

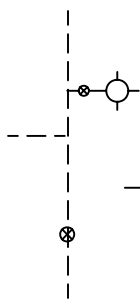
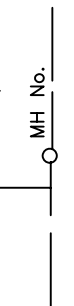
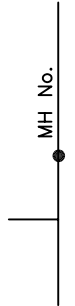

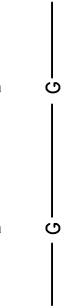
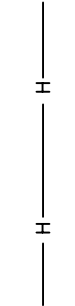


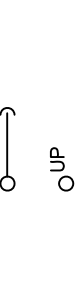
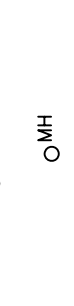

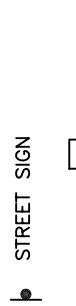




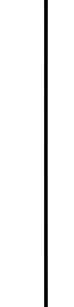
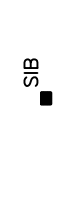
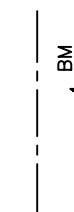




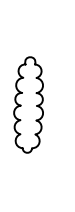


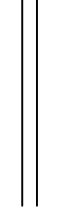








CORPORATION  
TOWN OF  
SMITHS FALLS

LEGEND FOR  
CROSS - SECTION

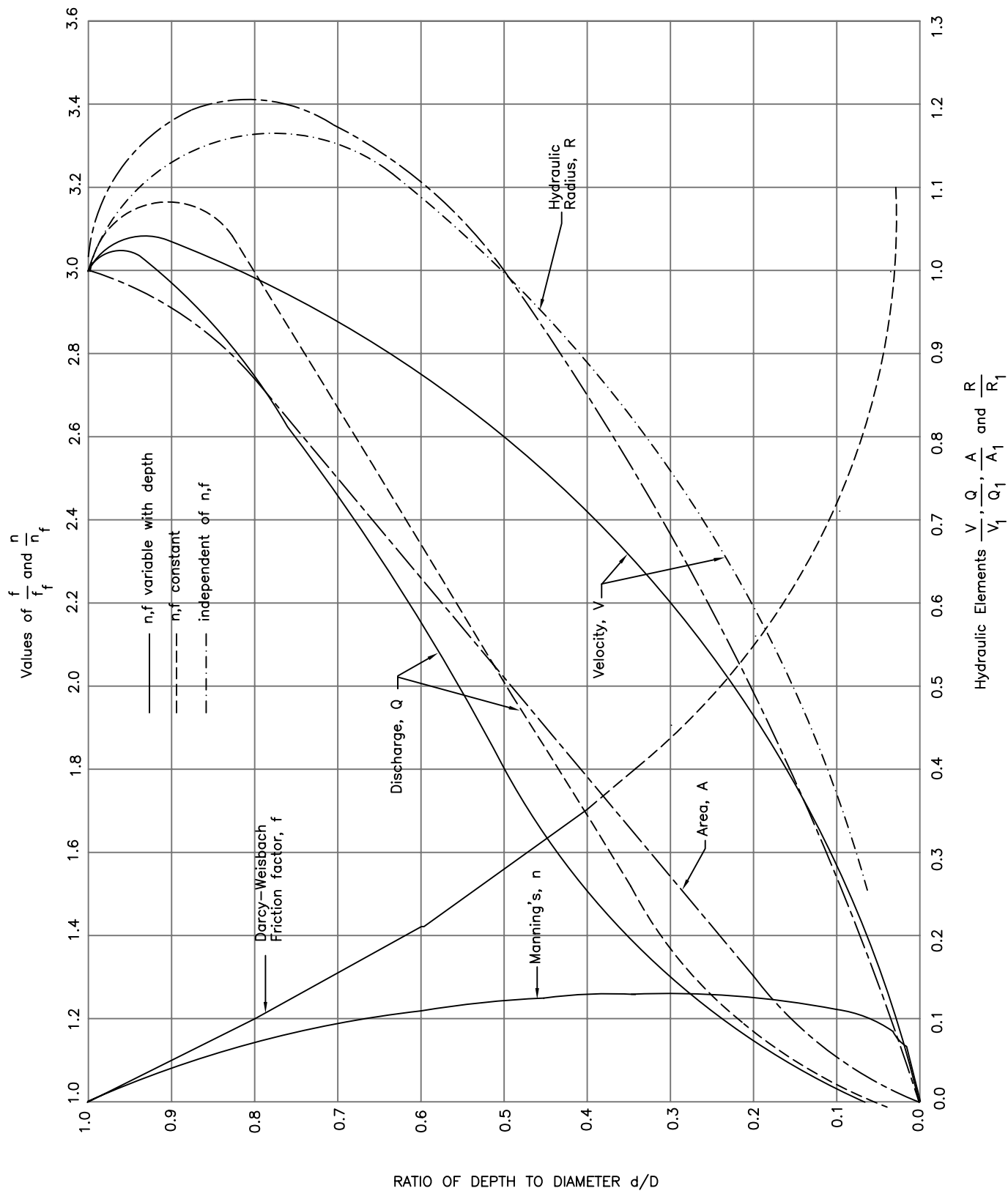
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Eng/Envir. Co-ord

REV. DATE: November 2000

DWG. No.: G-1

|  |   |  |   |   |  |   |   |   |   |   |   |   |  |  |   |   |
|--|---|--|---|---|--|---|---|---|---|---|---|---|--|--|---|---|
|  <p>WATERMAIN WITH HOUSE CONNECTION GATE VALVE AND VALVE CHAMBER AND HYDRANT WITH ISOLATING VALVE</p> |  <p>STORM SEWER WITH HOUSE SERVICE AND MAINTENANCE HOLE (WITH M.H. NUMBER)</p> |  <p>SANITARY SEWER WITH HOUSE SERVICE AND MAINTENANCE HOLE (WITH M.H. NUMBER)</p> |  <p>BELL TELEPHONE UNDERGROUND CONDUIT</p> |  <p>GAS MAIN</p> |  <p>HYDRO UNDERGROUND CONDUIT</p> |  <p>DITCH</p>                |  <p>CULVERT (GIVE LENGTH, SIZE &amp; TYPE)</p> |  <p>BELL POLE WITH GUY</p> |  <p>UTILITY POLE (Bell &amp; Hydro)</p> |  <p>EXISTING MANHOLE</p> |  <p>PROPOSED MANHOLE</p> |  <p>STREET NAME SIGN (ILLUMINATED)</p> |  <p>TRANSFORMER</p> |  <p>BELL PEDESTAL</p> |  <p>CABLE PEDESTAL</p> |  <p>ROCK ELEVATION</p> |
|  <p>STANDARD IRON SURVEY BAR</p>  |  <p>PROPERTY LINE</p>  |  <p>BENCH MARK</p>  |  <p>HOUSE</p>                                |  <p>WATERVALVE</p> |  <p>FENCE</p>                       |  <p>CATCHBASIN ( PROPOSED)</p> |  <p>HEDGE</p>                                    |  <p>DECIDUOUS TREE</p>       |  <p>CONIFEROUS TREE</p>                    |  <p>CURB</p>                |  <p>PATHWAY</p>            | <p><u>COLOUR SCHEME ON PRINTS</u></p>   |  |  |   |   |
|  <p>YELLOW</p>  | <p>HYDRO AND LIGHT CABLE, ELECTRIC SYSTEMS</p>  |  |   |   |  |  <p>VIOLET</p>               | <p>GAS MAIN, OIL AND STEAM LINES</p>  |   |   |   |   |   |  |  |   |   |
|  <p>BLUE</p>  | <p>WATERMAIN</p>  |  |   |   |  |  <p>BROWN</p>                | <p>BELL, TELEGRAPH, CABLE TELEVISION, TRAFFIC SYSTEM AND POLICE AND FIRE COMMUNICATIONS</p>                                       |   |   |   |   |   |  |  |   |   |
|  <p>GREEN</p>   | <p>STORM SEWER</p>  |  |   |   |  |  <p>RED</p>                  | <p>SANITARY SEWER</p>   |   |   |   |   |   |  |  |   |   |

