Date Printed: 10/06/04

State of New Jersey
Department of Transportation

CADD STANDARDS MANUAL
(2002 - U.S. Customary English Units)

Prepared By

CADD Development/Support Unit
Division of Design Services
Capital Program Management

Revised – 10/06/04

Date Printed: 10/06/04

ISSUE DATES / REVISION DATES

Documents Issued	Date of Revision or Issue
Original English Manual	**September 20, 2002**
Revised English Manual	**April 22, 2004**

Revisions to Section 1 – General Standards

Revised Deed Course Information (page 18) & Text Information (page 21)
Added Existing Barrier Curb Symbology (page 19)
Added Driveway & Landscape Light Cells (page 19)
Added Underground Sprinkler Cell (page 19)
Added U.S. C & G Monument Cell (page 19)
Added Fence Gate Symbology (page 21)
Revised Label Information for Fences & Gates (page 21)
Added Proposed Barrier Curb Symbology (page 21)
Added Existing Delineator Information (page 21)
Added Cable Guide Rail Information (page 20, 22)
Added Proposed Traffic Signal Information (page 22)
Added Additional Traffic Stripe Information (page 23)

Revised English Manual **October 6, 2004**

Added Temporary Site Mitigation Work Line Symbology (page 27)
Revised Sheet File Name for Key Sheets (pages 4, 16, 24 & 27)

Date Printed: 10/06/04

TABLE OF CONTENTS
NJDOT CADD STANDARDS

LISTING OF TABLES

SECTION 1

GENERAL STANDARDS

1.1 INTRODUCTION

This manual presents standards/guidelines for the preparation of highway plans for the State of New Jersey Department of Transportation, utilizing Computer Aided Design and Drafting equipment (CADD) and methods. Inquiries regarding the contents of this document can be directed to the NJDOT CADD Support Unit. The CADD Support contacts for this information are available through the Web site listed below.

The CADD Support section of the Division of Design Services has established a World Wide Web page on the Internet from which the public can download many files used in CADD operations at NJDOT, including this document. The CADD Support web page can be accessed through the "**Reference Data"** link on the New Jersey Department of Transportation web page:

http://www.state.nj.us/transportation/

Some files are stored on the web in "PKZIP" compressed format. The "PKZIP" program that was used to compress the files can be downloaded from PKWARE Inc. A link is provided to their web site from our CADD Support web page.

Refer to the CADD Support web page for latest versions of all software.

1.2 CHANGES TO THE STANDARDS

The NJDOT CADD system is an evolving process. In general, changes to the system occur because of three factors: 1) additional users and functionality; 2) discovery of, and subsequent fixing of flaws or bugs; 3) enhancements to take advantage of more current technology and software versions. Therefore it is reasonable to expect frequent updates to this document. Users of this document are encouraged to regularly check the web page for update information in order to ensure that they also are using the latest information. A latest revision date will be displayed on the web page next to this document.

1.3 PLATFORMS

Current software platform information can be found on the NJDOT CADD Support web page mentioned in Section 1.1.

1.4 ADDITIONAL GUIDANCE FOR CONSULTANTS

The issuance of this Standard does not, in and of itself, mandate adherence hereto by consulting firms. A Consultant is currently only required to meet the requirements of various sections of this Standard as appropriate to the project scope, or in accordance with the contract language for the project.

1.5 GRAPHIC CONCEPTS

Design files (.dgn) can contain both vector and non-vector elements. The vector design files can contain text, lines, arcs, shapes and grouped elements. Grouped elements are cells, graphic groups, or complex elements. Non-vector elements include raster or binary data.

Currently MicroStation design files contain 63 levels (layers) for placing elements. Graphic elements shall be separated by level depending on the final uses of the file. For example, many elements shown on a particular plan sheet may not be needed on another. By placing elements on different levels the designer can control which elements are displayed and which are not.

Design files can also be referenced to other design files or even themselves. Referencing allows one drawing to be used as a base for several other types of plan sheets, yet remain independent of that drawing. By using reference files, base data (placed in what the NJDOT calls "base files") only needs to be drawn once; it can then be referenced into the other types of plan sheets (called "sheet files"). Not only does this save system memory, but also as the base data is updated, the changes are reflected in the files referencing them. Use of reference files is an essential element of the NJDOT CADD System.

1.6 SHEET FILES

Sheet files are design files that display information for a specific type plan sheet (construction, tie and grade, etc.). These are the files from which hard copy is typically plotted to produce a set of plans. The only elements in the sheet file are the sheet border, north arrow, street names, and elements unique to that particular plan sheet. All other data is referenced in from base files.

1.7 BASE FILES & BASE FILE TEXT

Base files contain the basic topographic information of a project, as well as all other information which is pertinent to, or resulting from, the design process, i.e. property lines, monuments, baselines, traverses, proposed design features, etc. In such a file, this information is represented from the beginning to end of the area that the project covers (as opposed to the limited length of information that is presented on a plan sheet). Text in base files is often needed in specific sheet files. However, in some cases it may need to be moved so it does not conflict with other sheet information and in some sheets it may not be required at all. In order to resolve this problem NJDOT has employed GRAY NON-PLOTTING TEXT (GNPT). This base file text will not plot unless copied-up into the sheet file at which time it can be moved to a more convenient palace.

1.8 GRAPHIC STANDARDS

The following graphic standards are considered generic and common to all internal NJDOT users. Standards considered specific to individual work groups will be addressed in the appropriate subsequent sections of this manual. The fundamental goal of the CADD graphics standards are to create computer-automated design files that graphically meet conventional drafting standards as shown in NJDOT standard plans, and the exchange of usable digital CADD files. While other users of this Standard may make modification in order to get the files to work properly on their system, any digital files submitted to the NJDOT for subsequent CADD work to be performed by NJDOT require absolute adherence to this Standard in all aspects.

1.8.1 Plan Sheet Size

Unless otherwise specified through job specific contract language the final plan sheet size will be 22” x 36”.

1.8.2 Working Units

The resolution and scaling of the design file affects the accuracy of the drawing. The working units or number of positional units used to define the sub units and master units will determine the accuracy of the design file. The accepted working units for all drawing files will be feet and inches.

UNIT NAMES:	Master Units : ‘
	Sub Units : “
RESOLUTION:	**12”** Per ‘
	254 Positional Units Per “

1.8.3 Scales

No scale will be associated with elements in a design file; drawings shall be created in real dimensions. For example, if telephone poles are 100 feet apart then they will measure 100 feet in the design file. Scaling of the final product is performed using plotting utilities. The standard plan scale for sheets shall be 1:30 unless otherwise specified.

1.8.4 Cells

Standard cell libraries are available via the NJDOT CADD Support web page for each discipline. Cells have been created so that they will appear correctly on the final scaled plan (i.e. a gas/water value needs to be made larger than it really is so that it can be identified on a normal 30 scale plan sheet).

1.8.5 Global Origin

Since most drawings utilize coordinate systems with positive X and Y values, the standard global origin is set to zero for the X and Y coordinates at the lower left corner of the X-Y plane. The Z coordinate, if used, shall be –700,000.

1.8.6 Text

Text size and placement shall be in accordance with NJDOT standards. These sizes are selected for the express purpose of proper readability on the scaled plot.

1.8.7 Font Libraries

NJDOT has created True Type Fonts as the standard fonts for design file text. These customized True Type Fonts have been assigned to the MicroStation font numbers 1 (proposed) and 23 (existing). In addition, some InRoads information may uses fonts 95, 96, and 97. The NJDOT font resource file is available on the CADD Support web page (NJDOT-Fonts.rsc).

1.8.8 Line Weights

The use of line weights to produce the desired graphical image shall be in accordance with NJDOT standards. Generally, existing features are shown thinner than the proposed work. An IPLOT pen table is used to maintain a similar output between plotters of various resolutions.

