

SECTION 1.2 MAPPING STANDARDS

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1.2.01 PURPOSE

This Standard contains the Truckee Meadows Water Authority's (Authority) standards for:

Mapping, Drafting and Electronic Drawings (“Mapping Standards”)

Construction Standards are covered in Sections 2 through 10 including Appendix 10.

1.2.02 MAPPING STANDARDS

All designs for a water facility project submitted for use by a project are required to use the drawing standards set forth in these Mapping Standards defined in this section. It is recommended that the designer download all of the files for Section 1.2 from www.tmh2o.com, for a list refer to Section 1.2.08. All of the title blocks, templates, layers, layer colors, linetypes, and mapping symbols referenced by the standards can be downloaded from www.tmh2o.com. Additionally, information is provided with options for the automated plot stamp, text styles and dimension styles.

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1.2.03 DEFINITIONS

- 1.2.03.1 All Disciplines: Any submittal completed by a Professional Licensee.
- 1.2.03.2 Civil and Survey: Any submittal containing specific data for Civil Engineering and Land Surveying.

1.2.04 STANDARDS FOR ALL DISCIPLINES

- 1.2.04.1 File Format: AutoCAD 2007 DWG, Civil 3D files are not acceptable.
- 1.2.04.2 Media Format: Compact Disc (CD), Digital Video Disc (DVD) or other non-volatile media.
- 1.2.04.3 Coordinate System

Horizontal: State Plane Nevada West Zone (Sparks Modified), NAD 83, US Survey Feet

Vertical: Navd 88 US Survey Feet
- 1.2.04.4 Spatial Accuracy: All drawings to conform to NAC 625.666.1. As per NAC 625.610.10.9 record/as-built drawings do not require a licensee stamp.
- 1.2.04.5 Drawing Title Blocks, Sheet Size, Scale, Numbering, Status
 - 1) Sheet size submitted should be 22x34 or 24x36 unless otherwise noted or approved by TMWA.
 - 2) All drawings will adhere to standard Engineering and Architectural scales or as specified in the project contract.
 - 3) All drawings should be labeled in numerical order in the space at the lower right corner of the title block. Individual disciplines will not number their drawings as a set without including all of the sheets in the set. Consultants are responsible for getting sheet numbers and final sheet count prior to plotting, stamping and signing their drawings.
 - 4) All site drawings shall meet the above standards and additional standards as stated in Section 1.2.05, contained in this document.
 - 5) All drawings shall indicate the status of the drawings. The block shall be located near the lower right corner of each page.
Bid Set, BID_SET.dwg

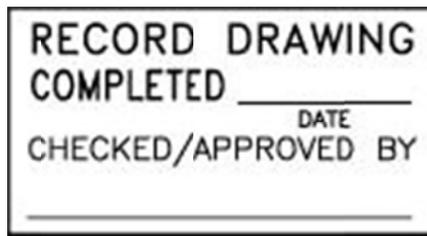
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Conformed Set, CONFORMED_SET.dwg



Record Set, RECORD_SET.dwg



1.2.04.6 Drawing Naming Conventions

All drawings in the design set will have the TMWA project/work order number for Capital Projects (##-###). Refer to Section 1.1 for requirements for New Business Projects. For Capital Projects all drawings will have the sheet number, (i.e. C1) and some should also include a drawing description.

A) Xref. Drawings

- 1) "work order #"_Topo (all exist. topography, contours & exist. utilities)
- 2) "work order #"_Design (all proposed design geometry)

B) Design Set

- 1) "work order #"_G0 (Cover)
- 2) "work order #"_G1 (general notes, legend etc.)
- 3) "work order #"_Cx-"description" (civil)
- 4) "work order #"_Ux-"description" (utilities)
- 5) "work order #"_Px (facility piping or plan and profile sheets)
- 6) "work order #"_Dx (detail sheets)

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- 7) "work order #" _Sx-"description" (structural)
- 8) "work order #" _Mx-"description" (HVAC/mechanical)
- 9) "work order #" _Ex-"description" (electrical)
- 10) "work order #" _Lx-"description" (landscape)

Multiple drawings in a discipline can be either in one drawing using layout tabs ("work order#" _S1-S5) or in individual drawings numbered as above.

1.2.04.7 As-Built/Record Status

All as-built/record drawings must have the TMWA "RECORD SET" block file inserted near the lower right corner of the sheet to signify the draw is the as-built/record set version (RECORD_SET.dwg). This stamp is to be signed and dated by the Inspector or Engineer in charge of the project (note: this is not a professional endorsement merely an acknowledgement of the drawing status). As-Built/Record drawings shall adhere to Section 1.2.05.

