

NIAGARA PENINSULA CAD STANDARD (NPCS)

Version 3.0

December 2015

This document replaces the previously published

NPCS Document version 2.1

Dated April 29, 2011

Available at: <http://www.niagararegion.ca/business/tenders/ngcs.aspx>

PREFACE

Version 3.0

In December 2010, the Niagara Peninsula CAD Standard (NPCS) Technical Working Group released Version 2.0 of this CAD Standard. This release was the accumulation of 9 months of review and discussion by the Technical Working Group, following feedback received from end users utilizing and implementing the Niagara GIS/CAD Standard Version 1.0 originally published in 2008.

This release of the Standard continues to address CAD and GIS requirements to facilitate the exchange and sharing of information and data between systems.

As the name of this Standard implies, this CAD Standard reflects the common business needs of local municipalities, consulting firms of Niagara and Niagara Region as a whole. This release of the Standard continues to be focused on the key components necessary for a Standard, such as layer names and structure, line types, drawing symbols and colour tables. New changes implemented primarily reflect the look and presentation of the final product for consistency and usability.

The primary goals of this Standard continue to be to increase accuracy, decrease costs and enhance the exchange of information between the public, contractors, consultants, utility companies, and municipal, regional and provincial agencies. This Standard also enhances the conversion of data between the GIS and CAD environments.

This Standard is intended to support minimum software requirements, and be AutoCAD version neutral. The intent of this Standard is to be software independent as well; however, since the majority of end users utilize AutoDesk products (dwg file format), this Standard is focused on these products.

This document has been rewritten and reorganized with the intent to provide and highlight the CAD components of the Standard, but still adheres to the GIS Standard published originally in Version 1.0. The GIS Standard Section has not been altered from Version 1.0.

When reviewing this CAD Standard, you will note that there are hundreds of layers. While this may seem overwhelming at first, they have been organized into a number of **layer filters** set up to address various stages of a project. Using these filters should eliminate any performance/speed related issues with AutoCAD. However, if issues do arise, it is suggested that the number of layers be reduced or purged to those only needed for the particular task/job.

This document will be reviewed and further updated based on feedback and recommendations from the NPCS Technical Working Group on an annual basis or as the need arises for a bi-annual release. All users are encouraged to comment on the existing content and suggest possible additions which will enhance the usefulness of this document.

Background and Goals of the Technical Working Group

In October 2009, at a joint Niagara Public Works Officials and Consulting Engineers of Ontario meeting, support was provided for an Implementation Strategy that would facilitate the adoption of the NGCS Standard Version 1.0, published in 2008.

A Technical Working Group was established consisting of representation of all municipalities and consulting engineering firms to facilitate the implementation of the Standard and address ongoing Standard maintenance and updates, including:

- Adding value & increasing cooperation between all parties, with broader representation
- Addressing ongoing routine Standard maintenance and vendor updates
- Including “fixes” to Standards, NOT re-inventing them
- Addressing issues at the technical level
- Utilizing external consultant’s expertise where necessary
- Releasing updates to Standard
- Facilitating training

In fulfilling the Technical Working Group’s Goals, the Group adhered to the following criteria used for the original Standard’s development.

Rational/Goals & Objectives for Standard

The rational/goal for the Standard was to collaboratively develop spatial data, mapping, GIS and CAD Standards with commonality wherever possible which:

- Can be used across the Region and local municipalities
- Meets the primary needs of all partners and disciplines
- Facilitates the exchange and sharing of information and data
- Eliminates (where possible) disparate Standards currently in place
- Helps to ensure the usability and quality of consultant returns
- Gives a common geo-referencing platform for sharing data
- Benefits both Consultants & Government
- Can support minimum software requirements
- Provides an opportunity for feedback
- Promotes the use of the Standards across Niagara Region

Document Revision History

Revision Number	Summary of Changes	Author	Revision Date
1.0	Niagara GIS/Cad Standard document (NGCS)	Niagara Region & local municipal representatives	Nov 19, 2008
2.0	Niagara Peninsula CAD Standard document (NPCS)	Niagara Region	Dec 17, 2010
2.1	Niagara Peninsula CAD Standard document (NPCS)	Niagara Region	April 29, 2011
3.0	Niagara Peninsula CAD Standard document (NPCS)	Niagara Region	Dec. 2015

Document Distribution Notes

Revision Number	Notes	Distributed to NPCS Technical Working Group	Posted to FTP site/ SharePoint site	Released to Public
2.0	Initial Release	December 17, 2010	December 17, 2010	December 17, 2010
2.1	Initial Release	May 4, 2011	May 4, 2011	May 4, 2011
3.0	Initial Release	January 2014	January 2014	Dec. 2, 2015

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1 GENERAL

1.1 Components of Standard

The Niagara Peninsula CAD Standard Version 3.0 consists of the following components:

- This document – Niagara Peninsula CAD Standard Version 3.0.pdf
- Layer Description
 - NPCS-Layer_Description_Table.xlsx
 - NPCS-Layer_Color_Reference_guide.dwg
- Drawing Template
 - NPCS_Template_v3.0.dwg
 - NPCS_Template_v3.0.dwt
 - Legal surveys template.
- Border Files
 - Multiple files and sizes (dwg format)
- Blocks Existing
 - Block symbols for existing entities (318 blocks)
- Blocks Proposed
 - Block symbols for proposed detail (140 blocks)
- Blocks Drawing
 - NPCS_Legend_Sheet_v3.0.dwg (compiled block drawing)
- Blocks Logos
 - Municipal logos for drawing borders
- Hatching
 - Hatching.dwg
- Linetype files (lin)
 - Civil Linetype File (NPCS_v3.0)
- Plot Style Tables (ctb files)
 - ! NPCS_Mono_v3.0
 - ! NPCS_MonoHalf_v3.0
 - ! NPCS_MonoQuarter_v3.0
 - ! NPCS_MonoSurvey_v3.0

The above listed components of the NPCS Version 3.0 can be downloaded from the Niagara Region's public website at <http://www.niagararegion.ca/business/tenders/ngcs.aspx>

1.2 Glossary of Terms

The following terms are utilized throughout this Standards document.

Contractor (or consultant): The person, partnership or corporation undertaking drawing or map development on behalf of the owner (or municipal authority). The contractor for the development of drawings and/or maps should not be confused with the construction contractor.

Geographic Information System (GIS): GIS is a system of hardware and software used for storage, retrieval, mapping, and analysis of geographic data.

Metadata: Metadata is data about data. It typically includes information such as currency, accuracy, extent, custodianship, and collection methodology.

Municipal Authority: The municipality that has jurisdiction over the work.

Owner: The party to the Contract for whom the work is being performed, as identified in the Agreement, with the same meaning and import as “Authority”.

RDBMS: Relational Database Management System.

User: A person producing drawings, maps, or spatial data subject to the Niagara Peninsula CAD Standard.

1.3 Introduction

The purpose of this Standard is to specify the requirements for engineering and legal survey drawings prepared for the local Municipalities of Niagara and the Regional Municipality of Niagara.

All drawings/maps delivered to Niagara Region and the local municipalities subsequent to the release of the Niagara Peninsula CAD Standard (NPCS) Version 3.0 shall be prepared digitally and submitted in a digital format which complies with **Section 1.10 Deliverables** of this document.

When revising existing drawings/maps or spatial data (i.e. those prepared prior to release of the Niagara Peninsula CAD Standard (NPCS) Version 3.0), the original Standard may be used to prepare the drawing/map with the permission of the owner.

It is the responsibility of end-users producing drawings, maps or digital spatial data on behalf of the Niagara Region or Local Municipalities to obtain the most current version of the Niagara Peninsula CAD Standard (NPCS) prior to commencing work.

In an attempt to make the Niagara Peninsula CAD Standard (NPCS) as easy to use as possible, the manual has been divided into sections. In doing so, users can refer to only those sections of the Standard which are applicable to the work they are undertaking.

Contractors developing drawings and/or maps are responsible for performing quality assurance/quality control (QA/QC) procedures to assure that they and their subcontractors adhere to these Standards. Drawings and data that are not submitted in accordance with these Standards will be deemed incomplete. Contractual obligations will only be met after all required submittals have been reviewed and approved by the Owner.

1.4 Drawings, Maps and Spatial Data

Throughout this Standard the terms “Drawings” and “Maps” and “Spatial data” will be frequently used. The following is a description of these terms as they apply to the Niagara Peninsula CAD Standard.

1.4.1 Drawings

The term “Drawing” refers to any formal diagrammatic document (or file) produced using CAD software, examples of which include construction drawings, facility drawings, and survey plans. These drawings are not to be confused with sketches which are “informal” drawings used to describe a detail, procedure or concept that is not required in a final operation or maintenance of a drawing set.

“Sketches” are not necessarily subject to the standards and specifications outlined in the Niagara Peninsula CAD Standard; however, it is at the discretion of Project Managers to decide whether or not project-related sketches must follow these Standards.

1.4.2 Maps

The term “Map” refers to any spatially referenced output produced using GIS software, examples of which may include key maps, street maps and thematic maps (e.g. choropleth, proportional symbols, etc.). Many of the standards and procedures outlined throughout the Niagara Peninsula CAD Standard may not apply directly to maps (e.g. layering, dimensioning, xrefs, etc.).

1.4.3 Spatial Data

The term “spatial data” refers to data which describes the location, shape and relationship of geographic features (constructed, natural, or boundaries) on, above, or below the earth’s surface. In both CAD and GIS software, these features are modeled through the use of geometric entities; namely points, lines and polygons. Drawings and maps are comprised of: spatial data, layout elements and text, all of which are subject to the standards contained herein.

1.5 Software

Autodesk has introduced significant platform changes between LD (Land Desktop) and Civil 3D since the development and publication of Version 1.0 of the Standard in 2008. The new platform is significantly more a design tool rather than just a drafting tool. As a result, additional complexity has occurred. The use of multiple versions of AutoCAD, Land Development Desktop and Civil 3D by end users has caused significant concerns and problems in the original Standard’s adoption. As the predominant users utilize AutoCAD Civil 3D, these Standards have been updated to reflect the platform change while remaining as version neutral as possible.

1.6 Referencing

1.6.1 Horizontal Coordinate System

All drawings and maps shall be produced in real 6-degree UTM co-ordinates, NAD 83 datum (as adjusted) (GRS80 Ellipsoid). Any datum transformations shall be approved by the project owner prior to execution and shall be reported in the project metadata.

Should there be a requirement to move, rotate or otherwise alter the orientation of a drawing or map, it must be done in paper space or layout view to preserve the spatial accuracy of the original data.

1.6.2 Vertical Control

All vertical data shall be referenced to the following datum:

CGVD28, 1978 Southern Ontario adjustment

The latest geoid model for North America is the CGG05. The HT2.0 height transformation based on the earlier geoid model (CGG2000) that has been distorted to fit with CGVD28 benchmarks published elevations can be utilized.

For more information please refer to Ministry of Natural Resources Canada web site
http://www.geod.nrcan.gc.ca/tools-outils/gpshb_e.php

1.6.3 Accuracy

Depending on the required use of a drawing or map, different accuracy specifications will apply. The NPCS Standard does not attempt to enforce these specifications; these will be dictated by the Project Manager based on the project requirements and where specific Ontario legislation applies such as for Legal Surveys (Surveyors Act – Ontario Regulation 216/10). This Standard does, however, attempt to ensure that the accuracy of spatial data can be communicated in a consistent and effective manner. There are two types of accuracy as related to spatial data:

- Absolute accuracy refers to the measure of the spatial location of features on a drawing or map as compared to their true position on the earth.
- Relative accuracy refers to the measure of the spatial location of features on a drawing or map as compared to their location relative to other features on a drawing or map.

1.6.4 Methodology for Measuring/Reporting Absolute Accuracy

Determining the absolute accuracy of spatial data can be a difficult task. In some cases, this accuracy can be estimated based on the source used for data creation (e.g. ortho-imagery, survey data, etc.) This method is non-precise, however, and is dependent on the availability and quality of metadata for the source.

For cases where precise measurement of absolute accuracy of spatial data is required, it is recommended that the methodology outlined in the Federal Geographic Data Standard Committee (FGDC) National Standard for Data Accuracy be followed. The methodology outlined by this Standard is widely accepted as “best practice” for measuring and reporting spatial data accuracy and is available online:

<http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part3/chapter3>

1.7 Drawing Scale

All drafting shall be done at 1:1, in metric units unless approved by the project owner.

Unless otherwise specified, all dimensions shown on drawings are to be ground measurements. In the case of measurements spanning 200m or greater, these must be adjusted based on the combined scale factor.

1.8 Metadata

Metadata refers to descriptive information regarding data (or drawings/maps containing data). Metadata allows users to understand the data they are working with, as well as its limitations (e.g. accuracy, currency, etc.). Metadata must accompany all published or submitted drawings/maps. The mandatory metadata fields (where applicable) are as follows:

- Title - The drawing/map or project title
- File Name - the name of the file (e.g. *.dwg)
- Type - The type of drawing/map
- Drawing Status
- Jurisdiction - The municipality (or Region) having jurisdiction over the project
- Date - The date which the drawing was prepared/submitted
- Project # - municipal/regional project number
- Drawing # - the drawing number
- Municipal Reference # - the reference number assigned by the municipality/region
- Contractor/Consultant/Author - the name of the person/firm who prepared the drawing/map.
- Consultant File # - the file number assigned by the consultant/contractor
- File Format/Version - the format and version of the drawing/map
- Last Revision # - the sequential number of the last revision
- Last Revision Date - the date of the last revision
- Last Revision Description - a brief description of the last revision
- Content - Keywords describing the drawing/map or project
- Geographic Projections/Transformations Used - Any projections or transformations used to modify the coordinate system or datum of any data in the drawing/map.
- Combined Scale Factor Used
- Scale - The scale of the drawing
- External References - A list of any external references (e.g. databases, tables, drawings, images) contained in the drawing or map. Each record must contain the following:
 - File Format
 - File Version,
 - Current Date
 - Other Relevant Data
- Bounding Coordinates - A northing/easting value for the upper left and lower right corners of the drawing/map (UTM NAD 83)
- Utilities - Any utilities affected by the project
- Approvals - Any approvals obtained for the project

1.9 Quality Assurance and Quality Control

1.9.1 General

All drawings/maps created subsequent to the release of the Niagara Peninsula CAD Standards shall be subject to quality assurance checks to ensure adherence to these Standards. These checks will examine:

- Digital file standards (e.g. format, naming, organization)
- Data standards (e.g. referencing, accuracy, symbology, attributes)
- Output standards (e.g. layering, text/annotation, layout, plotting)

AutoCAD Civil 3D software includes a CHECKSTANDARDS command. This standard checking utility provided with the software can be utilized to verify a drawing adherence to a set standard to ensure consistency throughout the drawing. This provided utility utilizes an existing drawing template to verify the properties set for layers, dimension styles, linetypes and text styles. Discrepancies in the drawing being checked are flagged as well as a report is generated. Utilization of this utility requires a licensed copy of the software.

1.10 Deliverables

For any and all submissions the following standards for deliverables shall apply (in addition to any noted in the special provisions outlined by the municipal authority).

1.10.1 File Format Standards

- CAD drawings in .dwg (AutoCAD native) format as specified in contract deliverables
- GIS data in .shp format, map layouts in the native format in which they were prepared and PDF
- All external tables/database provided in Open Database Compliant (ODBC) format
- Contract specifications and data files (if applicable) to be delivered uncompressed

1.10.2 Metadata

Metadata (as per **Section 1.8 Metadata**) is required for the following deliverables:

- Drawings
- Maps
- External Tables/Databases
- Spatial datasets (e.g. shape files, raster etc.)

1.10.3 Source Data Deliverables

All source data (e.g. survey data, drawings, images, tables, etc.) used in the preparation of delivered drawings/maps are to be included with the final delivery (unless copyright or I.P. issues preclude this).

2 CAD STANDARDS

2.1 Formatting

2.1.1 Model Space

Model space is an AutoCAD term to designate the drawing (drafting) environment. All geometric entities (points, lines, blocks, etc.) representing project detail must be drawn in model space. Additionally, all external file referencing (xrefs, linked tables/databases, etc.) and dimensioning shall be performed in model space.

2.1.1.1 Viewboxes

Viewboxes outline the viewports in model space allowing the CAD operator to view the limits of the viewport. This viewport is on a no print layer and can be used to locate the plotted area with UTM coordinates, allowing transfer of project area to other systems. Viewboxes shall be drawn to the same shape as the associated viewport; however, the scale will be different.

2.1.2 Paper Space

Paper space is the AutoCAD term referring to layout, which allows the organization of borders for plot purposes. These surfaces are linked to view the drawing (in model space) through AutoCAD viewports.

2.1.2.1 Viewports

Viewports are windows from the paper space environment to the drawing model. These windows (viewports) should be set up on borders to place the required view in the required scale in the paper space border.

2.1.3 Coordinate System

The AutoCAD model space must be set up with the proper coordinate system. Drawings representing land base geometry shall be set to match world coordinates to UTM NAD83 coordinates. If vertical coordinates (z coordinates) are used, vertical coordinates must reflect the correct vertical datum. All drawings relating land based detail in the Niagara Region must comply with **Section 1.6 Referencing**.

2.2 Detail

All drawing detail (e.g. symbology, lines, text, etc.) must conform to the standards described herein.

2.2.1 Lines

Drafting personnel must keep in mind that even though they are working in a CAD environment, the final product will be printed. Line weights and linetypes related to objects must conform to these Standards to ensure consistency and clarity.

2.2.1.1 Linetypes

The Niagara Peninsula CAD Standards custom linetypes will be used in drawings along with standard AutoCAD linetypes. Custom linetypes can be loaded from the **NPCS_V3.0.lin** file.

2.2.1.2 Line Scale

For metric drawings, the LTSCALE is set equal to the below table settings:

Drawing Scale (as per AutoCAD drawing setup)	LTSCALE (Meters)
1:10000	10
1:5000	5
1:2000	2
1:1000	1
1:500	0.5
1:250	0.25
1:200	0.2
1:100	0.1
1:25	0.025

For consistent linetype appearance when plotting, the paper space linetype scale must be set to 0 (PSLTSCALE = 0)

2.2.2 Points

Points are AutoCAD entities with x, y and z coordinates, and can be used to identify a specific location. AutoCAD points should not be confused with survey point objects which have a northing, easting, elevation, point number and description.

2.2.3 Text

This document outlines standard text styles in CAD. Text styles have been defined to accommodate drawing scales to ensure that the plotted height and appearance remain consistent. The layer-code for text may have its own layer and be designated with the layer name of an object and have the extension “-L”.

For example, proposed watermain are drawn on layer “IN-P-WD-WATERMAIN” and the text labeling the pipe is on layer designated as “IN-P-WD-WATERMAIN-L”. Similarly, dimensions can be used in the same manner. These suffixes have been added to improve clarity, distinguish text from dimensions and increase layer control capabilities.

TEXT NAME, STYLE AND SIZE (for drawing scale of 1:200)

Text Style Name	Drawing Height (m)	Plotted Height	Font	Style
TEXT15	0.300	1.50 mm	Romans	Romans
TEXT20	0.400	2.00 mm	Romans	Romans
TEXT25	0.500	2.50 mm	Romans	Romans
TEXT30	0.600	3.00 mm	Romans	Romans
TEXT35	0.700	3.50 mm	Romans	Romans
TEXT40	0.800	4.00 mm	Romans	Romans
TEXT50	1.000	5.00 mm	Romans	Romans
TEXT60	1.200	6.00 mm	Romans	Romans

TEXT80	1.600	8.00 mm	Romans	Romans
TEXT100	2.000	10.00 mm	Romans	Romans
TEXT120	2.400	12.00 mm	Romans	Romans
TEXT150	3.000	15.00 mm	Romans	Romans
TEXT200	4.000	20.00 mm	Romans	Romans
TEXT15B	0.300	1.50 mm	Arial	Arial Bold Italic
TEXT20B	0.400	2.00 mm	Arial	Arial Bold Italic
TEXT25B	0.500	2.50 mm	Arial	Arial Bold Italic
TEXT30B	0.600	3.00 mm	Arial	Arial Bold Italic
TEXT35B	0.700	3.50 mm	Arial	Arial Bold Italic
TEXT40B	0.800	4.00 mm	Arial	Arial Bold Italic
TEXT50B	1.000	5.00 mm	Arial	Arial Bold Italic
TEXT60B	1.200	6.00 mm	Arial	Arial Bold Italic
TEXT80B	1.600	8.00 mm	Arial	Arial Bold Italic
TEXT100B	2.000	10.00 mm	Arial	Arial Bold Italic
TEXT120B	2.400	12.00 mm	Arial	Arial Bold Italic
TEXT150B	3.000	15.00 mm	Arial	Arial Bold Italic
TEXT200B	4.000	20.00 mm	Arial	Arial Bold Italic

Bolded rows are for common usage. TEXT15 is typically used for existing detail and TEXT20B is commonly used for proposed detail. Other text styles are available as required.

Text on design drawings details various information related to existing and proposed features. On design drawings, all existing text will appear smaller with a lighter pen weight, in “Romans” font. Conversely, proposed text will appear larger with a heavier, italicized font (Arial Bold Italic) to emphasize this detail.

It is important that text be placed in a position that appears organized but does not obstruct drawing detail.

2.2.4 Blocks (Drawing Symbols)

In developing blocks for use in the Niagara Peninsula CAD Standards, every attempt was made to utilize existing higher-level government standards where available (e.g. OPSD, MTO, Region/Local Municipalities). A list of standard blocks can be found in the NPCS Symbol Block table below. All drawings submitted will require a legend detailing all symbols used in the drawing set.

The creation and the insertion of the NPCS symbols/blocks incorporate basic rules as follows:

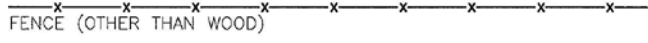
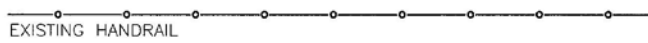
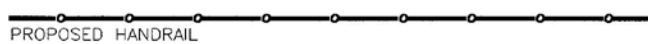
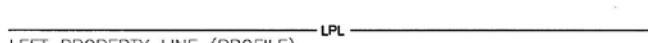
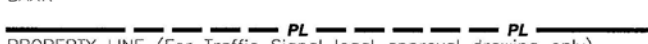
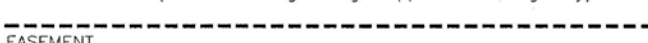
- Blocks were created on layer “0” (linetype and colour “Bylayer”)
- Blocks must be inserted on the proper layer as per these Standards
- The NPCS standard blocks that are provided are either “existing” or “proposed”, where the differences are in the attribute text style, and text height. The existing blocks attributes have a text style of “TEXT15” (uses AutoCAD romans.shx font), and the proposed blocks attributes have a text style of “TEXT20B” (uses AutoCAD ARIAL.TTF font).

- When inserting the blocks, the project setting dimscale shall be used as the scale factor, (e.g. Project - Horizontal Scale = 200 metric, use a scale factor of 200 when inserting the blocks for them to be scaled to the appropriate size for the drawing). A list of blocks can be found in the NPCS Symbol Block table
- The NPCS symbols/blocks shall not be exploded

Symbol blocks have been developed for use at scales of 1:200, and should be scaled 200x when inserted. However, tree blocks scales are determined by each block. NPCS symbol blocks can be found in the Blocks directory and in the template drawing located on the website. Additionally, graphical images of NPCS symbol blocks (tiff format) can be found in the NPCS Symbol Block Sheets subdirectory under Blocks.