1.8.9 Line Styles

A variety of line styles are required in order to produce highway plans. MicroStation allows the creation of user defined line styles (UDL's). The NJDOT UDL resource file is available on the CADD Support web page (NJDOT-Lines.rsc).

1.8.10 Levels

Graphic elements shall be placed on the levels called for by each discipline. Some types of plans may utilize extensive leveling schemes while with others it may be minimal. The NJDOT leveling structure is detailed in the symbology tables later in this document.

1.8.11 Colors

Use of colors in design files will conform to the requirements of the specific discipline work group. The color number is more significant than the displayed color. The NJDOT color table is available on the CADD Support web page.

1.8.12 Reference Files

As mentioned previously, reference files are a powerful tool. It is mandatory that the rules for attaching and naming reference files be followed.

1.9 DELIVERABLES AND DATA EXCHANGE

Exchange of data between the NJDOT and the Engineering community will necessitate answering various questions about media, formats, etc. so that the exchange and printing process will be efficient.

1.9.1 Media

The accepted media for file exchange are: 650MB CD-ROM or removable (floppy) 3 ½" diskettes. Media should be labeled indicating the project description, the date and general contents. There should also be supporting documentation describing the contents, any special file information or unique downloading procedures. Some smaller files can also be transferred as an attachment to an email.

NJDOT encourages the consultant community to use the Internet as another option for delivering/receiving electronic files. This should be accomplished through the consultant's own web page. Any compressed files that are transferred via the Internet should be in PKZIP format.

1.9.2 Format

Only files meeting the Department's standard file format(s) for the particular application used (i.e. MicroStation; INROADS; etc.) will be accepted. Those standard file formats also include the survey data files, which serve as input to the Inroads product.

When survey data is required, it will be collected electronically utilizing the control codes for the Bentley System, SelectCAD Survey product and the NJDOT alpha feature codes. The deliverables will be the files produced by the SelectCAD Survey product (.FWD format). The original and edited field file will be provided to the Department as records of the survey.

Electronic files for geometry and surfaces will be in the SelectCAD InRoads .ALG and .DTM formats respectively. Any input files used to produce the final files will also be provided.

1.9.3 Deliverables

All graphics design files provided to the Department shall be in MicroStation format (.dgn) compatible the current version NJDOT is using. When MicroStation files are created by translating from a different format, the Consultant is solely responsible to ensure and verify that the required information has been translated correctly and completely, for the intended purpose. Anything that does not conform to Department standards shall be returned for correction, without additional compensation or schedule allowance.

All support files will reside in the same directory (without subdirectories) and reference files shall be attached without device or directory specifications. All design files shall be compressed using the MicroStation "compress design" command before transfer to media in order to remove deleted elements. All files (graphic and ASCII) necessary for accurate plan presentation shall be included. Hard copies of all electronic files and documentation shall also be provided.

1.9.3.1 Survey Files

Where field survey information is to be submitted, the following SelectCAD Survey files will be provided for each downloaded field file.

1) .RW5 format files - Original and corrected field files
2) Point and Figure report- With point/figure descriptions per NJDOT standards in a text file.
3) .FWD file – SelectCAD Survey data file
4) .ALG and .DTM format files – SelectCAD InRoads files exported from the data contained in the .FWD format file above.

1.9.3.2 Aerial Photogrammetry

When mapping is produced from aerial photogrammetry, any survey information will be provided to the Department in the specified formats previously mentioned in Section 1.9.3. This includes all control points, traverses, baselines, or other information that is used in conjunction with producing the photogrammetric information. The design files with this information will be separate from the actual mapping files. The mapping files themselves will be drawn to the standards of the particular discipline requesting the mapping.

Standard Rules For Digitized Mapping:

1) No stream digitizing is allowed

2) There will be no scale associated with elements in the design file.

3) There will be no rotation associated with views.

4) Contour lines and their corresponding elevations shall be placed in a design file separate from the rest of the topography. The contour lines and the elevation text are to be placed on different levels. The contours and their elevations shall be drawn in a weight and size that meets the Department's standards when the design file is plotted at 1": 30'.

5) All existing baseline data, traverse information and ground ties shall be placed in a separate file. Stationing, bearings and curve data must be supplied for all baseline alignments. Monument information, if included, should also be in this file.

6) The coordinate system for all supplied files shall be an exact overlay to allow direct attachment of any reference file without manipulation.

7) If a graphically depicted grid system is supplied, it should be placed in a separate design file.

8) All existing topographic features shall be placed in a separate design file as per the latest CADD standards on the Department's web site.

NOTE:
The .DTM files produced from aerial surveys MUST be free of any "holes" in the surface (except for large bodies of water). Additional ground survey will be required in obscured areas such as woods, or heavily shaded areas in order to provide a "complete" surface. The surveyed surfaces will be merged into the aerial survey surface as needed.

In the event that some other software is used to produce the engineering or survey data for a project, the Department may choose to accept data in ASCII format. When it has been determined that ASCII data will be accepted the CADD Unit will provide the specific file formats that are required. Responsibility for correcting any file errors rests with the file provider.

SECTION 2

ROADWAY PLANS

2.1 INTRODUCTION

Strict adherence to these Standards is required for all in-house roadway design projects. Consultants must adhere to these standards when they are providing files that are being passed on to the in-house design forces. The requirement to adhere or not to adhere by a consultant to these standards should be discussed and resolved with the Department, prior to the commencement of any work. The CADD standards in this document were mainly created for the in-house design process at NJDOT.

2.2 DIRECTORY STRUCTURE (In-House Design only)

The information in this section is provided primarily to assist users of the system in understanding the basis for the file naming convention. Internally to the NJDOT, each organizational work unit has its' own Unit Directory designated by a "unit code" letter, followed by the job number. All of the design files for which a unit is responsible shall reside in this directory, and the file name shall include the unit code. Only members of the unit will have "permission" (the ability) to alter these files, thus providing a degree of security against accidental corruption of a particular unit's work by another unit. Unit codes are as follows:

UNIT	CODE	EXAMPLE	UNIT	CODE	EXAMPLE
Access	= a	(a1234567)	ITS	= i	(i1234567)
Bridge	= b	(b1234567)	Landscape	= l	(l1234567)
CADD Drafting	= d	(d1234567)	Right of Way	= r	(r1234567)
Field Survey	= f	(f1234567)	Traffic	= t	(t1234567)
Geometrics	= g	(g1234567)			

In addition to the above "protected" directories, there is a Project Directory (p1234567) which all units can access. This "open" directory contains construction sheet files that may require input from multiple units, and other files that various users may need access to for plotting.

2.3 STANDARDS

As previously explained, there are two major categories of files, hereinafter referred to as "base files" and "sheet files". A naming convention has been established for each of these categories, and is detailed in the following sub-sections. Note that the convention that consultants may use, in some cases, is less complex than for in-house work.

All COGO files that are used to produce any of the design files listed, will be provided when requested by the Department and will be in the format required by NJDOT.

2.3.1 Naming Convention For Base Files (In-house File Format: filetype_?*.dgn)

"Table 2.1-A" presents a summary of base files and the logical names with which they must be attached as reference files. Files are named so that all users can recognize the contents of a file by its name. Base file names consist of the type file ("topo", "prop" etc.) followed by an underbar, (_); the unit code letter, (?) of the unit that prepares the work (g= Geometrics, t= Traffic, etc.); and the sequential number, (*) of the particular type of file (e.g. topo_f1). When selecting a logical name for a reference file, " # " represents the number of times that this particular base file is being attached to a particular sheet file (e.g. eblf1, eblf2, propg2...).

Consultants may conform to the base file naming convention described above, or they may use the more generic base file names as shown in Table 2.1-B. But the reference file logical names should follow what is shown in Table 2.1-A.