1.2.04.8 Ancillary Files Not Using TMWA Standards

All electronic files provided in conjunction with printed drawings or maps must include all ancillary files necessary to print the file on any large format printing device. These files may include, but are not limited to: fonts, CTB files, plot definitions or legends.

1.2.05 ADDITIONAL SUBMITTALS CONTAINING SPECIFIC DATA FOR CIVIL AND SURVEY

1.2.05.1 Layering

All drawings need to be drawn using the TMWA layer standards. This will help to standardize drawings, simplifying printing, and conversions to the GIS database. All drawings that come to the Mapping Services Department at TMWA and are not to these standards will be returned, with notes, for revisions, effective July 1, 2004. For more information see Section 1.2.06 below.

1.2.05.2 Miscellaneous Drafting Standards

All line work and labeling shall be in model space. Line work and labeling in paper space is unacceptable.

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Line work for waterlines to be drawn in real configuration – drawn with polylines broken at couplings, crosses, elbows, reducers, stubs, tees and valves only.

All pipe fittings and appurtenances shall be inserted from the TMWA standard symbols as a block (see Plates 3 and 4). Blocks should not be exploded and should be put on the proper layer.

1.2.05.3 Plot Stamp

All drawings will contain a plot stamp placed on the lower left corner of the sheet, vertical, facing to the right, next to the border.

Text will contain the filename and the date plotted. Font: ROMANS - Size: .08
For more information on using the “RTEXT” block see Section 1.2.07.1.

1.2.06 STANDARD DRAFTING PROCEDURES

1.2.06.1 Layering

To get the layer settings use TMWA Standard Templates, insert the title block or appropriate STD_“dwg”, see Sections 1.2.08.2 and 1.2.08.3. See Sections 1.2.09, 1.2.10, and Plates for standard layers, colors and linetypes. When layer colors are used according to TMWA standards the standard TMWA *.ctb files will plot the drawing correctly, see Section 1.2.08.3 for CTB files. If non-standard layers need to be added use appropriate colors from the layer convention “color settings” box so that the TMWA *.ctb files will plot them correctly.

1.2.07 OPTIONAL INFORMATION

1.2.07.1 Plot Stamp

A. TMWA has a block called NAMEDATE.dwg, see Section 1.2.08.2, that will automatically print the drawing location, name, date and time when plotted. It is already inserted into the standard TMWA title blocks in the lower left corner. If you choose to use this block and see only a box with an X in it, you can activate it by doing these steps:

- 1) Download the file Rtext.arx
- 2) Open AutoCAD
- 3) Pick “Tools” pull-down menu
- 4) Pick “Load Application”

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- 5) Pick the “Contents” button on the lower right
- 6) Pick the “Add” button
- 7) Find and pick the “Rtext.arx” file
- 8) Pick the “Close” button
- 9) Pick the “Close” button again
- 10) Now “Rtext” will be loaded each time you bring up AutoCAD.

Note that “Rtext” does not work in AutoCAD LT.

B. Alternately the NAMEDATE.dwg drawing can be inserted into each sheet and exploded to get the text in the correct place. If the text is put in manually it will have to be updated when plotted.

1.2.07.2 Text Styles

TMWA title blocks have standard text styles already set up. To get these styles by inserting a TMWA title block or a STD_”dwg” into the drawing or they can be set up as follows:

ROMANS – existing

ROMAND – proposed

Make the style name the same as the font. Height = 0, Width Factor = .85

The text for proposed work will stand out better when using ROMAND. Text height for most existing and proposed work should be drawn at 0.1 high x the scale. Other styles are setup for titles and subtitles and will be loaded with the TMWA title blocks or STD_”dwg”.

1.2.07.3 Dimension Styles

TMWA dimension styles are set up as follows:

There are four dimension styles in each template and border drawing. They have the default settings that are used and are set for drawings scaled at 1:1. There are two styles for Engineering scales and two for Architect scales.