2.2.5 NPCS Symbol Blocks Sheets

MISCELLANEOUS

	BOREHOLE GT_BOREHOLE		SHRUB — DECIDUOUS NF_SHRUB_DECID
	TESTHOLE GT_TESTHOLE		STUMP NF_STUMP
	OBSERVATION WELL GT_OBS_WELL		TREE — DECIDUOUS — 100mm NF_TREE_DECID_100mm
	ADVERTISING SIGN LF_ADVERT_SIGN		TREE — CONIFEROUS — 100mm NF_TREE_CONIFER_100mm
	BARRIER POST LF_BARRIER_POST		
	BENCH LF_BENCH		
	BOLLARD LF_BOLLARD		
	FLAGPOLE LF_FLAGPOLE		
	GATE LF_GATE		
	MAILBOX LF_MAILBOX		
	PLANTER LF_PLANTER		
	POLE LF_POLE		
	POLEWELL LF_POLEWELL		
	TREE GRATE LF_TREEGRATE		
	TREEGUARD LF_TREEGUARD		
	WASTE RECEPTACLE LF_WASTE_RECEPTACLE		
	BOULDER NF_BOULDER		
	DRIPLINE NF_DRIPLINE		
	SHRUB — CONIFEROUS NF_SHRUB_CONIFER		
			FENCE (OTHER THAN WOOD)
			WOOD FENCE
			EXISTING HANDRAIL
			PROPOSED HANDRAIL
			RAILWAY (SINGLE TRACK)
			LEFT PROPERTY LINE (PROFILE)
			RIGHT PROPERTY LINE (PROFILE)
			LEFT SIDEWALK (PROFILE)
			RIGHT SIDEWALK (PROFILE)
			GUIDERAIL
			PROPOSED GUIDERAIL
			BANK
			PROPERTY LINE (For Traffic Signal legal approval drawing only)
			EASEMENT
			EXISTING DITCH
			PROPOSED DITCH
			DITCH ON PROFILE
			CENTERLINE OF ROAD
			GRANULAR SHOULDER

WATER SYSTEMS

	EX. 11 1/4 DEGREE BEND WS_11BEND		PROP. WATERMAIN CAP WS_MAIN_CAP_PROP
	PROP. 11 1/4 DEGREE BEND WS_11BEND_PROP		EX. PRESSURE VALVE WS_PRESSURE_VALVE
	EX. 22 1/2 DEGREE BEND WS_22BEND		PROP. PRESSURE VALVE WS_PRESSURE_VALVE_PROP
	PROP. 22 1/2 DEGREE BEND WS_22BEND_PROP		EX. WATERMAIN REDUCER WS_REDUCER
	EX. 45 DEGREE BEND WS_45BEND		PROP. WATERMAIN REDUCER WS_REDUCER_PROP
	PROP. 45 DEGREE BEND WS_45BEND_PROP		EX. WATERMAIN TEE WS_TEE
	EX. 90 DEGREE BEND WS_90BEND		PROP. WATERMAIN TEE WS_TEE_PROP
	PROP. 90 DEGREE BEND WS_90BEND_PROP		EX. WATERMAIN TAPPING SLEEVE AND VALVE WS_TS&VALVE
	EX. ANODE WS_ANODE		PROP. WATERMAIN TAPPING SLEEVE AND VALVE WS_TS&VALVE_PROP
	PROP. ANODE WS_ANODE_PROP		EX. WATERMAIN VALVE WS_VALVE
	EX. BLOWOFF WS_BLOWOFF		PROP. WATERMAIN VALVE WS_VALVE_PROP
	PROP. BLOWOFF WS_BLOWOFF_PROP		EX. WATERMAIN VALVE CHAMBER WS_VALVECHAMBER
	EX. CROSS WS_CROSS		PROP. WATERMAIN VALVE CHAMBER WS_VALVECHAMBER_PROP
	PROP. CROSS WS_CROSS_PROP		EX. WATER WELL WS_WELL
	EX. CURBSTOP WS_CURBSTOP		PROP. WATER WELL WS_WELL_PROP
	PROP. CURBSTOP WS_CURBSTOP_PROP		EX. WATER SAMPLING STATION WS_WSS_PROP
	EX. HYDRANT WS_HYDRANT		PROP. WATER SAMPLING STATION WS_WSS
	PROP. HYDRANT WS_HYDRANT_PROP		EX. WATER METER WS_METER
	EX. HYDRANT VALVE WS_HYDRANT_VALVE		EX. SPRINKLER WS_SPRINKLER
	PROP. HYDRANT VALVE WS_HYDRANT_VALVE_PROP		
	EX. WATERMAIN CAP WS_MAIN_CAP		

EXISTING WATERMAIN

PROPOSED WATERMAIN

EXISTING WATER SERVICE LATERAL

WASTE WATER / SANITARY

	EX. SANITARY SEWER CAP WW_CAP
	EX. SANITARY SEWER LATERAL CLEANOUT WW_CLEANOUT
	PROP. SANITARY SEWER LATERAL CLEANOUT WW_CLEANOUT_PROP
	EX. MANHOLE COMBINED SEWER WW_COMB_MH
	PROP. MANHOLE COMBINED SEWER WW_COMB_MH_PROP
	EX. SANITARY FORCEMAIN VALVE WW_FORCEMAIN_VALVE
	PROP. SANITARY FORCEMAIN VALVE WW_FORCEMAIN_VALVE_PROP
	EX. SANITARY FORCEMAIN VALVE CHAMBER WW_FORCEMAIN_VC
	PROP. SANITARY FORCEMAIN VALVE CHAMBER WW_FORCEMAIN_VC_PROP
	EX. SANITARY PLUG WW_PLUG
	PROP. SANITARY PLUG WW_PLUG_PROP
	EX. SANITARY SEWER MANHOLE WW_SAN_MH
	PROP. SANITARY SEWER MANHOLE WW_SAN_MH_PROP
	EX. UNKNOWN MANHOLE WW_UNKNOWN_MH

EXISTING SANITARY SEWER

PROPOSED SANITARY SEWER

SANITARY SEWER LATERAL

DRAINAGE SYSTEMS / STORM

	EX. CATCH BASIN DS_CB
	PROP. CATCH BASIN DS_CB_PROP
	EX. CATCH BASIN MANHOLE DS_CBMH
	PROP. CATCH BASIN MANHOLE DS_CBMH_PROP
	EX. STORM MANHOLE DS_STM_MH
	PROP. STORM MANHOLE DS_STM_MH_PROP
	EX. CULVERT END - CLAY DS_CULV_END_CLAY
	EX. CULVERT END - CONCRETE DS_CULV_END_CONC
	EX. CULVERT END - CSP DS_CULV_END_CSP
	EX. CULVERT END - PE DS_CULV_END_PE
	EX. CULVERT END - PVC DS_CULV_END_PVC
	EX. DOUBLE CATCH BASIN DS_DCB
	PROP. DOUBLE CATCH BASIN DS_DCB_PROP
	EX. DITCH INLET CATCH BASIN DS_DICB
	PROP. DITCH INLET CATCH BASIN DS_DICB_PROP
	EX. RIPRAP LABEL DS_RIPRAP_LABEL

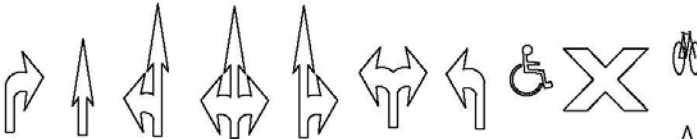
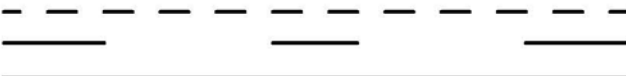
EXISTING STORM SEWER

PROPOSED STORM SEWER

STORM SEWER LATERAL

CULVERT

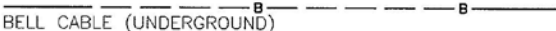
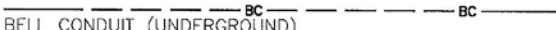
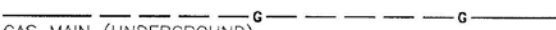
EXISTING TRAFFIC

	POLE MOUNTED TRAFFIC CONTROLLER TS_AER_CONTROLLER		EMERGENCY VEHICLE PRE-EMPTION DETECTOR TS_PREMP_EMERG
	BASE MOUNTED TRAFFIC CONTROLLER TS_GND_CONTROLLER		VIDEO CAMERA TS_VC
	POWER SUPPLY CABINET TS_PS_CABINET		DETECTION CAMERA TS_DC
	TRAFFIC POLE TS_POLE		MULTI-LEG DETECTION CAMERA TS_MDC
	TRAFFIC SIGN TS_SIGN		GROUND ROD TS_GND_ROD
	JUNCTION BOX TS_JB		TRAFFIC HANDHOLE TS_TRAFFICHANDHOLE
	LUMINAIRE TS_LUMINAIRE		HYDRO METER TS_METER
	PUSH BUTTON TS_PB		ILLUMINATED TRAFFIC SIGN TS_ITS
	PUSH BUTTON - AUDIBLE TS_PB_AUDIBLE		ILLUMINATED TRAFFIC SIGN - DOUBLE TS_ITS_D
	PED HEAD - AUDIBLE TS_PH_AUDIBLE	PAVEMENT MARKINGS  EX. DIRECTIONAL ARROWS  PROPOSED DIRECTIONAL ARROWS  EXISTING LINE MARKINGS  EXISTING 60cm STOP BAR  PROPOSED LINE MARKINGS  PROPOSED 60cm STOP BAR	
	PED HEAD TS_PH		
	PED HEAD - COUNTDOWN TS_PH_COUNTDOWN		
	BEACON TS_BEACON		
	PARKING METER TS_PARKINGMETER		
	RADIO INTERCONNECT TS_RAD_INTER		
	SIGNAL HEAD 1 TS_SIGNAL_HEAD1		
	SIGNAL HEAD 2 TS_SIGNAL_HEAD2		
	SIGNAL HEAD 3 TS_SIGNAL_HEAD3		
	SIGNAL HEAD 4 TS_SIGNAL_HEAD4		
	SIGNAL HEAD 5 TS_SIGNAL_HEAD5		
	SIGNAL HEAD 6 TS_SIGNAL_HEAD6		
	SIGNAL HEAD 7 TS_SIGNAL_HEAD7		
	SIGNAL HEAD 8 TS_SIGNAL_HEAD8		

PROPOSED TRAFFIC

	TRAFFIC CONTROLLER TS_AER_CONTROLLER_PROP		TRAFFIC SIGN TS_SIGN_PROP
	TRAFFIC CONTROLLER TS_GND_CONTROLLER_PROP		ILLUMINATED TRAFFIC SIGN TS_ITS_PROP
	POWER SUPPLY CABINET TS_PS_CABINET_PROP		ILLUMINATED TRAFFIC SIGN -- DOUBLE TS_ITS_D_PROP
	TRAFFIC SIGNAL POLE TS_POLE_PROP		JUNCTION BOX TS_JB_PROP
	SIGNAL HEAD 1 HWY SIGNAL HEAD 30cm RED & 20 cm AMBER/GREEN WITH BACKBOARD TS_SIGNAL_HEAD1_PROP		LUMINAIRE TS_LUMINAIRE_PROP
	SIGNAL HEAD 2 HWY SIGNAL HEAD 30cm RED & 20cm AMBER/GREEN ON OVERHEAD SPAN CABLE WITH BACKBOARD TS_SIGNAL_HEAD2_PROP		PUSH BUTTON TS_PB_PROP
	SIGNAL HEAD 3 STD. SIGNAL HEAD ALL 20cm LENSES WITH BACKBOARD TS_SIGNAL_HEAD3_PROP		PUSH BUTTON -- AUDIBLE TS_PB_AUDIBLE_PROP
	SIGNAL HEAD 4 STANDARD SIGNAL HEAD ALL 20CM LENSES WITHOUT BACKBOARD TS_SIGNAL_HEAD4_PROP		PED HEAD TS_PH_PROP
	SIGNAL HEAD 5 HWY SIGNAL HEAD ALL 30cm LENSES WITH BACKBOARD TS_SIGNAL_HEAD5_PROP		PED HEAD -- AUDIBLE TS_PH_AUDIBLE_PROP
	SIGNAL HEAD 6 HWY SIGNAL HEAD WITH ARROW INDICATION(S) ALL 30cm LENSES WITH BACKBOARD TS_SIGNAL_HEAD6_PROP		PED HEAD -- COUNTDOWN TS_PH_COUNTDOWN_PROP
	SIGNAL HEAD 7 HWY SIGNAL HEAD WITH ARROW INDICATION ALL 30cm LENSES WITH 1 OR MORE PROGRAMMABLE LENSE WITH BACKBOARD TS_SIGNAL_HEAD7_PROP		VIDEO CAMERA TS_VC_PROP
	SIGNAL HEAD 8 HWY SIGNAL HEAD ALL 30cm LENSES WITH 1 OR MORE PROGRAMMABLE LENSE WITH BACKBOARD TS_SIGNAL_HEAD8_PROP		DETECTION CAMERA TS_DC_PROP
			MULTI-LEG DETECTION CAMERA TS_MDC_PROP
			----- LOOP DETECTOR ----- 50mm CONDUIT ----- ----- TS ----- TS ----- TS ----- 1-50mm & 1-100mm CONDUIT ----- INTER ----- INTER ----- 50mm INTERCONNECT CONDUIT

EXISTING UTILITIES

Symbol	Symbol Description	Code	Symbol	Symbol Description	Code
	BROAD BAND NETWORK POLE BN_BBN_POLE			BELL AND HYDRO POLE BL_&H_POLE	
	BELL MANHOLE BL_MANHOLE			HYDRO KIOSK HY_KIOSK	
	BELL POLE BL_POLE			HYDRO TOWER HY_TOWER	
	BELL GUYPOLE BL_GUYPOLE			LIGHT STANDARD HY_LIGHT_STD	
	BELL PEDESTAL BL_PED			HYDRO JUNCTION BOX HY_JBOX	
	PHONE BOOTH BL_PHONEBOOTH			HYDRO ELECTRIC MANHOLE HY_ELECMANHOLE	
	BELL JUNCTION BOX BL_JBOX			HYDRO HANDHOLE HY_HANDHOLE	
	BELL UNDERGROUND MARKER BL_MARKER			HYDRO GROUND ROD HY_GROUND_ROD	
	GAS PUMP GS_PUMP			CABLE TV PEDESTAL TV_PED	
	GAS VALVE GS_VALVE			CABLE TV JUNCTION BOX TV_JBOX	
	GAS METER GS_METER			CABLE TV POLE TV_POLE	
	GAS VENT GS_VENT			FUEL OIL VENT OL_FUEL_VENT	
	GAS MANHOLE GS_MANHOLE				
	GAS MAIN MARKER GS_MAINMARKER			BELL CABLE (UNDERGROUND)	
	GAS DRIP GS_DRIP			BELL CONDUIT (UNDERGROUND)	
	HYDRO UNDERGROUND TRANSFORMER VAULT HY_TRANSVAULT			BELL (AERIAL)	
	HYDRO POLE HY_POLE			GAS MAIN (UNDERGROUND)	
	HYDRO UNDERGROUND MARKER HY_MARKER			HYDRO CABLE (UNDERGROUND)	
	HYDRO UNDERGROUND POWER MARKER HY_UND_POWERMARKER			HYDRO CABLE (AERIAL)	
	HYDRO GUYWIRE HY_GUY			GUY WIRE (AERIAL)	
	HYDRO GUYPOLE HY_GUYPOLE			TELEVISION CABLE (UNDERGROUND)	
				TELEVISION CABLE (AERIAL)	
				OIL PIPE LINE	

2.2.6 Attributes

Blocks have been created with a minimum number of associated attributes. These attributes are to be populated during field survey or drawing creation. The following are some general rules/principles concerning block attributes:

- Some attributes are included within a block. The first has a tag name of “COMPONENT”. The second has a tag name of “ID”
- “COMPONENT” is a code representing each feature (this attribute is automatically populated)
- “ID” (which is normally invisible, with a default value of “”) is an attribute to accommodate storage of a Unique Identifier. It is at the discretion of the Project Manager as to if and how this attribute is populated
 - NOTE: a lisp routine is available to assist with automatically numbering the ID attribute if required.

2.2.7 Hatching

This Standard utilizes a limited number of standard hatch patterns for the sake of simplicity and uniformity. Hatch patterns should be scaled on drawings so that they are easily recognizable, but do not dominate the drawing. In some drawings, there may be situations, circumstances or materials that require the use of hatch patterns not included in the standard set. The drafts person may use any pattern commonly used for that discipline. Hatch patterns shall be included on the legend created for the drawing or drawing set.

The scale of the pattern in the legend must be the same scale as those shown in the drawing.

2.2.8 Polygons

Polygons which are drawn to encompass areas within the drawing must be “closed”.

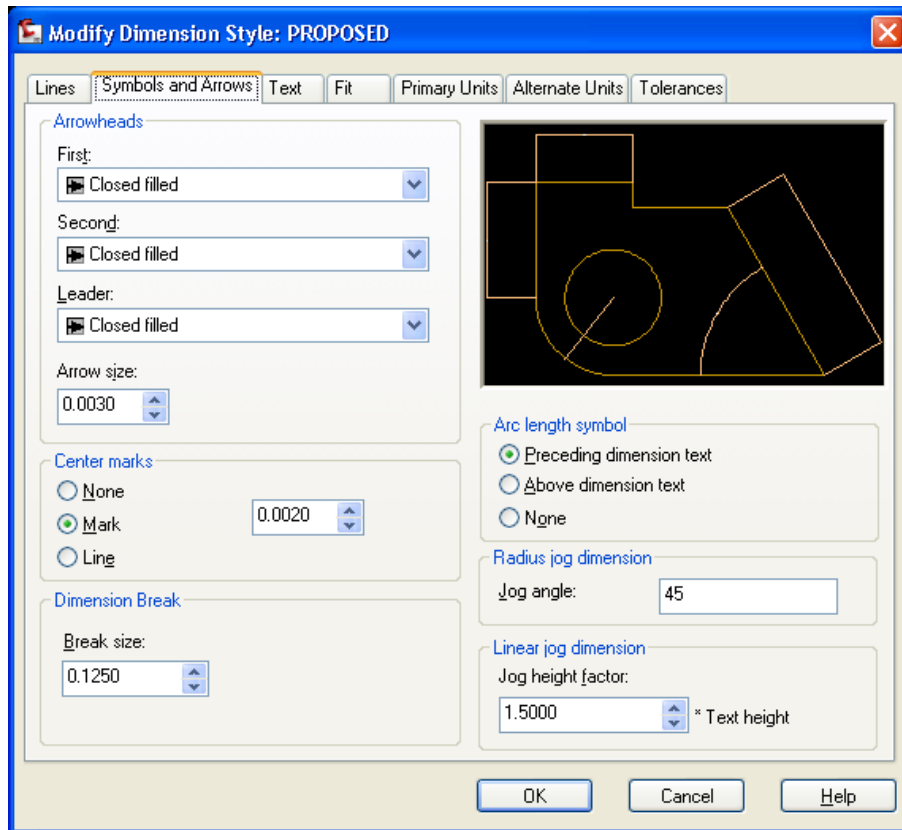
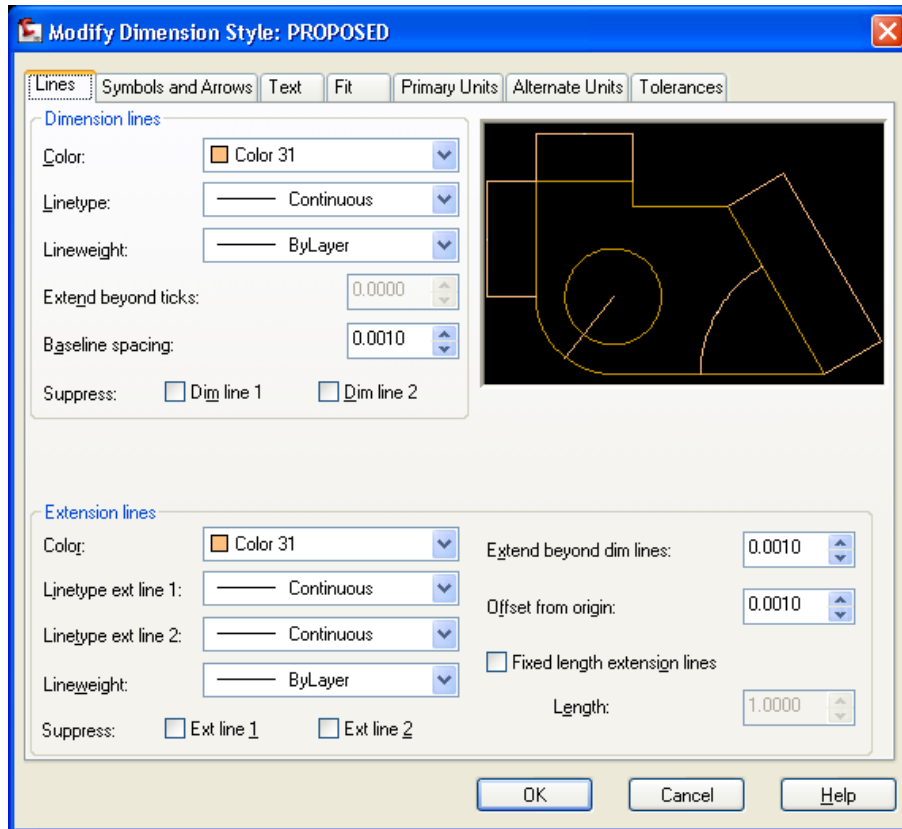
2.2.9 Dimensioning

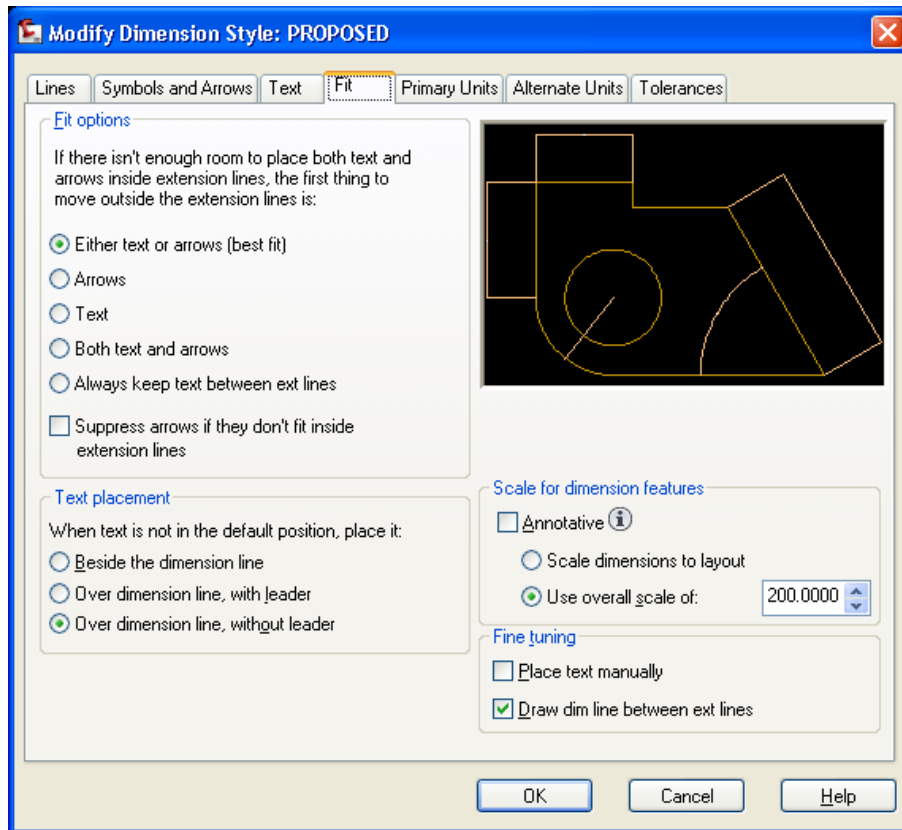
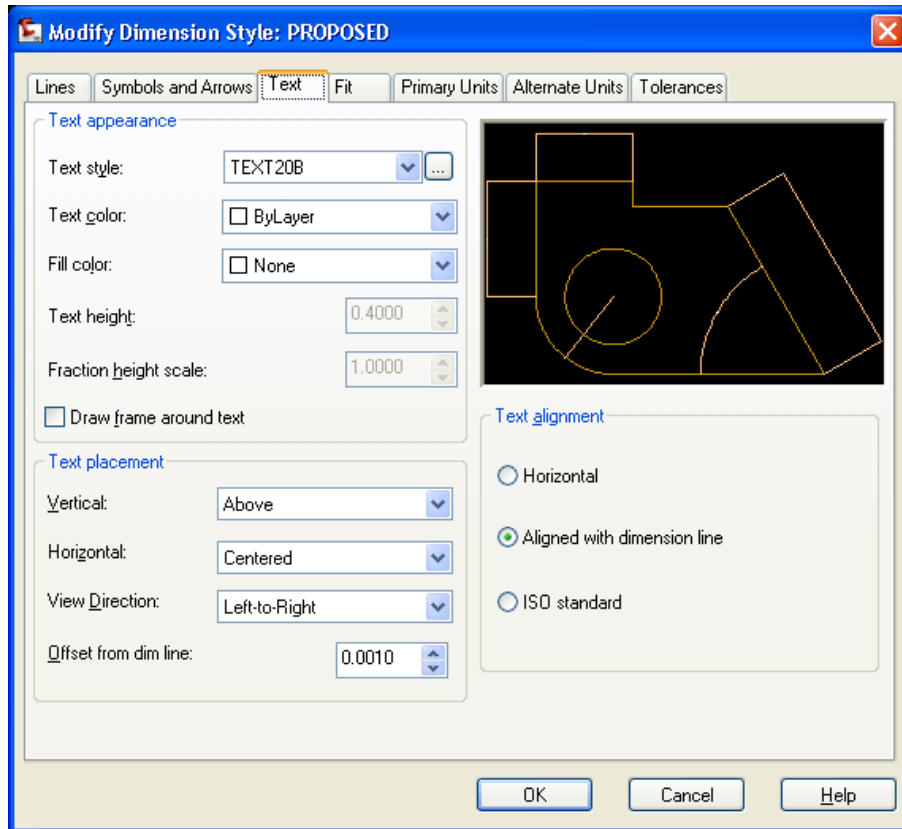
All dimensioning must be created on entities in model space with associative dimensions.

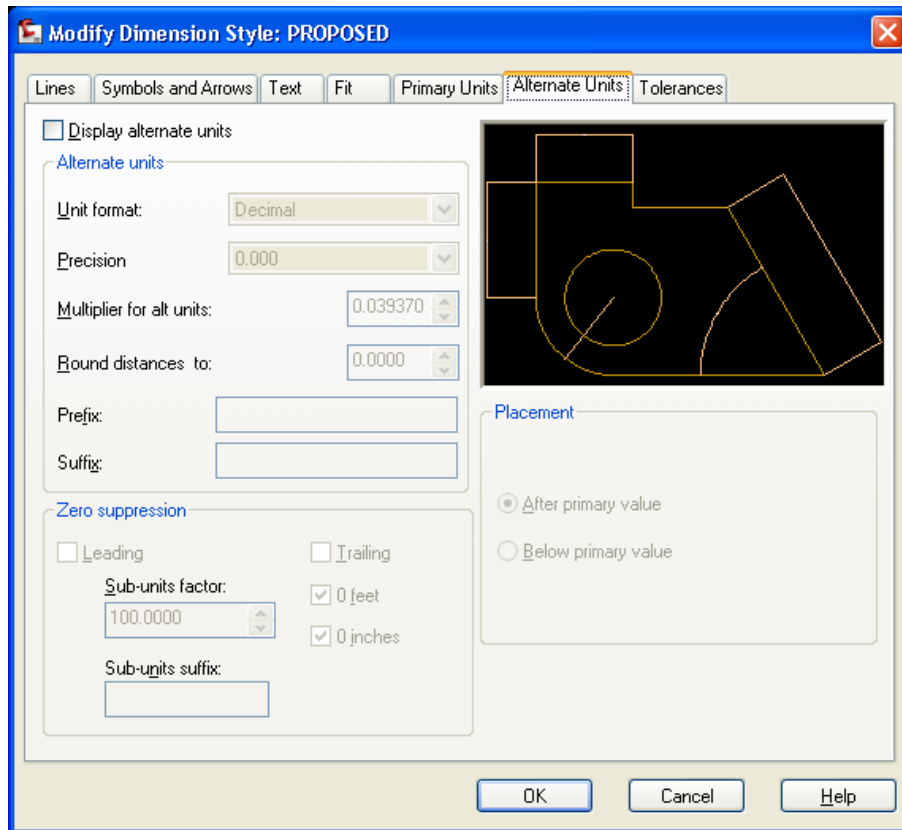
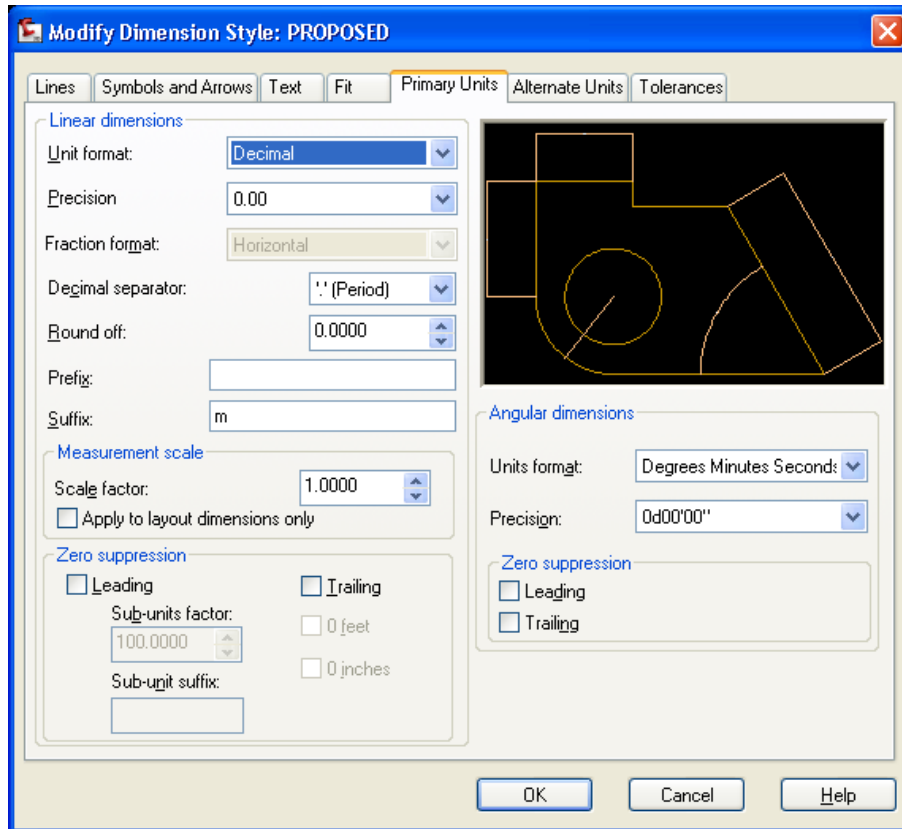
Repetition of dimensions should be avoided. However, dimensioning must be adequate to facilitate field interpretation. Dimensions pertaining to length and width shall be shown on the plans. Dimension pertaining to height and elevations shall be shown on profiles, sections and architectural elevations unless a special condition requires both horizontal and vertical dimensioning to make the drawing or detail clearly understood.