Some additional descriptive base file information is shown below.

2.3.1.1 Existing Baseline File (ebase)

This base file contains all "existing" baseline information including; the existing baseline line elements, control points, stationing information and baseline data.

2.3.1.2 Existing Topography File (topo)

This base file contains all "existing" topographic features required for a construction set of plans including but not limited to the edge of road, poles, signs, driveways, ROW lines, trees, plants, sidewalks, utilities, drainage, fences, corporate lines and all labeling text. According to the base file naming convention described above, multiple topography files created by our field survey unit would be named topo_f1.dgn; topo_f2.dgn; etc.

2.3.1.3 Contours File (contour)

Any existing or proposed contour lines and corresponding elevations shall be placed in a separate base file. Contour lines and elevation text will be placed on different levels. The digital terrain model used to produce the contour file will also be provided. When digital terrain models are developed from aerial mapping for use with the INROADS product, it may be necessary to perform corresponding ground survey where trees or other obstructions create a "hole" in the surface.

2.3.1.4 Proposed Baseline File (pbase)

This base file contains all "proposed" baseline information including; the proposed baseline line elements, control points, stationing information and baseline data.

2.3.1.5 Proposed Work File (prop)
This base file contains all "proposed" work including: curbs, edge of road, relocated poles, lights, signs, monuments, driveways, ROW lines, sidewalks, utilities, drainage, noise walls, guide rail, fences, easement lines, all necessary text, etc.

2.3.1.6 Traverse Line File (trav)
This base file contains all traverse work including traverse lines, control points, text, dimensions, etc. (This is not normally included in the plans)

2.3.1.7 Property Deed File (deed)
This base file contains the plotted property lines, deed courses and deed information including lot, block, owners, etc.

2.3.1.8 Stripe File (stripe or estripe)
This base file contains all "proposed" or "existing" traffic striping, delineators and raised pavement markers.

Table 2.1-A Base File Naming Convention (In-house work)

UNIT NAME	DESIGN FILE NAME	LOGICAL NAME	DESCRIPTION OF CONTENTS
Field Survey	ebase_f.dgn	elb#	Existing Baselines and information
	trav_f.dgn	trav#	Traverse Lines (not part of plans)
	"dump"#.dgn		3D field dump files
	topo-temp.sav		Unprocessed 2D version of the initial field dump
	topo-temp.dgn	topo#	Processed 2D version of field dumps
	topo-add#.sav		Unprocessed 2D version of additional field dumps
	topo-add#.dgn		Processed 2D version of additional dumps
	topo-add#.mrg		(renamed "add" file after merge)
	topo_f.dgn	topo#	Final existing topography and ROW lines
	deed_f.dgn	deed#	Plotted deeds & property Information
	estripe_f.dgn		Existing roadway and parking striping
	econtour_f.dgn		Existing contours and elevations
	prop_f.dgn	prop#	Proposed Monuments
Geometrics	pbase_g.dgn	pbl#	Proposed Baselines and Information
	prop_g.dgn	prop#	Proposed Features (created by Geometrics)
	contour_g.dgn	con#	Contour lines and Elevations
	mxs_g.dgn	mxs#	Method of Cross-section lines
	grade_g.dgn	gra#	Grade Ticks and Elevations
	tie_g.dgn	tie#	Non-plotting Ties and Dimensions
	xsect_g.dgn	xsec#	Cross Sections
CADD Drafting	layout_d.dgn	lay#	Plan Sheet Index Cells
	topo_d.dgn	topo#	Existing Topography (if drawn by CADD Drafting)
	prop_d.dgn	prop#	Proposed Features (if drawn by CADD Drafting)
	topo_u.dgn	topo#	Additional Utilities not collected by Field Survey
	prop_u.dgn	prop#	Proposed Underground Utility Locations

Table 2.1-A Base File Naming Convention (In-house work)

UNIT NAME	DESIGN FILE NAME	LOGICAL NAME	DESCRIPTION OF CONTENTS
Bridge	prop_b.dgn	prop#	Bridge locations; Large Culverts & Headwalls
Right of Way	prop_r.dgn	prop#	Proposed ROW Lines; Easements
Traffic	stripe_t.dgn prop_t.dgn	stp# prop#	Proposed Stripes & Non-plotting Labels GA & GO Sign Locations
Access	prop_a.dgn	prop#	Proposed Driveways & driveway info
Project ID	title.dgn	title	Title Block Information

Table2.1-B Base File Naming Convention (Option for Consultants)

DESIGN FILE NAME	DESCRIPTION OF CONTENTS
ebase.dgn	Existing Baseline & Related Information
topo.dgn	Existing Topographic Information (incl. Utilities)
trav.dgn	Traverse Information (that will not be part of the actual plans)
deed.dgn	Deed Lines and Information
pbase.dgn	Proposed Baseline & Information
prop.dgn	Proposed Features & Information
contour.dgn	Proposed Contour Lines & Elevations
econtour.dgn	Existing Contour Lines & Elevations
mxs.dgn	Method of Section Lines & Labeling
layout.dgn	Plan Sheet Index Cells
grade.dgn	Grade Ticks & Elevations
tie.dgn	Ties & Dimensions
xsect##.dgn	Cross Sections
stripe.dgn	Proposed Stripes & Labeling
estripe.dgn	Existing Stripes & Labeling

2.3.2 Sheet File Naming Conventions:

Most sheet file names fit a standard format, and are listed in Table 2.2-A. Those that do not fit this format are listed in Table 2.2-B.

The standard format is: shtXXYY##.dgn, where:
sht = Sheet File designation
XX = Scale Codes as follow:

Scale Code	Scale		Scale Code	Scale
z1	1:10		x1	1:100
z2	1:20		x2	1:200
z3	1:30		x3	1:300
z4	1:40		…..	…..
z5	1:50		…..	…..
Zn	1:n0		xn	1:n00

YY## : This four-character field contains the sheet code and a counter for that type of sheet within the construction set. For example, if the particular sheet were the 11th roadway construction sheet in the job, this field would read "cs11".

Table 2.2-A Codes for Sheet Code Name & Number Field (YY##)

	YY##	SHEET DESCRIPTION
Project ID:	typ# lay# cs## dr## tg## gr## mxs# xs## uc## ut#*	Typical Section Sheet Plan Sheet Layout Construction Plan Sheet (beginning with "cs02") Drainage Plan (if separate from construction plan) Tie & Grade Sheet (incl. alignment data sheet) Grade Sheet (if separate from Ties) Method of Sections Sheet Cross Sections Utility Construction Plan Utility Relocation Plan # is the agreement number; * is the sequence letter
Traffic:	tc## hl## ts## sp## sgn#	Traffic Control Plan Sheet Highway Lighting Plan Sheet Traffic Striping & Signing Plan Sheet Permanent Signing Plan Sheet (if separate from Traffic Striping) Sign Text Sheet
Landscape:	lp## ep## wm##	Landscape Plan Environmental Plan Wetlands Mitigation
CADD Drafting:	jm## ec## se##	Jurisdictional Limit Map Erosion Control Stream Encroachment
Right of Way:	et## gp## tab#	Entire Tract Map General Property Parcel Map Tab Sheet

Table 2.2-B Additional Sheet File Names

FILE NAME	DESCRIPTION
"sht"legcs01.dgn	Standard Legend Sheet (First Construction Plan Sheet)
sht"JOBNUM"ck.dgn	Construction Key Map
sht"JOBNUM"rk.dgn	R.O.W. Key Map
"sht"bed#.dgn	Bed Sheet Plots (# is the number of sheets req'd)
pro_(description).dgn	Profiles (with a seven character description)
"sht"p######.dgn	Individual Parcel Map for ROW (w/ 6 spaces for parcel number)
b"#"l"#".dgn	Individual Parcel Map for Access (b# = Block No.; l# = Lot No.)
"sht"cd(detail#)_(unit code).dgn	Modified Construction Detail
"sht"tcd##.dgn	Modified Traffic Control Detail
"sht"displa#.dgn	Public Display Maps

2.3.3 General Sheet File Descriptions

2.3.3.1 Construction Plan Sheet
This file contains all the information specific to a construction plan sheet including the border, title block, federal project information, municipality, north arrow, match lines, construct notes, easement lines, all dimension lines, text for ROW and corporate lines, road names, high/low points, traffic direction arrows, beginning and ending project notes, etc. The base information (base lines, topography, proposed work, etc.) is referenced in from the appropriate base files as needed.