HYDRAULIC - ELEMENTS GRAPH FOR CIRCULAR SEWERS



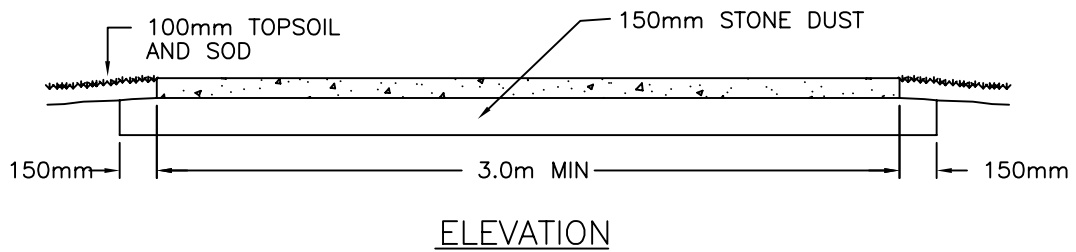
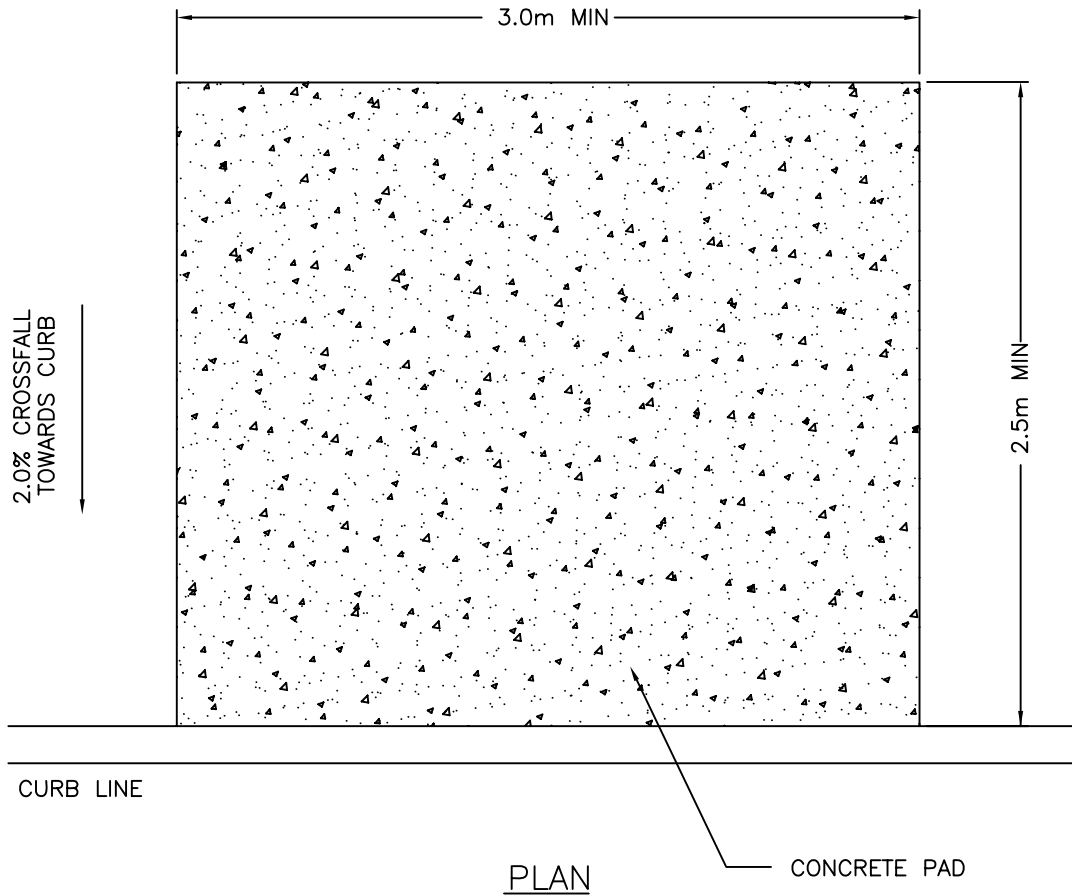
CORPORATION  
TOWN OF  
SMITHS FALLS

