

APPENDICES

CONTENTS

| | <u>APPENDIX</u> |
|--|-----------------|
| FORM - REVISION REQUEST SUMMARY SHEET FOR THE MANUAL OF ENGINEERING STANDARDS & SPECIFICATIONS | A |
| SECTIONAL CROSS-REFERENCE | B |
| FORM - CONDITION SHEET | C |
| FORM - EASEMENT RELEASE AND INSPECTION FOLLOWING INSTALLATION OF UTILITY | C |
| SAMPLE EASEMENT SKETCH – RW2 | C |
| MINIMUM REQUIRED STATUTORY RIGHT-OF-WAY AND WORKING STRIP WIDTHS FOR UNDERGROUND SERVICES THROUGH PRIVATE PROPERTY | D |
| FORM - RECORD STATISTICS | E |
| FORM - SERVICE SHEET | F1 |
| FORM - WATER METER INFORMATION SHEET | F2 |
| FORM - CERTIFICATION OF DESIGN | G1 |
| FORM - CERTIFICATION OF INSTALLED WORKS | G2 |
| FORM - CERTIFICATION OF STREET LIGHT INSTALLATION | G3 |
| FORM - CERTIFICATION OF LANDSCAPE INSTALLATION | G4 |
| FORM - SANITARY SEWER FLOW ANALYSIS | H1 |
| FORM - STORM SEWER FLOW ANALYSIS | H2 |
| FORM - FIRE FLOW CALCULATION SHEET | H3 |
| AMENDMENT RECORD | |

**Revision Request Summary Sheet
for the Manual of Engineering Standards and Specifications**

APPENDIX A

Revision Request No. _____
(filed by Engineering Services Technologist)

Date: _____

To: Engineering Services Technologist - City of Nanaimo

From: _____ **Department** _____

Phone no. _____ (or Company name)

Section Number / Drawing Reference _____

Change Requested _____

Reason for change _____

Signature: _____ **Date:** _____

Authorized _____ **Date:** _____
(City Engineer)

Action _____ **Date:** _____

SECTIONAL CROSS REFERENCE

TO BE INCLUDED

IN

FUTURE

REVISION

CITY OF NANAIMO
455 Wallace Street, Nanaimo, B.C., V9R 5J6

EASEMENT RELEASE AND INSPECTION FOLLOWING INSTALLATION OF UTILITY

Contractor: _____ Contract No.: _____

Owner's Name: _____ Easement Reference No.: _____

Mailing Address: _____

Location: _____

Legal Description: _____

Manhole No.: _____ to Manhole No.: _____

Clean-up of easement is satisfactory and meets the requirements as set out in the easement condition form.

Date: _____ Property Owner: _____

Clean-up of easement is NOT satisfactory until the following work has been carried out: _____