2.3.3.2 Tie and Grade Plan Sheet
This file contains all information specific to a tie and grade sheet (tie information, grade ticks and elevations and cross slopes, etc.) along with all the information that is normally included on a plan sheet of this type (bar scales, street names, notes, etc.). The base information (base lines, topography, proposed work, etc.) is referenced in from the appropriate base files as needed.

2.3.3.3 Traffic Striping Plan Sheet
This file contains all information specific to a traffic striping plan (proposed striping and labeling, etc,) along with all the information that is normally included on a plan sheet of this type (bar scales, street names, notes, etc.). The base information (base lines, topography, proposed work, etc.) is referenced in from the appropriate base files as needed.

2.3.3.4 Traffic Control Plan Sheet
This file contains all information specific to a traffic control plan (drums, barricades, construction signing, etc.) along with all the information that is normally included on a plan sheet of this type (bar scales, street names, notes, etc.). The base information (base lines, topography, proposed work, etc.) is referenced in from the appropriate base files as needed.

2.3.3.5 Title.dgn
This file contains the information and outline of the title block required on each plan sheet. The project data is filled in once, and referenced into each plan sheet.

2.3.3 Level Assignments

Most of the named files have their own leveling requirements. A detailed listing of level assignments and element symbology is presented in the following tables.

Table 2.3 General Text Settings (not associated with cells)

Labeling	Level	Color	Weight	Line Code Number or Name	Cell Name	Font	Text Size
Text in Base Files							
Gray Non-Plotting Text (GNPT)	41	18					
Existing General Topo Labeling & Existing Highway Drainage	41	18				23	3.00
Existing Baseline Information & Existing ROW Line Information	41	18				23	3.30
Existing Deed Course Information.	34	4				23	3.00
Existing Road/Ramp Names & Corporate Line Information	41	18				23	4.50
Proposed Notes & Information	41	18				1	3.30
Proposed Highway Drainage	41	18				1	3.30
Proposed R.O.W. Line Information Proposed Road Names	41	18				1	4.50
Text in Sheet Files							
Municipality Information	5	7				23	6.00
Existing Drainage Text	11	21				23	3.00
Proposed Drainage Text	11	21				1	3.30
Other Sheet File Text (Same font and text size as shown in base files but with sheet file settings) [Level 5 and Color 7]	5	7				"same"	"same"

Table 2.4 ebase_?*.dgn logical name = ebl?*

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Baseline – Tangents	2	22	0	0			
Baseline – Curves	2	23	0	0			
Control Points	2	24			CPOINT		
Angle Points	2	24			APOINT		
Station Tick Marks	3	24			TICK		
Stationing	4	24		0		23	3.30
Text for Baseline Information	41	18				23	3.30
Text for Road Names	41	18				23	4.50

Table 2.5 deed_?*.dgn logical name = deed?#

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Deed/R.O.W. Line	33	20	0	@row			
Deed Course Information	41	18				23	3.00
Lot Number	41	18			GROW1	1	3.30
Block Number	41	18			GROW2	1	4.50
Book & Page	41	18			GROW3	1	3.30
Owners Name	41	18			GROW4	1	6.00
Deed Area	41	18			GROW5	1	6.00

Table 2.6 trav_?*.dgn logical name = trav?#

Item	Level	Color	Weight	Line Code Number or Name	Cell Name	Font	Text Size
Traverse Lines	2	22	0	0			
Angle Points	2	24			APOINT		
Text for Traverse Information	41	18				23	3.30
Text for Road Names	41	18				23	4.50

TABLE 2.7 topo_?*.dgn logical name = topo?#

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Solid Edge Road Line	2	10	0	0			
Dashed Edge Road Line	2	10	0	@eor-dash			
Curbed Edge Road Line (lt. side)	2	10	0	@ecurb-lt			
Curbed Edge Road Line (rt. side)	2	10	0	@ecurb-rt			
Barrier Curb	2	10	0	0			
Undefined Features (general topo)	5	3	0	0			
Guy	5	17			4		
Light Pole	5	17			8		
Driveway Light	5	17			8A		
Landscape Light	5	17			8B		
U.S. C & G Monument	5	17			CGMON		
Monuments (All Others)	5	17			15		
Mailboxes	5	17			16		
Flag Pole	5	17			FLAG		
Phone Booth	5	17			PB		
Parking Meter	5	17			PM		
Police or Fire Call Box	5	17			CBOX		
Highway Signs	5	17			SIGN		
Vertical Panel	5	17			VP		
Small Metal/Wood Posts	5	17			MBP		
Iron Pipe	5	17			CIP		
Underground Utility Marker	5	3			MARKER		
Underground Sprinkler	5	21			UGWS		
Gas Fill Valve	5	17			GAS		
Oil Fill Valve	5	17			OIL		
Vent Symbol (Generic)	5	17			VENT		
Railroad Crossing Signals	5	4			RRS		
Railroad Lines	5	4	0	@etrack			
Slope Lines	5	10	0	2			
Paved Driveway Lines	5	3	0	0			
Unpaved Driveway Lines	5	3	0	3			
Shrub	6	9			31B		
Swamp Land Indicator	6	9			SWAMP		
Hedge Row	6	9	0	@ehedge			
Wetland Limits	6	9	0	@ewet-limit			
Tree Line	6	9	0	@etree-line			
Trees	6	9			31 31A		
DOT Drainage – Inlets (Standard)	9	21			5		
DOT Drainage – Inlets (Special)	9	21			5AL 5AR		
DOT Drainage – Inlets (Bridge)	9	21			SCUPER		
DOT Drainage – Manholes (Standards)	9	21			6F		
DOT Drainage – Headwalls	9	21			HDWL RCES HWA		
Draw DOT Drainage Structures	9	21	0	0			
Label Using Existing GNPT	41	18				23	3.00

TABLE 2.7 (cont'd) topo_?*.dgn logical name = topo?#

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
DOT Drainage – Pipe	10	21	0	"tilde" *pipe			
DOT Drainage – Flow Arrow	10	21			FLOW		
Label Using Existing GNPT	41	18				23	3.00
Electric Manhole	12	23			6H		
Electric Line	12	23	0	@eelec-line			
Label Using Existing GNPT	41	18				23	3.00
Telephone Manhole	13	22			6B		
Telephone Line	13	22	0	@etele-line			
Label Using Existing GNPT	41	18				23	3.00
Gas Valve	14	27			19B		
Gas Vent	14	27			GVENT		
Gas Line	14	27	0	@egas-line			
Label Using Existing GNPT	41	18				23	3.00
Water Valve	15	21			18B		
Fire Hydrant	15	21			12B		
Water Line	15	21	0	@ewater-line			
Monitor Well	15	21			WELL		
Label Using Existing GNPT	41	18				23	3.00
Sanitary Manhole	16	25			6D		
Sewer Vent	16	25			SVENT		
Sanitary Line	16	25	0	"tilde" #pipe			
Sanitary Line - Flow Arrow	16	25			SFLOW		
Label Using Existing GNPT	41	18				23	3.00
Cable Line	17	12	0	@ectv-line			
Label Using Existing GNPT	41	18				23	3.00
Poles	19	7			3A 3E		
DOT Electric – Traffic Signal	20	23			9		
DOT Electric – Traffic Control Box	20	23			TCB		
DOT Electric – Meter Cabinet	20	23			MC		
DOT Electric – Junction Box	20	23			10		
DOT Electric – Junction Box w/light	20	23			11A		
DOT Elect. – Fiber Optic Junction Box	20	23			EFOJB		
DOT Elect. – Fiber Optic Line	20	23	0	@efo-line			
DOT Electric – Manhole	20	23			ESHDT		
Label Using Existing GNPT	41	18				23	3.00
Guide Rail – Right Side	21	6	0	@egrail-rt			
Guide Rail – Left Side	21	6	0	@egrail-it			
Cable Guide Rail	21	6	0	@egrail-cable			
Breakaway Cable Terminal	21	6			37		
Beam Guide Rail Anchorage	21	6			38		
Wire Rope Guide Rail	21	6	0	@ewrrail			
Label Using Existing GNPT	41	18				23	3.00