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To make a new dimension style for a different scaled drawing, do the following:

- 1) In the dimension style dialog box pick the style to be used.
- 2) Pick “New” and change the name in the “New Style Name” box to the same name being copied followed by the number of the scale of the drawing. Erase the part at the front that says “Copy of “.
- 3) Pick “Continue”.
- 4) The “New Dimension Style” box will come up. Pick on the “Fit” tab and change “Use overall scale of: “ to the scale of your map.
- 5) Pick “Set Current” in the “Dimension Style Manager” box.
Example: For a 1”= 40’ dimension style for engineering. Pick the “TMWA_ARROW-ENG1” style. Pick “New”; change the name to “TMWA_ARROW-ENG40”. Pick the “Fit” tab and change the “Use overall scale of: “ to 40. Set it as current.
- 6) Insert the STD_CIVIL to load the dimension styles.

1.2.08 FILES

1.2.08.1 Templates

TMWA_Template-Cover34x22.dwt

TMWA_Template-Cover36x24.dwt

TMWA_Template34x22.dwt

TMWA_Template36x24.dwt

1.2.08.2 Title Blocks

These are the standard cover sheets and borders used for design projects. The borders should be inserted at 0,0 in paper space. The text contained in the title block is an attribute and must remain so.

Cover-34x22-P.dwg & Cover-36x24-P.dwg to be opened and saved

Cover-34x22-M.dwg & Cover-36x24-M.dwg to be inserted

MAPBDR-34x22L.dwg & MAPBDR-36x24L.dwg to be inserted into drawing at 0,0 in paper space

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STD_CIVIL, STD_STRUCT, STD_HVAC, STD_XUTILS, STD_MISCTOPO – Insert these to get all of the standard layers, colors, linetypes, dimensions and text styles (no objects in files). All STD_”dwgs” include the STD_CIVIL layers.

NAMEDATE.dwg

1.2.08.3 CTB Plot Styles

This is a list of the standard .ctb files, (See Plate 2 and Sections 1.2.09 and 1.2.10):

TMWA_Map5mono.ctb - all construction projects – no color

TMWA_Map5mono-half.ctb - all 11x17 plots – no color

1.2.08.4 Mapping Symbols

The standard mapping symbols are used for the Authority’s facility maps. These same symbols shall be used for all single line pipe drawings such as but not limited to utility site plans. See Plates 3 & 4.

1.2.08.5 Linetypes

Acad.lin

Rpoly.lsp

The acad.lin file consists of some custom linetypes for new and existing utilities. This file can be loaded or copied to the AutoCAD support directory. Some linetypes include text. If the text is upside down the direction of the polyline can be reversed with a lisp routine called Rpoly.lsp.

See Plate 1 for linetype examples.

For plot stamp: Rtext.arx, Rtext.lsp, and Rtext.dll

1.2.09 TMWA AUTOCAD LAYER CONVENTIONS

1.2.09.1 Topo Features

Layer features for commercial developments, subdivisions, single lots, highway and road projects, etc. For features that are existing, the layer name has an extension -E, LAYERNAME-E; features that are proposed have an extension -P. This convention applies to many of the layers.