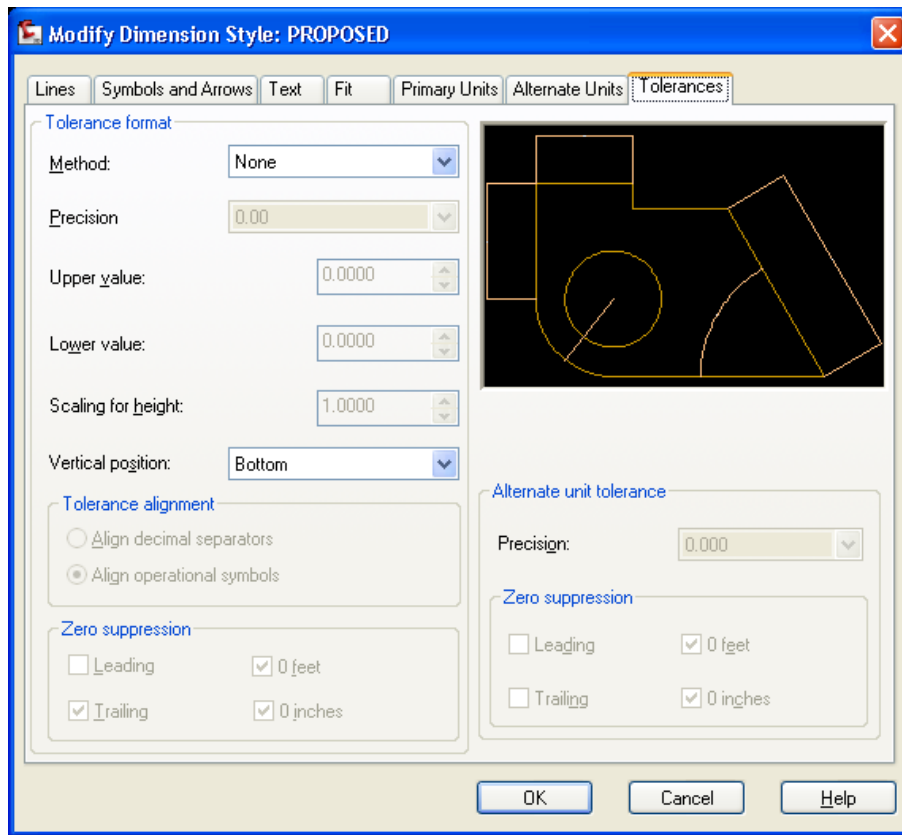
Dimension lines shall be located far enough from the drawing (plan, elevation or detail) so that the line work cannot be confused with that of the drawing. Avoid crossing dimension lines as much as possible. Dimension text shall be parallel to the dimension line and between the extension lines whenever possible. When using AutoCAD automated dimensions, if dimensions are too long to fit between extension lines, use the “best fit” feature in the dimension dialogue box. This will allow the CAD operator to “flip” the dimension text on either side of the extensions. Long dimensions may be located to the outside with leader extension from text to dimension line when required.

Below are the tables showing the settings used for the PROPOSED dimension style:

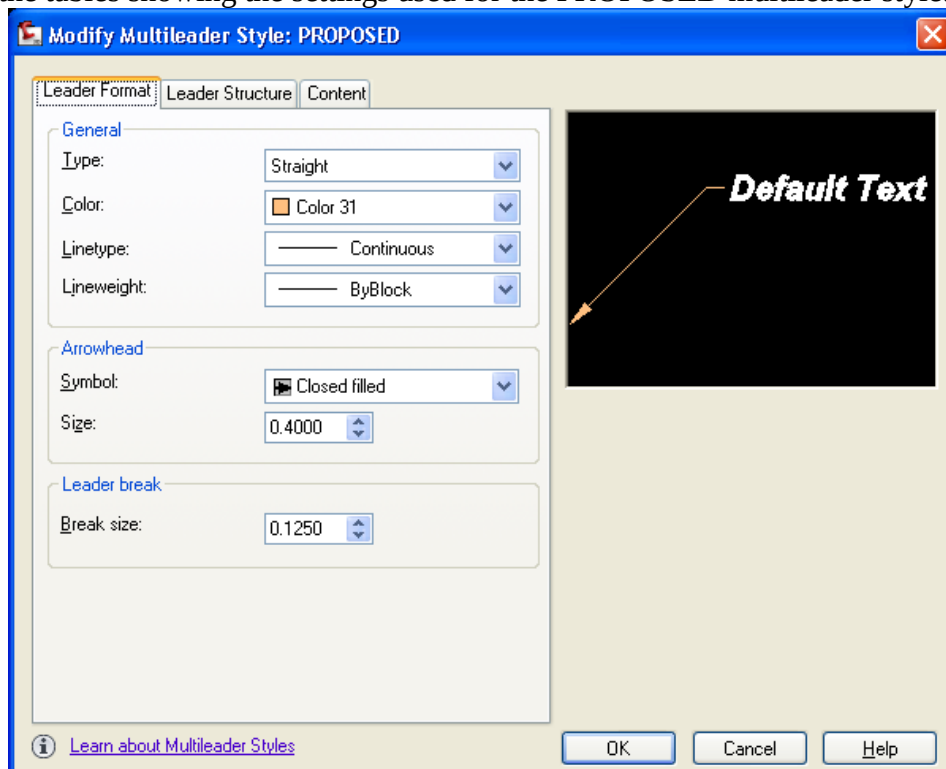


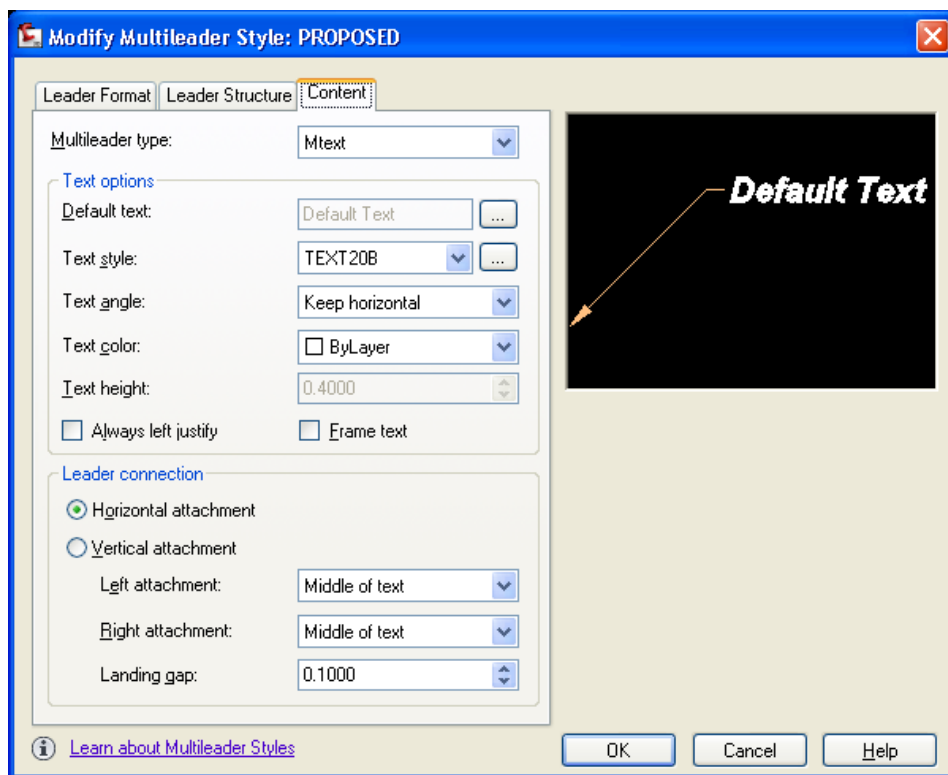
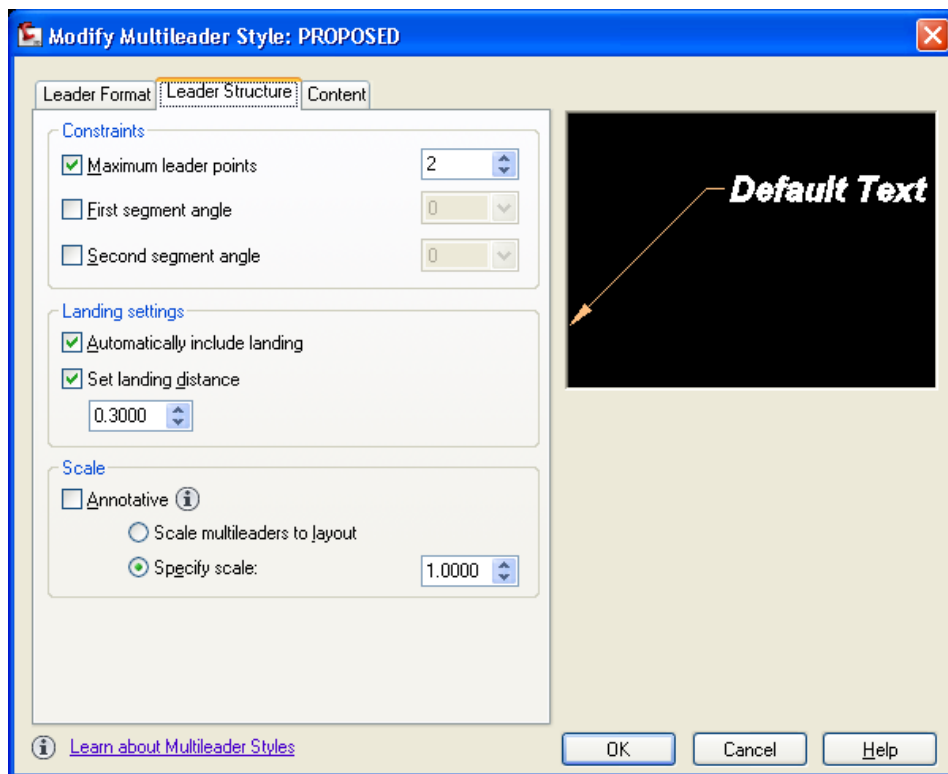






Below are the tables showing the settings used for the PROPOSED multileader style:





2.3 Layers

2.3.1 Layer Name Convention

The layer naming standard is built on a hierarchical classification system, which groups layers and components (features) to make them easier to work with. To add control, the layers have been broken down to the component (or feature) level, which means that there may be more layer options in this Standard than previous Standards. This also means there is more functionality because similar objects can be controlled in smaller groups. For example, the storm sewer pipe is on a separate layer from the manhole to allow you to display them independently, such as on a grading plan. Typically on a grading plan, the manholes are shown but the underground pipe is not.

To facilitate working with this layering standard, layer groups have been added to the default drawing. Layer group filters have been developed for all layer Category Divisions.

LAYERING NAME FORMAT
(Maximum 30 characters)

AA_B_CC_DDD_EE_F_GG

CATEGORY_STATUS_DIVISION_GROUP_COMPONENT NAME_ANNOTATION CODE_ VIEW

AA_B_CC_DDD_EE_F_GG

CATEGORY - An abbreviated code representing the category level of the component

AA_B_CC_DDD_EE_F_GG

STATUS - The delineation of features relative to time (e.g. existing, proposed, legal, removal)

AA_B_CC_DDD_EE_F_GG

DIVISION - The division to which the component belongs

AA_B_CC_DDD_EE_F_GG

GROUP - The group to which the component belongs, abbreviated to 3 characters

AA_B_CC_DDD_EE_F_GG

COMPONENT - The component name code varies in character length as shown in the component library

NOTE: Components which are directly involved in the delivery of an infrastructure, utility-related (or other) service will be placed under the appropriate category (e.g. water treatment plants would be placed on an “Infrastructure” layer, whereas a hydro generation plant would be placed on a “Utility” layer. All other buildings would be placed on “LandUse” layers)

AA_B_CC_DDD_EE_**F**_GG

ANNOTATION - The annotation code representing the group name of graphical entities associated with features (mandatory where applicable)

Text (labeling) and dimensioning are to be stored on a separate layer with the identical layer name as that to which it is referring with the addition of the character code denoted above

Annotation (notes) is to be stored on a separate layer (prefixed by the category code) with the addition of _ANNO

AA_B_CC_DDD_EE_F_**GG**

VIEW - A two character delineation of the view (assumed to be plan if blank)

View refers to the manner in which components (features) are being represented or viewed (e.g. plan, profile)

2.3.2 Layer Hierarchy Structure

LAYER HIERARCHY STRUCTURE

Category	Status	Division	Group	Component	Annotation	View
IN_	P_	WS_	DIS_	HYDRANT	_L	_PF
Category is the main grouping of detail. Two characters.	The state describes the condition of the object. One character.	Division allows similar and related objects to be linked within the below noted divisions. Two characters.	Group is a sub-category of division allowing a more specific organization and multiple groups within the same division. Three characters max.	This is a description of the entity. The description should be as short as possible but leave no question as to the object.	Annotation relates to the type of reference and is only one letter. This suffix is preceded by an underscore '_'	This section is two letters and allows entities to be displayed and plotted according to their view. This suffix is preceded by an underscore '_'
DR – Drawing IN – Infrastructure LB – Land Base Info LU – Land Use TR – Transportation UT – Utilities W – Working Third Party Software	A – Abandon E – Existing F – Future N – New P – Proposed R – Removal T – Temporary				D – Dimension H – Hatching N – Notes L – Label	3D – 3D View DT – Detail PF – Profile PV – Plan View (ASSUMED) XS – Cross Section
DR_ Drawing	Any of the Above	BR_ Border	COV_ Cover LIN_ Line PEN_ Pen Weights PJ_ Project PLN_ Plan PRF_ Profile REF_ Reference		Any of the Above	Any of the Above
IN_ Infrastructure	Any of the above	DS_ Drainage System	BND_ Boundary DDS_ Ditch Drainage System SER_ Service SEW_ Sewer DWY_ Driveway FNC_ Fence GEO_ Geometry MSC_ Miscellaneous PRK_ Parking RDY_ Roadway REF_ Reference STR_ Structure SWK_ Sidewalk XSC_ Cross Sections AER_ Aerial GND_ Ground MSC_ Miscellaneous PMK_ Pavement Mark SGN_ Signs UND_ Underground WM_ Waste Management BND_ Boundary STR_ Structure WS_ Water Systems BND_ Boundary DST_ Distribution System SER_ Service TRN_ Transmission WW_ Wastewater BND_ Boundary COM_ Combined SER_ Service SEW_ Sewer STR_ Structure TPL_ Treatment Plant		Any of the Above	Any of the Above
LB_ Land Base Info	Any of the Above	GL_ Geotechnical REF_ Reference TST_ Testing IM_ Imagery AER_ Aerial Photo MAP_ Maps SCN_ Scanned Drawings NF_ Natural Feature ETH_ Earth Feature VEG_ Vegetation WAT_ Water SV_ Survey BND_ Boundary CNT_ Control MON_ Monument STK_ Stakeout TM_ Terrain Model CNT_ Contour Lines FLT_ Faults GND_ Ground PNT_ Points TIN_ 3D Surface			Any of the Above	Any of the Above
LU_ Land Use	Any of the Above	BS_ Building & Structure BLD_ Buildings BRG_ Bridge CM_ Cemetery GRV_ Grave LF_ Land Use Feature FNC_ Fence MSC_ Miscellaneous WAL_ Walls PK_ Parks RC_ Recreation			Any of the Above	Any of the Above

LAYER HIERARCHY STRUCTURE

Category	Status	Division	Group	Component	Annotation	View
IN_	P_	WS_	DIS_	HYDRANT	L	PF
Category is the main grouping of detail. Two characters.	The state describes the condition of the object. One character.	Division allows similar and related objects to be linked within the below noted divisions. Two characters.	Group is a sub-category of division allowing a more specific organization and multiple groups within the same division. Three characters max.	This is a description of the entity. The description should be as short as possible but leave no question as to the object.	Annotation relates to the type of reference and is only one letter. This suffix is preceded by an underscore '_'. D – Dimension H – Hatching N – Notes L – Label	This section is two letters and allows entities to be displayed and plotted according to their view. This suffix is preceded by an underscore '_'. 3D – 3D View DT – Detail PF – Profile PV – Plan View (ASSUMED) XS – Cross Section
DR – Drawing IN – Infrastructure LB – Land Base Info LU – Land Use TR – Transportation UT – Utilities W – Working Third Party Software	A – Abandon E – Existing F – Future N – New P – Proposed R – Removal T – Temporary					
TR_ Transportation	Any of the Above	AR_ Air			Any of the Above	Any of the Above
		MR_ Marine				
		RD_ Roads	BUS_ Bus			
		RL_ Railway	SGN_ Signals			
			TRK_ Tracks			
		TN_ Transportation Network	STR_ Structure			
UT_ Utilities	Any of the Above	BL_ Bell	AER_ Overhead		Any of the Above	Any of the Above
			GND_ Ground Level			
			UND_ Underground			
		BN_ Broad Band Network	AER_ Overhead			
			GND_ Ground Level			
			UND_ Underground			
		CO_ Communications				
		GS_ Gas Co.	GND_ Ground Level			
			UND_ Underground			
		HY_ Hydro Co.	AER_ Overhead			
			GND_ Ground Level			
			UND_ Underground			
		OL_ Oil	GND_ Ground Level			
			UND_ Underground			
		ST_ Steam				
		TV_ Cable	AER_ Overhead			
			GND_ Ground Level			
			UND_ Underground			

2.3.3 Layer Description Tables

The table below has been inserted to illustrate the layers indicating Existing Details. Please refer to the **NPCS_V3.0 Layer Description Table.xls** for Proposed, Border, Temporary, New, Removal and Abandoned Layers.

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name		Code	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Abandon Pipe	IN_		WS_	DST_	ABANDONPIPE			154	UND_WM	151	UND_WM	151	UND_WM	154	UND_WM	144	UND_WM				
Aerial Photos	LB_		IM_	AER_	PHOTO																
Air Conditioner	LU_		LF_	MSC_	AIRCOND	B	AIRC	234	continuous					234	continuous	224	continuous				
Alignment / Baseline	IN_		RS_	GEO_	ALIGNMENT	L	BSL	56	ROAD_CL	52	ROAD_CL	52	ROAD_CL	56	ROAD_CL	56	ROAD_CL				
Alignment / Baseline Profile	IN_		RS_	GEO_	ALIGNMENT_PF					240	ROAD_CL	240	ROAD_CL								
Alignment Table	IN_		RS_	GEO_	ALIGNMENT-TABL																
Alignment Text	IN_		RS_	GEO_	ALIGNMENT_L	L				56	continuous	56	continuous								
Anchor	UT_		HY_	GND_	ANCHOR	B	ANC														
Antenna Television	LU_		LF_	MSC_	ANTENNA	B	ANTEN	234	continuous					234	continuous	224	continuous				
Armour Stone Hatch	LU_		LF_	MSC_	ARMOURSTONE_H	H		234	continuous	210	continuous	210	continuous	234	continuous	224	continuous				
Armourstone	LB_		AR_	MSC_	ARMOURSTONE			234	continuous					234	continuous	224	continuous				
Asphalt Sidewalk	IN_		RS_	SWK_	SWASPH	L	ASW	202	continuous	10	continuous	10	continuous	202	continuous	224	continuous				
Bank Bottom	LB_		TM_	GND_	SLOPEBOTTOM	L	BOS	33	DASHED	74	dashed	74	dashed	33	DASHED	36	DASHED				
Bank Top	LB_		TM_	GND_	SLOPETOP	L	TOS	33	BANK	74	Bank	74	Bank	33	BANK	36	BANK				
Bell Cabinet	UT_		BL_	GND_	CABINET	B	BSBOX	34	continuous	210	continuous	210	continuous	34	continuous	36	continuous				
Bell Cable Marker	UT_		BL_	GND_	MARKER	B	BUM	34	continuous	210	continuous	210	continuous	34	continuous	36	continuous				
Bell Control Box	UT_		BL_	GND_	CONTROLBOX			34	continuous	210	continuous	210	continuous	34	continuous	36	continuous				
Bell Guy Pole	UT_		BL_	GND_	GUYPOLE	B	BPG	34	continuous	210	continuous	210	continuous	34	continuous	36	continuous				
Bell Guy Wire	UT_		BL_	GND_	GUYWIRE	L	BGW			210	continuous	210	continuous								
Bell Inspection Post	UT_		BL_	GND_	INSPECTPOST	B	BINSPP														
Bell Junction Box	UT_		BL_	GND_	JUNCTIONBOX	B	BJB	34	continuous	210	continuous	210	continuous	34	continuous	36	continuous				
Bell Manhole	UT_		BL_	GND_	MH	B	MHB	34	continuous	210	continuous	210	continuous	34	continuous	36	continuous				
Bell Manhole Profile	UT_		BL_	GND_	MH_PF					210	continuous	210	continuous								
Bell Pedestal	UT_		BL_	GND_	PEDESTAL	B	BPED	34	continuous	210	continuous	210	continuous	34	continuous	36	continuous				
Bell Pole Well	UT_		BL_	GND_	POLE	B	BPW	34	continuous	210	continuous	210	continuous	34	continuous	36	continuous				
Bell Pole with C/COM/DIP/H/L/NRBN/T/TEL	UT_		BL_	GND_	POLE	B	BP	34	continuous	210	continuous	210	continuous	34	continuous	36	continuous				
Bell Service Line	UT_		BL_	SER_	CABLE	L	BSER			210	UND_BELL_CABLE	210	UND_BELL_CABLE								
Bell Switch Box	UT_		BL_	GND_	SWITCHBOX	B	BSBOX	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
Bell Underground Cable	UT_		BL_	UND_	CABLE	L	BEL	34	UND_BELL_CABLE	210	UND_BELL_CABLE	210	UND_BELL_CABLE	34	UND_BELL_CABLE	36	UND_BELL_CABLE				
Bell Underground Cable Profile	UT_		BL_	UND_	CABLE_PF					210	UTIL_PROFILE	210	UTIL_PROFILE								
Bell Underground Conduit	UT_		BL_	UND_	CONDUIT	L	BUC	34	UND_BELL_CONDUIT	210	UND_BELL_CONDUIT	210	UND_BELL_CONDUIT	34	UND_BELL_CONDUIT	36	UND_BELL_CONDUIT				
Bell Underground Conduit Bank	UT_		BL_	UND_	CONDUIT_BANK					210	UND_BELL_CONDUIT	210	UND_BELL_CONDUIT								
Bell Underground Conduit Profile	UT_		BL_	UND_	CONDUIT_PF					210	UND_BELL_CONDUIT	210	UND_BELL_CONDUIT								
Bell Underground Structure	UT_		BL_	UND_	VAULT	L	BV			210	CONTINUOUS	210	CONTINUOUS								
Bell Wire Aerial	UT_		BL_	AER_	WIRE	L	BA	34	AERIAL_BELL	210	AERIAL_BELL	210	AERIAL_BELL	34	AERIAL_BELL	36	AERIAL_BELL				
Bench Mark (Vertical Control)	LB_		SV_	CNT_	VERTICAL	B	BM	1	continuous	1	CONTINUOUS	1	CONTINUOUS	1	continuous	1	continuous				
Bench seat	LU_		LF_	MSC_	BENCH	B	BENC	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Bend	IN_		WS_	DST_	BEND			152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Bike Rack	LU_		PK_	MSC_	BIKERACK			234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Blow Off - See Water Valve	IN_		WS_	DST_	BLOWOFF	B	WDEV	152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Bollard	LU_		LF_	MSC_	POST	B	BOL	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Borehole	LB_		GL_	MSC_	BOREHOLE	B	BH	234	continuous	10	CONTINUOUS	10	CONTINUOUS	234	continuous	224	continuous				
Borehole Profile	LB_		GL_	MSC_	BOREHOLE_PF					210	CONTINUOUS	210	CONTINUOUS								