HYDRAULIC ELEMENTS  
GRAPH FOR A  
CIRCULAR SEWER

DRAWN / REVISED BY:  
Dean Buchanan, C.E.T., rcca  
Eng/Envir. Co-ord

REV. DATE: January 2001

DWG. No.: G-10



1. NOTES:  
ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN

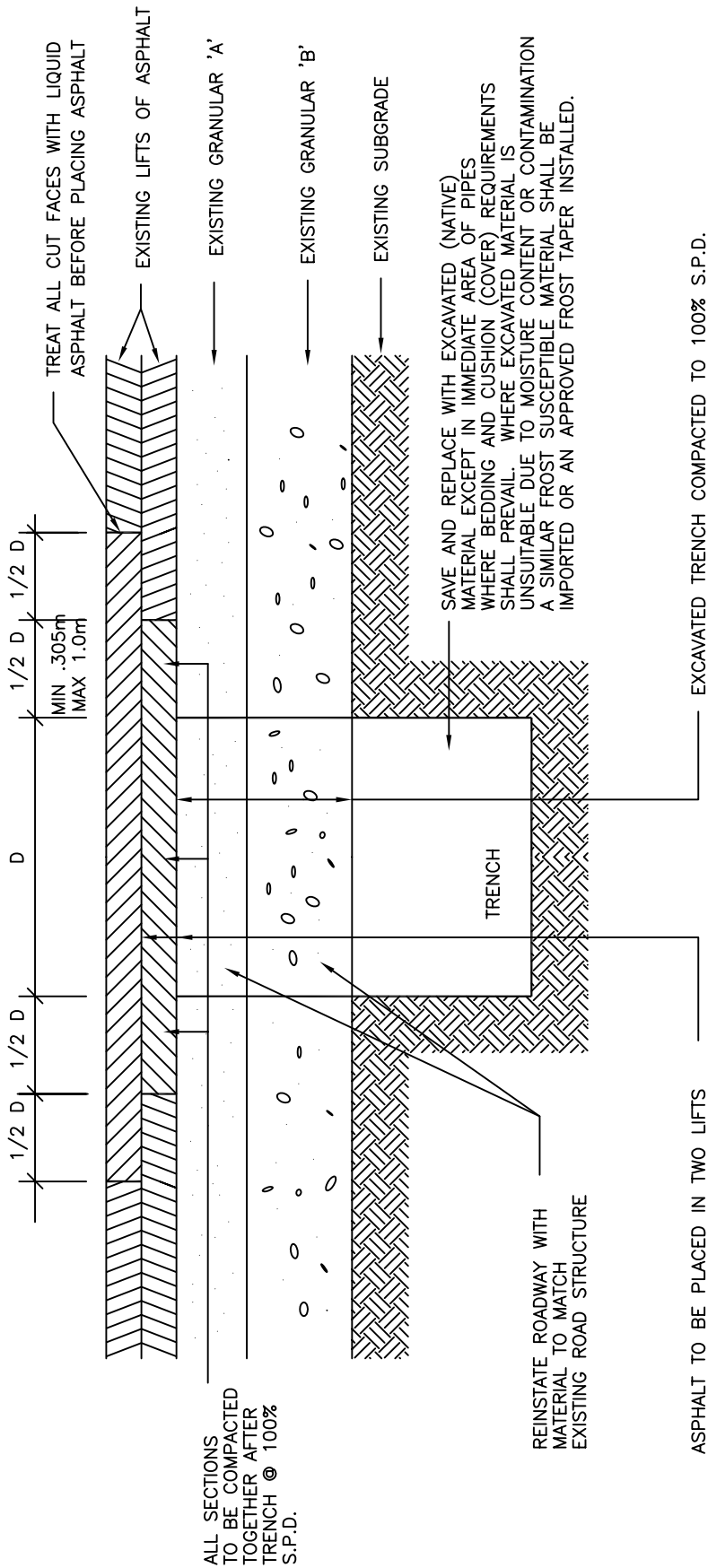
*CORPORATION  
TOWN OF  
SMITHS FALLS*

TYPICAL  
UTILITY  
PAD

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Eng/Envir. Co-ord

REV. DATE: November 2000

DWG. No.: G-9



ALL SECTIONS TO BE COMPACTED TOGETHER AFTER TRENCH @ 100% S.P.D.

REINSTATE ROADWAY WITH MATERIAL TO MATCH EXISTING ROAD STRUCTURE

ASPHALT TO BE PLACED IN TWO LIFTS

EXCAVATED TRENCH COMPACTED TO 100% S.P.D.

NOTE  
ALL EXISTING ASPHALT TO BE SAW CUT

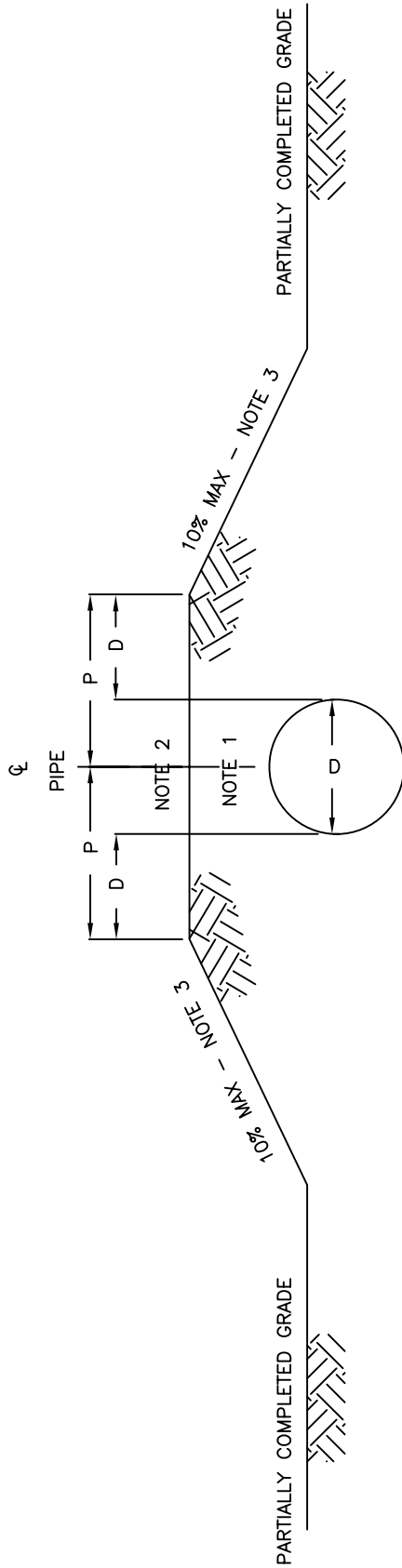
CORPORATION  
TOWN OF  
SMITHS FALLS

STANDARD  
ROAD  
CUT

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Eng/Envir. Co-ord

REV. DATE: November 2000

DWG. No.: G-8



NOTES:

- 1) DEPTH OF COVER MATERIAL:  
 --FOR FLEXIBLE PIPE THE DEPTH OF COVER MATERIAL PLUS BACKFILL OVER TOP OF PIPE MUST be 600mm MIN OR ( $\phi$  OR SPAN/4) PLUS 300mm, WHICHEVER IS GREATER  
 --FOR CONCRETE PIPE THE DEPTH OF COVER MATERIAL PLUS BACKFILL OVER TOP OF PIPE MUST BE 1000mm MIN
- 2) WHEN PROTECTION IS HIGHER THAN SUBGRADE, IT IS TO BE REMOVED TO SUBGRADE LEVEL BEFORE PLACING GRANULAR BASE
- 3) WHEN PROTECTION IS USED FOR PUBLIC VEHICULAR TRAFFIC, THE MAXIMUM SLOPE SHALL BE 5%
- 4)  $P = 1500\text{mm}$  OR  $1.5D$  WHICHEVER IS GREATER  
 $D = \text{DIAMETER OF CIRCULAR PIPE OR SPAN OF PIPE-ARCH}$
- 5) CONTAMINATED MATERIAL TO BE REMOVED AND REPLACED
- 6) ALL DIMENSIONS ARE IN MILLIMETRES OR METRES UNLESS OTHERWISE SHOWN

