

SCHEDULE I

**STANDARDS FOR THE PREPARATION OF
DESIGN AND AS-BUILT DRAWINGS**

This is Schedule I of the Corporation of the Village of
Valemount Subdivision and Development Servicing Bylaw
No. 450, 1998.

Clerk

SCHEDULE I

STANDARDS FOR THE PREPARATION OF DESIGN AND AS-BUILT DRAWINGS

1.0 GENERAL REQUIREMENTS

These requirements pertain to the preparation of drawings for: sanitary sewers; storm sewers; water; gas; underground power; telephone; cablevision; street lighting; roads; curbs and gutters; sidewalks; culverts; bridges; and other permanent structures.

Where no standard is defined in this schedule for the preparation of a drawing to portray a particular service, structure, or other items, instructions and requirements may be obtained by discussion with the Corporation of the Village of Valemount, or its appointed representative.

As-built plans are to be completed and approved before securities are released.

As-built drawings are to be submitted within four (4) weeks of the completion of all services to be installed by the Owner. The Design Engineer shall deliver as-built drawings as specified in this schedule to the Village Engineer. These drawings shall be signed and sealed by the Village Engineer.

A plan profile is a detailed engineering drawing record containing the permanent and temporary features within a public right-of-way. The plan profile is divided into two parts:

- .1 Part One: The top profile shows, elevations, chainages, surface and utility grades with related data.
- .2 Part Two: The bottom plan view shows all surface features, legal descriptions and bordering property data, all underground utilities and their locations within the public right-of-way and related data.

2.0 DRAWING STANDARDS

2.01 Sheet Size

Pre-cut sheets to be 841 mm x 594 mm (A-1 sheet size).

2.02 Sheet Material

3 mil mylar matte both sides with half plan and half profile.

2.03 Grid Standards

2 mm x 10 mm profile grid.

2.04 Sheet Border

Border line width to be 1.0 mm. Top, bottom and right border to be 15 mm respectively from edge of sheet. Left border to be 42 mm from edge of sheet.

2.05 Title Block

- .1 Located along the bottom of the sheet.
- .2 Size of the title block is 46 mm wide.
- .3 Title block to be pre-printed. Stick-on type is not acceptable.
- .4 Title block shall describe the contents of the drawing (eg. key plan, roadworks, etc.) and shall clearly indicate the location of the works by road name(s) and/or legal description.
- .5 Lettering to be an open style of Vertical Gothic - Leroy or AutoCAD. If using AutoCAD, use text font Roman. If using some other computer graphic system, it should be compatible with AutoCAD. See sample sheet for lettering height and pen size.
- .6 Design Engineers must use the Corporation of the Village of Valemount A-1 standard sheets. Design Engineers identifications are to be placed on each drawing.
- .7 A sample of a prepared plan/profile sheet, and an AutoCAD disk of the Standard Drawing block shell may be obtained by contacting the Corporation of the Village of Valemount.

3.0 PREPARATION OF DRAWING

Drawings shall be prepared in accordance with the standard plan/profile sheet furnished upon request from the Village.

3.02 Sheet Layout

- .1 Maintain a minimum clearance of 40 mm from all borders.
- .2 The profile SHALL NOT be drawn over the title block.
- .3 Place north arrow close to the top right hand side of the sheet whenever possible.

- .5 The PLAN VIEWS shall be fragmented or broken if the vertical alignment of the utilities in the PROFILE SECTION when shown at true length and when projected above to the utilities in the PLAN VIEW cannot be maintained in as close a relationship as possible without too much discrepancy.
- .6 If using co-ordinates for layouts, calculate and plot distances at SEA LEVEL, but show ground level distances on the plan.
- .7 Show the legal layout, dimensions, bearings, lot numbers, block numbers, legal plan numbers, street names, sidewalks with related data and catch basin installations with elevations.
- .8 All lots need not be numbered providing they are in sequence. Show first and second and next to last and last lots. If not in sequence, all lots shall be numbered.
- .9 All lot dimensions shall be given in metres and to three (3) decimal places. If the lots are of same dimensions and side by side, only the two outside lots need have the dimensions shown, the remainder with ditto marks.
- .10 Curb information should be shown and should include radius, delta angle, tangent length, and arc length
- .11 Face of curb information must be complete.
ie. Rollover Face of Curb - Roll F.C.