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name		Code	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Bottom of Channel	IN_		DS_	DDS_	CHANNEL	L	BOC			130	CONTINUOUS	130	CONTINUOUS								
Bottom of Gabion	IN_		DS_	DDS_	GABION	L	RETG			130	CONTINUOUS	130	CONTINUOUS								
Bottom of Slope Profile	LB_		TM_	GND_	SLOPEBOTTOM_PF					74	CONTINUOUS	74	CONTINUOUS								
Boulder	LB_		NF_	ETH_	BOULDER	B	BO	86	continuous	210	CONTINUOUS	210	CONTINUOUS	86	continuous	86	continuous				
Breaklines	LB_		TM_	FLT_	BREAKLINE	L	BREAK	33	continuous	4	CONTINUOUS	4	CONTINUOUS	33	continuous	36	continuous				
Brick	LB_		AR_	MSC_	BRICK					210	CONTINUOUS	210	CONTINUOUS								
Bridge Abutment	LU_		BS_	BRG_	BRIDGEABUT	L	ABUT			223	CONTINUOUS	223	CONTINUOUS								
Bridge Other	LU_		BS_	BRG_	BRIDGE	L	BRDGO	34	continuous	223	CONTINUOUS	223	CONTINUOUS	34	continuous	36	continuous				
Bridge Road	IN_		RS_	STR_	BRIDGE	L	BRIDG	234	continuous	4	CONTINUOUS	4	CONTINUOUS	234	continuous	224	continuous				
Broadband Network Cable	UT_		BN_	UND_	CABLE	L	BBNU	34	UND_BROADBAND	210	UND_BROADBAND	210	UND_BROADBAND	34	UND_BROADBAND	36	UND_BROADBAND				
Broadband Network Conduit	UT_		BN_	UND_	CONDUIT	L	BBND	34	UND_BROADBAND	210	UND_BROADBAND	210	UND_BROADBAND	34	UND_BROADBAND	36	UND_BROADBAND				
Broadband Network Connection Box	UT_		BN_	GND_	CONNECTIONBOX	B	BBNJB	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
Broadband Network Lamp	UT_		BN_	AER_	LAMP	B	BBNLS	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
Broadband Network Pole	LU_		LF_	MSC_	POLE	B	UP	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Broadband Network Wire Aerial	UT_		BN_	AER_	WIRE	L	BBNCA	34	continuous	210	AERIAL_BELL	210	AERIAL_BELL	34	continuous	36	continuous				
Building	LU_		BS_	BLD_	BUILDING	L	BLDG	220	continuous	223	CONTINUOUS	223	CONTINUOUS	220	continuous	224	continuous				
Building - Address	LU_		BS_	BLD_	ADDRESS	L		222	continuous	224	CONTINUOUS	224	CONTINUOUS	222	continuous	224	continuous				
Building - House Footprint	LU_		BS_	BLD_	BUILDING	L	BLDG	220	continuous	224	CONTINUOUS	224	CONTINUOUS	220	continuous	224	continuous				
Buoy	TR_		MR_	MCS_	BUOY	B	BUOY	11	continuous	224	CONTINUOUS	224	CONTINUOUS	11	continuous	224	continuous				
Bus Route	TR_		RD_	BUS_	ROUTE	L		11	continuous	24	CONTINUOUS	24	CONTINUOUS	11	continuous	224	continuous				
Bus Shelter	TR_		RD_	STR_	BUSSHELTER	B	BUS	11	continuous	114	CONTINUOUS	114	CONTINUOUS	11	continuous	224	continuous				
Bus Stop Sign	TR_		RD_	SGN_	BUSSTOPSIGN	B	SIGNBUS			114	CONTINUOUS	114	CONTINUOUS								
Bush Edge Symbol Label	LB_		NF_	VEG_	BUSHLINE_L	B	BUSH														
Bush Hedge	LB_		NF_	VEG_	BUSHLINE	L	HDG														
Cap	IN_		WS_	DST_	Cap			152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Catch Basin	IN_		DS_	SEW_	CB	B	CB	134	continuous	130	CONTINUOUS	130	CONTINUOUS	134	continuous	136	continuous				
Catch Basin Chart Notes	IN_		DS_	SEW_	CB_N					130	CONTINUOUS	130	CONTINUOUS								
Catch Basin HATCH	IN_		DS_	SEW_	CB_H																
Catch Basin Lead	IN_		DS_	SEW_	CBLEAD			134	UND_STM	130	CONTINUOUS	130	CONTINUOUS	134	UND_STM	136	UND_STM				
Catch Basin Manhole	IN_		DS_	SEW_	CBMH	B	CBMH	134	continuous	130	CONTINUOUS	130	CONTINUOUS	134	continuous	136	continuous				
Catch Basin Profile	IN_		DS_	SEW_	CB_PF			134	continuous	130	CONTINUOUS	130	CONTINUOUS	134	continuous	136	continuous				
Catch Basin Profile HATCH	IN_		DS_	SEW_	CB_PF_H																
CATV (Cable TV)	UT_		TV_	UND_	CABLE	L	CSER	34	UND_CATV	210	UND_CATV	210	UND_CATV	34	UND_CATV	36	UND_CATV				
CATV Junction Box	UT_		TV_	GND_	JUNCTIONBOX	B	CJB	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
CATV Pedestal	UT_		TV_	GND_	PEDESTAL	B	CPED	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
CATV POLE	UT_		TV_	GND_	POLE			34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
CATV Service Line	UT_		TV_	SER_	CABLE	L	CSER	34	UND_CATV	210	UND_CATV	210	UND_CATV	34	UND_CATV	36	UND_CATV				
CATV Underground Cable	UT_		TV_	UND_	CABLE	L	CATV	34	UND_CATV	210	UND_CATV	210	UND_CATV	34	UND_CATV	36	UND_CATV				
CATV Underground Conduit	UT_		TV_	UND_	CONDUIT	L	CUC			210	UND_CATV	210	UND_CATV								
CATV Underground Structure	UT_		TV_	UND_	VAULT					210	CONTINUOUS	210	CONTINUOUS								
CATV Wire Aerial	UT_		TV_	AER_	WIRE	L	TVA	34	AERIAL_CATV	210	AERIAL_CATV	210	AERIAL_CATV	34	AERIAL_CATV	36	AERIAL_CATV				
Cemetery Boundary	LU_		CM_	GRV_	BOUNDARY	B		10	continuous	16	CONTINUOUS	16	CONTINUOUS	10	continuous	224	continuous				
Check Dam	IN_		DS_	DDS_	DAM	L	DAMC			130	CONTINUOUS	130	CONTINUOUS								
Cleanout Sanitary	IN_		WW_	SER_	CLEANOUT	B	CO	106	continuous	100	CONTINUOUS	100	CONTINUOUS	106	continuous	224	continuous				
Columns / Pillars Building Stone/Concrete	LU_		BS_	BLD_	COLUMN	L	COLUM	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Combined Sewer Overflow	IN_		WW_	COM_	OVERFLOW	L				100	CONTINUOUS	100	CONTINUOUS								
Combined Sewer Pipe	IN_		WW_	COM_	PIPE					100	UND_SAN_PR	100	UND_SAN_PR								

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey Code	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name			Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Combined Sewer Pipe Centerline	IN_		WW_	COM_	PIPE	L	COMB	106	UND_SAN					106	UND_SAN	224	UND_SAN				
Combined Sewer Pipe Profile	IN_		WW_	COM_	PIPE_PF					100	UND_SAN_PR	100	UND_SAN_PR								
Combined Sewer Pipe Profile TEXT	IN_		WW_	COM_	PIPE_L_PF					100	CONTINUOUS	100	CONTINUOUS								
Combined Sewer Pipe TEXT	IN_		WW_	COM_	PIPE_L_PF					100	CONTINUOUS	100	CONTINUOUS								
Communication Tower	UT_		CO_	GND_	TOWER	B	CTOW														
Concrete Miscellaneous Edge	IN_		RS_	MSC_	CONCRETE	L	CONC			224	CONTINUOUS	224	CONTINUOUS								
Concrete Pad	IN_		RS_	MSC_	CONCRETEPAD	L	CPAD	202	continuous	10	CONTINUOUS	10	CONTINUOUS	202	continuous	224	continuous				
Concrete Pin	LB_		SV_	MON_	BAR	B	CPIN	112	continuous					112	continuous	224	continuous				
Constant Limit	IN_		RS_	REF_	CONSTLIMIT			220	continuous	223	CONTINUOUS	223	CONTINUOUS	220	continuous	224	continuous				
Contour Lines Heavy	LB_		TM_	CNT_	CONTOURS			106	continuous	206	CONTINUOUS	206	CONTINUOUS	106	continuous	224	continuous				
Contour Lines Light	LB_		TM_	CNT_	CONTOURLIGHT					8	CONTINUOUS	8	CONTINUOUS								
Contour Lines Major	LB_		TM_	CNT_	MAJR					74	CONTINUOUS	74	CONTINUOUS								
Contour Lines Minor	LB_		TM_	CNT_	MINR					8	CONTINUOUS	8	CONTINUOUS								
Contour Lines Text	LB_		TM_	CNT_	TEXT					74	CONTINUOUS	74	CONTINUOUS								
Contour Lines User	LB_		TM_	CNT_	USER					74	CONTINUOUS	74	CONTINUOUS								
Contours	LB_		TM_	CNT_	CONTOURS			106	continuous	206	CONTINUOUS	206	CONTINUOUS	106	continuous	106	continuous				
Control Turning Point	LB_		SV_	CNT_	TURNING_POINT	B	HCP	112	continuous					112	continuous	224	continuous				
Control Point	LB_		SV_	CNT_	CONTROLPNT			112	continuous	2	CONTINUOUS	140	CONTINUOUS	112	continuous	224	continuous				
Control Point Horiz. & Vert.	LB_		SV_	CNT_	HORZVERT	B	HVCM	112	continuous	1	CONTINUOUS	1	CONTINUOUS	112	continuous	224	continuous				
Control Point Horizontal	LB_		SV_	CNT_	HORIZONTAL	B	TP	112	continuous	1	CONTINUOUS	1	CONTINUOUS	112	continuous	224	continuous				
Creek Edge of	LB_		NF_	WAT_	CREEK	L	CREEK	130	continuous	153	CONTINUOUS	153	CONTINUOUS	130	continuous	144	continuous				
Cross	IN_		WS_	DST_	CROSS			152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Cross Section Detail	IN_		RS_	XSC_	DETAIL			234	continuous	30	CONTINUOUS	30	CONTINUOUS	234	continuous	224	continuous				
Cross Section Detail DIAG	IN_		RS_	XSC_	DIAG																
Cross Section Existing Ground	IN_		RS_	XSC_	EG			56	CONTINUOUS					56	CONTINUOUS	56	CONTINUOUS				
Cross Section Future Ground	IN_		RS_	XSC_	FG			56	CONTINUOUS	244	CONTINUOUS	244	CONTINUOUS	56	CONTINUOUS	56	CONTINUOUS				
Cross Section Grid	IN_		RS_	XSC_	GRID	L		245	CONTINUOUS	8	CONTINUOUS	8	CONTINUOUS	245	CONTINUOUS	224	CONTINUOUS				
Cross Section Grid LABEL	IN_		RS_	XSC_	TEXT_L																
Cross Section Grid Text	IN_		RS_	XCS_	TEXT			56	CONTINUOUS	30	CONTINUOUS	30	CONTINUOUS	56	CONTINUOUS	56	CONTINUOUS				
Cross Section TABLE	IN_		RS_	XSC_	TABL																
Cross Section Text	IN_		RS_	XSC_	TEXT			56	CONTINUOUS	30	CONTINUOUS	30	CONTINUOUS	56	CONTINUOUS	56	CONTINUOUS				
Cross Section TICK	IN_		RS_	XSC_	TICK																
Cross Section TITL	IN_		RS_	XSC_	TITL																
Cross Section TTLB	IN_		RS_	XSC_	TTLB																
Culvert - Clay	IN_		DS_	DDS_	CULVERTCLAY			134	UND_CULVERT					134	UND_CULVERT	136	UND_CULVERT				
Culvert - CLAY INVERT END	IN_		DS_	DDS_	CULVERTCLAY_L	B	CLAYC	134	UND_CULVERT					134	UND_CULVERT	136	UND_CULVERT				
Culvert - CLAY INVERT END Profile	IN_		DS_	DDS_	CULVERTCLAY_L_PF					130	CONTINUOUS	130	CONTINUOUS								
Culvert - CONC INVERT END	IN_		DS_	DDS_	CULVERTCONC_L	B	CONCC	134	UND_CULVERT					134	UND_CULVERT	136	UND_CULVERT				
Culvert - CONC INVERT END Profile	IN_		DS_	DDS_	CULVERTCONC_L_PF					130	CONTINUOUS	130	CONTINUOUS								
Culvert - Concrete Corner	IN_		DS_	DDS_	CULVERTCONC	L	BOX	134	UND_CULVERT	130	UND_CULVERT	130	UND_CULVERT	134	UND_CULVERT	136	UND_CULVERT				
Culvert - Concrete Corner Profile	IN_		DS_	DDS_	CULVERTCONC_PF					130	UND_CULVERT	130	UND_CULVERT								
Culvert - CSP INVERT END	IN_		DS_	DDS_	CULVERTCSP	B	CSP	134	UND_CULVERT	130	UND_CULVERT	130	UND_CULVERT	134	UND_CULVERT	136	UND_CULVERT				
Culvert - CSP Profile	IN_		DS_	DDS_	CULVERTCSP_PF					130	UND_CULVERT	130	UND_CULVERT								
Culvert - PE INVERT END	IN_		DS_	DDS_	CULVERT_L	B	PEC	134	continuous					134	continuous	136	continuous				
Culvert - PVC INVERT END Label	IN_		DS_	DDS_	CULVERTPVC_L			134	UND_CULVERT	130	CONTINUOUS	130	CONTINUOUS	134	UND_CULVERT	136	UND_CULVERT				
Culvert - PVC INVERT END Profile	IN_		DS_	DDS_	CULVERTPVC_L_PF					130	UND_CULVERT	130	UND_CULVERT								
Culvert TOP	IN_		DS_	DDS_	CULVERT	L	CULV	134	UND_CULVERT	130	UND_CULVERT	130	UND_CULVERT	134	UND_CULVERT	136	UND_CULVERT				

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name		Code	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Curb	IN_		RS_	RDY_	CURB	L	CURB	180	continuous	30	CONTINUOUS	30	CONTINUOUS	180	continuous	184	continuous				
Curb Box	IN_		WS_	SER_	CURBBOX	B				151	CONTINUOUS	151	CONTINUOUS								
Curb Cut	IN_		RS_	RDY_	CURBDROP	B	RAMP	184	continuous	30	CONTINUOUS	30	CONTINUOUS	184	continuous	184	continuous				
Curb Stop	IN_		WS_	SER_	CURBSTOP	B	CS	152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Cut Cross	LB_		SV_	CNT_	CUTCROSS	B	CC	112	continuous	1	CONTINUOUS	1	CONTINUOUS	112	continuous	224	continuous				
Dam Man Made	LU_		LF_	MSC_	DAM	L	DAMM	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Deck - Wood or Plastic	LU_		LF_	MSC_	DECK			234	CONTINUOUS					234	CONTINUOUS	224	CONTINUOUS				
Dimension Arrows	LB_		SV_	BND_	DIMARROW			1	CONTINUOUS					1	CONTINUOUS	1	CONTINUOUS				
Ditch Bottom	IN_		DS_	DDS_	DITCHBOT	L	BOD														
Ditch Centerline	IN_		DS_	DDS_	DITCH	L	DCL	134	PRF_DITCH	130	PRF_DITCH	130	PRF_DITCH	134	PRF_DITCH	136	PRF_DITCH				
Ditch Centerline Profile Left	IN_		DS_	DDS_	DITCHLT_PF					130	PRF_DITCHLT	130	PRF_DITCHLT								
Ditch Centerline Profile Right	IN_		DS_	DDS_	DITCHRT_PF					130	PRF_DITCHRT	130	PRF_DITCHRT								
Ditch Inlet Catch Basin	IN_		DS_	SEW_	DICB	B	DICB	134	continuous	130	CONTINUOUS	130	CONTINUOUS	134	continuous	136	continuous				
Ditch Inlet Catch Basin Profile	IN_		DS_	SEW_	DICB_PF																
Ditch Top	IN_		DS_	DDS_	DITCHTOP	L	TOD														
Dock	LU_		PK_	MSC_	DOCK			234	CONTINUOUS					234	CONTINUOUS	224	CONTINUOUS				
Dock - Wharf - Pier	LU_		LF_	MSC_	DOCK	L	DOCK	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Double Catch Basin	IN_		DS_	SEW_	DCB	B	DCB	134	continuous	130	CONTINUOUS	130	CONTINUOUS	134	continuous	136	continuous				
Double Catch Basin Profile	IN_		DS_	SEW_	DCB_PF			134	CONTINUOUS					134	CONTINUOUS	136	CONTINUOUS				
Drainage Area Boundary Point	IN_		DS_	BND_	POINT																
Drainage Area Boundary Segment	IN_		DS_	BND_	SEGMNT																
Drainage Area Depression	IN_		DS_	BND_	DEPRESSION																
Drainage Area District Line Sanitary	IN_		WW_	BND_	DRAINDISTRICT																
Drainage Area District Line Storm	IN_		DS_	BND_	DRAINDISTRICT																
Drainage Area Flat area	IN_		DS_	BND_	FLATAREA																
Drainage Area Line Sanitary	IN_		WW_	BND_	DRAINAGEAREA			106	CONTINUOUS	100	DASH1	100	DASH1	106	CONTINUOUS	224	CONTINUOUS				
Drainage Area Line Storm	IN_		DS_	BND_	DRAINAGEAREA			130	CONTINUOUS	10	DASH1	10	DASH1	130	CONTINUOUS	144	CONTINUOUS				
Drainage Area Line Storm Text	IN_		DS_	BND_	DRAINAGEAREA_L																
Drainage Area Multiple Drain	IN_		DS_	BND_	MULTI_DRAIN																
Drainage Area Multiple drain Notch	IN_		DS_	BND_	MULTI_DRAIN_NOTCH																
Drainage Area Sanitary Info Label	IN_		WW_	BND_	DRAINAGEAREA_L																
Drainage Area Sub District Line Sanitary	IN_		WW_	BND_	DRAINSUBDISTRICT																
Drainage Area Sub District Line Storm	IN_		DS_	BND_	DRAINSUBDISTRICT																
Dripline of Tree	LB_		NF_	VEG_	DRIPLINE	L	DRIPL	86	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	86	CONTINUOUS	86	CONTINUOUS				
Driver Vision Cone	IN_		TS_	MSC_	VISIONCONE			142	CONTINUOUS	222	CONTINUOUS	222	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Driveway	IN_		RS_	DWY_	DRIVEWAY	L	DWYL	192	CONTINUOUS	20	CONTINUOUS	20	CONTINUOUS	192	CONTINUOUS	190	CONTINUOUS				
Driveway Asphalt	IN_		RS_	DWY_	DRIVEWAYASPH	L	DWYA														
Driveway Asphalt Label	IN_		RS_	DWY_	ASPHALT_L			192	CONTINUOUS					192	CONTINUOUS	190	CONTINUOUS				
Driveway Concrete	IN_		RS_	DWY_	DRIVEWAYCONC	L	DWYC														
Driveway Concrete Label	IN_		RS_	DWY_	CONCRETE_L			192	CONTINUOUS					192	CONTINUOUS	190	CONTINUOUS				
Driveway Description Text	IN_		RS_	DWY_	DRIVEWAY_L	L				4	CONTINUOUS	4	CONTINUOUS								
Driveway Discription Label	IN_		RS_	DWY_	DRIVEWAY_L			192	CONTINUOUS					192	CONTINUOUS	190	CONTINUOUS				
Driveway Gravel	IN_		RS_	DWY_	DRIVEWAYGRAV	L	DWYG														
Driveway Gravel Label	IN_		RS_	DWY_	GRAVEL_L			192	CONTINUOUS					192	CONTINUOUS	190	CONTINUOUS				
Driveway Hatch	IN_		RS_	DWY_	DRIVEWAY_H	H				186	CONTINUOUS	186	CONTINUOUS								
Driveway Interlocking Paving Stone	IN_		RS_	DWY_	DRIVEWAYPAVER	L	DWYP			192	CONTINUOUS	192	CONTINUOUS								
Driveway Symbol	IN_		RS_	DWY_	DRIVEWAY	B	DW	192	CONTINUOUS					192	CONTINUOUS	190	CONTINUOUS				

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name		Code	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Dump Area Boundary	IN_		WM_	BND_	DUMPAREA	L	LIMWASTE	192	continuous	196	DASH1	196	DASH1	192	continuous	190	continuous				
Edge of Asphalt	IN_		RS_	RDY_	EDGEASPH			180	continuous	30	CONTINUOUS	30	CONTINUOUS	180	continuous	184	continuous				
Edge of Concrete	IN_		RS_	RDY_	EDGECONC					4	CONTINUOUS	4	CONTINUOUS								
Erosion Mat - Gabion	IN_		DS_	DDS_	GABION_H	H				186	CONTINUOUS	186	CONTINUOUS								
Fault lines - See Breaklines	LB_		TM_	FLT_	BREAKLINE	L	BREAK	33	continuous	4	CONTINUOUS	4	CONTINUOUS	33	continuous	36	continuous				
Fence	LU_		LF_	FNC_	FENCE	L	FENC	234	Fence	210	FENCE	210	FENCE	234	Fence	224	Fence				
Fence (Chainlink)	LU_		LF_	FNC_	FENCECHAINLINK	L	FECL	234	Fence	210	FENCE	210	FENCE	234	Fence	224	Fence				
Fence (Metal)	LU_		LF_	FNC_	FENCEMETAL	L	FEM	234	Fence	210	FENCE	210	FENCE	234	Fence	224	Fence				
Fence (Post and Wire)	LU_		LF_	FNC_	FENCEWIRE	L	FEPW	234	Fence	210	FENCE	210	FENCE	234	Fence	224	Fence				
Fence (Snow Temporary)	LU_		LF_	FNC_	FENCESNOW	L	FESNOW	234	FENCE_SHORT	210	FENCE	210	FENCE	234	FENCE_SHORT	224	FENCE_SHORT				
Fence (Steel Post)	LU_		LF_	FNC_	FENCEPOST			234	FENCE					234	FENCE	224	FENCE				
Fence (Wood)	LU_		LF_	FNC_	FENCEWOOD	L	FEW	234	FENCE_WOOD	210	FENCE	210	FENCE	234	FENCE_WOOD	224	FENCE_WOOD				
Fence Post	LU_		LF_	FNC_	FENCEPOST	B	FP	234	Fence	210	FENCE	210	FENCE	234	Fence	224	Fence				
Fence Sediment	LU_		LF_	FNC_	FENCESEDIMENT	L	FESED	234	FENCE_SHORT	210	FENCE	210	FENCE	234	FENCE_SHORT	224	FENCE_SHORT				
Fence Snakerail	LU_		LF_	FNC_	FENCESNAKE	L	FESR	234	FENCE_SHORT					234	FENCE_SHORT	224	FENCE_SHORT				
Fence Stone	LU_		LF_	FNC_	FENCESTONE	L	FEST	234	continuous	210	FENCE	210	FENCE	234	continuous	224	continuous				
Fire Hydrant	IN_		WS_	DST_	HYDRANT	B	HYD	152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Fire Hydrant Coverage Area	IN_		WS_	BND_	HYDCOVERAGE			152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Fire Hydrant Profile	IN_		WS_	DST_	HYDRANT_PF					151	CONTINUOUS	151	CONTINUOUS								
Fire Stand Pipe	IN_		WS_	DST_	PIPE	B		152	UND_WM	140	UND_WM_PR	140	UND_WM_PR	152	UND_WM	144	UND_WM				
Flag Pole	LU_		LF_	MSC_	FLAGPOLE	B	FLAG	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Flagstone Label	IN_		RS_	DWY_	FLAGSTONE_L			192	CONTINUOUS					192	CONTINUOUS	190	CONTINUOUS				
Flower Bed	LU_		LF_	MSC_	FLOWERBED					210	CONTINUOUS	210	CONTINUOUS								
Flower Bed Hatch	LU_		LF_	MSC_	FLOWERBED_H	H				210	CONTINUOUS	210	CONTINUOUS								
Forcemain Sanitary Plan	IN_		WW_	SEW_	FORCEMAIN	L	FM	106	UND_SAN	100	UND_SAN_PR	100	UND_SAN_PR	106	UND_SAN	224	UND_SAN				
Forcemain Sanitary Profile	IN_		WW_	SEW_	FORCEMAIN_PF					100	UND_SAN_PR	100	UND_SAN_PR								
Forcemain Sanitary Valve	IN_		WW_	SEW_	VALVE	B	FMV	106	continuous	100	CONTINUOUS	100	CONTINUOUS	106	continuous	224	continuous				
Forcemain Sanitary Valve Chamber	IN_		WW_	SEW_	MH	B	FMVC	106	continuous	100	CONTINUOUS	100	CONTINUOUS	106	continuous	224	continuous				
French Drain	IN_		DS_	DDS_	SWALE			134	CONTINUOUS	130	CONTINUOUS	130	CONTINUOUS	134	CONTINUOUS	136	CONTINUOUS				
Fuel Oil Pump (Gas Pump)	UT_		OL_	GND_	FUELPUMP	B	GP	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Fuel Oil Vent	UT_		OL_	GND_	FUELVENT	B	FVENT	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Fuel Tank	UT_		OL_	GND_	FUELTANK					210	CONTINUOUS	210	CONTINUOUS								
Gabion Wall	LU_		LF_	WAL_	GABIONWALL	L	GABIO			210	CONTINUOUS	210	CONTINUOUS								
Gabion Wall Hatch	LU_		LF_	WAL_	GABIONWALL_H	H				210	CONTINUOUS	210	CONTINUOUS								
Garbage Bin Portable	IN_		WM_	STR_	GARBAGEBIN					194	CONTINUOUS	194	CONTINUOUS								
Garden Edge	LU_		LF_	MSC_	GARDEN	L	GARDEN			210	CONTINUOUS	210	CONTINUOUS								
Gas Drip	UT_		GS_	GND_	PIPE	B	GD	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Gas Inspection Post	UT_		GS_	GND_	INSPECTPOST	B	GINSP			210	CONTINUOUS	210	CONTINUOUS								
Gas Inspection Post Profile	UT_		GS_	GND_	INSPECTPOST_PF					210	CONTINUOUS	210	CONTINUOUS								
Gas Main Aboveground	UT_		GS_	GND_	PIPE			34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Gas Main Marker	UT_		GS_	GND_	MARKER	B	G	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Gas Main Underground	UT_		GS_	UND_	PIPE	L	GAS	34	UND_GAS	210	UND_GAS	210	UND_GAS	34	UND_GAS	36	UND_GAS				
Gas Main Underground Profile	UT_		GS_	UND_	PIPE_PF					210	UND_GAS	210	UND_GAS								
Gas Manhole	UT_		GS_	GND_	MH	B	MHG	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Gas Manhole Profile	UT_		GS_	GND_	MH_PF					210	CONTINUOUS	210	CONTINUOUS								
Gas Meter	UT_		GS_	GND_	METER	B	GM	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
Gas Regulator Box	UT_		GS_	GND_	REGULATOR	B	GRBOX														