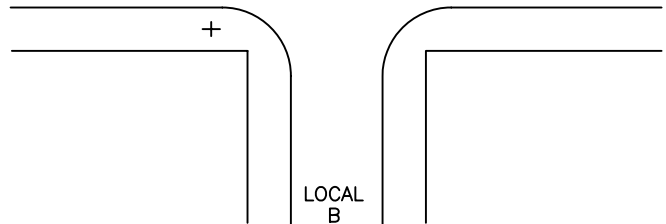
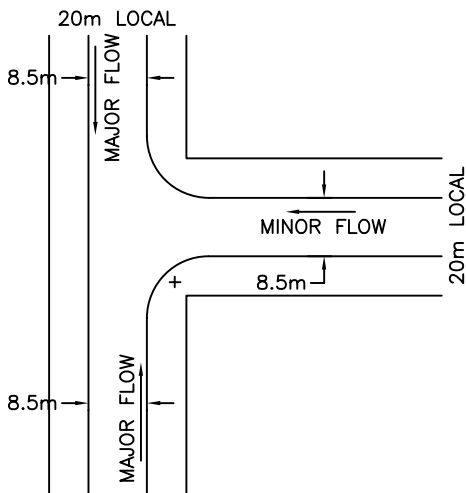
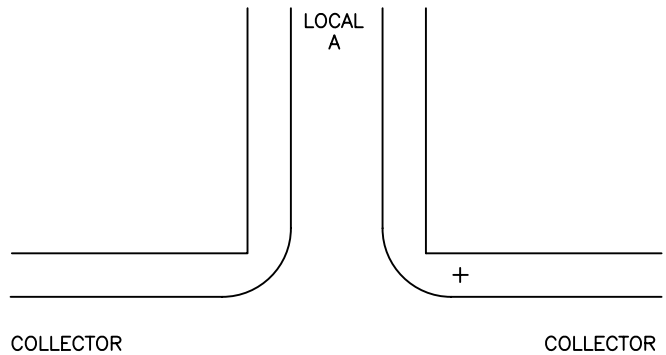
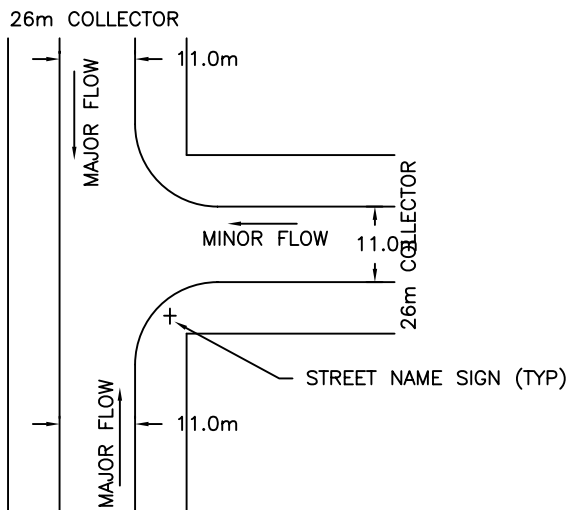
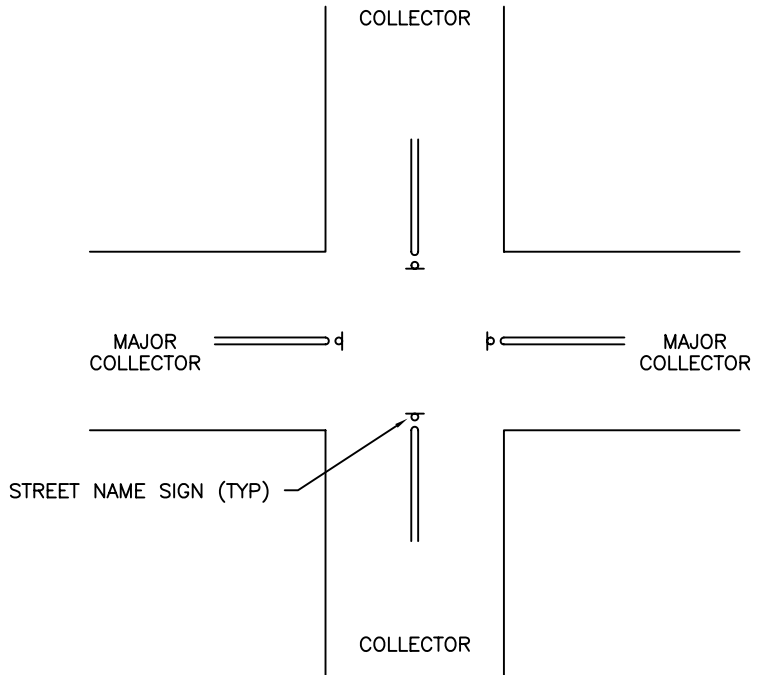
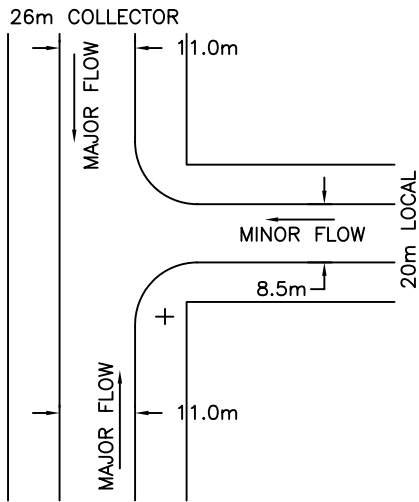
CORPORATION  
TOWN OF  
SMITHS FALLS

CULVERT PROTECTION  
AGAINST HEAVY  
CONSTRUCTION EQUIPMENT

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Eng/Envir. Co-ord

REV. DATE: November 2000

DWG. No.: G-7



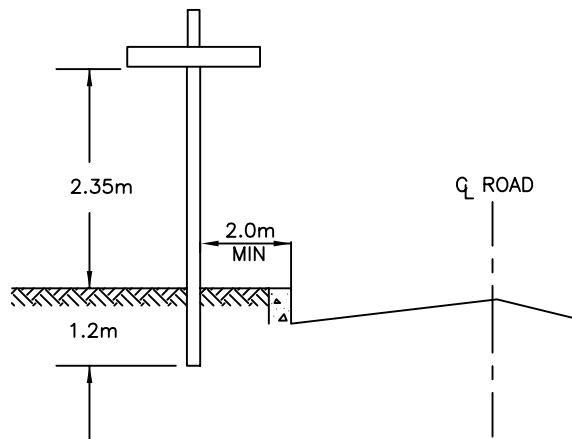
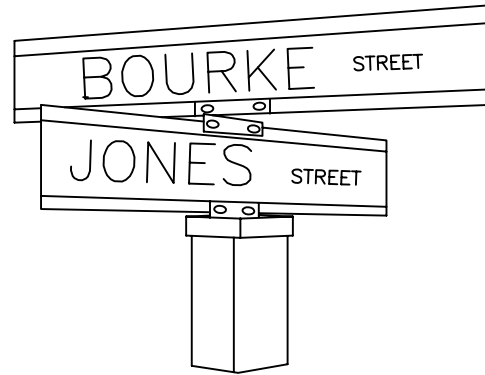
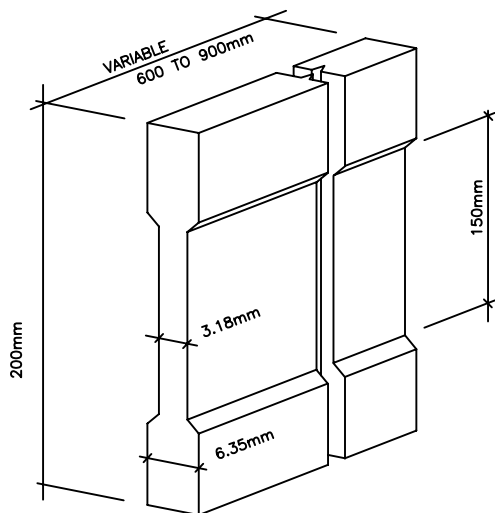
NOTES

1. SIGNS MAY BE STRAPPED TO STREETLIGHTS IF INSTALLED, WITH STAINLESS STEEL STRAPS.
2. FINAL LOCATIONS TO BE DETERMINED UPON DEVELOPMENT OF COMPOSITE UTILITY PLAN.
3. LOCATION OF SIGNS ON MAJOR ROADS TO BE APPROVED BY THE DIRECTOR OF ENVIRONMENTAL / UTILITY SERVICES.