If other than concrete face of curb specify material used.
ie. Rollover Asphalt Face of Curb - Roll Asph F.C.
- .12 Show Right of Way road widths and the actual roadway widths between curbs or between curbs and edge of pavement.
- .13 Show all utilities such as sanitary and storm sewers, water, hydro, telephone, gas, cable TV, manholes, valves, cleanouts, hydrants, service boxes, etc.
- .14 Reference each utility to the nearest property line or boundaries of right-of-ways.
- .15 Show flow directions of sewers.
- .16 Manholes in midblock shall be referenced to the nearest lot line (I.P)
- .17 Lot services (sanitary, storm, water) shall be shown and referenced to the nearest or convenient lot line of said lot.

3.06 Profile

- .1 The profile and related data are shown on the bottom half of the sheet. Establish 0+00 station on accented vertical grid line.
- .2 The original groundline (centreline) and related data prior to construction should be shown, along with date surveyed.
- .3 The profile shall be shown at true centreline length and projected above to the PLAN VIEW in as close a relationship as possible.
- .4 Show as constructed centreline for streets and lanes and date constructed.
- .5 Show centreline percent grade to two (2) decimal places, together with the following information on vertical curves:
 - .1 the chainage and elevations of B.C., E.C., and V.P.I.;
 - .2 the external value, "e";
 - .3 the length of vertical curve;
 - .4 the chainage and elevation of the low spot of sag curves or high point of crest curves; and
 - .5 on super elevated curves and crossfall sections, percent crossfall, transition length and crown should be noted.
- .6 Show profiles of invert and crown of pipes for sanitary, storm, and water mains as well as length, size, type, grade, and class of pipe (eg. 75 m - 200 mm SAN SDR 35 PVC).
- .7 Show manholes with rim elevations, and invert elevations at both inlet and outlet.
- .8 Crown of pipes shall be shown at all locations where there is the possibility of conflicts with other utilities.
- .9 Show location type and elevation of all crossing utilities.
- .10 Elevations are placed at the right and left hand side of the profile and repeated when there is a break in the profile.
- .11 Elevations are to be shown at every even metre graduation and placed on the heavy accented line.
- .12 All elevations shall be relative to GEODETIC DATUM and in metric.

4.0 DRAFTING GUIDELINES

The format of the Technical Legend places the symbol as it appears on the drawing on the left hand page with drafting guidelines on the right hand page.

The symbols presented in the Legend are sized for use on Plan Profile drawings. Dimensions used are given in millimetres. Pen and template sizes refer to the widely used Leroy equipment. Metric pen and template sizes are given in millimetres along with their imperial equivalent.

5.0 CERTIFICATION REPORTS

Prior to acceptance of the Works, the Design Engineer shall submit 3 bound copies of System Certification Reports to the Village Engineer. Certification reports shall fully indicate the as-constructed aspects of each system as well as all required operation and maintenance information. As a minimum, reports shall include the following:

- .1 complete set of constructed drawings at the same scale and in the same format as the construction drawings;
- .2 as-constructed AutoCAD files saved in the format as requested by the Village Engineer;
- .3 copies of all test reports and results;
- .4 all shop drawings;
- .5 a list of contractors and major subcontractors by work item; and
- .6 operating and Maintenance Manuals.

6.0 ABBREVIATIONS

Technical Legend

ABANDONED
ABBREVIATION
ACRE
ASBESTOS CONCRETE
ASPHALT
ASPHALT WALK
AIR VALVE
AVENUE
AVERAGE

Plan Profile Abbreviations

ABAND.
ABBREV.
AC.
A.C.
ASPH.
ASPH.W.
A.V.
AVE.
AVG.