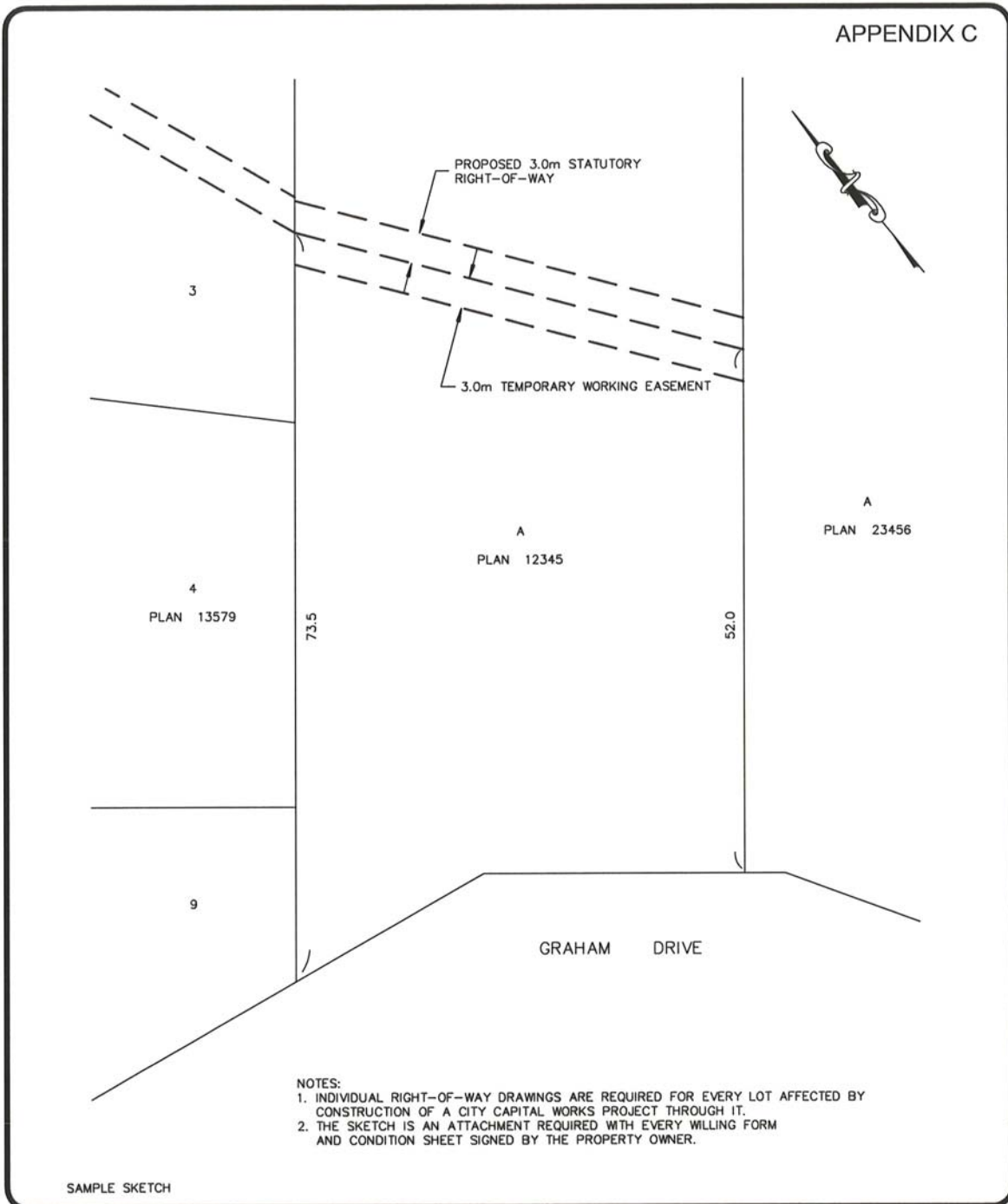
Date: _____ Property Owner: _____

Contractor's Agent: _____

=====

Consulting Engineers' Approval and Recommendation: _____

Consulting Engineer



- NOTES:
1. INDIVIDUAL RIGHT-OF-WAY DRAWINGS ARE REQUIRED FOR EVERY LOT AFFECTED BY CONSTRUCTION OF A CITY CAPITAL WORKS PROJECT THROUGH IT.
 2. THE SKETCH IS AN ATTACHMENT REQUIRED WITH EVERY WILLING FORM AND CONDITION SHEET SIGNED BY THE PROPERTY OWNER.

SAMPLE SKETCH



PROPOSED RIGHT-OF-WAY

| | |
|------------|----------|
| Scale | N.T.S. |
| Drawn | D.M. |
| Rev. Date: | MAY 2006 |
| Dwg. No. | RW-2 |

Engineering Standards & Specifications
November 2009 Edition

**MINIMUM REQUIRED STATUTORY RIGHT-OF-WAY AND TEMPORARY WORKING
EASEMENT WIDTHS FOR UNDERGROUND SERVICES THROUGH PRIVATE PROPERTY**

| Max. Pipe Size 0 | Trench Depth | Right-of-way Width | Temporary Working Easement Widths |
|-------------------|----------------|--------------------|-----------------------------------|
| 0 - 600 mm | 0 - 2 m depth | 3 m | 3 m |
| | 2 - 3 m depth | 3 m | 4 m |
| | 3 - 4 m depth | 3 m | 5 m |
| | over 4 m depth | 3 m | negotiable |
| over 600 - 900 mm | 0 - 2 m depth | 4 m | 4 m |
| | 2 - 3 m depth | 4 m | 5 m |
| | 3 - 4 m depth | 5 m | 6 m |
| | over 4 m depth | 5 m | negotiable |
| over 900 mm | | 5 m | negotiable |

1. The minimum statutory right-of-way width for common trench installations (two utilities) shall be 4.5 m.
2. In sideyard right-of-ways where the slope of the pipe(s) exceeds 10%; the right-of-way shall be increased to 4.5m for one pipe and 6.0m for two pipes.
3. The above figures are to be used as a guideline for minimum widths only.
4. In areas of rock, steep ground, or other special situations, widths may have to be increased at the discretion of the City Engineer.