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name		Code	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Gas Service Line	UT_		GS_	SER_	PIPE	L	GSER	34	UND_GAS	210	UND_GAS	210	UND_GAS	34	UND_GAS	36	UND_GAS				
Gas Valve	UT_		GS_	GND_	VALVE	B	GV	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
Gas Vent	UT_		GS_	GND_	GASVENT	B	GVENT	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
Gate	LU_		LF_	FNC_	GATE	B	GATE	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Gate in Fence Line	LU_		LF_	FNC_	GATE			234	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	234	CONTINUOUS	224	CONTINUOUS				
Geodetic Survey Monument	LB_		SV_	MON_	MONUMENT	B		112	CONTINUOUS	1	CONTINUOUS	1	CONTINUOUS	112	CONTINUOUS	224	CONTINUOUS				
Geometric Centerline	IN_		RS_	GEO_	CENTRELINE	L	CL	56	ROAD_CL	52	ROAD_CL	52	ROAD_CL	56	ROAD_CL	56	ROAD_CL				
Geotechnical Borehole	LB_		AR_	GEO_	BOREHOLE			234	continuous					234	continuous	224	continuous				
GRADE	LB_		TM_	GND_	GRAD																
GRADE-CUT	LB_		TM_	GND_	GRAD-CUT																
GRADE-FILL	LB_		TM_	GND_	GRAD-FILL																
Granular Road Edge	IN_		RS_	RDY_	EDGEGRAN	L	EGP	202	continuous	10	CONTINUOUS	10	CONTINUOUS	202	continuous	224	continuous				
GRID SURFACE	LB_		TM_	GND_	GRID																
GRID SURFACE - LABELING	LB_		TM_	GND_	GRID-TEXT																
Ground Center Line Elevation	LB_		TM_	GND_	CELEV			56	continuous	74	ROAD_CL	74	ROAD_CL	56	continuous	56	continuous				
Ground Cover / Vine	LU_		LF_	MSC_	GCOVER	L	GCOVER	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Ground Top Of Slope	LB_		TM_	GND_	ELEV			33	DASHED	74	CONTINUOUS	74	CONTINUOUS	33	DASHED	35	DASHED				
Grubbing and Clearing	LB_		NF_	VEG_	GRUBCLEAR	B				90	CONTINUOUS	90	CONTINUOUS								
Grubbing and Clearing Hatch	LB_		NF_	VEG_	GRUBCLEAR_H	H				86	CONTINUOUS	86	CONTINUOUS								
Guiderail Post and Wire	IN_		RS_	STR_	GUIDERAILWIRE	L	GRPW			4	GUIDERAIL	4	GUIDERAIL								
Gutter of Curb Asphalt	IN_		RS_	RDY_	GUTTERASPH	L	GUTA	180	continuous	30	CONTINUOUS	30	CONTINUOUS	180	continuous	184	continuous				
Gutter of Curb Concrete	IN_		RS_	RDY_	GUTTERCONC	L	GUTC			30	CONTINUOUS	30	CONTINUOUS								
Hand Rail	IN_		RS_	FNC_	HANDRAIL	L	HANDR	234	HANDRAIL	210	HANDRAIL_PR	210	HANDRAIL_PR	234	HANDRAIL	224	HANDRAIL				
Headstone	LU_		CM_	GRV_	HEADSTONE	B	HS	10	continuous	244	CONTINUOUS	244	CONTINUOUS	10	continuous	224	continuous				
Headwall	IN_		DS_	DDS_	HEADWALL	L	VF	134	continuous	130	CONTINUOUS	130	CONTINUOUS	134	continuous	136	continuous				
Hoarding	LU_		BS_	BLD_	HOARDING					224	CONTINUOUS	224	CONTINUOUS								
Horizontal Control Monument Found	LB_		SV_	MON_	MONUMENT	B	HCM														
Hub on Tangent	LB_		SV_	CNT_	HUB	B	HOT	112	continuous	1	CONTINUOUS	1	CONTINUOUS	112	continuous	224	continuous				
Hydrant Lead	IN_		WS_	SER_	HYDRANTLEAD	L	HYDL			151	CONTINUOUS	151	CONTINUOUS								
Hydrant Tapping Sleeve & Valve	IN_		WS_	DST_	HYDRANTVALVE	B	HYDV	152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Hydrant Valve	IN_		WS_	DST_	HYDRANTVALVE	B	HYDV	152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	152	continuous				
Hydrant Valve Profile	IN_		WS_	DST_	HYDRANTVALVE_PF					151	CONTINUOUS	151	CONTINUOUS								
Hydro Aerial Wire	UT_		HY_	AER_	WIRE	L	HYA	34	AERIAL_HYDRO	210	AERIAL_HYDRO	210	AERIAL_HYDRO	34	AERIAL_HYDRO	36	AERIAL_HYDRO				
Hydro Anchor	UT_		HY_	GND_	ANCHOR					210	CONTINUOUS	210	CONTINUOUS								
Hydro Detail / Legend	UT_		HY_	GND_	DETAIL_DT					210	CONTINUOUS	210	CONTINUOUS								
Hydro Ground Rod	UT_		HY_	GND_	GROUNDROD	B	HGR	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Hydro Guy Pole	UT_		HY_	GND_	GUYPOLE	B	HPG	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Hydro Guy Span	UT_		HY_	GND_	GUYSPAN			34	AERIAL_GUYWIRE	210	AERIAL_GUYWIRE	210	AERIAL_GUYWIRE	34	AERIAL_GUYWIRE	36	AERIAL_GUYWIRE				
Hydro Guy Wire	UT_		HY_	GND_	GUYWIRE	L	HGW	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Hydro Handhole	UT_		HY_	GND_	MH	B	HH	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Hydro Inspection post	UT_		HY_	GND_	INSPECTPOST	B	HYINSPP			210	CONTINUOUS	210	CONTINUOUS								
Hydro Junction Box	UT_		HY_	GND_	JUNCTIONBOX	B	HJB	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Hydro Kiosk	UT_		HY_	GND_	VAULT	B	HK	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Hydro Manhole	UT_		HY_	GND_	MH	B	MHH	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Hydro Manhole Profile	UT_		HY_	GND_	MH_PF					210	CONTINUOUS	210	CONTINUOUS								
Hydro Pole	UT_		HY_	GND_	POLE	B	HPW	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Hydro Pole with B/C/COM/DIP/L/NRBN/T/TEL	UT_		HY_	GND_	POLE	B	HP	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name		Code	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Hydro Service Line	UT_		HY_	SER_	CABLE	L	HSER	34	UND_HYDRO	210	UND_HYDRO_PR	210	UND_HYDRO_PR	34	UND_HYDRO	36	UND_HYDRO				
Hydro Tower	UT_		HY_	GND_	TOWER	B	HTOW	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Hydro Transformer	UT_		HY_	GND_	TRANSFORMER	B	HV	34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Hydro Transformer Above Ground	UT_		HY_	GND_	TRANSFORMER	B	HV	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
Hydro Transformer Underground	UT_		HY_	UND_	TRANSFORMER	B	HV	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
Hydro Underground Cable	UT_		HY_	UND_	CABLE	L	HYC	34	UND_HYDRO	210	UND_HYDRO_PR	210	UND_HYDRO_PR	34	UND_HYDRO	36	UND_HYDRO				
Hydro Underground Cable Profile	UT_		HY_	UND_	CABLE_PF					210	UND_HYDRO_PR	210	UND_HYDRO_PR								
Hydro Underground Conduit	UT_		HY_	UND_	CONDUIT	L	HUC			210	UND_HYDRO_PR	210	UND_HYDRO_PR								
Hydro Underground Conduit Profile	UT_		HY_	UND_	CONDUIT_PF					210	UND_HYDRO_PR	210	UND_HYDRO_PR								
Hydro Underground Ducts / Conduit Bank	UT_		HY_	UND_	CONDUIT_BANK					210	UND_HYDRO_PR	210	UND_HYDRO_PR								
Hydro Underground Ducts / Conduit Bank Profile	UT_		HY_	UND_	CONDUIT_BANK_PF					210	UND_HYDRO_PR	210	UND_HYDRO_PR								
Hydro Underground Marker	UT_		HY_	GND_	MARKER	B	HUM	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
Hydro Underground Power Marker	UT_		HY_	GND_	MARKER	B	HUPM	34	continuous					34	continuous	36	continuous				
Hydro Underground Structure	UT_		HY_	UND_	VAULT	L	VAULT			210	CONTINUOUS	210	CONTINUOUS								
Hydro Underground Vault	UT_		HY_	GND_	VAULT	L	HV	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
Invert of Catchbasin Lead Elevation Label	IN_		DS_	DDS_	CB_L	B	INV			130	CONTINUOUS	130	CONTINUOUS								
Invert of Culvert Elevation Label	IN_		DS_	DDS_	CULVERT_L	B	INV			130	CONTINUOUS	130	CONTINUOUS								
Invert of Storm Outfall Pipe	IN_		DS_	DDS_	PIPE_L	B	INV	134	UND_STM	130	UND_STM_PR	130	UND_STM_PR	134	UND_STM	136	UND_STM				
Invert of Storm Pipe within Manhole Elevation Label	IN_		DS_	DDS_	PIPE_L	B	INV														
Iron Bar (IB)	LB_		SV_	MON_	BAR	B	IB	112	continuous	1	CONTINUOUS	1	CONTINUOUS	112	continuous	224	continuous				
Iron Pipe (IP)	LB_		SV_	MON_	BAR	B	IP	112	Continuous	1	CONTINUOUS	1	CONTINUOUS	112	continuous	224	continuous				
Iron Tube (IT) (Pinched)	LB_		SV_	MON_	BAR	B	IP	112	continuous	1	CONTINUOUS	1	CONTINUOUS	112	continuous	224	continuous				
Jersey Barrier	IN_		RS_	STR_	JERSBARRIER	L	GRJB	234	continuous	4	CONTINUOUS	4	CONTINUOUS	234	continuous	224	continuous				
Lagoon Edge of	LB_		NF_	WAT_	LAGOON	L	LAGOON			153	CONTINUOUS	153	CONTINUOUS								
Lake	LB_		NF_	WAT_	LAKE	L	LAKE	130	continuous	153	CONTINUOUS	153	CONTINUOUS	130	continuous	144	continuous				
Lamp Pole	UT_		HY_	GND_	LAMPPOLE	B	LS	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
Landscape Detail / Legand	LU_		LF_	MSC_	DETAIL_DT					210	CONTINUOUS	210	CONTINUOUS								
Lawn Edge	LU_		LF_	MSC_	LAWN	L	LAWN	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Laytrans	LB_		TM_	CNT_	CONTOURS			106	continuous	206	CONTINUOUS	206	CONTINUOUS	106	continuous	224	continuous				
Leachate Pipe	IN_		WW_	SER_	LEACHATEPIPE	L	LEACH			100	UND_SAN_PR	100	UND_SAN_PR								
Leachate Pipe INVERT END	IN_		WW_	SER_	LEACHATEPIPE_L	B	LEACH														
Lead	IN_		DS_	SER_	LEAD			134	UND_STM_LAT	130	UND_STM_LAT	130	UND_STM_LAT	134	UND_STM_LAT	136	UND_STM_LAT				
Light Pole	UT_		HY_	GND_	LIGHTPOLE	B		34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
Light Standard	UT_		HY_	GND_	LIGHTSTANDARD	B	LS	34	continuous	210	CONTINUOUS	210	CONTINUOUS	34	continuous	36	continuous				
Light Standard Text	UT_		HY_	GND_	LIGHTSTANDARD_T	L				210	CONTINUOUS	210	CONTINUOUS								
Lighting Aerial Wire	UT_		HY_	AER_	WIRE_LIGHT	L	LIA			210	AERIAL_HYDRO	210	AERIAL_HYDRO								
Lighting Anchor	UT_		HY_	GND_	ANCHOR_LIGHT	B	LANC			210	CONTINUOUS	210	CONTINUOUS								
Lighting Disconnect	UT_		HY_	GND_	DISCONNECT	B	LDISCON			210	CONTINUOUS	210	CONTINUOUS								
Lighting Distribution Panel	UT_		HY_	GND_	CONTROLLER	B	LPANEL				CONTINUOUS		CONTINUOUS								
Lighting Ground Rod	UT_		HY_	GND_	GROUNDROD_LIGHT	B	LGR				CONTINUOUS		CONTINUOUS								
Lighting Guy Wire	UT_		HY_	GND_	GUYWIRE_LIGHT	L	LGW				CONTINUOUS		CONTINUOUS								
Lighting Junction Box	UT_		HY_	GND_	JUNCTIONBOX_LIGHT	B	LJB				CONTINUOUS		CONTINUOUS								
Lighting Underground Cable	UT_		HY_	UND_	CABLE_LIGHT	L	LIU	34	UND_LIGHT		UND_LIGHT		UND_LIGHT	34	UND_LIGHT	36	UND_LIGHT				
Lighting Underground Cable Profile	UT_		HY_	UND_	CABLE_LIGHT_PF						UND_LIGHT		UND_LIGHT								
Lighting Underground Conduit	UT_		HY_	UND_	CONDUIT_LIGHT	L	LUC				UND_LIGHT		UND_LIGHT								
Lighting Underground Conduit Profile	UT_		HY_	UND_	CONDUIT_LIGHT_PF						UND_LIGHT		UND_LIGHT								
Lighting Underground Conduit Text	UT_		HY_	UND_	CONDUIT_LIGHT_L	L					CONTINUOUS		CONTINUOUS								

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name		Code	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Limit of Clearing and Grubbing	IN_		RS_	REF_	LIMITCLEARGRUB	L				234	CONTINUOUS	234	CONTINUOUS								
Limit of Clearing and Grubbing Profile	IN_		RS_	REF_	LIMITCLEARGRUB_PF					230	CONTINUOUS	230	CONTINUOUS								
Limit of Construction	IN_		RS_	REF_	LIMITCONST	L		220	CONTINUOUS	223	CONTINUOUS	223	CONTINUOUS	220	CONTINUOUS	224	CONTINUOUS				
Mail Box	LU_		LF_	MSC_	MAILBOX	B	MB	234	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	234	CONTINUOUS	224	CONTINUOUS				
Manhole Combined	IN_		WW_	COM_	MHCOMB	B	MHCOMB	106	CONTINUOUS	100	CONTINUOUS	100	CONTINUOUS	106	CONTINUOUS	224	CONTINUOUS				
Manhole Combined Profile	IN_		WW_	COM_	MHCOMB_PF					100	CONTINUOUS	100	CONTINUOUS								
Manhole Sanitary	IN_		WW_	SEW_	MH	B	MHSA	106	CONTINUOUS	100	CONTINUOUS	100	CONTINUOUS	106	CONTINUOUS	224	CONTINUOUS				
Manhole Unidentified	IN_		WW_	MSC_	MH	B	MH			130	CONTINUOUS	130	CONTINUOUS								
Manhole Unidentified Profile	IN_		WW_	MSC_	MH_PF																
Material Asphalt Hatch	IN_		RS_	GND_	ASPH_H	H				186	CONTINUOUS	186	CONTINUOUS								
Material Asphalt Label	IN_		RS_	GND_	ASPH_L	B	ASPH	180	continuous	210	CONTINUOUS	210	CONTINUOUS	180	continuous	184	continuous				
Material Brick Label	IN_		RS_	GND_	BRICK_L	B	BRICK														
Material Ceramic Tile Hatch	IN_		RS_	GND_	CERAMICTILE_H	H				224	CONTINUOUS	224	CONTINUOUS								
Material Ceramic Tile Label	IN_		RS_	GND_	CERAMICTILE_L	B	TILE	192	continuous	224	CONTINUOUS	224	CONTINUOUS	192	continuous	190	continuous				
Material Clay Label	IN_		RS_	GND_	CLAY_L	B	CLAY	192	continuous	224	CONTINUOUS	224	CONTINUOUS	192	continuous	190	continuous				
Material Concrete Hatch	IN_		RS_	GND_	CONC_H	H				224	CONTINUOUS	224	CONTINUOUS								
Material Concrete Impressed Label	IN_		RS_	GND_	CONCI_L	B	CONCI														
Material Concrete Label	IN_		RS_	GND_	CONC_L	B	CONC			224	CONTINUOUS	224	CONTINUOUS								
Material Garden Label	IN_		RS_	GND_	GARDEN_L	B	GARDEN														
Material Granular Hatch	IN_		RS_	GND_	GRAN_H	H				224	CONTINUOUS	224	CONTINUOUS								
Material Granular Label	IN_		RS_	GND_	GRAN_L	L				224	CONTINUOUS	224	CONTINUOUS								
Material Grass Hatch	IN_		RS_	GND_	GRASS_H	H				224	CONTINUOUS	224	CONTINUOUS								
Material Grass Label	IN_		RS_	GND_	GRASS_L	B	GRASS														
Material Gravel / Granular Label	IN_		RS_	GND_	GRAV_L	B	GRAVEL														
Material Insulation Label	IN_		WS_	DST_	INSULATION	B	INSUL			151	CONTINUOUS	151	CONTINUOUS								
Material Interlocking Brick Hatch	IN_		RS_	GND_	BRICK_H	H				224	CONTINUOUS	224	CONTINUOUS								
Material Interlocking Brick Label	IN_		RS_	GND_	PAVER_L	B	PAVER			224	CONTINUOUS	224	CONTINUOUS								
Material Metal Hatch	IN_		RS_	GND_	METAL_H	H				224	CONTINUOUS	224	CONTINUOUS								
Material Metal Label	IN_		RS_	GND_	METAL_L	B	METAL	192	continuous	224	CONTINUOUS	224	CONTINUOUS	192	continuous	190	continuous				
Material Rip Rap Hatch	IN_		RS_	GND_	RIPRAP_H	H															
Material Rip Rap Label	IN_		RS_	GND_	RIPRAP_L	B	RIPRAP	134	continuous					134	continuous	136	continuous				
Material Stone	IN_		RS_	GND_	STONE_L	B	STONE			224	CONTINUOUS	224	CONTINUOUS								
Material Surface Treatment	IN_		RS_	GND_	SURFTREAT_L	B	SURFT														
Material Wood Chips Label	IN_		RS_	GND_	WDCHIPS_L	B	WCHIPS														
Material Wood Label	IN_		RS_	GND_	WOOD_L	B	WOOD			224	CONTINUOUS	224	CONTINUOUS								
Material Concrete	IN_		RS_	GND_	CONC			180	CONTINUOUS					180	CONTINUOUS	184	CONTINUOUS				
Material Granular	IN_		RS_	GND_	GRAN			34	CONTINUOUS					34	CONTINUOUS	36	CONTINUOUS				
Material Grass	IN_		RS_	GND_	GRASS			86	CONTINUOUS					86	CONTINUOUS	86	CONTINUOUS				
Material Surface	IN_		RS_	GND_	SURFACE			10	CONTINUOUS					10	CONTINUOUS	224	CONTINUOUS				
Median - Driveable	IN_		RS_	RDY_	MEDIAN	L	EM			30	CONTINUOUS	30	CONTINUOUS								
Median - Driveable Profile	IN_		RS_	RDY_	MEDIAN_PF					30	PRF_DITCH	30	PRF_DITCH								
Monument Concrete	LB_		SV_	MON_	MONUMENT	B	CM	112	CONTINUOUS	140	CONTINUOUS	140	CONTINUOUS	112	CONTINUOUS	224	CONTINUOUS				
Municipal Drain / Watercourse Centerline	IN_		DS_	DDS_	DRAIN	L	DRAIN			130	PRF_DITCH	130	PRF_DITCH								
Nail	LB_		SV_	CNT_	NAIL	B	NL	112	CONTINUOUS	1	CONTINUOUS	1	CONTINUOUS	112	CONTINUOUS	224	CONTINUOUS				
Nail and Washer	LB_		SV_	CNT_	NAIL	B	NL	112	CONTINUOUS	1	CONTINUOUS	1	CONTINUOUS	112	CONTINUOUS	224	CONTINUOUS				
Node	LB_		SV_	CNT_	NODE			1	CONTINUOUS					1	CONTINUOUS	1	CONTINUOUS				
Node Description	LB_		SV_	CNT_	NODEDESC			1	CONTINUOUS					1	CONTINUOUS	1	CONTINUOUS				

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey Code	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name			Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Node Elevation	LB_		SV_	CNT_	NODEELEV			1	CONTINUOUS					1	CONTINUOUS	1	CONTINUOUS				
Node Point Number	LB_		SV_	CNT_	NODEPTNUM			1	CONTINUOUS					1	CONTINUOUS	1	CONTINUOUS				
Observation Well	LB_		GL_	MSC_	OBSERVWELL	B	OBSW	234	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	234	CONTINUOUS	224	CONTINUOUS				
Observation Well Profile	LB_		GL_	MSC_	OBSERVWELL_PF					210	CONTINUOUS	210	CONTINUOUS								
Obvert of Storm Culvert Elevation Label	IN_		DS_	DDS_	PIPE_L	B	OBV			130	CONTINUOUS	130	CONTINUOUS								
Oil Grit Separator	IN_		DS_	SEW_	OILSEPARATOR	B				130	CONTINUOUS	130	CONTINUOUS								
Oil Pipe (Underground)	UT_		OL_	UND_	PIPE	L	OPL	34	UND_OIL	210	UND_OIL	210	UND_OIL	34	UND_OIL	36	UND_OIL				
Oil Tank	UT_		OL_	GND_	OILTANK			34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Oil Well Structure	UT_		OL_	GND_	WELLSTRUCTURE			34	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	34	CONTINUOUS	36	CONTINUOUS				
Orchard Edge	LU_		LF_	MSC_	ORCHARD	L	ORCH	234	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	234	CONTINUOUS	224	CONTINUOUS				
Original Ground Line	LB_		TM_	GND_	ELEV	L	OG	33	DASHED	74	CONTINUOUS	74	CONTINUOUS	33	DASHED	36	DASHED				
Original Ground Profile	LB_		TM_	GND_	ELEV_PF					70	CONTINUOUS	70	CONTINUOUS								
Original Ground Shot Symbol	LB_		TM_	GND_	ELEV	B	GSHOT	33	DASHED					33	DASHED	36	DASHED				
P.K. Nail	LB_		SV_	CNT_	NAIL	B	PK	112	CONTINUOUS	1	CONTINUOUS	1	CONTINUOUS	112	CONTINUOUS	224	CONTINUOUS				
Parking Lot	IN_		RS_	PRK_	PARKINGLOT	L	PKLOT	192	CONTINUOUS	224	CONTINUOUS	224	CONTINUOUS	192	CONTINUOUS	224	CONTINUOUS				
Parking Meter	IN_		TS_	MSC_	PARKINGMETER	B	PM	142	continuous	90	CONTINUOUS	90	CONTINUOUS	142	continuous	144	continuous				
Parking Stopblock	IN_		RS_	PMK_	STOPBLOCK			180	continuous					180	continuous	184	continuous				
Pavement Markings	IN_		TS_	PMK_	PMARKS	L	PAMKR			30	CONTINUOUS	30	CONTINUOUS								
Pavement Marks - 3-3	IN_		TS_	PMK_	LINE3-3	L	PMKR3-3	206	ROAD 3-3 PMARKS	30	ROAD 3-3 PMARKS	30	ROAD 3-3 PMARKS	206	ROAD 3-3 PMARKS	224	ROAD 3-3 PMARKS				
Pavement Marks - Double Yellow Lines 100mm	IN_		TS_	PMK_	LINE100DBLEYELLOW					30	CONTINUOUS	30	CONTINUOUS								
Pavement Marks - Stop Bar	IN_		TS_	PMK_	LINE600	L	PMKRST	206	continuous	30	CONTINUOUS	30	CONTINUOUS	206	continuous	224	continuous				
Pavement Marks - Symbols	IN_		TS_	PMK_	SYMBOLS	B	PMKRPED	202	continuous	30	CONTINUOUS	30	CONTINUOUS	202	continuous	224	continuous				
Pavement Marks – Yellow/White Line 100mm	IN_		TS_	PMK_	LINE100	L	PMKR	240	continuous	30	CONTINUOUS	30	CONTINUOUS	240	continuous	240	continuous				
Pavement Marks 1-1	IN_		TS_	PMK_	LINE1_1			206	ROAD 1-1 PMARKS	30	ROAD 1-1 PMARKS	30	ROAD 1-1 PMARKS	206	ROAD 1-1 PMARKS	224	ROAD 1-1 PMARKS				
Pavement Marks 3-6	IN_		TS_	PMK_	LINE3-6			206	ROAD 3-6 PMARKS	30	ROAD 3-6 PMARKS	30	ROAD 3-6 PMARKS	206	ROAD 3-6 PMARKS	224	ROAD 3-6 PMARKS				
Pavement Marks- 450-150	IN_		TS_	PMK_	LINE450_150			206	ROAD 450-150 PMARKS	30	ROAD 450-150 PMARKS	30	ROAD 450-150 PMARKS	206	ROAD 450-150 PMARKS	224	ROAD 450-150 PMARKS				
Pavement Marks- Rural Cross	IN_		TS_	PMK_	RURALCROSS			206	continuous					206	continuous	224	continuous				
Pay & Display Machine	IN_		TS_	MSC_	PARKINGMACHINE	B	PDM			90	CONTINUOUS	90	CONTINUOUS								
Pedestrian Barricade / Splash Guard	LU_		LF_	FNC_	BARRICADE			234	continuous	90	CONTINUOUS	90	CONTINUOUS	234	continuous	224	continuous				
Pedestrian Push button	IN_		TS_	AER_	PUSHBUTTONS	B	TPB	142	continuous	90	CONTINUOUS	90	CONTINUOUS	142	continuous	144	continuous				
Pedestrian Signal Head	IN_		TS_	AER_	PEDHEAD	B		142	continuous	90	CONTINUOUS	90	CONTINUOUS	142	continuous	144	continuous				
Piers	LU_		BS_	BLD_	PIERS			234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Piezometer	LU_		LF_	MSC_	PIEZOMETER	B		234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Pillars Building Stone/Concrete	LU_		LF_	MSC_	PILLAR	B	PILLAR	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Pipe	IN_		WS_	SER_	PIPE			152	UND_WM					152	UND_WM	144	UND_WM				
Pipe	IN_		WW_	SER_	PIPE			106	UND_SAN					106	UND_SAN	224	UND_SAN				
Plant Chart Notes	LB_		NF_	VEG_	PLANT_N					90	CONTINUOUS	90	CONTINUOUS								
Planter	LU_		LF_	MSC_	PLANTER	B	POT	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Plaque	LU_		LF_	MSC_	PLAQUE	B	PLAQ	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Play Equipment	LU_		PK_	MSC_	PLAYEQUIP			234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Point of Intersection	LB_		SV_	CNT_	PI	B	PI	112	continuous	1	CONTINUOUS	1	CONTINUOUS	112	continuous	224	continuous				
Points Node	LB_		TM_	PNT_	POINTS			33	continuous					33	continuous	36	continuous				
Pole Unidentified	LU_		LF_	MSC_	POLEUNIDENTIFIED	B	UP			210	CONTINUOUS	210	CONTINUOUS								
Poles	LU_		LF_	MSC_	POLE			234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
PoleWells	LU_		LF_	MSC_	POLEWELL			234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Pond Edge of	LB_		NF_	WAT_	POND	L	POND			153	CONTINUOUS	153	CONTINUOUS								
Pool	LU_		PK_	MSC_	POOL			234	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	234	CONTINUOUS	224	CONTINUOUS				