Technical Legend

BACK OF CURB
BACK OF WALK
BASEMENT
BEARING
BEDDING
BEGINNING OF CURVE
BENCH MARK
BETWEEN
BLOCK
BOTTOM
BOTTOM OF PIPE
BOULEVARD
BOUNDARY
BUILDING
BEGINNING OF VERTICAL CURVE

CABLE TELEVISION
CALCULATED
CANADIAN NATIONAL RAILWAY
CANADIAN PACIFIC RAILWAY
CANADIAN STANDARDS ASSOCIATION
CAPACITY
CAST IRON
CATCH BASIN
CATHODIC PROTECTION
CENTIMETER
CENTRE LINE
CHECKED
CHECK VALVE
CHORD
CIRCLE
CLASS
CLEAN OUT
CONCRETE
CONCRETE WALK
CONDUIT
CONSTRUCTION/CONSTRUCT
CONTOUR
CONTRACTOR
COPPER
CORNER
CORRUGATED METAL PIPE
COUPLING
COURT

Technical Legend

Plan Profile Abbreviations

B.O.C.
B.O.W. or B.W.
BSMT
BRG.
BED.
B.C.
B.M.
BTWN
BLK
BTM
B.O.P.
BLVD.
BDY
BLDG
B.V.C.

T.V.
CALC
C.N.R.
C.P.R.
C.S.A.
CAP
C.I.
C.B.
C.P.
CM

CHKD
C.V.
CH
CIR
CL
C.O.
CONC
C.W.
COND
CONSTR or CONST
CONT
CONTR
CU
COR.
C.M.P.
CPLG
CT

Plan Profile Abbreviations

CREEK
CRESCENT
CROSSFALL
CROSS SECTION
CULVERT
CURB AND GUTTER

DEGREE
DELTA
DEPARTMENT
DIAMETER
DIMENSION
DISTANCE
DITCH
DOUBLE
DRAWING
DRIVEWAY
DRY WELL
DRIVE
DUCTILE IRON
DWELLING

EASEMENT
EAST
EDGE OF MEDIAN
EDGE OF PAVEMENT
EDGE OF SHOULDER
ELECTRIC
ELECTRIC LIGHT
ELEVATION
END OF CURVE
END OF VERTICAL CURVE
ESTIMATE
EXISTING

FACE OF CURB
(Rolled, Standard, Asphalt)
FACE OF WALK
FEET OR FOOT
FLANGE
FLANGED OUTLET
FLOOR
FOOTING
FORCE MAIN

Technical Legend

CR
CRES
X-FALL
X-SECTION
CULV
C & G

DEG or °

DEPT
DIA. or
DIM
DIST
D
DBL
DWG
DWY
D.W.
DR
DI
DWLG

ESMT
E
E.M.
E.P.
E.S.
ELEC
E.L.
ELEV
E.C.
E.V.C.
EST.
EXIST

F.C. (Roll F.C., Std. F.C., Asph.
F.C.)
F.W.
FT
FLG
F/O
FLR
FTG
F.M.

Plan Profile Abbreviations

FOUND	FD
GALVANIZED	GALV
GARAGE	GAR
GARDEN	GDN
GRAVEL	GRAV
GRADE	GR
GUARD RAIL	GDR
HECTARE	HA
HECTOMETRE	HM
HEIGHT	HT
HIGHWAY	HWY
HORIZONTAL	HOR
HORIZONTAL CURVE	HOR
HOSPITAL	HOSP
HYDRANT	HYD
INCH	IN or "
INLET CHAMBER	I.C.
INSIDE DIAMETER	I.D.
INTERSECTION	INT
INVERT	INV
IRON PIN, FOUND IRON PIN	I.P., F.I.P.
INSULATE	INS
INTAKE STRUCTURE	I.S.
JOINT	JT
KILOGRAM	KG
KILOMETRES	KM
KILOMETRES PER HOUR	KM/H
LATERAL	LAT
LEAD	L
LENGTH	LGTH
LENGTH OF CURVE	L.C.
LIFT STATION	L.STA
LIGHT STANDARD	L.S.
LIP OF GUTTER	L.G.
MAIN VALVE	M.V.
MANHOLE	M.H.
MANHOLE RIM	M.H.R.

