



City of Richmond

Report to Committee

To Public Works & Transportation - June 23, 2004

To: Public Works and Transportation Committee **Date:** May 12, 2004

From: Robert Gonzalez, P. Eng.
Director, Engineering

File: 10-6550-01. 1

Re: City of Richmond and BC Hydro Protocol for Tree Management

Staff Recommendation

1. That Council endorse the proposed *City of Richmond and BC Hydro Protocol for Tree Management* and;
2. That the Director of Engineering be authorized to sign the protocol and forward it to BC Hydro for signing.

Robert Gonzalez, P. Eng.
Director, Engineering
(4150)

Att. 1

| FOR ORIGINATING DIVISION USE ONLY | | | |
|---|--|--------------------------------|--|
| ROUTED TO: | CONCURRENCE | CONCURRENCE OF GENERAL MANAGER | |
| Budgets | Y <input checked="" type="checkbox"/> N <input type="checkbox"/> | | |
| Law | Y <input checked="" type="checkbox"/> N <input type="checkbox"/> | | |
| Parks Design, Construction & Programs.. | Y <input checked="" type="checkbox"/> N <input type="checkbox"/> | | |
| Development Applications | Y <input checked="" type="checkbox"/> N <input type="checkbox"/> | | |
| REVIEWED BY TAG | YES <input checked="" type="checkbox"/> N/A <input type="checkbox"/> | REVIEWED BY CAO | YES <input checked="" type="checkbox"/> N/A <input type="checkbox"/> |

Staff Report

Origin

The City has undertaken the planting of street trees for many years. Strategies such as the Urban Forest Management Strategy endorsed by Council at the regular meeting on July 9, 2001 and the planting of street trees in conjunction with new developments throughout the City, support this initiative. Over the past few years it became apparent that the City had differing objectives and on some instances was denied the planting of trees and landscaping under existing BC Hydro overhead powerlines and in other cases trees had been severely topped. Regardless, the approval process required to resolve the planting schemes where overhead powerlines were located occasionally took months.

As a result, staff began negotiations with BC Hydro in the fall of 1999 to look at the development of a protocol agreement which addresses the needs of both the City and BC Hydro in regards to the planting and maintaining of street trees along existing and new streets, as they relate to BC Hydro infrastructure. This protocol affords the City flexibility and choices where in some instances we had none. As a result this protocol will further the City in its vision of becoming the most appealing, livable, well managed community in Canada by enhancing the streetscape, therefore adding to the City's livability, and providing the City flexibility and choices.

The purpose of this report is to present the proposed *City of Richmond and BC Hydro Protocol for Tree Management* (Attachment 1) as developed by the City and BC Hydro staff for Council's review and endorsement.

Analysis

The proposed *City of Richmond and BC Hydro Protocol for Tree Management* recognizes Richmond's mandate to beautify City streets through the planting and maintaining of street trees, as well as BC Hydro's mandate through the Hydro & Power Authority Act to protect the public from electrical hazards while ensuring reliable supply of electrical energy.

The proposed protocol addresses all issues for planting street trees in the vicinity of BC Hydro overhead powerlines and underground facilities (i.e. duct systems including kiosks, boxes at grade). Included in the protocol are three tree lists for planting of specific species of trees without requiring consultation with BC Hydro prior to planting. The lists are as follows:

1. **'A' List: Species recommended for use in BC Hydro corridors**
These trees can be planted anywhere within Hydro corridors in roadways. Maintaining tree clearances will be paid for and done by BC Hydro.
2. **Offset 'A' List: Species for use within the corridor but offset a minimum of 5.0 metres horizontally from the nearest overhead powerline**
These trees will be planted with a minimum horizontal distance of 5.0 metres from the nearest overhead conductor or equipment. Maintaining tree clearances that meet this requirement will be paid for and done by BC Hydro. Should the City choose to plant these

types of trees within 5.0 metres of the overhead lines, the City must consult with BC Hydro for approval. In addition, the City will be responsible for maintaining clearances to BC Hydro specifications using a jointly approved contactor or BC Hydro forces.