TABLE 2.7 (cont'd) topo_?*.dgn logical name = topo?#

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Fences	22	6	0	@efence			
Fence Gates	22	6	0	1			
Label Fences & Gates	41	18				23	3.00
Benchmark Symbol	23	14			17		
Noise Walls	25	13	0	@enoise-wall			
Easement Lines	31	20	0	@easement			
Corporate Lines	32	20	4	@corp-line			
No Access Lines	32	20	0	@no-acc-ln			
Right of Way Lines	33	20	0	@row			
Existing Delineator	35	5			EDEL1		
Transit Point	41	14			47		
Sight Point	41	14			48		
Unknown Manhole	56	6			UNKN1		
Unknown Valve	56	6			UNKN2		

Table 2.8 pbase_?*.dgn logical name = pbl?#

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Baseline – Tangents	2	22	2	4			
Baseline – Curves	2	23	2	4			
Control Points	2	24			PCPT		
Angle Points	2	24			PAPT		
Station Tick Marks	3	24			PTICK		
Stationing	4	24				1	3.30
Text for Baseline Information	41	18				1	3.30
Text for Road Names	41	18				1	4.50

Table 2.9 prop_?*.dgn logical name = prop?#

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Solid Edge Road Line	2	6	4	0			
Dashed Edge Road Line	2	6	4	@eor-dash			
Curbs – (lt. Side)	2	6	3	@pcurb-lt			
Curbs – (rt. Side)	2	6	3	@pcurb-rt			
Barrier Curb	2	6	4	0			
Proposed Driveway Lines	5	3	4	0			
Monuments	5	17			15B		

Table 2.9 (cont'd) prop_?*.dgn logical name = prop?#

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Slopes Lines	5	6	4	2			
Text for General Information	5	6				1	3.30
Text for Road Names	5	6				1	4.50
Text for R.O.W. Lines	5	6				1	4.50
Wetland Limits	6	9	4	@pwet-limit			
DOT Drainage – Inlets (Standard)	9	21			20A 23A 23C 24A		
DOT Drainage – Inlets (Special)	9	21			P5AR P5AL		
DOT Drainage – Manholes (Standard)	9	21			20 23 23B 24 25		
DOT Drainage – Headwalls	9	21			PHDWL PRCES PHWA		
DOT Drainage – Structures	9	21	1	0			
DOT Drainage – Pipe	10	21	4	@prop-pipe			
DOT Drainage – Flow Arrow	10	21			FLOW		
Text for DOT Pipes, Inverts & Grates	41	18				1	3.30
Electric Manhole	12	23			6L 6M		
Electric Line	12	23	1	@pelec-line			
Telephone Manhole	13	22			6J 6K		
Telephone Line	13	22	1	@ptele-line			
Gas Valve	14	27			19C 19D		
Gas Line	14	27	1	@pgas-line			
Water Valve	15	21			18C 18D		
Fire Hydrant	15	21			12C 12D		
Water Line	15	21	1	@pwater-line			
Sanitary Manhole	16	25			6N 6P		
Sanitary Line	16	25	4	@prop-pipe			
Sanitary Line – Flow Arrow	16	25			SFLOW		
Cable TV Line	17	12	1	@pctv-line			
Poles	19	7			PPOLE		
Poles – Temporary	19	7			TPOLE		
DOT Electric – Traffic Signal	20	23			P9		
DOT Electric – Junction Box	20	23			PJB		
DOT Elect. – Fiber Optic Junction Box	20	23			PFOJB		
DOT Electric – Fiber Optic Line	20	23	1	@pfo-line			
Guide Rail - Right Side	21	6	1	@pgrail-rt			
Reset Guide Rail – Right Side	21	6	1	@rst-grail-rt			
Guide Rail - Left Side	21	6	1	@pgrail-lt			
Reset Guide Rail – Left Side	21	6	1	@rst-grail-lt			
Cable Guide Rail	21	6	1	@pgrail-cable			
Reset Cable Guide Rail	21	6	1	@rst-grail-cable			
Breakaway Cable Terminal	21	6			37A		
Beam Guide Rail Anchorage	21	6			38A		
Fences	22	6	1	@pfence			
Reset Fences	22	6	1	@rst-fence			

Table 2.9 (cont'd) prop_?*.dgn logical name = prop?#

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Noise Walls	25	13	6	@pnoise-wall			
Silt Fence	26	9	1	@psilt-fence			
Hay Bales	26	9	0	@phaybales			
Easement Lines	31	20	4	@easement			
No Access Lines	32	20	4	@no-acc-ln			
Right of Way Lines	33	20	4	@row			
Right of Way Line Control Point	33	20			ROW10		
Non-plotting Gray Text (NPGT)	41	18				1	3.30
Non-plotting Dimension Lines	41	18	0	2			

Table 2.10 stripe_?*.dgn (proposed)
estripe_?*.dgn (existing) logical names = stp?#

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
4" Dashed White Line	35	19	4	@tr-stripe			
4" Solid Yellow or White Line	35	19	4	0			
8" Solid White Line	35	19	6	0			
12" Solid White Line	35	19	8	0			
24" Solid White Line	35	19	8	0			
4" - 2' Long Dashed White Line	35	19	4	@int-stripe			
4" Dashed & Solid White Lines	35	19	3	@tr-dash left @tr-dash right			
2 – 4" Solid Yellow Lines	35	19	3	@tr-double			
Raised Pavement Markers	35	5			RPM		
Raised Pavement Markers: 10' Spacing 20' Spacing 40' Spacing 80' Spacing	 35 35 35 35	 5 5 5 5	 0 0 0 0	 @rpm-10 @rpm-20 @rpm-40 @rpm-80			
Label Proposed Traffic Stripes	41	18				1	3.30
Label Existing Traffic Stripes	41	18				23	3.00
Non-plotting Dimension Lines	41	18	0	2			

* All Existing striping to be drawn as weight 0 and labeled as per type

Table 2.11 contour_?*.dgn (proposed)
econtour_?*.dgn (existing) logical names = con?#

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
PROPOSED	**30**						
Major Contours	30	4	2	0			
Minor Contours	31	3	1	2			
Label with GNPT	41	18				1	3.30
EXISTING							
Major Contours	30	4	0	0			
Minor Contours	31	3	0	2			
Label with GNPT	41	18				23	3.00

Table 2.12 title.dgn logical name = title

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Title Block (frame work)	1	0	7	0			
"NJDOT" Heading Text	1	0				1	4.50
Plotting Information (cell)	1				INFO		
Drafted on CADD by …	1	0				1	4.00
Sheet Numbers Text	1	6				1	6.00
Construction Title Block:					CTITLE		
Route & Contract # Text	1	6				1	6.00
Sheet Title Text	1	7				11	8.50
Federal Project Block	1				FEDBOX		
Federal Project #	1	6				1	3.30
ROW Title Block					RTITLE		
Route & Section	1	6				1	6.00
Sheet Title Text	1	7				11	8.50
ROW Section Limits Text	1	6				1	4.50
Twp, County, Scale & Date	1	6				1	3.30

Table 2.13 Construction Key Sheet – sht"JOBNUM"ck.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Construction Key Sheet	1				CKEY		

Note: All fonts and texts sizes are included as part of the master construction key sheet cell.