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LAYER NAME	DEFINITION	COLOR (P)	COLOR (E)	LINE TYPE	LINE THICKNESS
AGG	AGGREGATE BASE, OR DRAIN ROCK MATERIAL	1	12 (30%)	CONTINUOUS	.3mm
BFC	BACK FACE OF CURB	2	11 (30%)	CONTINUOUS	.25mm
BLDG	BUILDING, HOUSE, BUILDING PAD/ENEVELOPE	4	132 (40%)	CONTINUOUS	.5mm
BNDY	BOUNDARY, PROPERTY LINE DATA	6	222 (40%)	PHANTOM2	.7mm
CG	CURB, GUTTER, VALLEY GUTTER	3	72 (40%)	CONTINUOUS	.35mm
CL	CENTERLINE	1	12 (40%)	CENTER2	.3mm
CONC	CONCRETE	4	132 (40%)	CONTINUOUS	.5mm
DESC	POINT DESCRIPTION	2	11 (30%)	CONTINUOUS	.25mm
ELEV	POINT ELEVATION	2	11 (30%)	CONTINUOUS	.25mm
EOP	EDGE OF PAVEMENT / AC PAVEMENT	3	72 (40%)	CONTINUOUS	.35mm
ERD	EDGE OF ROAD, NOT PAVED	3	72 (40%)	DASHED2	.35mm
ESMT	EASEMENT LINES AND DATA	2	11 (30%)	DASHED2	.25mm
FFC	FRONT FACE OF CURB	3	72 (40%)	CONTINUOUS	.35mm
FL	FLOW LINE	4	132 (40%)	DRAIN	.5mm
FNCE (-E, -P)	FENCES; Linetypes: Fence X, Fence 1, Fence 2	7, wht/blk	12 (30%)	FENCELINE X	.3mm
GB	GRADE BREAK SYMBOL / TEXT	2	N/A	CONTINUOUS	.25mm
LAPN	ASSESSOR PARCEL NUMBER	7, wht/blk	12 (30%)	CONTINUOUS	.3mm
LN	LOT/BLOCK NUMBER	7, wht/blk	12 (30%)	CONTINUOUS	.3mm
PARKNG	PARKING LAYOUT, COMMERCIAL/INDUSTRIAL	7, wht/blk	12 (30%)	CONTINUOUS	.3mm
PTS	SURVEY POINT W/ELEVATION, DESCRIPTION	2	11 (30%)	CONTINUOUS	.25mm
RBAR	REBAR	5	132 (40%)	CONTINUOUS	.6mm/.5mm
ROW	RIGHT OF WAY LINES AND DATA	4	132 (40%)	PHANTOM2	.5mm
RR	RAILROAD TRACKS	7, wht/blk	12 (30%)	TRACKS	.3mm
SGLS	TRAFFIC SIGNAL FEATURES	7, wht/blk	12 (30%)	CONTINUOUS	.3mm
SIGN	SIGNAGE, TRAFFIC, ETC.	7, wht/blk	12 (30%)	CONTINUOUS	.3mm
SLOPE	TOP OR TOE OF SLOPE, CROWS FEET	2	11 (30%)	CONTINUOUS	.25mm
STL	STEEL	7, wht/blk	12 (30%)	CONTINUOUS	.3mm
STRIPE	ROADWAY PAINT STRIPPING	2	11 (30%)	CONTINUOUS	.25mm
STRUC	STRUCTURE	3	72 (40%)	CONTINUOUS	.35mm
SW	SIDEWALK, DRIVEWAYS	3	72 (40%)	CONTINUOUS	.35mm
WALL	WALL	3	72 (40%)	CONTINUOUS	.35mm

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1.2.09.2 Miscellaneous Features and Annotations

LAYER NAME	DEFINITION	COLOR (P)	COLOR (E)	LINE TYPE	LINE THICKNESS
GNOTES	GENERAL NOTES	7, wht/blk	12 (30%)	CONTINUOUS	.3mm
HATCH-1	HATCH PATTERNS, color/screen can vary, see upper right	VARIES	N/A	CONTINUOUS	VARIES
HATCH-2	HATCH PATTERNS, color/screen can vary, see upper right	VARIES	N/A	CONTINUOUS	VARIES
MATCH_LINE	MATCH LINE (Model Space - LDD software)	6	N/A	PHANTOM2	.7mm
MLIST	MATERIAL LIST	7, wht/blk	NA	CONTINUOUS	.3mm
PBASE	PROFILE HORIZONTAL BASE - LDD	14 (40%)	N/A	CONT / DOT2	.5mm
PEGC	PROFILE EXISTING GROUND CENTERLINE - LDD	2	N/A	HIDDEN2	.25mm
PEGCT	PROFILE EXISTING GROUND CENTERLINE TEXT - LDD	7, wht/blk	N/A	CONTINUOUS	.3mm
PFGC	PROFILE- FINISHED GRADE CENTERLINE - LDD	3	N/A	DASHED2	.35mm
PFGCT	PROFILE - FINISHED GRADE CENTERLINE TEXT - LDD	7, wht/blk	N/A	CONTINUOUS	.3mm
PFGRID	PROFILE GRID LINES	14 (40%)	N/A	CONT / DOT2	.5mm
PFLBL	PROFILE GRID LABELS, STATION, ELEVATION	7, wht/blk	12 (30%)	CONTINUOUS	.3mm
PVGRID	PROFILE VERTICAL BASE GRID - LDD	14 (40%)	N/A	CONT / DOT2	.5mm
PVGRIDT	PROFILE VERTICAL BASE GRID TEXT - LDD	7, wht/blk	N/A	CONTINUOUS	.3mm
SHT	BASE SHEET BORDER, LOGO	7, wht/blk	N/A	CONTINUOUS	.3mm
SHT-TXT	BASE SHEET ANNOTATION, NORTH ARROW, ETC.	7, wht/blk	N/A	CONTINUOUS	.3mm
STALBL	STATION LABEL	7, wht/blk	N/A	CONTINUOUS	.3mm
STNAME	STREET NAME	6	222 (40%)	CONTINUOUS	.7mm
TEXT	TEXT	7, wht/blk	N/A	CONTINUOUS	.25mm
TXT_....	TEXT w/ DRAWING SCALE (TXT_1-2 for 1/2"=1'-0")	7, wht/blk	N/A	CONTINUOUS	.25mm
VPORT	VIEW PORTS (Paper Space, Does Not Print)	8 (45%)	N/A	CONTINUOUS	.25mm
XREF-....	X-REFERENCED DRAWNG (topo, images, exsit utilities, etc)	7, wht/blk	N/A	CONTINUOUS	.3mm