*CORPORATION  
TOWN OF  
SMITHS FALLS*

EXTRUDED ALUMINUM  
STREET NAME SIGNS  
LOCATIONS

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Dean Buchanan, C.E.T., rcca  
Eng/Envir. Co-ord  
REV. DATE: November 2000  
DWG. No.: G-6A



NOTES:

- 1) STANDARD ENGINEERING GRADE REFLECTIVE SHEETING TO BE USED FOR THE BACKGROUND, LETTERS
- 2) COLOUR: BACKGROUND – GREEN REFLECTIVE  
LETTERS – WHITE REFLECTIVE
- 3) STREET NAME LETTER SIZE SHALL BE 130mm. SUFFIX LETTER SIZE SHALL BE 130mm.
- 4) MAXIMUM SIGN LENGTH TO BE 900mm (36”).
- 5) THE SIGNS SHALL BE MOUNTED ON A 52cm DIA. STEEL POST WITH A POST CAP #AS-238 AND CROSS MOUNTING BRACKET #AS90 AND INSTALLED A MINIMUM OF 2m FROM THE EDGE OF PAVEMENT ON THE RADIUS OF THE INTERSECTION, TO THE SATISFACTION OF OF THE DIRECTOR OF ENVIRONMENTAL/UTILITY SERVICES.
- 6) THE SIGNS SHALL BE MOUNTED AT 2.35m ABOVE ADJACENT CENTRE LINE ROADWAY ELEVATION.
- 7) TWO SIZES OF SIGNS TO BE USED – RESIDENTIAL STREET – 16cm blade  
– CONNECTING LINK ROAD A 20 cm BLADE SHALL BE USED

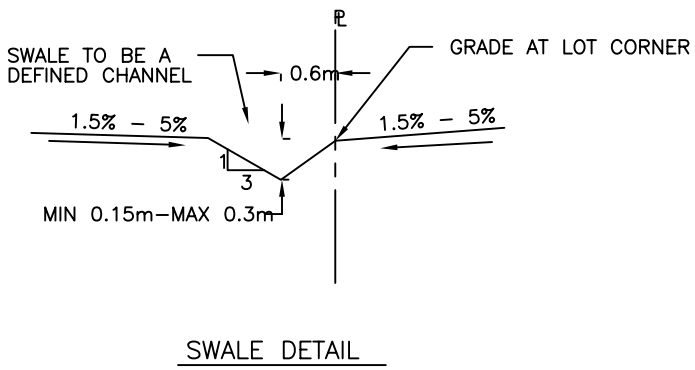
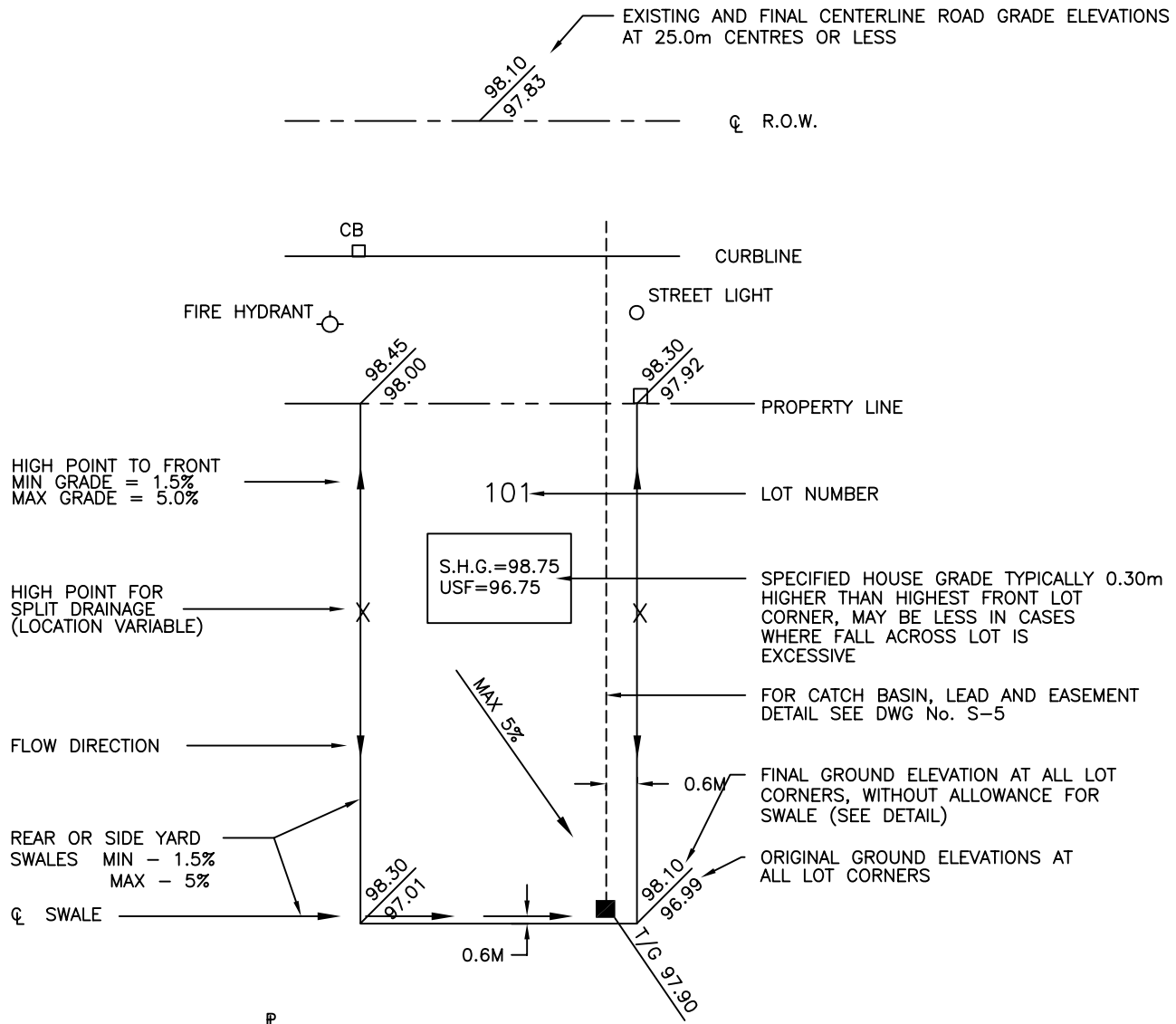
*CORPORATION  
TOWN OF  
SMITHS FALLS*

EXTRUDED ALUMINUM  
STREET NAME  
SIGN

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Dean Buchanan, C.E.T., rcca  
Eng/Envir. Co-ord

REV. DATE: November 2000

DWG. No.: G-6



NOTES:

- 1) SURFACE DRAINAGE FROM ABUTTING LANDS TO BE ACCOMODATED WITHIN STORM DRAINAGE SYSTEM.
- 2) IF REARYARD OR SIDEYARD GRADING REQUIRED SLOPES IN EXCESS OF 5%, RETAINING WALLS OR TERRACING IS ACCEPTABLE
- 3) LOCATIONS OF ALL STREET FURNITURE TO BE SHOWN
- 4) MAXIMUM NUMBER OF REARYARDS TO DRAIN TO A CB IS 8 AT AN AVERAGE OF 20m FRONTAGE