STORM SEWER WORKS

| ITEM | TYPE | CLASS | UNIT | QUANTITY | COST PER UNIT (\$) | VALUE (\$) |
|----------------------|------|-------|------|----------|-----------------------|------------|
| 100mm | | | L.M. | | | |
| 150mm | | | L.M. | | | |
| 200mm | | | L.M. | | | |
| 250mm | | | L.M. | | | |
| 300mm | | | L.M. | | | |
| 375mm | | | L.M. | | | |
| 400mm | | | L.M. | | | |
| 450mm | | | L.M. | | | |
| 525mm | | | L.M. | | | |
| 600mm | | | L.M. | | | |
| 675mm | | | L.M. | | | |
| 750mm | | | L.M. | | | |
| 825mm | | | L.M. | | | |
| 900mm | | | L.M. | | | |
| MANHOLE | | | EACH | | | |
| CLEANOUT | | | EACH | | | |
| DOUBLE CATCHBASIN | | | EACH | | | |
| CATCHBASIN | | | EACH | | | |
| INLET | | | EACH | | | |
| OUTLET | | | EACH | | | |
| TOTAL | | | | | | |

STREETS, SIDEWALKS, CURBS, STREETLIGHTS

| ITEM | UNIT | QUANTITY | COST PER UNIT (\$) | VALUE (\$) |
|--|------|----------|-----------------------|------------|
| 50 mm Asphalt 5.7m wide incl. base and subbase (Lane) | L.M. | | | |
| 50 mm Asphalt 6.0m wide incl. base and subbase (1/2 Local) | L.M. | | | |
| 50mm Asphalt 8.5m wide incl. base and subbase (Local) | L.M. | | | |
| 50mm Asphalt 10m wide incl. base and subbase (Local) | L.M. | | | |
| 50mm Asphalt 10.2m wide incl. base and subbase (Local) | L.M. | | | |
| 75mm Asphalt 12.2m wide incl. base and subbase (Collector) | L.M. | | | |
| 75mm Asphalt 14.2m wide incl. base and subbase (Collector) | L.M. | | | |
| 75mm Asphalt 15.6m wide incl. base and subbase (Collector) | L.M. | | | |
| 75mm Asphalt 17.4m wide incl. base and subbase (Arterial) | L.M. | | | |
| 75mm Asphalt 18.9m wide incl. base and subbase (Collector) | L.M. | | | |
| 75mm Asphalt 20.1m wide incl. base and subbase (Arterial) | L.M. | | | |
| Asphalt Widening & Patching | S.M. | | | |
| Mountable curb and gutter | L.M. | | | |
| Non-mountable curb or curb and gutter | L.M. | | | |
| 1.5m wide concrete sidewalk | L.M. | | | |
| 1.8m wide concrete sidewalk | L.M. | | | |
| 1.5m wide asphalt sidewalk | L.M. | | | |
| 1.8m wide asphalt sidewalk | L.M. | | | |
| 2.0m wide asphalt walkway | L.M. | | | |
| 3.0m wide asphalt walkway | L.M. | | | |
| Trail* | L.M. | | | |
| Trail* | L.M. | | | |
| Streetlights** | EACH | | | |
| TOTAL | | | | |

**GRAND TOTAL
OF ALL WORKS**

***Note the width of the trail and the material type as per the Parks, Recreation and Culture Trail Implementation Plan**

****The cost per unit for streetlights includes supply of all materials and installation of electrical service equipment, concrete pole base, conduit, wiring, pole and lamp for each streetlight.**