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1.2.09.3 TMWA Water System Features

LAYER NAME	DEFINITION	COLOR (P)	COLOR (E)	LINE TYPE	LINE THICKNESS
TMWA_Note	NOTES	7, wht/blk	N/A	CONTINUOUS	.3mm
TMWA_Text	ANNOTATION TEXT FOR TMWA IMPROVEMENTS	7, wht/blk	N/A	CONTINUOUS	.3mm
TMWA_WAVac	WATER AIR VACUUM VALVE/LINE	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WBPre	WATER BACKFLOW PREVENTION ASSY	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WBPump	WATER BOOSTER PUMPS/LINES	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WCap	WATER CAP	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WChkVa	WATER CHECK VALVE	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WCMet	WATER COMMERCIAL /INDUSTRIAL METERS	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WCoup	WATER COUPLING	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WCross	WATER CROSS FITTING	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WDetail	WATER DETAIL DRAWINGS	7, wht/blk	N/A	CONTINUOUS	.3mm
TMWA_WDrain	WATER DRAIN LINE	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WElbow	WATER ELBOW FITTING, ALL ANGLES	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WFacilities	WATER - MISC.	160	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WFitting	WATER APPURTENANCES, MISC.	160	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WFSer	WATER FIRE SERVICE HYDRANT/MAIN	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WFVal	WATER FLUSH VALVE ASSY/LINE	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WIMet	WATER IRRIGATION METER ASSY	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WMmain-A	WATER MAIN - ABANDONED	N/A	90 (100%)	ABANDONED	.5mm
TMWA_WMmain-Raw	WATER MAIN - UNTREATED WATER	5	153 (65%)	CONTINUOUS	.6mm/.5mm
TMWA_WMains	WATER MAINS	5	153 (65%)	CONT / X-W*	.6mm/.5mm
TMWA_WPipe	WATER PIPE, pump station, reg., etc.	160	153 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WPRedVa	WATER PRESSURE REDUCING ASSY	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WRed	WATER REDUCER FITTING	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WRMet	WATER RESIDENTIAL METER	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WSLine	WATER SERVICE LINE	5	153 (65%)	CONT / X-W*	.6mm/.5mm
TMWA_WTank	WATER STORAGE TANK	5	153 (65%)	CONTINUOUS	.6mm/.5mm
TMWA_WTee	WATER TEE FITTING	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WTP	WATER TREATMENT PLANT	5	153 (65%)	CONTINUOUS	.6mm/.5mm
TMWA_WValvs	WATER VALVES	150	143 (65%)	CONTINUOUS	.35mm/.3mm
TMWA_WVault	WATER VAULT	5	153 (65%)	CONTINUOUS	.6mm/.5mm
TMWA_WWell	WATER WELL SITE	5	153 (65%)	CONTINUOUS	.6mm/.5mm
TMWA-WCasing	CASING FOR WATER MAINS	150	143 (65%)	CONTINUOUS	.35mm/.3mm

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1.2.09.4 Topographic and Slope Features

LAYER NAME	DEFINITION	COLOR (P)	COLOR (E)	LINE TYPE	LINE THICKNESS
CONT-LBL	CONTOUR LABELS	7, wht/blk		CONTINUOUS	.3mm
CONT-LBL_E	CONTOUR LABELS (existing)		12 (30%)	CONTINUOUS	.3mm
CONT-MJR	CONTOUR MAJOR, (INDEX-proposed)	32 (80%)		CONTINUOUS	.35mm
CONT-MJR_E	CONTOUR MAJOR, (INDEX-existing)		9 (60%)	DASHED2	.35mm
CONT-MNR	CONTOUR MINOR, (INTERMEDIATE-proposed)	34 (65%)		CONTINUOUS	.25mm
CONT-MNR_E	CONTOUR MINOR, (INTERMEDIATE-existing)		8 (45%)	DASHED2	.25mm
KNOLLS	KNOLL OR ROCK OUTCROPING	32 (80%)	9 (60%)	DASHED2	.35mm
RIDGE	RIDGE LINE	7, wht/blk	N/A	DASHED	.3mm
VEG	VEGETATION, TREES, SHRUBS, ETC.	62 (65%)	65 (35%)	CONTINUOUS	.25mm
XEG	EXISTING GROUND (Model Space - LDD)	N/A	32 (80%)	HIDDEN2	.35mm