3. **Offset 'B' List: Species for use within the corridor and must be offset a minimum of 5.0 metres horizontally from the nearest overhead powerline**

These trees must be planted with a minimum 5.0 metre horizontal clearance from the nearest overhead powerline. Maintaining tree clearances will be paid for and done by BC Hydro.

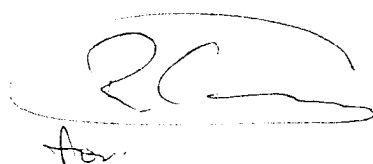
City staff and BC Hydro staff will jointly review the protocol periodically and update the lists as required with a 90 day written notification to the other party. In the event that the City chooses to plant a tree other than those listed, the City must consult with BC Hydro.

Financial Impact

Provided that the City selects tree species for planting around BC Hydro electrical plant as per the protocol, there is no financial impact. Should the City choose to plant trees around BC Hydro electrical plant that contradicts the protocol, the City will be responsible for all costs related to maintaining the safe line clearances. This would require an increase to the Parks' operational budget through the annual budget process to maintain the same level of service.

Conclusion

The proposed protocol is a cooperative arrangement between the City and BC Hydro which further enhances the strong working partnership that both the City and BC Hydro have realized over the years. By endorsing the *City of Richmond and BC Hydro Protocol for Tree Management*, the City will be able to plan/pre-plan and approve street tree plantings without BC Hydro consultation, thus expediting development servicing applications. In addition, BC Hydro will be responsible for maintaining tree clearances in and around BC Hydro facilities provided that the City meets the protocol requirements.



Siu Tse, P.Eng.
Manager, Engineering Planning
(4075)



Bill Jones, ASCT
Supervisor, Infrastructure Planning
(4026)

BJ:st

Final



***CITY OF RICHMOND
AND
BC HYDRO
PROTOCOL - TREE MANAGEMENT***



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PROTOCOL FOR TREE MANAGEMENT

CITY OF RICHMOND AND BC HYDRO

GENERAL

This protocol deals specifically with cooperative interactions and solutions to issues relating to: Richmond's mandate to beautify the City through the planting and maintaining of street trees; and B.C. Hydro's mandates to protect the public from electrical hazards and ensure reliable supply of electrical energy.

The two organizations agree that they serve the same public. As such, the interrelated activities of both parties should be conducted in a coordinated, professional and businesslike manner.

This protocol agreement has been established to achieve these objectives through mutual cooperation and respect.

The parties will endeavour to reach agreements that are in the best interests of the public, and a win-win for both parties.

Both parties will seek to achieve resolutions that will minimize costs for either organization.

This agreement applies to all BC Hydro plant in Richmond.

PRINCIPLES & UNDERSTANDINGS

Trees can not be permitted to grow into or otherwise interfere with BC Hydro electrical conductors or equipment. Even the most desirable of trees cannot be permitted to compromise public safety.

Richmond will be planting street trees to beautify their City, and desires the broadest possible selection of tree species. Street trees are important contributors to the livability of the urban environment. They protect the pedestrian realm; add to the physical comfort of the pedestrian; and contribute to the beauty of the City. Large trees that extend their branches over the street, give those streets a unified and distinct image; they add character, and help to reduce the immensity of the right-of-way.

Both organizations support the practice of sound arboricultural techniques as established in standards of the International Society of Arboriculture with regard to the pruning, maintenance and care of trees; and will employ such practices when pruning trees within the City of Richmond.

CONSULTATION REGARDING TREES PLANTED NEAR BC HYDRO EQUIPMENT

Richmond will inform BC Hydro's representatives in all cases where trees are to be planted in the proximity of BC Hydro lines or equipment. If the City chooses to plant tree species indicated in the "BC Hydro / City of Richmond Approved Trees Species List" (Addendum #5), no consultation is necessary and BC Hydro will continue to maintain required clearances at their own cost.

If City of Richmond chooses to deviate from the approved list and planting distances, City of Richmond **must** consult with BC Hydro and seek agreement before planting.