LANDSCAPING & IRRIGATION

| ITEM | UNIT | QUANTITY | COST PER UNIT (\$) | VALUE (\$) |
|-----------------------|------|----------|-----------------------|------------|
| Street Trees | | | | |
| ØIrrigation Piping | | | | |
| Irrigation Controller | | | | |
| Top Soil | | | | |
| Sod/Seeding | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

STATISTIC TOTALS

DATE OF CERTIFICATION:

DATE:

ENG. CO.:

| ITEM | UNITS | QUANTITY | TOTAL |
|------------------------|-------|----------|-------|
| WATERMAINS | l.m. | | |
| SANITARY SEWERS | l.m. | | |
| STORM SEWERS | l.m. | | |
| ROADS | l.m. | | |
| LANES | l.m. | | |
| SIDEWALKS | l.m. | | |
| WALKWAYS/TRAILWAYS | l.m. | | |
| CURB AND GUTTER | l.m. | | |
| FIRE HYDRANTS | EACH | | |
| STREETLIGHTS | EACH | | |
| LANDSCAPING/IRRIGATION | | | |

CITY OF NANAIMO SERVICE SHEET

APPENDIX F1

| | | |
|-----------|---------|------------|
| HOUSE NO: | STREET: | CARD NO: |
| PLAN NO: | LOT NO: | PERMIT NO: |
| | | FILE NO: |

B.P.L.

L.P.L.
R.P.L.

F.P.L.

SHOW THE FOLLOWING:
 1) LOT 2) STREET NAME 3) R.O.W.(S) IF ANY 4) NORTH ARROW
 5) LOCATION OF ALL UTILITIES (DIMENSIONED FROM CIVIC ADDRESS)

NEW INSTALL
 CHANGE/UPDATE
 METER REMOVAL
 SERVICE CONNECTION
 SERVICE DISCONNECT
 METER REPLACEMENT

COMMENTS: _____

NOTE: "FROM LPL" = FROM LEFT PROPERTY LINE; "FROM R.P.L." = FROM RIGHT PROPERTY LINE;
 "FROM FPL" = FROM FRONT PROPERTY LINE; "FROM B.P.L." = FROM BACK PROPERTY LINE;

VACANT LOT
 DEVELOPED LOT
 CAPITAL PROJECT
 LOCAL IMPROVEMENT PROJECT
 D.C.C.

| SERVICE | LOCATION | NEW | EXIST | CONNECTED | | SIZE (mm) | MATERIAL |
|----------|-------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------|----------|
| | | | | YES | NO | | |
| WATER | DOMESTIC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| | FIRE LINE | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| | COMBINATION | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| SANITARY | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| | M.B.F.E.: | INVERT ELEVATION: | | | | | |
| STORM | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| | M.B.F.E.: | INVERT ELEVATION: | | | | | |

M.B.F.E. = Minimum Basement Floor Elevation NOTE: Inverts to Geodetic Datum

| METERS | |
|--------|--------------|
| NEW | REGISTER NO. |
| | READING |
| OLD | REGISTER NO. |
| | READING |

COMPLETED BY: _____

DATE: _____

PLACE METER STICKER/STAMP IN BOX

TO: Finance Department
City of Nanaimo
455 Wallace Street
Nanaimo, BC V9R 5J6

Building Permit or File # _____

Address _____

**BUILDING DEVELOPMENT WATER METER
INFORMATION SHEET**

TO BE USED ON BUILDING DEVELOPMENTS WHERE THE DETECTOR CHECK/METER CHAMBER IS DEVELOPER INSTALLED.

TO BE SUBMITTED UPON INSTALLATION OF WATER METER/DETECTOR CHECK.

1.(a) Date of Installation of Water Meter: _____

(b) Date of Installation of fireline (100mm Ø or less): _____

2. Make and Model of meter installed:

Domestic _____ Serial No. _____ Head No. _____

Detector Check _____ Serial No. _____ Head No. _____

3. Size of meter installed: Domestic: _____

Detector Check: _____

4. Meter reading at date of installation: Domestic: _____

Detector Check: _____

5. Reading type: Metric _____

6. Does reading contain decimal places: Yes _____ No _____

7. If reading contains decimal places, how many decimal places are there? _____

8. Location of meter/service: _____

P.Eng.