CORPORATION  
TOWN OF  
SMITHS FALLS

GRADE CONTROL  
REQUIREMENTS

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Eng/Envir. Co-ord

REV. DATE: November 2000

DWG. No.: G-5

CORPORATION  
TOWN OF  
SMITHS FALLS

GRADE CONTROL  
REQUIREMENTS FOR  
TOWNHOUSE DEVELOPMENTS

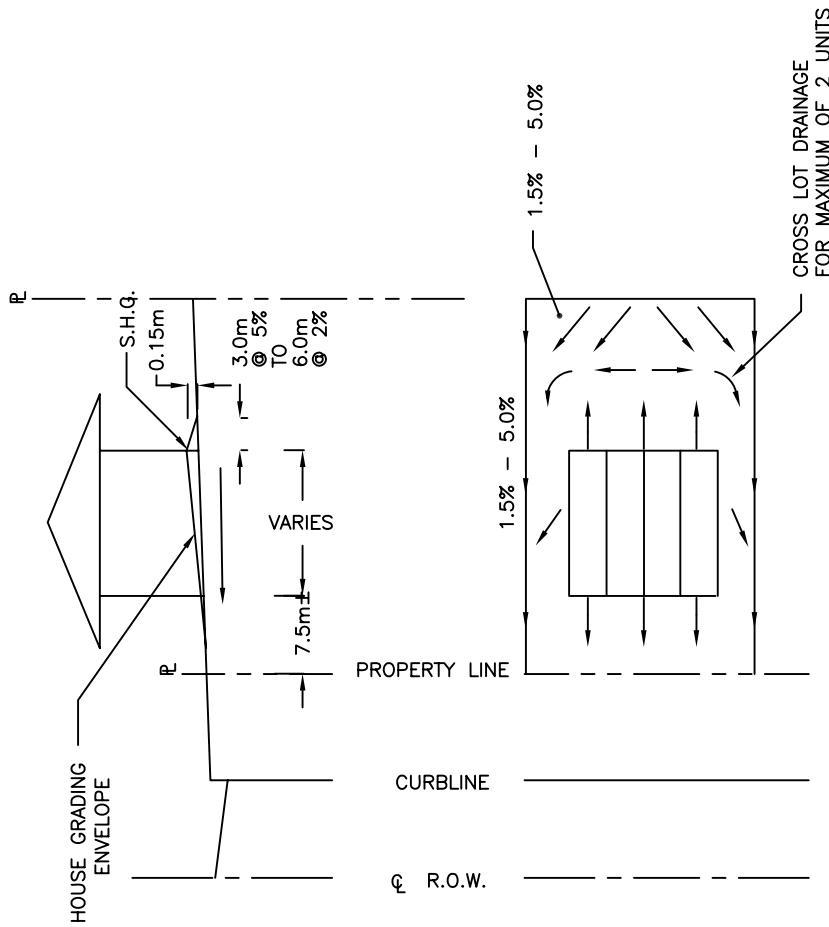
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Eng/Envir. Co-ord

REV. DATE: November 2000

DWG. No.: G-4A

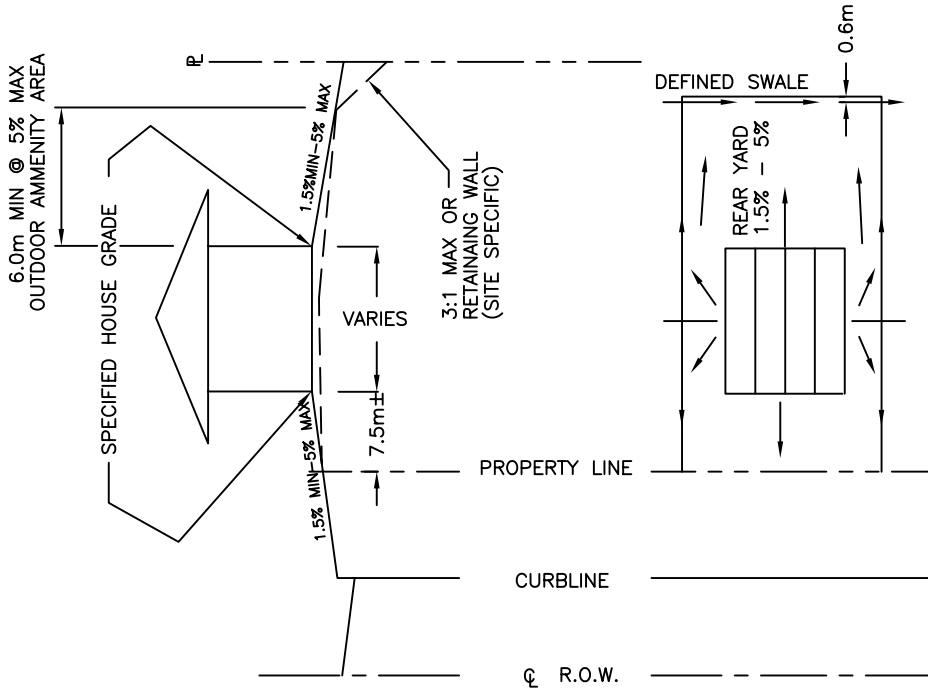
TYPICAL BACK TO FRONT DRAINAGE

NOTE: ONLY TO BE USED IN AREAS WHERE  
SPLIT DRAINAGE IS NOT FEASIBLE IN THE  
OPINION OF THE TOWN ENGINEERING DEPT  
ADDITIONAL REAR LOT CATCHBASINS MAY BE  
REQUIRED AT THE DISCRETION OF THE TOWN ENGINEER



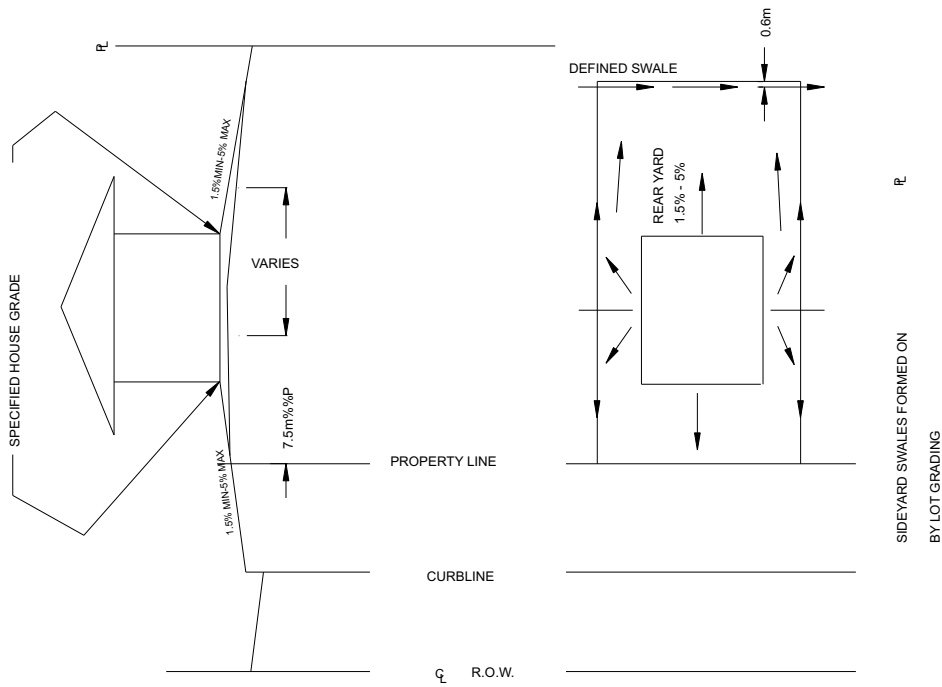
ENSURE THAT ALL POINTS ON THE  
FOUNDATION PERIMETER AND PROTECTIVE APRON  
ARE MAINTAINED WITH FALL AWAY FROM HOUSE, 0.15m MIN