Richmond may submit a list of tree species for pre-approval by BC Hydro's Vegetation Maintenance Dept. If approved, these species will be added to the above stated list.

FORM OF AGREEMENT AND CHANGES TO THE AGREEMENT(S)

This agreement will be in the form of a general protocol agreement that defines the intentions of the parties to work together, and a series of addenda that document specific technical agreements. This allows the technical specifics to be supplemented or modified from time to time without the need to alter, and leaving in effect, the general protocol agreement or the other technical agreements.

Once the agreement(s) have been signed, they remain in effect until both parties have agreed to further changes or until the "Renegotiation" option has been invoked. Bi-annual reviews by Field Staff will be scheduled to ensure that the needs of both parties are being met and to avoid undue disputes.

ISSUE RESOLUTION

This protocol is intended to lead to a cooperative and mutually beneficial solution of all issues regarding trees and power lines within the City of Richmond and should allow for resolution of all issues at the field staff level or at the first line manager level.

If an unresolved issue arises, the issue will be referred to a joint committee consisting of a maximum of two persons from either party, and including the Director of Parks for the City of Richmond and the Manager of Vegetation Maintenance for BC Hydro or their designates. This committee will meet within 10 working days and has 30 working days to agree on a solution or to make recommendations through binding arbitration by a jointly selected third party.

RE-NEGOTIATION

Both parties reserve the right to re-negotiate or cancel the general protocol agreement or individual addenda agreements within 90 days of receipt of written notice by the other party.

EFFECTIVE DATE AND SIGNATURES

The general protocol agreement, and each individual addenda agreement, becomes effective from the date that both parties sign each agreement.

Date: _____

Signed:

BC Hydro

City of Richmond

Addendum #1

TREES TO BE PLANTED BELOW OR BESIDE EXISTING OVERHEAD LINES (WITHIN 5.0 HORIZONTAL METRES OF THE NEAREST CONDUCTOR)

Trees to be planted within 5.0 metres horizontally of existing overhead lines must adhere to the following requirements:

- a) Trees planted below an existing overhead line will not exceed a height of 6.5 metres when mature.
- b) Trees planted beside an existing overhead line will have a profile such that a minimum clearance of 3.0 metres is maintained to the nearest pole or overhead primary conductor and 1.0 metre to any other secondary, cable or telephone conductors.

Note: Trees that mature at 5.0-6.5 metres in height may require pruning to clear telephone or other cables.

The COR/BCH Approved Tree Planting Lists (Addendum 5) will assist in the selection of appropriate trees.

A List: Species recommended for use in BC Hydro corridors

- These trees can be planted anywhere within BC Hydro corridors.
- Pruning of such trees will be done by BC Hydro at BC Hydro expense.

Offset A List: Species for use within the corridor but offset a minimum of 5.0 metres horizontally from the nearest overhead power line or equipment

- a) These trees will be planted with a minimum horizontal distance of 5.0 metres from the nearest overhead lines or BCH equipment.
- b) Should the City choose for any reason, to plant trees within 5.0 horizontal metres of the overhead lines, the City **must** consult with BC Hydro for approval. In such cases, COR will be responsible for maintaining clearances to BC Hydro specifications using a jointly approved contractor or by arranging for contractors supplied by BC Hydro. If the City of Richmond undertakes to prune the trees, they must consult with BC Hydro to establish minimum clearance distances to be maintained to ensure public/ worker safety and reliability.
- c) The expectation is that such variances (b) will be rare and individual circumstances. Both parties agree to work to avoid such plantings.
- d) Except in case (b.) (above), BC Hydro will prune all "A" offset trees at BCH expense.

Offset B List: Species for use within the corridor and must be offset a minimum of 5.0 metres horizontally from the nearest overhead power line or equipment

- These trees **must** be planted with a minimum 5.0 metre horizontal clearance from the nearest overhead power line or BCH equipment. BC Hydro will be responsible for pruning Offset B list trees as required at BC Hydro expense.