Table 2.14 Wipeout Information For Sheet Files

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Red (wipeout deed & topo)	Active	3	6	4			
Blue (wipeout deed & topo & ebase)	Active	1	6	4			
Green (wipeout deed & topo & ebase & prop)	Active	2	6	4			
Yellow (wipeout all reference files)	Active	4	6	4			

Table 2.15 General Information for Sheet Files (as needed) "sht"*.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
CONSTRUCTION BORDERS Standard Construction Border Construction Legend Sheet Alignment Data Border Detail Border Sign Text Border Typical Section Border	1				30BORD CLEG ALIGN DETAIL SIGNS TYPBOR		

Table 2.15 (cont'd) General Information for Sheet Files (as needed) "sht"*.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
ROW BORDERS							
Standard ROW Border ROW Legend Border ROW Tab Sheet Border Individual IPM Borders	1				ROWBRD RLEG TAB IPM#		
MISCELLANEOUS BORDERS							
Utility Relocation Sheet Rail Road Sheet Border Jurisdictional Limit Border	1				UBORD RRBORD JLMBRD		
Begin / End Project Limits	1				PLIMF PLIMS		
Exist. / Prop. Circle Identifier Exist. / Prop. Triangle Identifier Exist. / Prop. Hexagonal Identifier Exist. / Prop. Square Identifier Exist. / Prop. Diamond Identifier	1				EI1, PI1 EI2, PI2 EI3, PI3 EI4, PI4 EI5, PI5		
Sheet Name for Title Block	1	7				1	8.50
Plan Sheet Number	1	6				1	6.00
Double Referencing Code Cell	1				IDNO		
BAR SCALES							
1" = 1' Bar Scale 1" = 5' Bar Scale 1" = 10' Bar Scale 1" = 20' Bar Scale 1" = 30' Bar Scale 1" = 50' Bar Scale 1" = 60' Bar Scale 1" = 100' Bar Scale 1" = 200' Bar Scale 1" = 500' Bar Scale 1" = 1000' Bar Scale 1" = 2000' Bar Scale	1				1BS 5BS 10BS 20BS 30BS 50BS 60BS 100BS 200BS 500BS 1000BS 2000BS		
North Arrow – C & G Right North Arrow – C & G Left North Arrow – Plain	1	7			35B 35A 35		
Match Line	1				RMATCH		
Proposed Construction Lines (limit of milling, limit of paving, meet existing, etc.)	2	7	4	0			
Construct Notes (Standard Pay items)	4				CNLT# CNRT#		
Construct Notes (Alternate Pay Items)	4				AILT# AIRT#		
Existing Text Settings:							
Label general existing information	5	7				23	3.00
Label Drainage information	5	7				23	3.00
Label ROW lines & baselines	5	7				23	3.30
Label Roads & Corporate lines	5	7				23	4.50
Label Municipality information	5	4				23	6.00
Proposed Text Settings:							
Label general proposed Information	5	7				1	3.30
Label drainage information	5	7				1	3.30
Label ROW & Roads	5	7				1	4.50
Existing Boring Symbol	5	17			EBORE		
Proposed Boring Symbol	5	17			BORING		
Proposed Test Pit Symbol	5	17			PIT		

Table 2.15 (cont'd) General Information for Sheet Files (as needed) "sht"*.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Clearing Site Limit Lines	6	9	1	@psite-limit			
High and Low Point Symbols	9	21			HIGH LOW		
Traffic Flow Arrows (if desired)	24	10			TFLOWL TFLOWR		
Dimension Lines (Existing & Proposed)	24	26	0	0			
Terminators	24	22		0	ARROW BALL SQUIGY		
Hay Bale Symbol	26	9			HAY		

Table 2.16 Construction Legend Sheet = shtlegcs01.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Construction Legend Sheet	1				CLEG		
Text for Existing Information	5	7				23	3.00
Text for Proposed Information	5	7				1	3.30

Table 2.17 Construction Plan Sheet = shtz3cs*.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Limits of Pavement Excavation	2	7	2	@pavex-rt			
Limits of Clearing Site	6	9	1	@psite-limit			
Easement Lines (Grading)	31	7	1	@easement			
To Be Constructed (Heading)	1				TBCH		
To Be Constructed (Items)	1				TBC1		

Table 2.18 Tie and/or Grade Plan Sheet = shtz3tg*.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Tie & Alignment Data Box	1				ADBOX		
Curve Data Box	1				CDBOX		
Alignment Data Sheet (if needed)	1				ALIGN		
Grade Ticks	33				GT RGT		

Table 2.19 Traffic Striping & Sign Sheet = shtz3ts*.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Permanent Sign Table Box	1				PST		
Proposed Highway Signs	5				PSIGN		
Proposed Vertical Panel	5				PVP		
Set of Traffic Striping Cells	35				TS00		
General Notes for Delineators	35				DELGN		
Legend for Delineators	35				DEL0		

Table 2.20 Traffic Control Plan Sheet = shtz3tc*.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Construction Sign Table Box	1	0			CSLEG		
Set of Traffic Control Cells	56				TC00		

Table 2.21 Sign Text Sheet = shtz3sg*.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Sign Text Sheet	1				SIGNS		

Table 2.22 Right of Way Key Sheet = sht"JOBNUM"rk.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Right of Way Key Map Sheet	1				RKEY		
Arrowheads					RARROW		
2" = 1 MILE Bar Scale 4" = 1 MILE Bar Scale	1				2MILE 4MILE		
Station Equation Note	1				EQBOX		
R.O.W. Revision Block (if needed)	1				REVBOX		
Corporate Lines	32	20	4	@corp-line			
Interstate Highway Shield	60				KS1		
U.S. Route Shield	60				KS2		
State Highway Route Shield	60				KS3		
County Route Shield	60				KS4		

Table 2.23 R.O.W. Legend Sheet = shtz3gp01.dgn
R.O.W. G.P.P.M = shtz3gp*.dgn
R.O.W. E.T.M. = shtz3et*.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
R.O.W. Legend Border	1				RLEG		
Standard ROW Border	1				ROWBRD		
Municipality Block	1				ROWMB		
R.O.W. Revision Block	1				REVBOX		
Slopes Lines (Wash & Spread)	5	7	4	2			
Temporary Site Mitigation Work Line	31	7	2	3			
ROW Taking Limits	33	20	4	0			
Complete Set of R.O.W. Cells	33				ROW00		
ROW Control Point	33				ROW10		
Right of Way Line Control Monument	33				ROWMON		

Table 2.24 Individual Parcel Maps (I.P.M.) = shtp****.dgn**

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
8.5" x 13" IPM Border 11" x 17" IPM Border 15" x 17" IPM Border 15" x 21" IPM Border 18" x 24" IPM Border 22" x 36" IPM Border 24" x 36" IPM Border 30" x 42" IPM Border 13" x 8.5" IPM Border 17" x 11" IPM Border 17" x 15" IPM Border 21" x 15" IPM Border 24" x 18" IPM Border 36" x 22" IPM Border 36" x 24" IPM Border 42" x 30" IPM Border	1				IPM1 IPM2 IPM3 IPM13 IPM4 IPM15 IPM5 IPM6 IPM7 IPM8 IPM9 IPM14 IPM10 IPM16 IPM11 IPM12		
IPM Title Block	1				IPM0		
DRAWN BY: * Text	1	6				1	3.30
REVISION OR AMENDMENTS: * Text	1	6				1	3.30
Set of IPM Color Codes for Easements	5				CC00		
Deed Book/Page Label	33	7			ROW03		

SECTION 3

TRAFFIC SIGNAL & SAFETY ENGINEERING PLANS

3.1 INTRODUCTION

There is a legal need for Traffic Signal, Electrical and Highway Lighting Plans to be maintained throughout subsequent modifications and for future revisions. By keeping all design elements in one file it is easier to maintain file security and integrity.