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name		Code	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Porch	LU_		BS_	BLD_	PORCH	L	PORCH	222	CONTINUOUS	224	CONTINUOUS	224	CONTINUOUS	222	CONTINUOUS	224	CONTINUOUS				
Post	LU_		LF_	MSC_	POST	B	POST	234	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	234	CONTINUOUS	224	CONTINUOUS				
Post Unidentified	LU_		LF_	MSC_	POSTUNIDENTIFIED	B	POST	234	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	234	CONTINUOUS	224	CONTINUOUS				
Propane Tank	UT_		OL_	GND_	PROPANETANK			234	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	234	CONTINUOUS	224	CONTINUOUS				
Property	LB_		SV_	BND_	PROPERTY			120	CONTINUOUS	221	CONTINUOUS	221	CONTINUOUS	120	CONTINUOUS	224	CONTINUOUS				
Property Easement Line	LB_		SV_	BND_	EASEMENT			121	EASEMENT	221	EASEMENT	221	EASEMENT	121	EASEMENT	224	EASEMENT				
Property Profile	LB_		SV_	BND_	PROPERTY_PF			134	continuous					134	continuous	136	continuous				
Property Text	LB_		SV_	BND_	PROPERTY_T			134	continuous					134	continuous	136	continuous				
Pumping Station Sanitary	IN_		WW_	STR_	PUMPSTATION			106	continuous	100	CONTINUOUS	100	CONTINUOUS	106	continuous	224	continuous				
Rail	TR_		RL_	TRK_	RAIL	L	RAIL	11	RAILROAD1	24	CONTINUOUS	24	CONTINUOUS	11	RAILROAD1	224	RAILROAD1				
Rail TOP Profile	TR_		RL_	TRK_	RAIL_PF																
Railway Crossing Flashing Light & Bell	TR_		RL_	SGN_	FLASHLIGHT	B	RRFLB			24	CONTINUOUS	24	CONTINUOUS								
Railway Crossing Flashing Light Profile	TR_		RL_	SGN_	FLASHLIGHT_PF					20	CONTINUOUS	20	CONTINUOUS								
Railway Crossing Gate and Flashing Light & Bell	TR_		RL_	SGN_	FLASHGATE	B	RRGFLB	11	CONTINUOUS	24	CONTINUOUS	24	CONTINUOUS	11	CONTINUOUS	224	CONTINUOUS				
Railway Crossing Sign	TR_		RL_	SGN_	CROSSING	B	RRS	11	CONTINUOUS	24	CONTINUOUS	24	CONTINUOUS	11	CONTINUOUS	224	CONTINUOUS				
Railway Line (Center Tracks)	TR_		RL_	TRK_	CLTRACKS	L	RWY	11	RAILROAD1	24	RAILROAD1	24	RAILROAD1	11	RAILROAD1	224	RAILROAD1				
Railway Line (Center Tracks) Profile	TR_		RL_	TRK_	CLTRACKS_PF					20	CONTINUOUS	20	CONTINUOUS								
Railway Signal Control Box	TR_		RL_	GND_	SIGNALCONTROLBOX	B	RRSCB	11	CONTINUOUS	24	CONTINUOUS	24	CONTINUOUS	11	CONTINUOUS	224	CONTINUOUS				
Railway Switch Box	TR_		RL_	GND_	SWITCHBOX	B	RRSBOX	11	CONTINUOUS	24	CONTINUOUS	24	CONTINUOUS	11	CONTINUOUS	224	CONTINUOUS				
Railway Track	TR_		RL_	TRK_	TRACK	L	TRACK	11	RAILROAD1	24	RAILROAD1	24	RAILROAD1	11	RAILROAD1	224	RAILROAD1				
Railway Wig Wag & Bell Sign	TR_		RL_	SGN_	WIGWAG	B	RRWWB			24	CONTINUOUS	24	CONTINUOUS								
Ramp Label	IN_		RS_	MSC_	RAMP_L			192	continuous					192	continuous	190	continuous				
Rear Yard Catch Basin	IN_		DS_	SER_	RYCB	B	CB	134	CONTINUOUS	130	CONTINUOUS	130	CONTINUOUS	134	CONTINUOUS	136	CONTINUOUS				
Rear Yard Catch Basin Lead	IN_		DS_	SER_	PIPE	L	STLAT			130	CONTINUOUS	130	CONTINUOUS								
Reducer	IN_		WS_	DST_	REDUCER			152	CONTINUOUS	151	CONTINUOUS	151	CONTINUOUS	152	CONTINUOUS	144	CONTINUOUS				
Referance Plan Part	LB_		SV_	BND_	REFPLANPART			3	continuous					3	continuous	3	continuous				
Reference Plan	LB_		SV_	BND_	REFPLAN																
Registered Plan	LB_		SV_	BND_	SUBDIVISION																
Reservoir Edge	LU_		LF_	MSC_	RESERVOIR	L	RESER	234	continuous					234	continuous	224	continuous				
Retaining Wall	LU_		LF_	WAL_	RETAINWALL	L	WALL	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Retaining Wall - Concrete	LU_		LF_	WAL_	RETAINWALLCONC	L	RETC			210	CONTINUOUS	210	CONTINUOUS								
Retaining Wall - Concrete Profile	LU_		LF_	WAL_	RETAINWALLCONC_PF					210	CONTINUOUS	210	CONTINUOUS								
Retaining Wall - Brick	LU_		LF_	WAL_	RETAINWALL_BRK	L	RETB			210	CONTINUOUS	210	CONTINUOUS								
Retaining Wall Timber	LU_		LF_	WAL_	RETAINWALL_W	L	RETW			210	CONTINUOUS	210	CONTINUOUS								
Rip Rap	IN_		DS_	DDS_	RIPRAP			134	continuous	130	CONTINUOUS	130	CONTINUOUS	134	continuous	136	continuous				
Rip Rap Hatch	IN_		DS_	DDS_	RIPRAP_H	H				186	CONTINUOUS	186	CONTINUOUS								
Rip Rap Profile	IN_		DS_	DDS_	RIPRAP_PF					130	CONTINUOUS	130	CONTINUOUS								
River Edge of	LB_		NF_	WAT_	RIVER	L	RIVER			153	CONTINUOUS	153	CONTINUOUS								
Road Alignment Left	IN_		RS_	GEO_	L1					224	Road_CL	224	Road_CL								
Road Alignment Right	IN_		RS_	GEO_	R2					225	Road_CL	225	Road_CL								
Road Assembly	IN_		RS_	RDY_	ASSM					224	CONTINUOUS	224	CONTINUOUS								
Road Assembly BLIN	IN_		RS_	RDY_	ASSM-BLIN					224	CONTINUOUS	224	CONTINUOUS								
Road Assembly OFFS	IN_		RS_	RDY_	ASSM-OFFS					224	CONTINUOUS	224	CONTINUOUS								
Road Assembly TEXT	IN_		RS_	RDY_	ASSM-TEXT					224	CONTINUOUS	224	CONTINUOUS								
Road Centerline	IN_		RS_	RDY_	CENTRELINE			56	ROAD_CL	223	ROAD_CL	223	ROAD_CL	56	ROAD_CL	56	ROAD_CL				
Road Centerline Bearing	IN_		RS_	GEO_	BRNG																
Road Centerline Station Labels	IN_		RS_	GEO_	STA	L				56	CONTINUOUS	56	CONTINUOUS								

LAYER DESCRIPTION TABLE								STATE													
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name		Code	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Road Centerline Text	IN_		RS_	GEO_	CENTERLINE_L					56	CONTINUOUS	56	CONTINUOUS								
Road Corridor	IN_		RS_	GEO_	CORR																
Road Corridor - Region Boundaries	IN_		RS_	GEO_	CORR-BNDY																
Road Corridor - Region Pattern	IN_		RS_	GEO_	CORR-PATT																
Road Corridor - Section	IN_		RS_	GEO_	CORR-SCTN																
Road Crown	IN_		RS_	GEO_	CENTRELINE	L	CROWN	56	ROAD_CL	52	CONTINUOUS	52	CONTINUOUS	56	ROAD_CL	56	ROAD_CL				
Road CURVE	IN_		RS_	GEO_	CURVE																
Road Detail	IN_		RS_	RDY_	DETAIL_DT					224	CONTINUOUS	224	CONTINUOUS								
Road Edge	IN_		RS_	RDY_	EDGEROAD	L	EP	180	CONTINUOUS	4	CONTINUOUS	4	CONTINUOUS	180	CONTINUOUS	184	CONTINUOUS				
Road Edge of Asphalt	IN_		RS_	RDY_	EDGEASPH	L	EAP			4	CONTINUOUS	4	CONTINUOUS								
Road Edge of Asphalt PROFILE	IN_		RS_	RDY_	EDGEASPH_PF					240	CONTINUOUS	240	CONTINUOUS								
Road Edge of Concrete	IN_		RS_	RDY_	EDGECONC					4	CONTINUOUS	4	CONTINUOUS								
Road Existing Ground Centerline Extension	IN_		RS_	GEO_	LINE-EXTN					251	CONTINUOUS	251	CONTINUOUS								
Road Feature	IN_		RS_	GEO_	FEAT																
Road General Point Marker	IN_		RS_	GEO_	MARK																
Road LINE	IN_		RS_	GEO_	LINE																
Road Link	IN_		RS_	GEO_	LINK																
Road MAJOR STATION LABELS	IN_		RS_	GEO_	STA-MAJR																
Road MINOR STATION LABELS	IN_		RS_	GEO_	STA-MINR																
Road Notes	IN_		RS_	RDY_	NOTES					224	CONTINUOUS	224	CONTINUOUS								
Road Notes Profile	IN_		RS_	RDY_	NOTES_PF					224	CONTINUOUS	224	CONTINUOUS								
Road Profile Asymetrical Parabola	IN_		RS_	RDY_	PARB-ASMC_PF																
Road Profile Base	IN_		RS_	RDY_	BASE_PF					7	CONTINUOUS	7	CONTINUOUS								
Road Profile Center Label	IN_		RS_	RDY_	CNTR_L_PF																
Road Profile CURVE	IN_		RS_	RDY_	CURVE_PF																
Road Profile DIAG	IN_		RS_	RDY_	DIAG_PF																
Road Profile Existing Ground Right	IN_		RS_	RDY_	EGR_PF																
Road Profile Existing Ground Centerline	IN_		RS_	RDY_	EGC_PF																
Road Profile Existing Ground Centerline 3D Chain Points	IN_		RS_	RDY_	PNTS_PF																
Road Profile Existing Ground Centerline Extension	IN_		RS_	RDY_	LINE-EXTN_PF																
Road Profile Existing Ground Left	IN_		RS_	RDY_	EGL_PF																
Road Profile Existing Ground Left Text	IN_		RS_	RDY_	EGL_L_PF																
Road Profile Existing Ground Right Text	IN_		RS_	RDY_	EGR_L_PF																
Road Profile Finished Ground Centerline	IN_		RS_	RDY_	FGC_PF					134	CONTINUOUS	134	CONTINUOUS								
Road Profile Finished Ground Centerline 3D Chain Points	IN_		RS_	RDY_	PNTS_PF					251	CONTINUOUS	251	CONTINUOUS								
Road Profile Finished Ground Centerline Extension	IN_		RS_	RDY_	LINE-EXTN_PF					251	CONTINUOUS	251	CONTINUOUS								
Road Profile Finished Ground Centerline Text	IN_		RS_	RDY_	FGC_L_PF					134	CONTINUOUS	134	CONTINUOUS								
Road Profile Finished Ground Ditch Left	IN_		RS_	RDY_	DGL_PF					134	DASH1	134	DASH1								
Road Profile Finished Ground Ditch Right	IN_		RS_	RDY_	DGR_PF					224	DASH1	224	DASH1								
Road Profile Graph Left and Right Axis Title	IN_		RS_	RDY_	TTLB_PF																
Road Profile Graph Title and Left and Right Axis Title	IN_		RS_	RDY_	TITL_PF																
Road Profile Grid AT SAMPLE LINE	IN_		RS_	RDY_	GRID_PF																
Road Profile Grid GEOMETRY	IN_		RS_	RDY_	GRID-GEOM_PF																
Road Profile Grid MAJOR	IN_		RS_	RDY_	GRIDMAJR_PF																
Road Profile Grid MINOR	IN_		RS_	RDY_	GRIDMINR_PF																
Road Profile Grid Text	IN_		RS_	RDY_	GRID_L_PF																
Road Profile Left Label	IN_		RS_	RDY_	LT_L_PF																

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey Code	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name			Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Road Profile LINE	IN_		RS_	RDY_	LINE_PF																
Road Profile MAJOR STATION LABELS	IN_		RS_	RDY_	STA-MAJR_PF																
Road Profile MINOR STATION LABELS	IN_		RS_	RDY_	STA-MINR_PF																
Road Profile Parabola	IN_		RS_	RDY_	PARB_PF																
Road Profile Right Label	IN_		RS_	RDY_	RT_L_PF																
Road Profile STATION GEOMETRY LABELS	IN_		RS_	RDY_	STA-GEOM_PF																
Road Profile Station Label	IN_		RS_	RDY_	STA_L_PF																
Road Profile Stations	IN_		RS_	RDY_	STATIONS			56	continuous					56	continuous	56	continuous				
Road Profile Text	IN_		RS_	RDY_	EGC_L_PF																
Road Profile Text - arrow	IN_		RS_	RDY_	TEXT_PF																
Road Profile TICK	IN_		RS_	RDY_	TICK_PF																
Road Sample Line	IN_		RS_	GEO_	SAMP																
Road Sample Line TEXT	IN_		RS_	GEO_	SAMP-TEXT																
Road SHAPE	IN_		RS_	RDY_	SHAP																
Road SHAPE HATCH	IN_		RS_	RDY_	SHAP_H																
Road Speed Hump	IN_		RS_	RDY_	HUMP	L	EH			30	CONTINUOUS	30	CONTINUOUS								
Road SPIRAL	IN_		RS_	GEO_	SPIR																
Rock Bar	LB_		SV_	MON_	BAR	B	RB	112	continuous	1	CONTINUOUS	140	CONTINUOUS	112	continuous	224	continuous				
Rock Outcrop	LB_		NF_	ETH_	OUTCROP	L	ROCK	86	continuous	210	CONTINUOUS	210	CONTINUOUS	86	continuous	86	continuous				
Rock Outcrop Hatch	LB_		NF_	ETH_	OUTCROP_H	H		86	continuous	210	CONTINUOUS	210	CONTINUOUS	86	continuous	86	continuous				
Rock Outcrop Line	LB_		NF_	ETH_	OUTCROP	L	ROCK	86	continuous	210	CONTINUOUS	210	CONTINUOUS	86	continuous	86	continuous				
Rock Outcrop Line - Profile	LB_		NF_	ETH_	OUTCROP_PF					210	CONTINUOUS	210	CONTINUOUS								
Rock Plug	LB_		SV_	MON_	BAR	B	RPL	112	continuous	1	CONTINUOUS	1	CONTINUOUS	112	continuous	224	continuous				
Rock Post	LB_		SV_	MON_	BAR	B	RP	112	continuous	1	CONTINUOUS	1	CONTINUOUS	112	continuous	224	continuous				
Round Iron Bar	LB_		SV_	MON_	BAR			112	continuous	1	CONTINUOUS	1	CONTINUOUS	112	continuous	224	continuous				
Sanitary Manhole Profile	IN_		WW_	SEW_	MH_PF			106	continuous	100	CONTINUOUS	100	CONTINUOUS	106	continuous	224	continuous				
Sanitary Sewer Cap	IN_		WW_	SEW_	CAP			106	continuous	100	CONTINUOUS	100	CONTINUOUS	106	continuous	224	continuous				
Sanitary Sewer Lateral	IN_		WW_	SER_	LATERAL	L	SALAT	106	UND_SAN_LAT	100	UND_SAN_LAT	100	UND_SAN_LAT	106	UND_SAN_LAT	224	UND_SAN_LAT				
Sanitary Sewer Lateral Profile	IN_		WW_	SER_	LATERAL_PF					100	CONTINUOUS	100	CONTINUOUS								
Sanitary Sewer Lateral Text	IN_		WW_	SER_	LATERAL_L					100	CONTINUOUS	100	CONTINUOUS								
Sanitary Sewer Pipe Centerline	IN_		WW_	SEW_	CNTR	L	SACL														
Sanitary Sewer Pipe TEXT	IN_		WW_	SEW_	PIPE_L	L															
Sanitary Sewer Pipe Walls	IN_		WW_	SEW_	WALL	L															
Sanitary Sewer Pipe Walls Hatch	IN_		WW_	SEW_	PIPE_H	H															
Sanitary Sewer Plan	IN_		WW_	SEW_	PIPE			106	UND_SAN	100	UND_SAN_PR	100	UND_SAN_PR	106	UND_SAN	224	UND_SAN				
Sanitary Sewer Plan Text	IN_		WW_	SEW_	PIPE_L	L				100	CONTINUOUS	100	CONTINUOUS								
Sanitary Sewer Plug	IN_		WW_	SEW_	PLUG	B		106	CONTINUOUS	100	CONTINUOUS	100	CONTINUOUS	106	CONTINUOUS	224	CONTINUOUS				
Sanitary Sewer Profile	IN_		WW_	SEW_	PIPE_PF			106	UND_SAN_PRF	100	CONTINUOUS	100	CONTINUOUS	106	UND_SAN_PRF	224	UND_SAN_PRF				
Sanitary Sewer Valve Chamber	IN_		WW_	SEW_	VALVECHAMBER			100	CONTINUOUS	100	CONTINUOUS	100	CONTINUOUS	100	CONTINUOUS	86	CONTINUOUS				
Sanitary Structure Plan View	IN_		WW_	SEW_	STRC																
Sanitary Structure Plan View HATCH	IN_		WW_	SEW_	STRC_H																
Sanitary Treatment Plant	IN_		WW_	TPL_	TREATPLANT			106	CONTINUOUS	100	CONTINUOUS	100	CONTINUOUS	106	CONTINUOUS	224	CONTINUOUS				
Sawcut	IN_		RS_	RDY_	SAWCUT	L	SAW			4	DASH1	4	DASH1								
Scale House	IN_		WM_	STR_	SCALEHOUSE	B	SCALE	192	continuous	194	CONTINUOUS	194	CONTINUOUS	192	continuous	190	continuous				
Septic Field	IN_		WW_	BND_	SEPTICFIELD	L	SEPTIC			100	DASH1	100	DASH1								
Septic Tank	IN_		WW_	SEW_	MH	B		106	continuous	100	CONTINUOUS	100	CONTINUOUS	106	continuous	224	continuous				
Shoulder	IN_		RS_	RDY_	SHOULDER	L	SHLD	202	GR_SHLDR	4	DASH1	4	DASH1	202	GR_SHLDR	224	GR_SHLDR				

LAYER DESCRIPTION TABLE								STATE													
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey Code	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name			Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Shoulder Asphalt	IN_		RS_	RDY_	SHDASPH	L	SHA	202	continuous	10	CONTINUOUS	10	CONTINUOUS	202	continuous	224	continuous				
Shoulder CONCRETE	IN_		RS_	RDY_	SHDCONC	L	SHC			4	CONTINUOUS	4	CONTINUOUS								
Shoulder Granular	IN_		RS_	RDY_	SHDGRAN	L	SHG	202	GR_SHLDR	10	GR_SHLDR	10	GR_SHLDR	202	GR_SHLDR	224	GR_SHLDR				
Shrub - Coniferous	LB_		NF_	VEG_	SHRUB_CONIFER	B	SHRBC	86	continuous	90	CONTINUOUS	90	CONTINUOUS	86	continuous	86	continuous				
Shrub - Deciduous	LB_		NF_	VEG_	SHRUB_DECID	B	SHRBD	86	continuous	90	CONTINUOUS	90	CONTINUOUS	86	continuous	86	continuous				
Shrub Line	LB_		NF_	VEG_	SHRUBLINE			86	continuous					86	continuous	86	continuous				
Shut Off	IN_		WS_	DST_	CURBSTOP			152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Sidewalk	IN_		RS_	SWK_	SIDEWALK	L	SW	202	continuous	10	CONTINUOUS	10	CONTINUOUS	202	continuous	224	continuous				
Sidewalk Brick	IN_		RS_	SWK_	SWBRICK					10	CONTINUOUS	10	CONTINUOUS								
Sidewalk Hatch	IN_		RS_	SWK_	SIDEWALK_H	H				186	CONTINUOUS	186	CONTINUOUS								
Sidewalk Profile Left	IN_		RS_	SWK_	SIDEWALKL_PF			202	SIDEWALK_LEFT	10	SIDEWALK_LEFT	10	SIDEWALK_LEFT	202	SIDEWALK_LEFT	224	SIDEWALK_LEFT				
Sidewalk Profile Right	IN_		RS_	SWK_	SIDEWALKR_PF			202	SIDEWALK_RIGHT	10	SIDEWALK_RIGHT	10	SIDEWALK_RIGHT	202	SIDEWALK_RIGHT	224	SIDEWALK_RIGHT				
Sidewalk Text	IN_		RS_	SWK_	SIDEWALK_L																
Sidewalk/Path Gravel	IN_		RS_	SWK_	SWGRAVEL	L		202	continuous	4	DASH1	4	DASH1	202	continuous	224	continuous				
Sign - Illuminated Sign	IN_		TS_	SGN_	WARNING	B	TITS	112	continuous	60	CONTINUOUS	60	CONTINUOUS	112	continuous	224	continuous				
Sign - Information	IN_		TS_	SGN_	INFORMATION	B	SIGNINFO	112	continuous	60	CONTINUOUS	60	CONTINUOUS	112	continuous	224	continuous				
Sign - Non traffic	LU_		LF_	MSC_	SIGN	B	SIGNADV	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Sign - Regulatory	IN_		TS_	SGN_	REGULATORY	B	SIGNREG	112	continuous	60	CONTINUOUS	60	CONTINUOUS	112	continuous	224	continuous				
Sign - Warning	IN_		TS_	SGN_	WARNING	B	SIGN	112	continuous	60	CONTINUOUS	60	CONTINUOUS	112	continuous	224	continuous				
Sign Advertising (Private)	LU_		LF_	MSC_	SIGN	L	ADV	234	continuous					112	continuous	224	continuous				
Sign Advertising (Private)	LU_		LF_	MSC_	SIGN	B	SIGNADV	234	continuous					112	continuous	224	continuous				
Sign Text	IN_		TS_	SGN_	SIGN_L	L			60	CONTINUOUS	60	CONTINUOUS									
Sign -Unidentified	IN_		TS_	SGN_	SIGNUNIDENTIFIED	B	SIGNNOID	112	continuous	60	CONTINUOUS	60	CONTINUOUS	112	continuous	224	continuous				
Sign with Flashing Beacon	IN_		TS_	SGN_	WARNING	B	SIGN			60	CONTINUOUS	60	CONTINUOUS								
Sill at Building door	LU_		BS_	BLD_	SILL	B	SILL														
Site Grid Volume Cut Label	LB_		TM_	GND_	CUT_TICK_L	L				234	CONTINUOUS	234	CONTINUOUS								
Site Grid Volume Cut Tick	LB_		TM_	GND_	CUT_TICK					234	CONTINUOUS	234	CONTINUOUS								
Site Grid Volume Fill Label	LB_		TM_	GND_	FILL_TICK_L					94	continuous	94	continuous								
Site Grid Volume Fill Tick	LB_		TM_	GND_	FILL_TICK					94	continuous	94	continuous								
Site Volume Labels	LB_		TM_	GND_	VOLUME_L					74	continuous	74	continuous								
Splash Strip See Asphalt - Shoulder	IN_		RS_	RDY_	SHDASPH	L	SHA	202	CONTINUOUS	10	CONTINUOUS	10	CONTINUOUS	202	CONTINUOUS	224	CONTINUOUS				
Spring (Artesian)	LB_		NF_	WAT_	SPRING					153	CONTINUOUS	153	CONTINUOUS								
Sprinkler Head	IN_		WS_	DST_	HEAD	B	SH														
Stairs / Steps	LU_		BS_	BLD_	STAIRS	L	STEP	222	CONTINUOUS	224	CONTINUOUS	224	CONTINUOUS	222	CONTINUOUS	224	CONTINUOUS				
Stake, Control point	LB_		SV_	CNT_	STAKE	B		112	CONTINUOUS	1	CONTINUOUS	1	CONTINUOUS	112	CONTINUOUS	224	CONTINUOUS				
Stamped Driveway Asphalt Label	IN_		RS_	DWY_	ASPHALTSTAMPED			192	continuous					192	continuous	190	continuous				
Stamped Driveway Concrete Label	IN_		RS_	DWY_	CONCRETESTAMPED_L			192	continuous					192	continuous	190	continuous				
Standard Iron Bar (SIB)	LB_		SV_	MON_	BAR	B	SIB	112	continuous	1	CONTINUOUS	1	CONTINUOUS	112	continuous	224	continuous				
Station Elevation	IN		RS	REF	STAELEV			10	CONTINUOUS	223	CONTINUOUS	223	CONTINUOUS	10	CONTINUOUS	224	CONTINUOUS				
Stations	IN_		RS	RDY_	STATIONS			56	CONTINUOUS	4	CONTINUOUS	4	CONTINUOUS	56	CONTINUOUS	56	CONTINUOUS				
Statue	LU_		LF_	MSC_	STATUE	B	STATU	234	CONTINUOUS	210	CONTINUOUS	210	CONTINUOUS	234	CONTINUOUS	224	CONTINUOUS				
Steel Beam Guiderail	IN_		RS_	STR_	GUIDERAILSTEEL	L	GRSB	234	GUIDERAIL	210	GUIDERAIL_PR	210	GUIDERAIL_PR	234	GUIDERAIL	224	GUIDERAIL				
Steel Grate	IN_		RS_	SWK_	STEELGRATE			202	CONTINUOUS	10	CONTINUOUS	10	CONTINUOUS	202	CONTINUOUS	224	CONTINUOUS				
Step in Sidewalk	IN_		RS_	SWK_	STEP			202	CONTINUOUS	10	CONTINUOUS	10	CONTINUOUS	202	CONTINUOUS	224	CONTINUOUS				
Stockpile	LU_		LF_	MSC_	STOCKPILE	L	STOCK	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Storm Manhole	IN_		DS_	SEW_	MH	B	MHST	134	continuous	130	CONTINUOUS	130	CONTINUOUS	134	continuous	136	continuous				
Storm Manhole Elevation Label	IN_		DS_	DDS_	MH_L					130	CONTINUOUS	130	CONTINUOUS								