1.2.09.5 Survey Section Lines

LAYER NAME	DEFINITION	COLOR (P)	COLOR (E)	LINE TYPE	LINE THICKNESS
RANGE	RANGE LINE AND DATA	6	N/A	CONTINUOUS	.7mm
SECCOR	SECTION CORNER, LINE AND SYMBOLS	3	N/A	CONTINUOUS	.35mm
SECCOR_WR	SECTION CORNER, LINE/SYMBOLS, WATER RIGHTS	4	N/A	CONTINUOUS	.5mm
SLNE_16	SIXTEENTH SECTION LINE	7, wht/blk	N/A	DASHED2	.3mm
SLNE_4	QUARTER SECTION LINE	7, wht/blk	N/A	CENTER2	.3mm
TWNSHP	TOWNSHIP LINE AND DATA	6	N/A	CONTINUOUS	.7mm

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1.2.09.6 Hydrologic Features

LAYER NAME	DEFINITION	COLOR (P)	COLOR (E)	LINE TYPE	LINE THICKNESS
CHAN	DITCH OR CHANNEL	111	N/A	DRAIN	.5mm
CREEK	STREAM OR CREEK	131	N/A	DRAIN	.5mm
FEMA	REGULATED FLOOD PLANE/ZONE	5	N/A	CONTINUOUS	.6mm
FPLANE	FLOOD PLANE	4	N/A	DASHDOT2	.5mm
HYDB	HYDROLOGIC BASIN	5	N/A	DIVIDE2	.6mm
HYDR	HYDROLOGIC RESOURCES	7, wht/blk	N/A	CONTINUOUS	.3mm
LAKE	POND OR LAKE	151	N/A	DRAIN	.5mm
RIVER	RIVER	141	N/A	DRAIN	.5mm

1.2.09.7 Utilities

LAYER NAME	DEFINITION	COLOR (P)	COLOR (E)	LINE TYPE	LINE THICKNESS
CATV	CABLE T.V. & APPURTANCES	N/A	31 (50%)	X - CATV	.35mm
ELEC-OH	ELECTRIC, OVERHEAD & APPURTANCES	N/A	31 (50%)	X - OHP	.35mm
ELEC-UG	ELECTRIC, UNDERGROUND & APPURTANCES	N/A	31 (50%)	X - UGE	.35mm
FIBER	FIBER-OPTIC CABLE	N/A	31 (50%)	X - FOC	.35mm
GAS (-E, -P)	GAS MAIN / APPURTANCES	N/A	71 (50%)	X - G*	.35mm
SD_CB	STORM DRAIN CATCH BASIN	N/A	81 (50%)	CONTINUOUS	.35mm
SD_CMP	STORM DRAIN Corrugated Metal Pipe	N/A	81 (50%)	CONTINUOUS	.35mm
SD_DI	STORM DRAIN DRAIN INLET	N/A	81 (50%)	CONTINUOUS	.35mm
SD_LAT	STORM DRAIN LATERAL	N/A	81 (50%)	CONT / X-SD*	.35mm
SD_MAIN	STORM DRAIN MAIN	4	81 (50%)	CONT / X-SD*	.35mm
SD_MH	STORM DRAIN MANHOLE	4	81 (50%)	CONTINUOUS	.35mm
SS_COUT	SEWER CLEANOUT	N/A	41 (50%)	CONTINUOUS	.35mm
SS_FMAIN	SEWER FORCE MAIN	N/A	41 (50%)	CONT / X-SS*	.35mm
SS_LAT	SEWER LATERAL	N/A	41 (50%)	CONT / X-SS*	.35mm
SS_LSTA	SEWER LIFT STATION	N/A	41 (50%)	CONTINUOUS	.35mm
SS_MAIN	SEWER MAIN	3	41 (50%)	CONT / X-SS*	.35mm
SS_MH	SEWER MANHOLE	3	41 (50%)	CONTINUOUS	.35mm
TELE	TELEPHONE (overhead and underground)	N/A	31 (50%)	X - TELE	.35mm

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1.2.10 TMWA AUTOCAD COLOR CONVENTIONS