TYPICAL SPLIT DRAINAGE

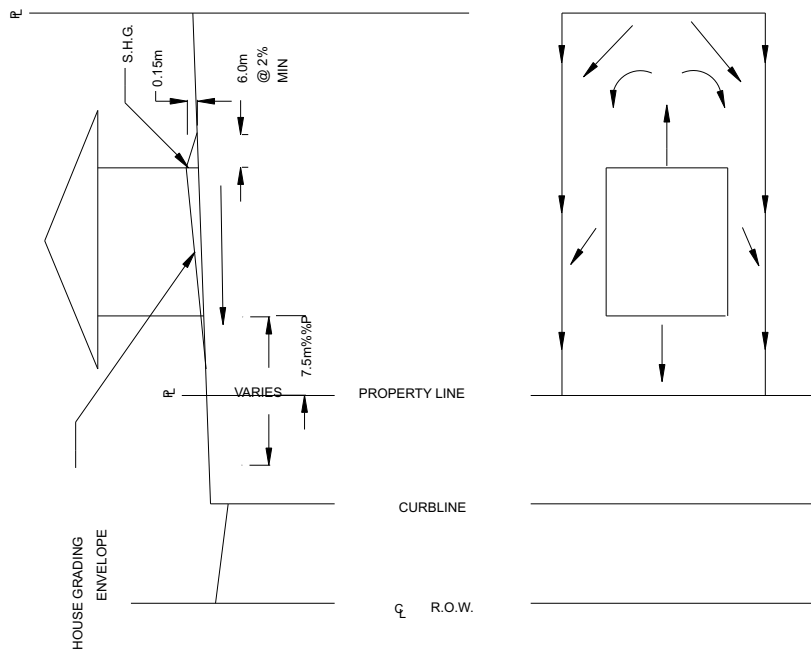


SIDEYARD SWALES FORMED ON  
BY LOT GRADING

NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH  
SITE GRADING PLAN AND STD DWG G-5



TYPICAL SPLIT DRAINAGE



TYPICAL BACK TO FRONT DRAINAGE

NOTE: ONLY TO BE USED IN AREAS WHERE  
 SPLIT DRAINAGE IS NOT FEASIBLE IN THE  
 OPINION OF THE TOWN ENGINEERING DEPT

ENSURE THAT ALL POINTS ON THE  
 FOUNDATION PERIMETER AND PROTECTIVE APRON  
 ARE MAINTAINED WITH FALL AWAY FROM HOUSE, 0.15m MIN

CORPORATION  
 TOWN OF  
 SMITHS FALLS

GRADE  
 CONTROL  
 REQUIREMENTS

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 Engineering Assistant

REV. DATE: November 2000

DWG. No.: G-4

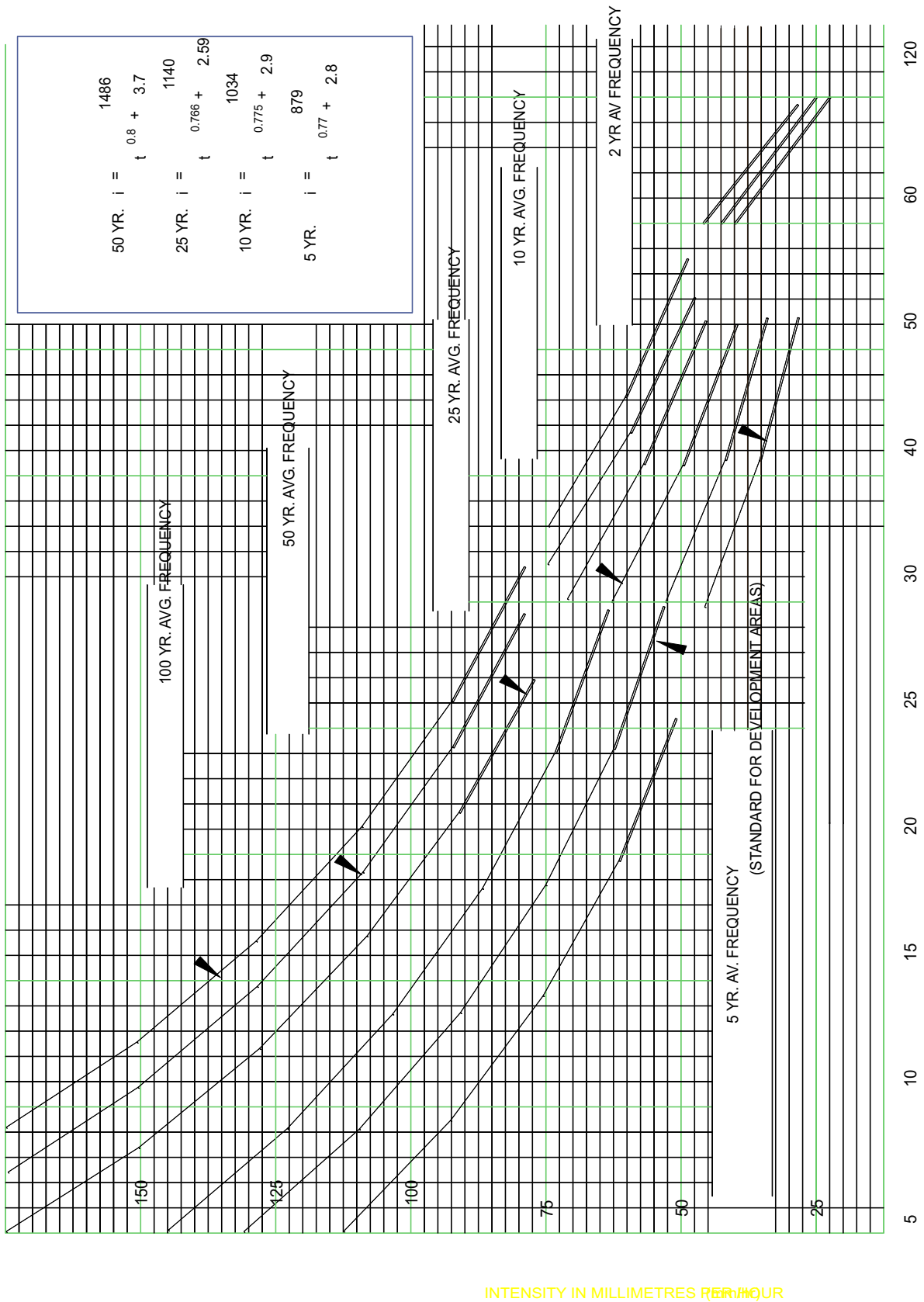
CORPORATION  
TOWN OF  
SMITHS FALLS

INTENSITY, DURATION  
FOR FREQUENCY OF  
RAINFALL CURVE

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Engineering Assistant

REV. DATE: November 2000

DWG. No.: **G-3**



**A. RURAL LANDS**

| TOPOGRAPHY AND<br>VEGETATION |        |       | SOIL TEXTURE       |                       |                    |
|------------------------------|--------|-------|--------------------|-----------------------|--------------------|
|                              |        |       | OPEN<br>SANDY LOAM | CLAY AND<br>SILT LOAM | IMPERVIOUS<br>CLAY |
| <b>WOODLAND</b>              |        |       |                    |                       |                    |
| FLAT                         | 0-5%   | SLOPE | 0.10               | 0.30                  | 0.40               |
| ROLLING                      | 5-10%  | SLOPE | 0.25               | 0.35                  | 0.50               |
| HILLY                        | 10-30% | SLOPE | 0.30               | 0.50                  | 0.60               |
| <b>PASTURE</b>               |        |       |                    |                       |                    |
| FLAT                         | 0-5%   | SLOPE | 0.10               | 0.30                  | 0.40               |
| ROLLING                      | 5-10%  | SLOPE | 0.16               | 0.36                  | 0.55               |
| HILLY                        | 10-30% | SLOPE | 0.22               | 0.42                  | 0.60               |
| <b>CULTIVATED</b>            |        |       |                    |                       |                    |
| FLAT                         | 0-5%   | SLOPE | 0.30               | 0.50                  | 0.60               |
| ROLLING                      | 5-10%  | SLOPE | 0.40               | 0.60                  | 0.70               |
| HILLY                        | 10-30% | SLOPE | 0.52               | 0.72                  | 0.82               |