Trees to be planted where undergrounding of lines is planned.

The City will avoid planting tall growing species within 5 metres except where confirmed undergrounding plans are in place. In such cases, the trees will be planted in containers to facilitate movement and avoid damage while trenching.

BC Hydro when pruning such trees will prune with the recognition that these trees will soon be unencumbered by overhead power lines and will minimize pruning activities accordingly. Pruning distances will provide for 3 years of no contact. Pruning will be species specific.

Date: _____

Signed:

BC Hydro

City of Richmond

Addendum #2

TREES TO BE PLANTED ABOVE UNDERGROUND HYDRO LINES:

- a) In general, planting trees above underground Hydro lines and facilities will be avoided. Deviation from this is at the discretion of the BC Hydro's Customer Projects & Installations group, and will be handled on a case by case basis. Tree species with deep roots, such as pinus, populus and salix, will be avoided.
- b) If BC Hydro is required to do an emergency excavation near or under a tree to access underground duct banks, the work will be undertaken in such a manner as to minimize damage to trees. Should fatal damage to a tree occur, BC Hydro will replace it with an agreed upon juvenile tree. Except in emergency situations, the City will be consulted prior to the work.
- c) If time permits, (non-emergent planned access) the City may choose to fund an alternative option that will ensure an existing tree is not damaged.
- d) When planting trees near BC Hydro's above or below grade vaults and kiosks, a safety and access clearance (approx. max. of 2.5m on one or two sides), as specified in BC Hydro Underground Electrical or Civil Underground standards manuals must be applied.
- e) To ensure BC Hydro vehicle access, trees will not be planted between a kiosk, or other facilities, and the roadside or vehicle access route as the case may be.

Date: _____

Signed:

BC Hydro

City of Richmond

Addendum #3

PLANTING OF TREES ON NEW ROADS OR CORRIDORS

- a) Where overhead facilities are present, provisions of Addendum #1 will apply.
- b) Where underground facilities are present, a clear corridor of 1.0m from centerline of BC Hydro's underground lines must be maintained. After installation, Addendum #2 will apply

Date: _____

Signed:

BC Hydro

City of Richmond

Addendum #4

**NEW INSTALLATION, EXPANSION, OR RELOCATION OF BC HYDRO'S
OVERHEAD OR UNDERGROUND SYSTEM NEAR EXISTING TREES**

- a) For new overhead lines, B.C. Hydro and the City will work with all stakeholders to find the minimum cost and optimal design. Solutions will be preferred which will avoid installing overhead lines that interfere with Richmond's beautification plantings. When the design requires removal of existing trees, BC Hydro will work with Richmond to ensure the planting of suitable trees to meet Richmond's beautification needs.
- b) For new underground lines, B.C. Hydro and the City will work with all stakeholders to find the minimum cost and optimal design that would minimize impact on desirable tree species.

Date: _____

Signed:

BC Hydro

City of Richmond

Addendum # 5

City of Richmond /

BC Hydro

Approved Tree Planting List

City of Richmond / BC Hydro

Approved Tree Planting List

"A" LIST: Species recommended for use in BC Hydro's corridors

| Species/cultivar | Common name |
|--------------------------------------|---------------------|
| Acer ginnala | Amur Maple |
| Acer buergeranum | Trident Maple |
| Acer campestre | Hedge Maple |
| Acer circinatum | Vine Maple |
| Acer griseum | Paperbark Maple |
| Acer palmatum | Japanese Maple |
| Acer platanoides 'Globosum' | Globe Norway Maple |
| Acer tataricum | Tatarian Maple |
| Amelanchier x grandiflora | Serviceberry |
| Chionanthus virginica | Fringe-tree |
| Cladastrus kentukea (lutea) | Yellowwood Tree |
| Crataegus x lavalleyi | Hybrid Hawthorn |
| Fraxinus ornus | Flowering Ash |
| Maackia amurensis | Amur Maackia |
| Magnolia Galaxy | Galaxy Magnolia |
| Magnolia Kobus | Flowering Magnolia |
| Malus fusca | Flowering Crabapple |
| Malus 'Zumi Calocarpa' | Flowering Crabapple |
| Prunus cerasifera | Cherry Plum |
| Prunus cerasifera 'pissardi nigra' | Purple-leaved Plum |
| Rhus typhina | Staghorn Sumac |
| Robinia pseudoacacia 'Umbraculifera' | Globe Locust |
| Salix discolor | Pussy Willow |
| Syringa reticulata | Japanese Tree Lilac |