COLOR	SHADING	LINE WEIGHT	COLOR	SHADING	LINE WEIGHT
1-RED	100%	0.3 mm	65	35%	0.25 mm
2-YELLOW	100%	0.25 mm	71	50%	0.35 mm
3-GREEN	100%	0.35 mm	72	40%	0.35 mm
4-CYAN	100%	0.5 mm	81	51%	0.35 mm
5-BLUE	100%	0.6 mm	90	100%	0.5 mm
6-MAGENTA	100%	0.7 mm	93	65%	0.25 mm
7-WHT/BLK	100%	0.3 mm	111	100%	0.5 mm
8-DK. GREY	45%	0.25 mm	131	100%	0.5 mm
9-LT. GREY	60%	0.35 mm	132	40%	0.5 mm
10	30%	0.7 mm	141	100%	0.5 mm
11	30%	0.25 mm	143	65%	0.3 mm
12	30%	0.3 mm	150	100%	0.35 mm
13	30%	0.35 mm	151	100%	0.5 mm
14	30%	0.55 mm	153	65%	0.5 mm
15	30%	0.6 mm	160	100%	0.35 mm
16	100%	0.05 mm	222	40%	0.4 mm
21	65%	0.25 mm	251	85%	0.3 mm
31	50%	0.35 mm	252	70%	0.3 mm
32	65%	0.35 mm	253	55%	0.3 mm
34	65%	0.25 mm	254	40%	0.3 mm
41	50%	0.35 mm	255	25%	0.3 mm
62	65%	0.35 mm			

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LAYER NAME	LINETYPE DESCRIPTION	LINETYPE APPEARANCE
BNDY_P	PHANTOM2	
CL_P	CENTER2	
ESMT_P	DASHED2	
FL_P	DRAIN	
FNCE_P	FENCELINEX	
FNCE_P (Alt 1)	FENCELINE1 (Its=.5**)	
FNCE_P (Alt 2)	FENCELINE2 (Its=.5**)	
RR_E	TRACKS	
PEGC	HIDDEN2	
TMWA_WMains_E*	X-WATER*	
TMWA_WMain_A	ABANDON	
STR_BAT	BATTING (Its=.025***)	
CATV	X-CATV	
ELEC-OH	X-OHP	
ELEC-UG	X-UGE	
FIBER	X-FOC	
GAS*	X-G*	
SD_MAIN*	X-SD*	
SS_MAIN*	X-SS*	
TELE	X-TELE	

TMWA STANDARD LINETYPE EXAMPLES

PLATE 1

P1-LineType Examples.dwg

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TMWA STANDARD COLOR, LINE WEIGHT, & SHADE EXAMPLES

TMWA_Map5mono.ctb

COLOR 1 (RED), 100%, .3mm (2x0) LINE WT.	COLOR 65, 35%, .25mm LW
COLOR 2 (YELLOW), 100%, .25mm (DEFAULT)	COLOR 71, 50%, .35mm LW
COLOR 3 (GREEN), 100%, .35mm (0)	COLOR 72, 40%, .35mm LW
COLOR 4 (CYAN), 100%, .5mm (1)	COLOR 81, 50%, .35mm LW
COLOR 5 (BLUE), 100%, .6mm (2) <small>(P) TMWA_WMains; TMWA_WMmain-Raw; TMWA_WSLine; TMWA_WTank; TMWA_WVault; & TMWA_Wwell</small>	COLOR 90, 100%, .5mm <small>Line color/symbol for abandoned water main & appurtenances</small>
COLOR 6 (MAGENTA), 100%, .7mm (2.5)	COLOR 93, 65%, .25mm <small>Valve text info for facilities mapping</small>
COLOR 7 (WHITE), 100%, .3mm (2x0)	COLOR 111, 100%, .5mm LW
COLOR 8 (DK. GREY), 45%, .25mm (DEFAULT)	COLOR 131, 100%, .5mm LW
COLOR 9 (LT. GREY), 60%, .35mm (0)	COLOR 132, 40%, .5mm LW
COLOR 10, 40%, .7mm LW	COLOR 141, 100%, .5mm LW
COLOR 11, 40%, .25mm LW	COLOR 143, 65%, .3mm <small>(E) All other existing TMWA fittings, etc. as listed under color 150</small>
COLOR 12, 40%, .3mm LW	COLOR 150, 100%, .35mm <small>(P) All other proposed TMWA fittings, etc. with the exception of those listed under color 5 and color 160.</small>
COLOR 13, 40%, .35mm LW	COLOR 151, 100%, .5mm LW
COLOR 14, 40%, .5mm LW	COLOR 153, 65%, .5mm LW <small>(E) Existing TMWA_WMains; TMWA_WMmain-Raw; TMWA_WSLine; TMWA_WTank; TMWA_WVault; & TMWA_Wwell</small>
COLOR 15, 40%, .6mm LW	COLOR 160, 100%, .35mm LW <small>(P) TMWA_WPipe (pump stations, etc.); TMWA_Facilities; & TMWA_WFitting</small>
COLOR 21, 65%, .25mm	COLOR 222, 40%, .7mm LW
COLOR 31, 50%, .35mm LW	COLOR 251, 85%, DEFAULT LW
COLOR 32, 80%, .35mm LW	COLOR 252, 70%, DEFAULT LW
COLOR 34, 65%, .25mm (DEFAULT) LW	COLOR 253, 55%, DEFAULT LW
COLOR 41, 50%, .35mm LW	COLOR 254, 40%, DEFAULT LW
COLOR 62, 65%, .25mm LW <small>Valve text info for facilities mapping</small>	COLOR 255, 25%, DEFAULT LW