(Please Print Name)

(Company Name)

(Address)

cc: Manager, Utilities, Public Works
Manager, Revenue Services, Finance

g:\deveng\forms\metrinfo.doc

CERTIFICATION OF DESIGN

I, _____, a Professional Engineer registered in the Province of British Columbia, hereby certify that the works, as herein set out on the attached drawings entitled

have been designed in accordance with the City of Nanaimo's Engineering Standards and Specifications, and in accordance with good engineering practice where such design is not covered by the City's Engineering Standards and Specifications.

I have been retained to provide design, supervision, inspection, as-built drawings, and final certification for this project by:

 (Name of Client)

Phone: _____ Fax: _____

Address: _____

I am satisfied that in the contractual mandate which exists between myself and my client, the terms of reference will permit me to render a level of supervision of the construction work which will allow me to put my name and seal to the "Certification of Works" required by the City of Nanaimo, a sample copy of which is attached to this document and initialed by me.

In the event that my client releases me from this project, or in the event that I find the terms of reference do not permit me to render a level of supervision of the construction work which will allow me to put my name and seal to the form of certification required by the City of Nanaimo, I will notify the City of Nanaimo within twenty-four (24) hours verbally and follow it up with written confirmation and clarification.

Signed this _____ day of _____ 19 _____.

 P. Eng.
 (Signature)

I understand that the "CERTIFICATION OF WORKS" is to be completed in this format and submitted with the "AS-BUILT" drawings. _____
 Engineer

Effective January 1995

CERTIFICATION OF INSTALLED WORKS

NOTE: To be completed in this format and submitted with the "As-Built" drawings

Location of the Construction Site and Works: (Legal Description)

all within the City of Nanaimo, British Columbia.

I, _____, a Registered Professional Engineer
(Reg. No. _____) in the Province of British Columbia, hereby certify:

1. THAT the following construction tests were carried out to confirm that construction met the specifications required:

(a).

(b).

etc.

2. THAT I was able to monitor the construction and provide a level of supervision of the construction work sufficient to be able to confirm that the specifications in force and effect by the City of Nanaimo and in the applicable design drawings for the said Works were generally met during the Construction Period and

3. THAT the accompanying plans labeled:

(i). _____

(ii). _____

(iii). _____

accurately record the materials, grades, inverts, offsets and dimensions of the constructed work.

DATED this _____ day of _____, 19 _____.

Engineer (Signature)

Engineering Firm

Effective January 1995

CERTIFICATION OF STREET LIGHT INSTALLATION

Location of the Construction site and Works (Legal Description)

all within the City of Nanaimo, British Columbia.

I, _____, a Registered Professional Engineer (Reg. No. _____), in the Province of British Columbia, hereby certify that:

1. I have received the final inspection report on the street lighting installation from the Provincial Electrical Safety Officer, approving the installation. (copy attached)
2. All of the street lighting system is installed in accordance with all the specifications in force and effect by the Provincial Government and the City of Nanaimo as shown on the drawings and specifications authorized by me and submitted to the City of Nanaimo, Engineering Division. The system has been connected to the B.C. Hydro and Power Authority's system and is ready for use.
3. The accompanying plans labeled:

are certified "as-builts" and truly record the construction of all the street lighting required for the subject project.

DATED this _____ day of _____, 19 _____.

(Project Engineer)

CERTIFICATION OF LANDSCAPE INSTALLATION

NOTE: To be completed in this format and submitted with the "As-Built" drawings

Location of the Construction Site and Works: (Legal Description)

all within the City of Nanaimo, British Columbia.

I, _____, a Landscape Architect, and member in good standing of British Columbia Society of Landscape Architects, hereby certify

1. THAT the following construction tests were carried out to confirm that construction met the specifications required:

1. THAT I was able to monitor the construction and provide a level of supervision of the construction work sufficient to be able to confirm that the specifications in force and effect by the City of Nanaimo and in the applicable design drawings for the said Works were generally met during the Construction Period and

2. THAT the accompanying plans labeled:

- (i). _____
- (ii). _____
- (iii). _____

accurately record the materials, species, as-built locations, offsets and dimensions of the constructed work.

DATED this _____ day of _____ 20_____.

Landscape Architect (Signature)

Landscape Architecture Firm

Effective May 1998