**B. URBAN LANDS**

| URBAN AREAS |       |       | 30%<br>IMPERVIOUS | 50%<br>IMPERVIOUS | 70%<br>IMPERVIOUS |
|-------------|-------|-------|-------------------|-------------------|-------------------|
| FLAT        | 0-5%  | SLOPE | 0.40              | 0.55              | 0.75              |
| ROLLING     | 5-10% | SLOPE | 0.50              | 0.65              | 0.90              |

| PAVED AREAS                         |                 |
|-------------------------------------|-----------------|
| BITUMINOUS AND CONCRETE PAVEMENT    | C = 0.9 - 1.00  |
| DENSELY BUILT - PAVED AREAS         | C = 0.9         |
| COMMERCIAL AND FACTORY AREAS        |                 |
| ROAD SHOULDERS                      | C = 0.70        |
| LIGHT FACTORIES AND APARTMENT AREAS | C = 0.60        |
| COMPACT RESIDENTIAL AREAS           | C = 0.50        |
| SUBURBAN RESIDENTIAL AREAS          | C = 0.30 - 0.40 |
| GRAVEL SURFACES                     | C = 0.25 - 0.70 |
| PARKS, RAILWAY YARDS                | C = 0.20        |

**NOTES:**

VALUES OF "C" CAN BE COMBINED TO GET AN AVERAGE FOR A WATERSHED CONSISTING OF SEVERAL DISTINCT ZONES.

E.G. WATERSHED CONSISTS OF:

- 20% HILLY WOODLAND ON SANDY LOAM (C=0.30)
- 30% ROLLING WOODLAND ON CLAY AND SILT LOAM (C=0.35)
- 50% ROLLING CULTIVATED IMPERVIOUS CLAY (C=0.70)

AVERAGE "C"  $\frac{(0.2 \times 0.3) + (0.3 \times 0.35) + (0.5 \times 0.7)}{1.35} = 0.38$

**CORPORATION  
TOWN OF  
SMITHS FALLS**

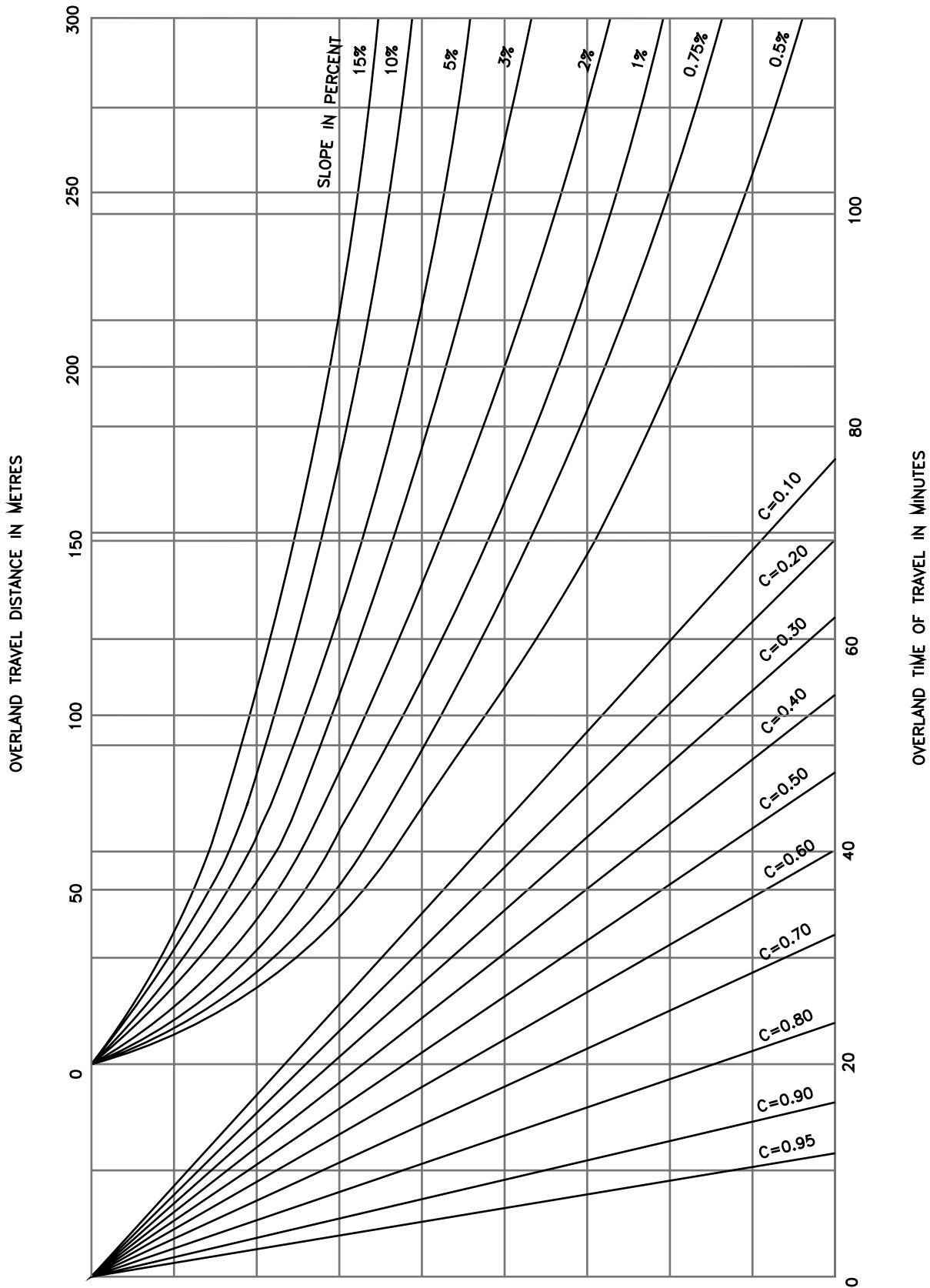
FOR  
RUNOFF COEFFICIENT  
TABLE OF VALUES

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Dean Buchanan, CET  
Engineering Assistant

REV. DATE: November 2000

DWG. No.: **G-2**

TIME OF CONCENTRATION



CORPORATION  
TOWN OF  
SMITHS FALLS

OVERLAND TIME  
OF FLOW  
GRAPH

Dean Buchanan, C.E.T., rcco  
Eng/Envir. Co-ord  
January 2001