Traffic Signal & Safety Engineering references the roadway and required related files into their file for use as base plans (See below for this procedure).

3.2 STANDARDS

3.2.1 File Naming Conventions

3.2.1.1 Design Work that is Constructed/Installed by Contractors:
For Traffic Signal & Electrical and/or Highway Lighting Plans that are being designed by a consultant or developer the following formats apply:

tsxx.dgn or elxx.dgn or hlxx.dgn where:
ts = Traffic Plan
el = Electrical Plan
hl = Highway Lighting Plan
xx = Plan Sheet Number (01-99)

Please note: The Traffic Signal, Electrical and Highway Lighting Plan may all be located in one CADD file. At these locations the file should take on the "EL" name and the "TS" and "HL" designations should only be reflected in the plan sheet numbering block. If there is any question concerning the file naming, please contact the Traffic Signal and Safety Engineering's CADD Unit.

For Traffic Signal, Electrical and Highway Lighting Plans that are designed by in-house design, the following formats apply:

shtz3elxx.dgn or **sht**z3hlxx.dgn where:
sht = Code for Sheet File
z3 = 1:30 Scale
z2 = 1:20 Scale
ts = Traffic Plan
el = Electrical Plan
hl = Highway Lighting Plan
xx = Plan Sheet Number (01-99)

3.2.1.2 Design Work that is Built/Installed by Internal Work Order

General format is:
wwwwxxxyy.zzz where:
wwwwxxx = Traffic Signal Assigned Number
wwww = Control Section
xxx = Traffic Signal Sequence Number
yy = Fiscal Year
zzz =Work/Revision ID
for Traffic Signal & Electrical (nts, tsr, wor, con, pmt, mis)
for Traffic Bureau Revisions (00A, 00B, etc.)

NOTE: When revisions involve electric work, the revision code on a Traffic Bureau file is renamed to reflect the type of electrical work to be performed (nts, tsr, wor, con, pmt, mis).

3.2.2 Electrical File Procedures for Consultant Design

A. Create new design file utilizing "Elect-Seed-2D.dgn".
B. Reference in all required files, baseline, utilities etc…
C. Rotate and move reference files so that the state highway is horizontal and located in the drawing area provided as part of the seed file.
D. Clip out and copy required data from reference files.
E. Turn off reference files. Maintain reference files so tat any revisions can be copied up into file.
F. Revise data/elements to proper level, weight, color and symbology.
G. Draw the Traffic Signal, Electrical and/or Highway Lighting Plan.
H. Save view's with proper levels on/off.
I. Attach reference file of saved view's to plan sheet at proper scale.

3.2.2.1 General Drawing Information

a. All topo and related cells are to be drawn and/or placed at active scale 1:1 in the drawing area.
b. All traffic signal and electrical cells provided are to be placed in the drawing area, at active scale 1:240 for 20 scale or 1:360 for 30 scale, based on the reference file scale to be placed on the plan sheet.
c. All paint arrows must be placed at 1:1 scale in the drawing area.
d. The Block Wiring Diagram should be drawn/placed on the plan sheet in the lower left corner at active scale 1:1.
e. The Loop Detector Schedule should be drawn/placed on the plan sheet in the upper right corner at active scale 1:1.
f. Sign and Signal Legends are to be drawn/placed on the plan sheet at active scale 1:1.

g. All data fields provided as part of the proposed or existing note cells must be entered and not edited. All empty data fields are to be deleted. Cells should be dropped. Text nodes are unacceptable.
h. TARROW cell and LTARROW.UCM provided must be utilized for all leader lines and dimension arrows. TARROW cell can be scaled down for clarification of dimension lines. Auto dimensioning is unacceptable.
i. To Be Constructed Block is to be placed on the plan sheet at active scale 1:1, or reduced scale if necessary.
j. Sketches should be utilized for all island and crowded areas.
k. When two plan sheets are necessary, the second plan sheet is to be placed directly below the first sheet with the cut line's overlapping.
l. Saved views should be named as follows:
SV = TR, TRAFFIC PLAN
SV = EL, ELECTRICAL PLAN
SV = SKA, SKETCH A
SV = SKB, SKETCH B
SV = HL, HIGHWAY LIGHTING
SV = MLA, MATCH LINE A (OR STATION NUMBER)
SV = MLB, MATCH LINE B (OR STATION NUMBER)

For additional information and sample CADD files, please contact the NJDOT Traffic Signal and Safety Engineering CADD Unit.

3.2.3 File Procedure - In-House Design Work

3.2.3.1 Traffic Signal & Electrical Files

A) The file must be as-built and updated before copying. Copy and re-name the file requiring revision as per Section 3.2.1.2.
B) Revise the drawing as required.

3.2.3.2 Traffic Bureau Revision Files

A) Copy and re-name the file requiring revision as per Section 3.2.1.2. The file must be as-built and updated before copying.
B) Revise the drawing as required.

3.2.4 Level Assignments

Electrical and Traffic plan sheet level assignments and symbologies are presented in Table 3.1.

[TABLE BEGINS ON NEXT PAGE]

Table 3.1 Traffic Signal, Electrical & Highway Lighting

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Existing Topo	1	2	0	@ecurb-lt @ecurb-rt			
Existing ROW	1	2	2	@row			
Load Center Schematic Cells	1	0	1	0			
Offset Lighting Unit					EXPS		
MV& SV Lighting Unit					HPLS		
Pendent Lighting Unit					PENS		
Under-deck Lighting Unit					UDLUS		
250 Watt Offset Lighting Unit					250ES		
250 Watt HPS Lighting Unit					250CS		
Sign Lighting Unit					SLUS		
400 Watt Offset Lighting Unit					400ES		
Tower Lighting Unit					TWRS		
Proposed Curb	2	3	1	@pcurb-lt @pcurb-rt			
Proposed ROW	2	3	2	@row			
Existing Conduit	5	1	1	3			
Existing Loop Detectors	5	1	1	0			
Proposed Conduit	6	3	1	3			
Proposed Loop Detectors	6	3	1	0			
Existing Lighting Arm Assemblies	7	1	1	0			
Proposed Lighting Arm Assemblies	8	3	1	0			
Block Wiring Diagram	9	64	1	0			
Proposed Foundation Removal	13	1	0	1			
Proposed Traffic Signal Removal	13	1	0	1			
Existing Utilities (Above & Underground)	23	5	1	@eelec-line @etele-line @egas-line @ewater-line “tiday”#pipe @ectv-line @efo-line			
Proposed Utilities (Above & Underground)	24	5	1	@pelec-line @ptele-line @pgas-line @pwater-line “tiday”#pipe @pctv-line @pfo-line			
Existing Traffic Signal Assemblies	31	1	1	0			
Proposed Traffic Signal Assemblies	32	3	1	0			
Proposed Area of Detection	34	3	2	1			
Roadway Markings	36						
Stop Line	36	64	7	0			
White Paint Line	36	64	2	0			
Yellow Paint Line	36	4	2	0			
Gore Line	36	4	7	0			

Table 3.1 (cont'd) Traffic Signal, Electrical & Highway Lighting

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Proposed Lane Dimensions & Text	38	0	0	0		1	3.30
Text Description For All Paint Lines, Tapers & Transitions (on lv=36)	38	0	0	0			
Existing Regulatory Sign Text	41	64	1			1	3.30
Proposed Regulatory Sign Text	42	64	1			1	3.30
Existing Warning Sign Text	43	64	1			1	3.30
Proposed Warning Sign Text	44	64	1			1	3.30
Existing Guide Sign Text	45	64	1			1	3.30
Proposed Guide Sign Text	46	64	1			1	3.30

SECTION 4

LANDSCAPE PLANS

4.1 INTRODUCTION

The standards presented here are similar to those found in the Roadway section. Landscape will reference the roadway files into their landscape design files, for use as base plans.