Technical Legend

Plan Profile Abbreviations

MAXIMUM	MAX
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MECHANICAL JOINT	M.J.
METRE	m
METRE CHAMBER	M.C.
MEDIAN	M. or MED
MILES PER HOUR	M.P.H.
MILLIMETRE	mm
MINIMUM	min
MINISTRY OF TRANSPORT	M.O.T.
MONOLITHIC SIDEWALK	MONO
MONUMENT	MON
MORTAR JOINT	M.J.
MINUTES	MIN or '

NORTH	N
NORTH SIDE	N/S
NOT TO SCALE	N.T.S.
NUMBER	NO. or #

OBLITERATED	OBL
ON CENTRE	O.C. or O/C
ORIGINAL GROUND	O.G.
OPPOSITE FACE	O.F.
OUTLET CHAMBER	O.C.
OUTSIDE DIAMETER	O.D.

PARALLEL	PAR
PARKWAY	PKWY
PAVEMENT	PVMT
PER	/
PERCENT	%
PHASE	PH
PIPE	P
PLACE	PL
PLAN PROFILE	P.P.
PLUG	PLUG
POINT	PT
POINT ON CURVE	P.C.
POINT ON COMPOUND CURVE	P.C.C.
POINT ON TANGENT	P.T.
POINT ON INTERSECTION	P.I.
POUNDS	lbs
POUNDS PER SQUARE INCH	P.S.I.
POWER POLES	P-P

Technical Legend

Plan Profile Abbreviations

PRESSURE REDUCING VALVE	P.R.V.
PROPERTY LINE	P.L.

PROPOSED
PUMP STATION

PROP
P.S.

QUANTITY

QTY

RADIUS
RAILWAY
RAISED FACE
RECTIFIER
REDUCER
REFERENCE
REGISTERED PLAN
REINFORCED
RESTORED
REPLACEMENT
RESERVOIR
REVISION
RIGHT
ROAD
ROUND
RIGHT OF WAY

RAD OR R
RWY
R.F.
RECT
RED
REF
R.P.
REIN
RSTD
REPL
RES
REV
RT
RD

R/W or R.O.W.

SANITARY
SECOND
SECTION
SERVICE
SERVICE ROAD
SET IN FIELD
SIDEWALK PROFILE
SLOPE
SOUTH
SOUTH SIDE
SPECIFICATION
SPIRAL TO CURVE
SQUARE
STANDARD
STATION
STEEL
STORM
STREET
STRUCTURE
SUPPLY

SAN
SEC
SECT
SERV
SERV.RD.
S.I.F.
S.W.P.
SLP
S
S/S
SPEC
S.C.
SQ OR
STD
STA
STL
STM
ST
STR
SUP

Technical Legend

Plan Profile Abbreviations

SWALE
SYMBOL

SWL
SYM

TANGENT	TAN
TANGENT TO SPIRAL	T.S.
TECHNICAL	TECH
TEMPERATURE	TEMP
TEMPORARY	TEMPO
TEST HOLE	T.H.
TONGUE AND GROOVE	T.G.
TOWNSHIP	T.W.P.
TOP OF CURVE	T.O.C.
TOP OF PIPE	T.O.P.
TRAFFIC CONTROL	T.C.
TRAIL	TR.
TRANSFORMER	TRANSF
TRANSITE	TRANS
TYPICAL	TYP
UNDERGROUND	U.G. or U/G/
UNDER CONSTRUCTION	U/C
VELOCITY	VEL
VERTICAL	VERT
VERTICAL CURVE	V.C.
VOLUME	VOL
WALL THICKNESS	W.T.
WASH OUT	W/O
WATER	W
WEST	West
WEST SIDE	W/S
WEEPING TILE	W.TILE
WEIGHT	Wt
WIDTH	WDTH
WITNESS PIN	W.PIN
WOODEN POST	W.P.
YARD	YD2