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name		Code	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Storm Manhole Profile	IN_		DS_	SEW_	MH_PF			134	continuous	130	CONTINUOUS	130	CONTINUOUS	134	continuous	136	continuous				
Storm outdall pipe Label	IN_		DS_	DDS_	PIPE_L					130	CONTINUOUS	130	CONTINUOUS								
Storm Sewer / Rear Yard Catch Basin Lead / Lateral Profile	IN_		DS_	SER_	PIPE_PF			134	UND_STM_PRF	130	UND_STM_PRF	130	UND_STM_PRF	134	UND_STM_PRF	136	UND_STM_PRF				
Storm Sewer Catchbasin Lead	IN_		DS_	SEW_	CBLEAD	L	STCB	134	UND_STM	130	UND_STM_PR	130	UND_STM_PR	134	UND_STM	136	UND_STM				
Storm Sewer Catchbasin Lead Profile	IN_		DS_	SEW_	CBLEAD_PF					130	UND_STM_PRF	130	UND_STM_PRF								
Storm Sewer Detail	IN_		DS_	MSC	DETAIL					130	CONTINUOUS	130	CONTINUOUS								
Storm Sewer Lead / Lateral	IN_		DS_	SER_	PIPE	L	STLAT			130	UND_STM_PR	130	UND_STM_PR								
Storm Sewer Pipe Centerline	IN_		DS_	SEW_	CNTR	L	STCL														
Storm Sewer Pipe Plan	IN_		DS_	SEW_	PIPE			134	UND_STM	130	UND_STM_PR	130	UND_STM_PR	134	UND_STM	136	UND_STM				
Storm Sewer Pipe Text	IN_		DS_	SEW_	PIPE_L	L															
Storm Sewer Pipe WALLS	IN_		DS_	SEW_	WALL	L		134	UND_STM					134	UND_STM	136	UND_STM				
Storm Sewer Pipe Walls Hatch	IN_		DS_	SEW_	PIPE_H	H															
Storm Sewer Profile Text	IN_		DS_	SEW_	PIPE_L_PF					130	CONTINUOUS	130	CONTINUOUS								
Storm Sewer Profile View	IN_		DS_	SEW_	PIPE_PF			134	UND_STM_PRF	130	UND_STM_PRF	130	UND_STM_PRF	134	UND_STM_PRF	136	UND_STM_PRF				
Storm Sewer Structure \ Outfalls	IN_		DS_	SEW_	STRC																
Storm Sewer Structure Plan View HATCH	IN_		DS_	SEW_	STRC_H																
Storm Sewer Structure PROFILE	IN_		DS_	SEW_	STRC_PF																
Storm Sewer Structure PROFILE HATCH	IN_		DS_	SEW_	STRC_H_PF																
Storm Water Control Device	IN_		DS_	DDS_	STMDEVICE	L				130	CONTINUOUS	130	CONTINUOUS								
Storm Water Detention Pond	IN_		DS_	DDS_	POND	L	DET			130	CONTINUOUS	130	CONTINUOUS								
Stream Edge of	LB_		NF_	WAT_	STREAM	L	STRM	130	continuous	153	CONTINUOUS	153	CONTINUOUS	130	continuous	144	continuous				
Street Name Main Road	IN_		RS_	REF_	STREETNAME_L	L				234	CONTINUOUS	234	CONTINUOUS								
Street Name MTO (Ministry of Transportation of Ontario)	IN_		RS_	REF_	STRNMTO_L																
Street Name Municipal or City	IN_		RS_	REF_	STRNCTY_L																
Street Name NPC (Niagara Parks Commission)	IN_		RS_	REF_	STRNNPC_L																
Street Name REG (Regional Niagara)	IN_		RS_	REF_	STRNREG_L																
Street Name Side Road	IN_		RS_	REF_	STREETNAME_L					4	continuous	4	continuous								
Street Names	IN_		RS_	REF_	STREETNAME			20	CONTINUOUS	4	continuous	4	continuous	20	CONTINUOUS	224	CONTINUOUS				
Stump	LB_		NF_	VEG_	STUMP	B	STUMP	86	CONTINUOUS	90	continuous	90	continuous	86	CONTINUOUS	86	CONTINUOUS				
Subdrain CSP	IN_		DS_	SEW_	PIPE_SD_CSP	L	SDCSP			130	dash1	130	dash1								
Subdrain PE	IN_		DS_	SEW_	PIPE_SD_PE	L	SDPE														
Subdrain Profile	IN_		DS_	SEW_	PIPE_SD_PF					130	DASH1	130	DASH1								
Subdrain PVC	IN_		DS_	SEW_	PIPE_SD					130	DASH1	130	DASH1								
SURFACE	LB_		TM_	GND_	SURF					74	continuous	74	continuous								
SURFACE 3D-PROJ	LB_		TM_	TIN_	3D					74	continuous	74	continuous								
Swale Centerline	IN_		DS_	DDS_	SWALE	L	DICL	134	CONTINUOUS	130	continuous	130	continuous	134	CONTINUOUS	136	CONTINUOUS				
Swamp / Marsh Hatch	LB_		NF_	WAT_	SWAMP_H	H		86	CONTINUOUS	153	continuous	153	continuous	86	CONTINUOUS	86	CONTINUOUS				
Swamp / Marsh Edge of	LB_		NF_	WAT_	SWAMP	L	MARS	130	CONTINUOUS	153	dash1	153	dash1	130	CONTINUOUS	144	CONTINUOUS				
Tee	IN_		WS_	DST_	TEE			152	CONTINUOUS	151	CONTINUOUS	151	CONTINUOUS	152	CONTINUOUS	144	CONTINUOUS				
Telephone Booth	UT_		BL_	GND_	TELEBOOTH	B	BOOTH	34	CONTINUOUS	210	continuous	210	continuous	34	CONTINUOUS	36	CONTINUOUS				
Test Hole	LB_		GL_	TST_	TESTHOLE	B	TH	234	CONTINUOUS	10	CONTINUOUS	10	CONTINUOUS	234	CONTINUOUS	224	CONTINUOUS				
Test Hole Profile	LB_		GL_	TST_	TESTHOLE_PF					210	CONTINUOUS	210	CONTINUOUS								
Test pit	LB_		GL_	TST_	TESTPIT	B	TH			10	CONTINUOUS	10	CONTINUOUS								
TINN TERAIN NETWORK	LB_		TM_	GND_	TINN					74	CONTINUOUS	74	CONTINUOUS								
TINN TERAIN NETWORK BOUNDARY	LB_		TM_	GND_	TINN-BNDY					74	CONTINUOUS	74	CONTINUOUS								
TINN TERAIN NETWORK VIEW	LB_		TM_	GND_	TINN-VIEW					74	CONTINUOUS	74	CONTINUOUS								
Top of Leachate Pipe Elevation Label	IN_		WW_	SER_	LEACHATEPIPE_L	B	SANTOP			100	CONTINUOUS	100	CONTINUOUS								

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name		Code	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Top of Septic Tank Elevation Label	IN_		WW_	SEW_	MH_L	B	SEPTICT			100	CONTINUOUS	100	CONTINUOUS								
Top of Slope Profile	LB_		TM_	GND_	SLOPETOP_PF					74	CONTINUOUS	74	CONTINUOUS								
Top of Slope Profile Text	LB_		TM_	GND_	SLOPETOP_L_PF																
Top of Slope Text	LB_		TM_	GND_	SLOPETOP_L																
Top of Storm / Outfall Pipe Label	IN_		DS_	DDS_	CULVERT	B	STMTOP	134	UND_CULVERT	130	UND_CULVERT	130	UND_CULVERT	134	UND_CULVERT	136	UND_CULVERT				
Top Soil and Sod	LB_		NF_	VEG_	SOD	H				90	CONTINUOUS	90	CONTINUOUS								
Top Soil and Sod Hatch	LB_		NF_	VEG_	SOD_H	H				86	CONTINUOUS	86	CONTINUOUS								
Topographical Watershed	LB_		TM_	GND_	WSHD																
Traffic Aerial Wire	IN_		TS_	AER_	WIRE	L	TA			90	AERIAL_BELL	90	AERIAL_BELL								
Traffic Anchor	IN_		TS_	GND_	ANCHOR	B	TANC														
Traffic Control Device - Camera - Fixed Location	IN_		TS_	AER_	MSC	B	TTVCF	142	continuous	90	CONTINUOUS	90	CONTINUOUS	142	continuous	144	continuous				
Traffic Control Device - Camera - Pan and Tilt	IN_		TS_	AER_	MSC	B	TTVCP	142	continuous	90	CONTINUOUS	90	CONTINUOUS	142	continuous	144	continuous				
Traffic Control Device - Illumimated Traffic Sign / Beacon	IN_		TS_	SGN_	WARNING	B	TITSF	142	continuous	60	CONTINUOUS	60	CONTINUOUS	142	continuous	144	continuous				
Traffic Control Device - Illumimated Traffic Sign - Double	IN_		TS_	SGN_	WARNING	B	TITSD	112	continuous	60	CONTINUOUS	60	CONTINUOUS	112	continuous	224	continuous				
Traffic Control Device - Illumimated Traffic Sign - Single	IN_		TS_	SGN_	WARNING	B	TITS	112	continuous	60	CONTINUOUS	60	CONTINUOUS	112	continuous	224	continuous				
Traffic Control Device - Video Camera	IN_		TS_	AER_	MSC	B	TVC	142	continuous	90	CONTINUOUS	90	CONTINUOUS	142	continuous	144	continuous				
Traffic Electrical Receptacle	IN_		TS_	AER_	POWER	B	RECEP			90	CONTINUOUS	90	CONTINUOUS								
Traffic Ground Rod	IN_		TS_	GND_	ROD	B	TGR	142	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Traffic Guy Wire	IN_		TS_	GND_	GUYWIRE	L	TGW														
Traffic Handhole	IN_		TS_	GND_	HANDHOLE			142	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Traffic Luminaire	IN_		TS_	AER_	LUMINAIRE	B	TLUM	142	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Traffic Manhole	IN_		TS_	GND_	MH	B	MHT	142	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Traffic Manhole Profile	IN_		TS_	GND_	MH_PF					90	CONTINUOUS	90	CONTINUOUS								
Traffic Pedestrian Signal Head	IN_		TS_	AER_	PEDHEAD			142	CONTINUOUS	90	continuous	90	continuous	142	CONTINUOUS	144	CONTINUOUS				
Traffic Power Supply Cabinet	IN_		TS_	AER_	DISCONNECT	B	TPSC	142	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Traffic Pre-Emption	IN_		TS_	AER_	PREEMPTION			142	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Traffic Radio Interconnect	IN_		TS_	AER_	MSC			142	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Traffic Signal Arm	IN_		TS_	AER_	ARMS			142	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Traffic Signal Beacon	IN_		TS_	AER_	BEACON			142	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Traffic Signal Camera	IN_		TS_	AER_	CAMERA			142	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Traffic Signal Controller	IN_		TS_	GND_	CONTROLLER	B	TCCF	142	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Traffic Signal Controller	IN_		TS_	AER_	CONTROLLER			142	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Traffic Signal Head	IN_		TS_	AER_	SIGNALHEAD	B	TSSH	142	CONTINUOUS	90	CONTINUOUS	90	CONTINUOUS	142	CONTINUOUS	144	CONTINUOUS				
Traffic Signal Head Text	IN_		TS_	AER_	SIGNALHEAD_L	L				90	CONTINUOUS	90	CONTINUOUS								
Traffic Signal Interconnect (above ground)	IN_		TS_	AER_	INTERCONNECT	B		142	continuous					142	continuous	144	continuous				
Traffic Signal Interconnect Conduit (50mm)	IN_		TS_	UND_	INTERCONNECT	L	TUC	142	UND_TS_INTERCONNECT	90	UND_TS_INTERCONNECT_PR	90	UND_TS_INTERCONNECT_PR	142	UND_TS_INTERCONNECT	144	UND_TS_INTERCONNECT				
Traffic Signal Junction Box	IN_		TS_	GND_	JUNCTIONBOX	B	TJB	142	continuous	90	CONTINUOUS	90	CONTINUOUS	142	continuous	144	continuous				
Traffic Signal Meter	IN_		TS_	AER_	METER	B		142	continuous	90	CONTINUOUS	90	CONTINUOUS	142	continuous	144	continuous				
Traffic Signal Poles	IN_		TS_	GND_	POLES	B	TL	142	continuous	90	CONTINUOUS	90	CONTINUOUS	142	continuous	144	continuous				
Traffic Signal Push button	IN_		TS_	AER_	PUSHBUTTONS	B	TPB	142	continuous	90	CONTINUOUS	90	CONTINUOUS	142	continuous	144	continuous				
Traffic Signal Underground Conduit (100)	IN_		TS_	UND_	CONDUIT100	L		142	UND_TS_CONDUIT100	90	UND_TS_CONDUIT100_PR	90	UND_TS_CONDUIT100_PR	142	UND_TS_CONDUIT100	144	UND_TS_CONDUIT100				
Traffic Signal Underground Conduit (50)	IN_		TS_	UND_	CONDUIT50	L		142	UND_TS_CONDUIT50	90	UND_TS_CONDUIT50	90	UND_TS_CONDUIT50	142	UND_TS_CONDUIT50	144	UND_TS_CONDUIT50				
Traffic Underground Cable	IN_		TS_	UND_	CABLE	L	TU														
Traffic Underground Conduit	IN_		TS_	UND_	CONDUIT	L	TRAF	230	UND_TS_CONDUIT100					230	UND_TS_CONDUIT100	224	UND_TS_CONDUIT100				
Traffic Underground Conduit Text	IN_		TS_	UND_	CONDUIT_L					90	CONTINUOUS	90	CONTINUOUS								
Traffic Vehicle Detection Devices	IN_		TS_	GND_	LOOPS	L	VLD	142	UND_TS_LOOPS	90	UND_TS_LOOPS	90	UND_TS_LOOPS	142	UND_TS_LOOPS	144	UND_TS_LOOPS				
Trail	LU_		LF_	MSC_	TRAIL	L	TRAIL	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey Code	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name			Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Tree – Coniferous	LB_		NF_	VEG_	TREECONIF	B	CNF			90	CONTINUOUS	90	CONTINUOUS								
Tree - Coniferous Text	LB_		NF_	VEG_	TREE_CONIFER_L			86	continuous					86	continuous	86	continuous				
Tree - Coniferous Text	LB_		NF_	VEG_	TREE_DECID_L			86	continuous					86	continuous	86	continuous				
Tree – Deciduous	LB_		NF_	VEG_	TREEDECID	B	DEC			90	CONTINUOUS	90	CONTINUOUS								
Tree Diameters	LB_		NF_	VEG_	TREEDIAMS_L					90	CONTINUOUS	90	CONTINUOUS								
Tree Grate	LU_		LF_	MSC_	TREEGRATE	B	GRATE	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Tree Grate	LU_		LF_	MSC_	TREEGRATE			234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Tree Guard	LU_		LF_	MSC_	TREEGUARD	B	GUARD	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Tree Line	LB_		NF_	VEG_	TREE	L	TREE	86	continuous	90	CONTINUOUS	90	CONTINUOUS	86	continuous	86	continuous				
Turning Point	LB_		SV_	CNT_	HORIZONTAL	B	HCP	112	continuous					112	continuous	112	continuous				
Utility Pole Unidentified	LU_		LF_	MSC_	POLEUNIDENTIFIED	B	UP			210	CONTINUOUS	210	CONTINUOUS								
Vehicle Detection Camera Detectors	IN_		TS_	AER_	MSC	B	TVC	142	continuous	90	CONTINUOUS	90	CONTINUOUS	142	continuous	144	continuous				
Vehicle Detection Video Detection Zone	IN_		TS_	GND_	LOOPS			142	continuous	90	UND_TS_LOOPS	90	UND_TS_LOOPS	142	continuous	144	continuous				
Vehicle Loop Detector	IN_		TS_	GND_	LOOPS	L	VLD	142	continuous	90	UND_TS_LOOPS	90	UND_TS_LOOPS	142	continuous	144	continuous				
Vertical Control Monument Found	LB_		SV_	CNT_	VERTICAL	B	VCM	1	continuous					1	continuous	1	continuous				
Vertical Point of Intersection	LB_		SV_	CNT_	PI			112	continuous					112	continuous	224	continuous				
Vineyard Edge	LU_		LF_	MSC_	VINEYARD	L	VINE	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Waste Receptacle	LU_		LF_	MSC_	WASTERECEPTACLE	B	WASTE	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Water - Anode	IN_		WS_	DST_	ANODE	B	ANODE	152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Water Anode Bank	IN_		WS_	DST_	ANODEBANK	B				151	CONTINUOUS	151	CONTINUOUS								
Water Device	IN_		WS_	DST_	WATERDEVICE	B	WDEV														
Water Falls Label	LB_		NF_	ETH_	FALLS_L	B	WFALLS														
Water Level Elevation Label	LB_		NF_	WAT_	WATERLEVEL_L	B	WL			153	CONTINUOUS	153	CONTINUOUS								
Water Meter	IN_		WS_	DST_	METER	B	WM	152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Water Meter Chamber	IN_		WS_	DST_	METERCHAMBER	B	WMC			151	CONTINUOUS	151	CONTINUOUS								
Water Sampling Station	IN_		WS_	DST_	WSS			152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Water Service Line	IN_		WS_	SER_	LATERAL	L	WLAT	152	UND_WM_LAT	140	UND_WM_PR	140	UND_WM_PR	152	UND_WM_LAT	144	UND_WM_LAT				
Water Service Line Text	IN_		WS_	SER_	LATERAL_L																
Water Service Mainstop	IN_		WS_	SER_	MAINSTOP	B	WV	152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Water Tower	IN_		WS_	DST_	TOWER	B	WTOW			151	CONTINUOUS	151	CONTINUOUS								
Water Valve - Secondary see Hydrant Valve	IN_		WS_	DST_	VALVE	B	HYDV	152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Water Valve (Distribution)	IN_		WS_	DST_	VALVE	B	WV	152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Water Valve (Distribution) Profile	IN_		WS_	DST_	VALVE_PF					151	CONTINUOUS	151	CONTINUOUS								
Water Valve (Transmission)	IN_		WS_	TRN_	VALVE	B	WV			151	CONTINUOUS	151	CONTINUOUS								
Water Valve Box	IN_		WS_	DST_	VALVEBOX	B	WVBOX			151	CONTINUOUS	151	CONTINUOUS								
Water Valve Chamber	IN_		WS_	DST_	VALVECHAMBER	B	WVC	152	CONTINUOUS	151	CONTINUOUS	151	CONTINUOUS	152	CONTINUOUS	144	CONTINUOUS				
Water Valve Chamber Cast in Place Rectangular	IN_		WS_	DST_	VALVECHAMBER	B	WVC	152	CONTINUOUS	151	CONTINUOUS	151	CONTINUOUS	152	CONTINUOUS	144	CONTINUOUS				
Water Valve Chamber Pre-cast Circular	IN_		WS_	DST_	VALVECHAMBER	B	WVC	152	CONTINUOUS	151	CONTINUOUS	151	CONTINUOUS	152	CONTINUOUS	144	CONTINUOUS				
Water Valve Chamber Profile	IN_		WS_	DST_	VALVECHAMBER_PF					151	CONTINUOUS	151	CONTINUOUS								
Water Valve Stem (Distribution)	IN_		WS_	DST_	VALVESTEM	B	STEM			151	CONTINUOUS	151	CONTINUOUS								
Water Valve Stem Transmission	IN_		WS_	DST_	VALVESTEM					151	CONTINUOUS	151	CONTINUOUS								
Watermain	IN_		WS_	TRN_	WATERMAIN					140	UND_WM_PR	140	UND_WM_PR								
Watermain (Distribution) Plan View	IN_		WS_	DST_	PIPE	L	WAT	152	UND_WM	140	UND_WM_PR	140	UND_WM_PR	152	UND_WM	144	UND_WM				
Watermain (Distribution) Profile View	IN_		WS_	DST_	PIPE_PF			152	UND_WM_PRF	140	UND_WM_PRF	140	UND_WM_PRF	152	UND_WM_PRF	144	UND_WM_PRF				
Watermain (Distribution) Profile View Hatch	IN		WS	DST	PIPE_H	H				140	CONTINUOUS	140	CONTINUOUS								
Watermain (Distribution) Profile View Text	IN_		WS_	DST_	PIPE_L_PF																
Watermain (Transmision) Profile View	IN_		WS_	TRN_	PIPE_PF					151	UND_WM_PRF	151	UND_WM_PRF								

LAYER DESCRIPTION TABLE							STATE														
Description	LAYER NAME					(B)lock (L)abel (H)atch	Survey	E_ Existing		P_ Proposed		N_ Record		R_ Removal		A_ Abandoned		F_ Future		T_ Temporary	
	Cat	STATE	Div	Grp	Component Name		Code	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype	Color	Linetype
Watermain (Transmission) Profile View Hatch	IN_		WS_	DST_	PIPE_H	H				151	CONTINUOUS	151	CONTINUOUS								
Watermain (Transmission) Profile View Text	IN_		WS_	TRN_	PIPE_L_PF																
Watermain Detail	IN_		WS_	DST_	DETAIL_DT					151	UND_WM_PR	151	UND_WM_PR								
Watermain Lateral	IN_		WS_	SER_	LATERAL	L	WLAT	152	UND_WM_LAT	140	UND_WM_PR	140	UND_WM_PR	152	UND_WM_LAT	144	UND_WM_LAT				
Watermain Lateral Profile	IN_		WS_	SER_	LATERAL_PF					140	UND_WM_PRF	140	UND_WM_PRF								
Watermain Lateral TEXT	IN_		WS_	SER_	LATERAL_L	L				140	CONTINUOUS	140	CONTINUOUS								
Watermain Locate Mark	IN_		WS_	DST_	MARKER	B				151	CONTINUOUS	151	CONTINUOUS								
Watermain Supply Area	IN_		WS_	BND_	SUPPLYAREA	B		152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Watermain Text	IN_		WS_	DST_	PIPE_L					140	CONTINUOUS	140	CONTINUOUS								
Watermain Text Leaders	IN_		WS_	DST_	PIPE_L					140	CONTINUOUS	140	CONTINUOUS								
WaterMain Valve	IN_		WS_	TRN_	VALVE					151	CONTINUOUS	151	CONTINUOUS								
Weeping Tile	IN_		DS_	SEW_	PIPE	L	WEEP	134	UND_STM	130	UND_STM_PR	130	UND_STM_PR	134	UND_STM	136	UND_STM				
Weeping Tile Field	IN_		DS_	SEW_	PIPE_SD					10	DASH1	10	DASH1								
Weigh Scale	LU_		LF_	MSC_	WEIGHSCALE	B	SCALE	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Well	LU_		LF_	MSC_	WELL	B	WELL			210	CONTINUOUS	210	CONTINUOUS								
Well	IN_		WS_	DST_	WELL			152	continuous	151	CONTINUOUS	151	CONTINUOUS	152	continuous	144	continuous				
Well Profile	LU_		LF_	MSC_	WELL_PF					210	CONTINUOUS	210	CONTINUOUS								
Wet Well at Sewage Pumping Station	IN_		WW_	STR_	PUMPSTATION	B	WETWELL	106	continuous	100	CONTINUOUS	100	CONTINUOUS	106	continuous	224	continuous				
Wheelchair Ramp Symbol	IN_		RS_	RDY_	CURB-DROP	B	RAMP	184	continuous	30	CONTINUOUS	30	CONTINUOUS	184	continuous	184	continuous				
Widening and Resurfacing Hatch	IN_		RS_	RDY_	RESURF_H	H				8	CONTINUOUS	8	CONTINUOUS								
Widening and Resurfacing Line	IN_		RS_	RDY_	RESURF					4	CONTINUOUS	4	CONTINUOUS								
Wind Mill	LU_		LF_	MSC_	WINDMILL	B	WINDM	234	continuous	210	CONTINUOUS	210	CONTINUOUS	234	continuous	224	continuous				
Woodchip Hatch	IN_		RS_	GND_	WOODCHIP_H					224	CONTINUOUS	224	CONTINUOUS								
Wooden BroadWalk (waterfront)	LU_		LF_	MSC_	BROADWALKWOOD			234	continuous					234	continuous	224	continuous				

Note:
For Dimensions add “_D” as a suffix following the layer Component Name
For Hatch add “_H” as a suffix following the layer Component Name

2.3.4 Working Layers

Working layers (any information that is used for Project Development but is not fundamental to the final drawing) such as junk layers, scratch layers, to be deleted layers, etc. are to be prefixed with a W_ and to be on a non-plot layer.

2.3.5 3rd Party Software Layers

Some 3rd party software creates layers specific to the application. These layers should conform to the NPCS Standard wherever possible. If this is not possible, metadata regarding these layers is a required deliverable (e.g. layer name and description).

2.4 External References

External references allow AutoCAD drawings to be kept at manageable sizes. They also allow for updating of reference drawings during the project drawing development. These references can take many forms, such as CAD file xrefs, inserted images, and other linked files.

To ensure that the digital drawing file includes all the information related to the drawing file when copied or transferred as a deliverable to another party (owner, consultant, contractor), all externally referenced files shall be included with the project folder.

2.4.1 Cad Files (xrefs)

Reference drawings must be included in the project folder when the drawing is transferred. Xref drawings should be copied to an xref sub-folder of the project folder. These xrefs should be attached to the drawing to take the place of the original xrefs, which may have been linked on another part of the network.

Xrefs should also be used wherever a part of the base drawing or other information will be used in more than one drawing, so that any changes are automatically updated in all of the associated drawings.

Xrefs allows you to work with other drawing files without permanently adding them to your drawing, as you would with a block or changing any of the attached drawing contents. Other people can work on the attached drawings at the same time as you are editing the drawing that contains xrefs.

All references should be xreferenced, “XREF”, on layer 0.

Do not control (mix) xreferenced layer visibility from the parent and the child drawing. The preferred method is layer control at the child drawing. Do not bind xrefs. If this is an area of responsibility, use the INSERT command. Images shall be inserted on the appropriate layer as per the layering standard.

2.4.2 Image Files

Although image files are not xref'ed into the drawing, they are still external to the drawing itself. Images should be copied to an IMAGE sub-folder in the main project folder. These images should be linked to the drawings to replace other images.

2.5 Drawing Status

For engineering design and construction, drawing status is directly related to the lifecycle of a project. For example, a project begins with a survey of existing topography to develop a base plan. This base plan is then used to develop design drawings, which will become a tender drawing set, a construction drawing set and so on.

Note: Revision numbers allow easy and accurate identification for up-of-date drawings. **Section 2.5.9 Revision Name Convention** details the Revision Name Convention.

The following are standard drawing status categories:

2.5.1 Base Plan (Existing Detail Drawing)

Base plan drawings detail all existing topographical detail in accurate relative location. These drawings may include profile sections detailing the sub-surface section of underground features. Base plan drawings, when required for the design of proposed construction, must include all sub-surface, surface and above ground (aerial) detail. Below ground detail, including but not limited to, sewers, watermain, gasmain and other utilities, shall be located in their actual vertical location on the profile drawing. Above ground detail, including but not limited to hydro, bell and cable TV wires, should be identified.

2.5.2 Preliminary Design

Preliminary design drawings may be plotted at various stages of the project development. These drawings must be clearly marked as preliminary. Preliminary design drawings, when submitted for review, must be clearly marked with a preliminary stamp and include the revision “letter” as outlined in **Section 2.5.9 Revision Name Convention**.