4.2 STANDARDS

For consultant projects where the landscape work is being done by NJDOT forces two workflow methods have been developed.

4.2.1 Workflow "A"

Hard copies of appropriate plan sheets shall be provided to the department. These sheets will then be scanned and used as base plans in the same way reference files are used. It is important to note that the plans must not be submitted until the proposed work is at a stage where no significant changes are likely to occur.

4.2.2 Workflow "B"

All necessary files shall be provided. All information necessary to attach reference files must be included. This information must include rotation angle, rotation point, scale, logical name, and any other information that would help a user attach a new reference file. A consistent naming system shall be used when attaching reference files.

4.2.3 File Names

xxxyyyyyyy.dgn where:

xxx = Directory Number/sht
yyyyyy = Landscape Plan Sheet Number

4.2.4 Level Assignments

Level assignments and element symbology are presented in Table 4.1.

Table 4.1 Landscape Plan Sheet

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Border	1				PLNSHT		
Proposed Trees	4				SHADE1 CONIF1 ORNAM1 SPEC1		
Proposed Shrubs and Hedges	5			3HEDGE 4HEDGE 5HEDGE 6HEDGE 7HEDGE			
Shrub Area Light Gray	5	4	0	1-5			
Shrub Area Medium Gray	5	4	0	6			
Shrub Area Dark Gray	5	4	0	7			
Areas of Planting Bed, Seeded or Naturalized & Hedge Lengths Note: NOT SHOWN ON PLAN SHEETS	7		1				
Planting Labels & Notes	8		1			1	3.30
Existing Vegetation to be preserved	9						
To Be Planted Box	10	0	1	0			
"TO BE PLANTED" text	10	0	2			1	6.00
To Be Planted SUBHEADINGS text	10	0	1			1	4.00
To Be Planted Item Text	11	0	1			1	
Wild Flower Seeding Light Gray	12	4	1	1-5			
Wild Flower Seeding Medium Gray	12	4	1	6			
Wild Flower Seeding Dark Gray	12	4	1	7			
Planting Setback	14						
NOTE: NOT SHOWN ON PLAN SHEET							
Naturalized Area Light Gray	15	4	1	1-5			
Naturalized Area Medium Gray	15	4	1	6			
Naturalized Area Dark Gray	15	4	1	7			
Wetland Limits	18						
Hatching for Wetland Zone Delineation	19						
Decorative Sidewalk	20						

SECTION 5

STRUCTURAL PLANS

5.1 INTRODUCTION

Because most plans produced by the structures unit are not referenced to the CADD files of other bureaus, the structural plan requirements are not as restrictive or detailed. However, for those things that are specified, adherence to the Standard is required. BRIDGE DESIGN FILES MAY CONTAIN NO MORE THAN 3 PLAN SHEETS.

5.2 STANDARDS

5.2.1 File Naming Convention

5.2.1.1 Replacement Projects or New bridges: rtxxxyyzzn.dgn where:
xxx = Route Number
yy = Operator Initials
zz = Plan Sheet Code
n = Plan Sheet Number
zz codes: ab = abutment; pr = pier;
gp = GP&E; ds = deck slab;
fr = framing; etc.

5.2.1.2 Deck Patching Contracts: dpxxxxyyzz.dgn where:
xxxx = Contract No.
yy = Operator Initials
zz = Plan Sheet Code
zz codes: jt = joint details;
rp = deck repair details;
tr = traffic control; etc.

5.2.1.3 Culverts, Noisewalls, Guiderail, Retaining Walls: cccxxxyyzz.dgn:
ccc = Structure codes: cu = culvert; rw = retaining wall;
nw = noisewalls; msc = miscellaneous;
gr = guiderail
xxx = Route Number
yy = Operator Initials
zz = Plan Sheet code
zz codes: gp = GP&E; sb = slab details; etc.

5.2.1.4 Unscheduled Work: usxxxxxxyy.dgn where:
xxx = Project Description (one word)
yy = Operator Initials

5.2.1.5 Managerial Work: mgxxxxyy.dgn
xxx = Project Description (one word)
yy = Operator Initials

5.2.1.6 Base File for Roadway construction Plans
prop_b

5.2.2 Level Assignments

See Tables 5.1 & 5.2

Table 5.1 Bridge Plan Sheet

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Border	1				SHTBLK		
General Line Work	2		1	0			
General Text	3		1			23	0.125" *
Subtitle Text	3		2			1	0.140" *
Title Text	3		3			1	0.250" *
Dimension Lines	3	0	0				
Dimension Text	3		1			23	0.125" *
Borings	5						
Cross Hatching/Patterning	6		0	0			
Existing Information	7		0				
All Utilities	8						
Reinforcement	9		3	7			

*NOTE: Because Bridge plans combine many different scales on one plan sheet, the text size shown is the plotted letter size.

Table 5.2 Bridge Base File prop_b.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Line Work Proposed Structure Wing Walls, Parapets, Abutments, Retaining Walls, Pier Extensions	2	6	2	0			
Curbs – (lt. Side)	2	6	3	@pcurb-lt			
Curbs – (rt. Side)	2	6	3	@pcurb-rt			
Proposed Drainage Structure	9	21	4	0			
Text for Bridge Limits, Structure Number and General Labeling	41	18				1	3.30

SECTION 6

MAJOR ACCESS PLANS

6.1 INTRODUCTION

Highway Access plans are developed from Roadway files. Appropriate data from EBASE, DEED, TOPO, PBASE, PROP, and STRIPE will be referenced to create the Access plan.

6.2 STANDARDS

6.2.1 File Names:

General Format is bxxxlyyy.dgn where:

bxxx = block and its Number
lyyy = lot and its Number

The general format provided above shall be used when files only involve one property. When adjacent properties are involved, the common block number is used with both lot numbers separated by a hyphen (i.e. b23l45-46.dgn, where b23 is the block number, and l45-46 are lots 45 & 46).

If a project spans several townships and block/lot numbers are repeated, the second set shall be prefixed with “2” or “3” if necessary.

When commercial properties are involved, the filename may reflect the name of the major property owner (e.g. walmart.dgn).

When base data is referenced for base plans, the logical attachment names must conform to the naming system established for Roadway files.

6.2.2 Level Assignments

See Table 6.1

Table 6.1 Access Plan - bxxxlyyy.dgn

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size
Border	1				BLANKV BLANKB BLANKE		
Legend	1				LEGNDB LEGNDE		
General Note	1				NOTEV NOTEB NOTEE		
Block & Lot Text	1				BLOCKB BLOCKE		
Owner Data	1				OWNERB OWNERE		
North Arrow	1			(roadway cell)	35		
General Text	5					23	4.50
Driveway Data	5					1	3.30
Existing Driveway Opening	62	3	5	0			
Proposed Driveway	62	1	0	0			
Topsoil & Seeded Area	62	2	0	0			
Red (wipeout deed & topo)	Active	3	6	4			
Blue (wipeout deed & topo & ebase)	Active	1	6	4			
Green (wipeout deed & topo & ebase & prop)	Active	2	6	4			
Yellow (wipeout all reference files)	Active	4	6	4			