MARKS, CONTROL POINTS, MONUMENTS, MONITOR WELLS, TRAVERSE POINTS.
56	PIPES – EXPOSED/SURFACE, PRESSURE REDUCERS, VAULTS.
57	CONTROL BOXES, ELECTRIC TOWERS, MANHOLES, METERS, PULL BOXES, SEWER CLEAN OUTS, SPRINKLERS, TELEPHONE BOOTHS.
58	BREAKLINE, CROWN OF ROADS
59	SPOT HEIGHTS
60	GRIDLINES, GRID TEXT, GRID TICKS, CONTROL
61	POINT CODES
62	POINT ELEVATIONS
63	POINT NUMBERS

REFERENCE FILES – The final Topographic mapping set uses reference files attached to the MicroStation design file to ensure data integrity. The most common of which are listed below:

Alignment

Contours

Patterns

Right-of-Way

Topography

REFERENCE FILE	ATTACHMENT LOGICAL
Alignment	ali
Contours	con
Patterns	pat
Right-of-Way	row