P2-P3-CTB Line-color Examples.dwg

PLATE 2

DRAWN	DESIGN	DATE	REV	TRUCKEE MEADOWS WATER AUTHORITY	
		7/2011	2nd	ENGINEERING & CONSTRUCTION STANDARD SECTION 1.2 – MAPPING STANDARDS	1-55

SYMBOL DESCRIPTION	SYMBOL	BLOCK NAME
11 1/4" ELBOW		11d-EI
22 1/2" ELBOW		22d-EI
45" ELBOW		45d-EI
90" ELBOW		90d-EI
VERTICAL ELBOW		Elbow-Vert
AIR/VAC		Air-Vac-e
BACKFLOW PREVENTION		BkFlwPre
CHECK VALVE		ChkVv
LINE STOP		LineStop
COUPLING		Coupling-e
CAP		Cap-e
FIRE HYDRANT		FireHyd-e
FIRE SERVICE		FireSvc
FLUSH VALVE		FlushVa-e
DUAL METER		Mtr-dual-e
METER		Mtr-single-e
DUAL SERVICE		Svcs-dual-e
SINGLE SERVICE		Svc-single-e
REDUCER		Reducer-e
TEE		Tee
CROSS		Cross
VALVE		Valve
VALVE-NORMALLY CLOSED		Valve-NC

SYMBOL DESCRIPTION	SYMBOL	BLOCK NAME
WATER TREATMENT PLANT		WTP
BOOSTER PUMP STATION		BPump
REG. STATION		RegSta
STORAGE TANK		Tank
WELL		Well

SYMBOLS ARE SIZED AT 1:1, WHEN INSERTING, SCALE TO DRAWING SCALE.

TMWA STANDARD MAPPING SYMBOLS - EXISTING

PLATE 3

P3-P4-Standard Symbols.dwg

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SYMBOL DESCRIPTION	SYMBOL	BLOCK NAME
11¼" ELBOW		11d-EI
22½" ELBOW		22d-EI
45" ELBOW		45d-EI
90" ELBOW		90d-EI
VERTICAL ELBOW		Elbow-Vert
AIR/VAC		Air-Vac-n
BACKFLOW PREVENTION		BkFlwPre
CHECK VALVE		ChkVlv
LINE STOP		LineStop
COUPLING		Coupling-n
CAP		Cap-e
FIRE HYDRANT		FireHyd-n
FIRE SERVICE		FireSvc
FLUSH VALVE		FlushVa-n
DUAL METER		Mtr-dual-n
METER		Mtr-single-n
DUAL SERVICE		Svcs-dual-n
SINGLE SERVICE		Svc-single-n
REDUCER		Reducer-n
TEE		Tee
CROSS		Cross
VALVE		Valve

SYMBOL DESCRIPTION	SYMBOL	BLOCK NAME
BOOSTER PUMP STATION		BPump
REG. STATION		RegSta
STORAGE TANK		Tank
WELL		Well

SYMBOLS ARE SIZED AT 1:1, WHEN INSERTING, SCALE TO DRAWING SCALE.

TMWA STANDARD MAPPING SYMBOLS - NEW

P3-P4-Standard Symbols.dwg

PLATE 4

DRAWN	DESIGN	DATE	REV	TRUCKEE MEADOWS WATER AUTHORITY	
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