2.5.3 Final Design

Final design drawings must be the completed project design drawing set that includes all information required for review. These drawings must include all border detail and metadata information related to the project.

Final design drawings must include the initials or name(s) of the person responsible for the drafting. The name of the person responsible for the design of project must also be included in the title block in the designated box. Final design drawings must be checked to ensure that the design calculations are accurate and the project will function as proposed. The person assigned responsibility for checking the design must not be the same person who carried out the design. After checking and verifying all design calculations, the person who performed the checks shall have their name added in the “Checked By” box of the title block. The “Drafted By”, “Designed By”, and “Checked By” persons must be identified on final design drawings.

Final design drawings shall be identified in the revision box as outlined in **Section 2.5.9 Revision Name Convention**.

2.5.4 Issued for Approvals

This set of drawings is a complete collection of all project drawings detailing every aspect of the design. The drawings must include all detailed information required by approving agencies and must be stamped (if required) by the professional engineer responsible for the project.

Issued for Approval drawings shall be identified in the revision box as outlined in **Section 2.5.9 Revision Name Convention**.

2.5.5 Issued for Tender

The tender set of drawings should include all drawings necessary to evaluate the construction process and quantities. This set forms part of the Tender documents of a project. These drawings shall be stamped as required.

Issued for Tender drawings shall be identified in the revision as outlined in **Section 2.5.9 Revision Name Convention**.

2.5.6 Issued for Construction

The construction drawings are produced if changes have been made since the tender set. These drawings are clearly marked with Issued for Construction in the revision box. There may be various revisions to the issued for construction set as large projects may be altered during the construction phase.

2.5.7 Record of Construction

The Record of Construction (formerly As-Constructed) drawings show newly constructed details in the as-constructed locations and elevations. These drawings are prepared from measurements taken on site or from post construction surveys, and accurately depict the actual locations and sizes of constructed features. The Record of Construction drawings should indicate variations from the construction drawings which have occurred during construction.

Record of Construction drawings show the new construction detail in bold to identify it from pre-existing detail. The layer state of detail will remain **P**, but the drawing must be noted in the revision box as Record of Construction. Details and plants removed during construction of the project are removed from the drawing. For example, if fire hydrants were removed during this project, they would not show on the Record of Construction plan.

Record of Construction drawings must be clearly designated in the revisions block including date and initials. No disclaimers are permitted on Record of Construction drawings.

2.5.8 Post Construction

A Post Construction drawing is a drawing showing the newly constructed features as existing detail. This drawing differs from the Record of Construction drawing, which shows newly constructed detail in bold on a proposed layer and noting Record of Construction. Post Construction drawings show all information on existing layers with the same format (line type, line weight and colour) as all other existing similar detail.

All removals must be deleted from the drawing. Construction notes and dimensions must be deleted. This drawing reflects the existing condition (which could be verified by field survey). It should be noted that revisions do not distinguish pre-existing detail from newly constructed detail. Post Construction drawings provide detailed information which could be used for future inquiries and projects. Post Construction drawings must be clearly noted in the revision box as outlined in **Section 2.5.9 Revision Name Convention**.

2.5.9 Revision Name Convention

For every submittal to the Region for review or approval, a revision must be placed in the revision block in the lower left hand corner of the title block. Submittals prior to tender shall use alphabetic designations, the final design drawing set (issued for tender) shall use revision 0 (zero), and submittals during the bid process, construction and post construction shall start with the number 1 (one) designation and so on.

For example, the following revision box illustrates a number of submittals with the correct revision designations:

4	RECORD OF CONSTRUCTION	MM/DD/YY	INT
3	REVISIONS DURING CONSTRUCTION (IF NECESSARY)	MM/DD/YY	INT
2	ISSUED FOR CONSTRUCTION	MM/DD/YY	INT
1	ADDENDUM (IF NECESSARY)	MM/DD/YY	INT
0	ISSUED FOR TENDER	MM/DD/YY	INT
C	ISSUED FOR APPROVAL	MM/DD/YY	INT
B	ISSUED FOR 90% REVIEW	MM/DD/YY	INT
A	ISSUED FOR 50% REVIEW	MM/DD/YY	INT
NO.	REVISION	DATE	INIT.

2.6 Borders

Standardized AutoCAD borders have been developed as part of the Niagara Peninsula CAD Standard. These borders have been developed with attributes to capture most of the metadata information required, which can be found in **Section 1.8 Metadata**.

2.6.1 Border Data

The NPCS Standard requires that standard borders be used for all CAD drawings. Borders include both visible and invisible attributes to capture required drawing information (i.e. metadata). These attributes must be completed. Borders have been developed on layers with the prefix “DR_BR_” and colour “ByLayer”. There are several layers that allow control of the visibility of some aspects of the border, such as gridlines.

2.6.2 Cover Sheet

Standard cover sheets must be used for all projects. Cover sheets includes various details about the project as well as a location map.

2.6.3 Plan View Sheets

Standard NPCS plan view sheets must be used for all projects. The plan view border data is to be completed in accordance with **Section 2.6.1 Border Data**.

2.6.4 Plan and Profile Sheets

Standard NPCS plan and profile sheets must be used for all projects. The plan and profile border data is to be completed in accordance with **Section 2.6.1 Border Data**.

2.7 Plotting

To ensure uniformity in the appearance of plotted drawings, a number of plot style files have been developed. These tables set up and control the plotted line weight and color of drawing objects based on display color (“thickness by colour”). All drawings must be set to use these color dependent plot style tables.

The provided plot style tables provide different settings for plotted line thickness and color. Monochrome color tables (ctb files) are to be used for black and white plotting. The following plot style table files are provided:

For engineering drawings:

- ! NPCS_Mono_V3.0.ctb
- ! NPCS_MonoHalf_V3.0.ctb
- ! NPCS_MonoQuarter_V3.0.ctb

For legal survey drawings:

- NPCS-V3-Surveys-Mono_2010.ctb

2.7.1 Plot Scale

The plot scale option can be found in the Plot Dialogue Box. This setting scales the drawing limits to the plot limits of the paper. All borders should be set up for a metric (mm) plot scale of 1:1.

2.7.2 Plot Orientation

Drawing plots must include reference orientation to the physical detail presented. Civil engineering drawings should be plotted with the north arrow oriented to the top or to the right of the drawing.

2.8 Quality Assurance/Quality Control

2.8.1 QA/QC Design Reviews

QA/QC reviews of the design documents, following standard protocols, are conducted throughout the design process in order to maintain the standards established by the QA/QC program. Design reviews should take place at the conclusion of pre-design, 50% and 90% design levels. The project size and scope of work will determine the need for additional design reviews in consultation with the Region. For each of the design stage submissions, the QA/QC Engineer shall sign all documents and/or drawings for which they are responsible, and ensure the following information is complete and shown as a minimum for all documentation.

Pre-Design

- Preliminary Alignments

- Building Footprint/Equipment/Process/Piping
- Topographical Survey (representing actual site features and location)
- Process & Instrumentation Diagram (general outline)
- Single Line Diagram (general outline)

50% Design

- Final Alignment
- Final Building Footprint/Equipment/Process/Piping
- Sections & Details for All Disciplines (with general notes and dimensions)
- Architectural Elevations & Schedules
- Final Process & Instrumentation Diagrams
- Final Single Line Diagrams
- Control Schematics and Loop Diagrams

90% Design

- Cover Sheet & Index Sheet
- Legend/Symbols Sheet
- Detail Sections and Construction Notes
- Detail Sheet

3 SURVEY STANDARDS

Surveying forms the basis for many CAD/GIS projects in that it is the primary means for collecting highly-accurate spatial data. A significant amount of project time and resources can be consumed in the field survey process. For this reason, it is crucial that survey data meets project-specific requirements and can be collected in a streamlined and efficient manner. Beyond this, however, it would be very desirable for data collected through field surveys to be useable for numerous projects and tasks. The NPCS outlines a number of survey-related standards as a first step towards this goal.

3.1 Specifications

3.1.1 Survey Control

All survey field data collected shall be tied to benchmark horizontal and (where applicable) vertical control. It is the responsibility of persons carrying out field surveys to locate and tie-in adequate control. All benchmark control used shall be identified on survey plans in accordance with Ontario Land Surveyor requirements. Additionally, when undertaking a survey for a plan to be registered or deposited in the registry system or land titles system, Ontario Regulation 216/10 (Performance Standards For The Practice of Professional Land Surveying), made under the Surveyors Act, must be adhered to.

Horizontal control monument locations and field sketches will be provided for projects upon request, by the Local Municipality or the Region. This information is also available through the internet at: <http://pw.regional.niagara.on.ca/control>

3.1.2 Survey Field Coding

Survey field codes have been developed for the consistent capture of features in the field. A complete listing of these codes can be found in **Section 2.4.3 Layer Description Table – Existing Detail**. A number of guiding principles were used in the development of these codes wherever possible:

- Codes are alpha-numeric (i.e. they can accommodate either text or numbers).
- Industry standard codes (or commonly used codes) were used where possible.

3.1.3 Engineering Topographic Survey Requirements

The follow standards shall be adhered to when completing any engineering topographic surveys on behalf of a Municipal Authority:

- Survey work is to be conducted using total station survey equipment and data collector
- Survey grade GPS for data collection may be used subject to the approval of the project manager when the vertical component is not as critical for the project
- Property lines must be identified on base plans with found property bars clearly identified
- Vertical and horizontal control shall be identified including descriptions. A minimum of two horizontal and vertical monuments must be tied in
- All points must have complete descriptions according to NPCS Survey Codes (see **Table 2.4.3 Layer Description Table - Existing Detail**)

The following surface features must be collected:

- Property bars
- Limits and types of traveled road surfaces and shoulders
 - NOTE: Road shots at maximum 20 meter intervals and at grade changes. Cross-sections shall extend at least 3 meters beyond the limit of the right-of-way. A maximum interval of 10 meters in sections of horizontal and vertical curves is required.
- Limits and types of all entrances
- Elevations of existing sidewalls, doorsills of immediately adjacent buildings, break points, catch basins, manholes and building types shall be surveyed as required.
- Pavement line markings
- Limits of ditches and natural watercourses including the type and size of all cross and entrance culverts and headwalls.
- Identification and location of all above-ground utilities and their appurtenances
- Locations, diameter (in millimeters), drip-line and type (deciduous or coniferous) of all trees and shrubs.

The following underground features must be collected:

- All available locates and locate markings
- As required, the size, type and elevation of water and sewer services (e.g. inverts of manholes and catch basins, valve stems etc.)

All surveys are subject to any additional requirements as requested by the project manager or

contact.

3.1.4 Legal Survey Drawing Production

The production and delivery of Legal survey plans shall follow standards outlined in **Section 3 Survey Standards** of this document. These types of plans include Reference Plans, Condominium Plans, Site Plans, Expropriation Plans, Subdivision Plans, Surveyor Real Property Reports, Navigable Waters Protection Act Plans, Boundary Act Plans, Canada Lands Plan, and Crown Lands Plans.

The NPCS has been updated to contain new layers that are specific to Legal Surveys drawings. These layers are identified using Category LS – Legal Surveys. This set of layers has been provided in **Table 2.4.3 Layer Description table – Existing Detail**.

Additionally, a new AutoCAD colour table file has been created to be used for the preparation of Legal Surveys drawings. It is named **NPCS-V3-Surveys-Mono-2010.ctb**. This ctb file will not have any effect on the production of engineering drawings that utilize the **!NPCS_Mono_V3.0.ctb** file. This ctb file was developed in order to facilitate the proper presentation of Legal Survey drawings, without compromising the production/presentation of engineering drawings. The legal surveys ctb file is presented here:

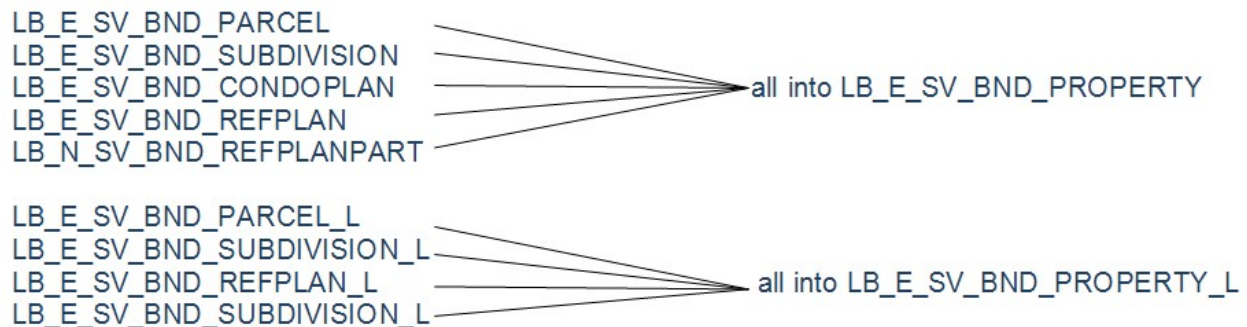
screen color (Autocad)		plot values (color & weight)	plot sample (symbolic)
1	→	black 0.15 mm	_____
2	→	black 0.20 mm	_____
3	→	black 0.30 mm	_____
4	→	black 0.40 mm	_____
5	→	black 0.50 mm	_____
6	→	black 0.60 mm	_____
7	→	black 0.70 mm	_____
8	→	black 0.80 mm	_____
9	→	black 0.90 mm	_____
10	→	black 1.00 mm	_____
11	→	black 1.20 mm	_____
12	→	black 0.20 mm	_____
13	→	black 0.20 mm	_____
41	→	black 1.20 mm	_____
120	→	black 0.20 mm	_____
130	→	black 0.20 mm	_____
134	→	black 0.20 mm	_____
143	→	black 0.30 mm	_____
230	→	black 0.20 mm	_____
244	→	black 0.50 mm	_____
250	→	grey 67% 0.20 mm	_____
251	→	grey 54% 0.20 mm	_____
252	→	grey 40% 0.64 mm	_____
253	→	grey 27% 0.40 mm	_____
254	→	grey 14% 0.30 mm	_____
255	→	grey 2% 0.20 mm	_____

Example:

Using the Engineering **!NPCS_Mono_V3.0.ctb** file, a layer uses colour 1-RED. The plot values indicate that the plot colour would be the object colour with a line width of 0.05 mm. Using **NPCS-V3-Surveys-Mono-2010.ctb** (above) for a Legal Surveys drawing, colour 1-RED, uses a plot colour of black and a line width of 0.15. Therefore, the standardized layer colour of 1 can be used in both drawing types while being presented in different ways depending on the ctb file selected.

3.1.5 Surveys Information Into Engineering Drawings

There are a number of layers that are used in the production of a Legal Surveys drawing that won't necessarily be needed in an Engineering drawing using the same layer name. However, the content of these layers must be retained for reference. Automation can be used to successfully merge layers from Legal Survey drawings into Engineering drawings. The following illustrates the layers that could be merged to reduce legal survey information within an engineering drawing:



3.2 Survey Deliverables

The following deliverables are required at the completion of all survey works:

- Plan Drawings (prepared in accordance with NPCS)
 - NOTE: Lines must be snapped to the points defining them and Survey points should be point blocks or Autodesk point objects.
- Original survey data, ASCII point files, or AutoCAD field book (FBK) files
 - NOTE: Numeric values representing point coordinates must be stored to double-precision accuracy
- Surveyor's quality management documentation

4 GIS STANDARDS

4.1 GIS Features

4.1.1 Feature Data Creation

Any new GIS data creation should use appropriate base data as reference. It is the responsibility of the jurisdiction sponsoring the data creation work to provide this base information. Base layers may include (but are not limited to) any of the following:

- Roads (SLRN data)

- Parcels
- Ortho-imagery
- Survey Control
- Infrastructure (e.g. Water/Sewer Network)

Base data used for the purpose of data-creation should be consistent in terms of scale and accuracy (i.e. data creation must not occur using base data developed at varying scales).

Unless otherwise specified (e.g. in metadata), all features in a GIS layer are assumed to be existing. GIS layers containing features which are not “existing” (e.g. Draft Plans of Subdivision, Unopened road allowances, etc.) must contain a “LifeCycle Status” field identifying the state of each feature within the layer as follows:

- Proposed
- In Construction
- Active
- Retired
- Abandoned

4.2 GIS Attribute Data

Since GIS features are inherently related to attribute data, it is important that certain standards related to these attributes are followed. Attribute data in GIS can be stored as part of a layer itself, or in an external file or database. Regardless of where this attribute information is stored, however, a number of specifications apply.

All attribute tables must have a unique, primary key. Additionally, attribute data (stored in an external file or database) which is intended to be “joined” to spatial features must contain a column which is common to the spatial data, herein referred to as the “spatial key”. The following specifications are to be adhered to for the “spatial key” field:

- The spatial key must have the same data type (e.g. string, short integer etc.) as the join field in the spatial data
- The spatial key must have the same column length (or field width) as the join field
- Field Names must not use reserved characters.
- Delivered field names shall not exceed 8 characters in length; alias names or a data dictionary can be used to compensate for this restriction
- Attribute tables stored outside of the GIS layer (e.g. in an external file or database) must have a Foreign Key which can be used to relate back to the primary layer. NOTE: This foreign key relationship must be defined in the metadata.
- Within attribute tables, “Blank” records should be avoided wherever possible. Numeric field values of NULL or 0 should be employed instead.
- For text fields:
 - When information is known to be undefined, then the record should be attributed as “Undefined”;

- When the information is not applicable to a particular record, it should be attributed as “Not Applicable”;
- When the information to be encoded is relevant, but unknown or missing from the record, it should be attributed as “Unknown”;
- When information is known to be “NULL” the record should be attributed as “NULL”.
- A data dictionary defining field names must accompany attribute data

4.3 Maps

Within the GIS software environment, scale is dynamic; data can be created and displayed at any scale. This being said, the methodology used to collect or create spatial data is directly related to the scale range for which it is appropriate to be used at. For this reason, it is imperative that scale-related information be recorded in the metadata created prior to data publication/delivery. This information includes “source-scale”, which denotes the scale of source data used in the creation of new GIS layers; “appropriate scale for use”, which provides a scale range at which the data can be reliably used; and “collection/creation description”, which outlines the method by which the data was created. Based on this information, it should be relatively easy for end-users of this GIS data to recognize the limitations of its use with respect to scale.

4.3.1 Elements

Standard templates have been created containing all of the required layout elements, and are to be used for the production of engineering contract drawings. These templates can be found in **Section 8.2 Templates**. However, since this Standard is intended to be used across other disciplines and for GIS work, a list of mandatory elements for any drawing or map layout is presented. Any drawing/map layout produced shall contain the following (at a minimum):

- Title
- Revision
- North Arrow
- Legend
- Date
- Scale (scale bar and textual scale)
- Name and Logo of Jurisdiction (for which the drawing/map was produced)
- File Name and Path

4.4 Databases

4.4.1 Database Formats

Relational Database formats:

- ODBC compliant formats (e.g. Oracle, SQL Server, MS Access)

Non-Relational Data formats:

- e.g. Dbase, ASCII, MS Excel, etc.

4.4.2 Database Specifications

- Standardized/Normalized wherever possible
- Design Documentation provided (ERD - Entity Relation Diagram)
 - Identify all table and view names
 - Identify all column names and definitions (data types, widths)
 - Identify all primary and foreign keys
 - Identify all relationships (using Crow's Foot notation)
 - Ordinality and cardinality
- Data Dictionary Provided
- Table Definitions
 - Name (Real life name)
 - Description (Short description)
 - Key (Key column(s))
 - Restrictions (Security restriction if applicable)
 - Notes (Additional notes)
- Column Definitions
 - Name (Real life name)
 - Description (Short description)
 - Restrictions (Security restrictions if applicable)
 - Format (Data type, size)
 - Null allowed (Null values allowed)
 - Domain (Values permitted - if applicable)
 - Default (Default value)
 - Source (field source)
 - Key (Is primary or foreign key?)
 - Indexed (Indexed column?)
 - Notes (Additional notes)

4.5 Geo-Database Standards

The following spatial reference properties, in addition to those outlined in **Section 1.5 Referencing**, are to be used when creating spatial objects (e.g. feature classes) within:

X/Y values

- Minimum X: 100000
- Maximum X: 2247483.645
- Minimum Y: 4000000
- Maximum Y: 6147483.645
- Precision: 1000

Z Values

- Minimum: -1000
- Maximum: 1000
- Precision: 1000

M Values

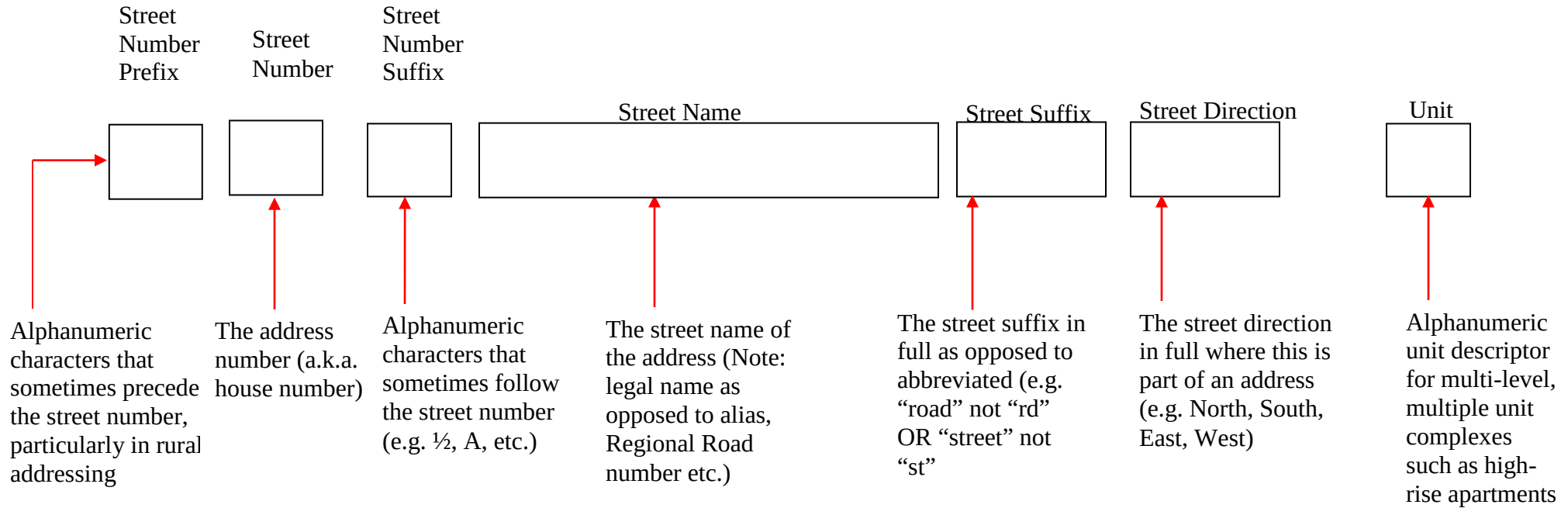
- Minimum: 0

- Maximum: 2147483.645
- Precision: 1000

4.6 Reserved Characters

Character	Name
/	slash
\	backslash
?	question mark
*	asterisk
:	colon
	vertical bar
"	quotation mark
<	less than
>	greater than
.	period

4.7 Addressing



Example 1: 5763A East and West Line

	5763	A	East and West	Line		
--	------	---	---------------	------	--	--

Example 2: 20L99 ½ Augustine Road

20L	99	1/2	Augustine	Road		
-----	----	-----	-----------	------	--	--

Example 3: 298 Carlton Street North, Unit 1341

	298		Carlton	Street	North	1341
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5 GENERAL INFORMATION

5.1 External References

5.1.1 Linked Tables and Databases

The following standards shall apply to any linked tables or databases delivered in conjunction with a CAD or GIS project:

- Each table/database shall have accompanying metadata
- For tables which link directly to features within drawings and maps (through a table/database join), standards in **Section 4.2 GIS Attribute Data** shall apply
- Tabular data delivered as .txt files shall be comma delimited and shall contain field names.
- Relational databases delivered may require an accompanying ERD (Entity Relationship Diagram) depending on their complexity (at the discretion of the Project Owner)

5.1.2 Hyperlinks

A hyperlink is a navigation element within a drawing or map to an external file or web-page. Standards have been created for hyperlinks to ensure that these navigation elements will be functional in any environment.

5.1.2.1 Internet/Web Links

Full URLs (Uniform Resource Locators) are to be used for referencing links to documents/images, files or any other resources on the World Wide Web. Below are two examples of full URLs (the first using ftp protocol, the second using http):

- <ftp://geosmart.becon.org>
- <http://www.niagaragiscadstandards.com/index.html>

5.1.2.2 File Links

File links to external files are to be referenced using UNC (Universal/Uniform Naming Convention) paths and shall contain no spaces or reserved characters (e.g. /NPCS/Niagara_Peninsula_CAD_Standards.pdf).

5.1.3 External References

External reference standards can be found in **Section 2.5.1 CAD Files (xrefs)**.

5.1.4 Images

Any linked images shall be geo-referenced and shall have an accompanying world file (even if the information is contained in the header of the file - e.g. GeoTiff). Standard, acceptable image formats include:

- Tif (*.tif) with accompanying world files (*.tfw)
- MrSID (*.sid) with accompanying world file (.sdw)
- ERMapper (*.ecw)

- JPG2000

5.2 Drawing Primary Content vs. Reference Information Components

Components within a drawing can vary significantly in terms of purpose, accuracy and detail. The NPCS makes a distinction between two types of drawing data.

5.2.1 Primary Content

Primary content is new data which has been generated (i.e. collected or created) specifically for the project or task for which a drawing is prepared. Design components and new construction are always classified as primary content. Field survey data collected for a project may or may not be classified primary content depending on the specifications of the project owner. Primary content must be layered in a drawing using the full component hierarchy (i.e. every level) which may increase the time required for data collection and subsequent drawing preparation. The benefit of primary content, however, is that the data can be subsequently used for other applications (e.g. GIS, other CAD drawings, etc.).

5.2.2 Reference Information

Reference information refers to data which provides context for primary content. This information may not have been collected specifically for the drawing in question (e.g. xref information, historical data, etc.) and does not consist of newly created components (e.g. design or construction). The only component hierarchy levels required for reference information layers are Category and Group. For the most part, reference information would never be pulled from a drawing for use in another application (e.g. GIS or other CAD drawings).

5.3 Drawing Ambiguous Components

In some cases, a component may logically fall under more than one category (e.g. buildings, fences, etc.). By default, “ambiguous” layers (e.g. buildings, boulders, fences, etc.) will be noted in the “Land Use” Category in the layer description table, and not included under all of the other categories which could be applicable. When producing drawings, if a component logically belongs in another layer (e.g. a water treatment facility - building) it can be placed under the appropriate category, group and division in a drawing but **MUST** use the identical component name to that referenced in the layer description table.