OFFSET "A" LIST

Species for planting within the corridor but offset a minimum of 5 metres horizontally from the nearest overhead conductor or equipment

| <i>Species/cultivar</i> | <i>Common name</i> |
|-----------------------------------|------------------------------|
| Acer platanoides 'Crimson Sentry' | Norway Maple |
| Acer platanoides 'Olmsted' | Norway Maple |
| Betula nigra 'Heritage' | Heritage Birch |
| Carpinus betulus 'fastigiata' | European Hornbeam |
| Cercidiphyllum japonicum | Katsura Tree |
| Cercis canadensis | Eastern Redbud |
| Cornus 'Eddie's White Wonder' | Eddie's White Wonder Dogwood |
| Cornus florida | Flowering Dogwood |
| Cornus kousa | Chinese Dogwood |
| Cornus mas | Cornelian Cherry |
| Elaeagnus angustifolia | Russian olive |
| Fraxinus americana | American Ash, White Ash |
| Fraxinus oxycarpa var. 'Raywood' | Raywood Ash |
| Koelreuteria paniculata | Goldenrain Tree |
| Magnolia x soulangiana | Saucer Magnolia |
| Oxydendrum arboreum | Sourwood |
| Parrotia persica | Persian Ironwood |
| Pinus nigra | Austrian Pine |
| Pistacia chinensis | Chinese Pistache |
| Prunus serrulata | Japanese Flowering Cherry |
| Pyrus calleryana | Callery Pear |
| Quercus palustris | Pin Oak |
| Sorbus aucuparia | European Mountain Ash |
| Stewartia sinensis | Chinese Stewartia |
| Styrax japonica | Japanese Snowbell |
| Thuja occidentalis "Fastigiata" | White Cedar pyramidalis |
| Thuja plicata 'Excelsa' | Red Cedar Excelsa |
| Ulmus parvifolia | Chinese Elm, Lacebark Elm |
| Zelkova serrata | Zelkova |

OFFSET "B" LIST

**Species that must be offset a minimum of 5 metres
Horizontally from the nearest overhead conductor or equipment**

| 1. Species/ cultivar | Common name |
|--|-------------------------------|
| Acer platanoides 'Crimson King' | Norway Maple |
| Acer rubrum | Red Maple |
| Acer saccharinum | Sugar Maple |
| Aesculus x carnea | Red Horsechestnut |
| Betula jacquemonti | Himalayan Birch |
| Betula pendula | Silver / European White Birch |
| Catalpa bignonioides | Southern Catalpa |
| Catalpa speciosa | Northern Catalpa |
| Celtis occidentalis | Hackberry |
| Ginkgo biloba | Ginkgo |
| Gleditsia triacanthos var. inermis 'Imperial' | Imperial honeylocust |
| Gymnocladus dioicus | Kentucky Coffee Tree |
| Liquidambar styraciflua | Sweet Gum |
| Phellodendron amurense | Amur Cork Tree |
| Robinia pseudoacacia | Black Locust |
| Quercus robur | English Oak |
| Quercus rubrum | Red Oak |
| Tilia cordata | Littleleaf linden |
| Tilia Euchlora | Crimean linden |

Date: _____

Signed:

BC Hydro

City of Richmond

APPENDIX 1

CITY OF RICHMOND

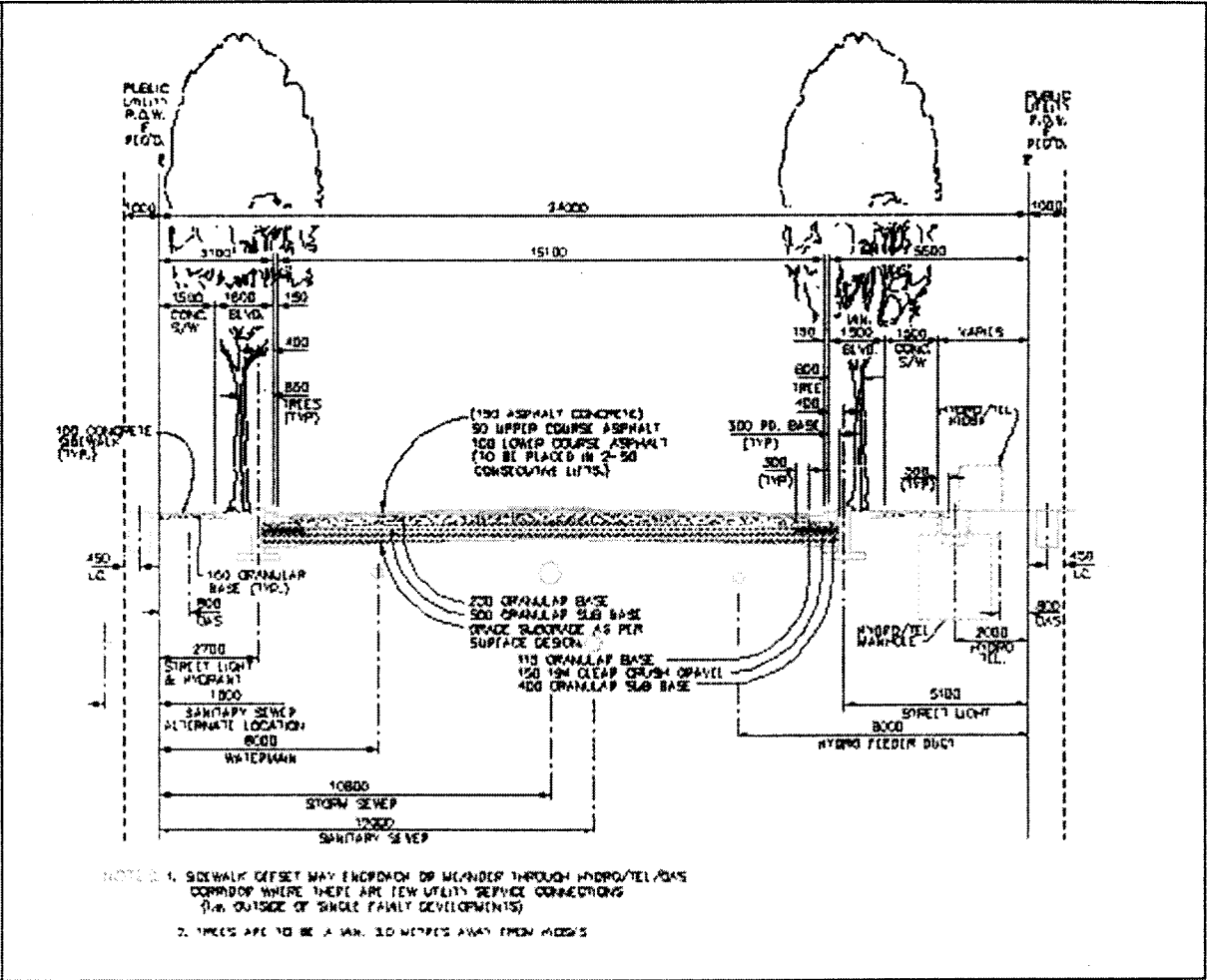
Typical Road

Cross Sections

Drawings 1- 5

City of
Richmond
 3001 No. 3 Street Richmond BC V6V 2G9

| | | |
|-------------------|-------|---------------|
| DESIGN | DATE | DATE RECEIVED |
| ORIGIN & APPROVAL | SCALE | SCALE |
| DATE | SCALE | SCALE |
| DATE | SCALE | SCALE |



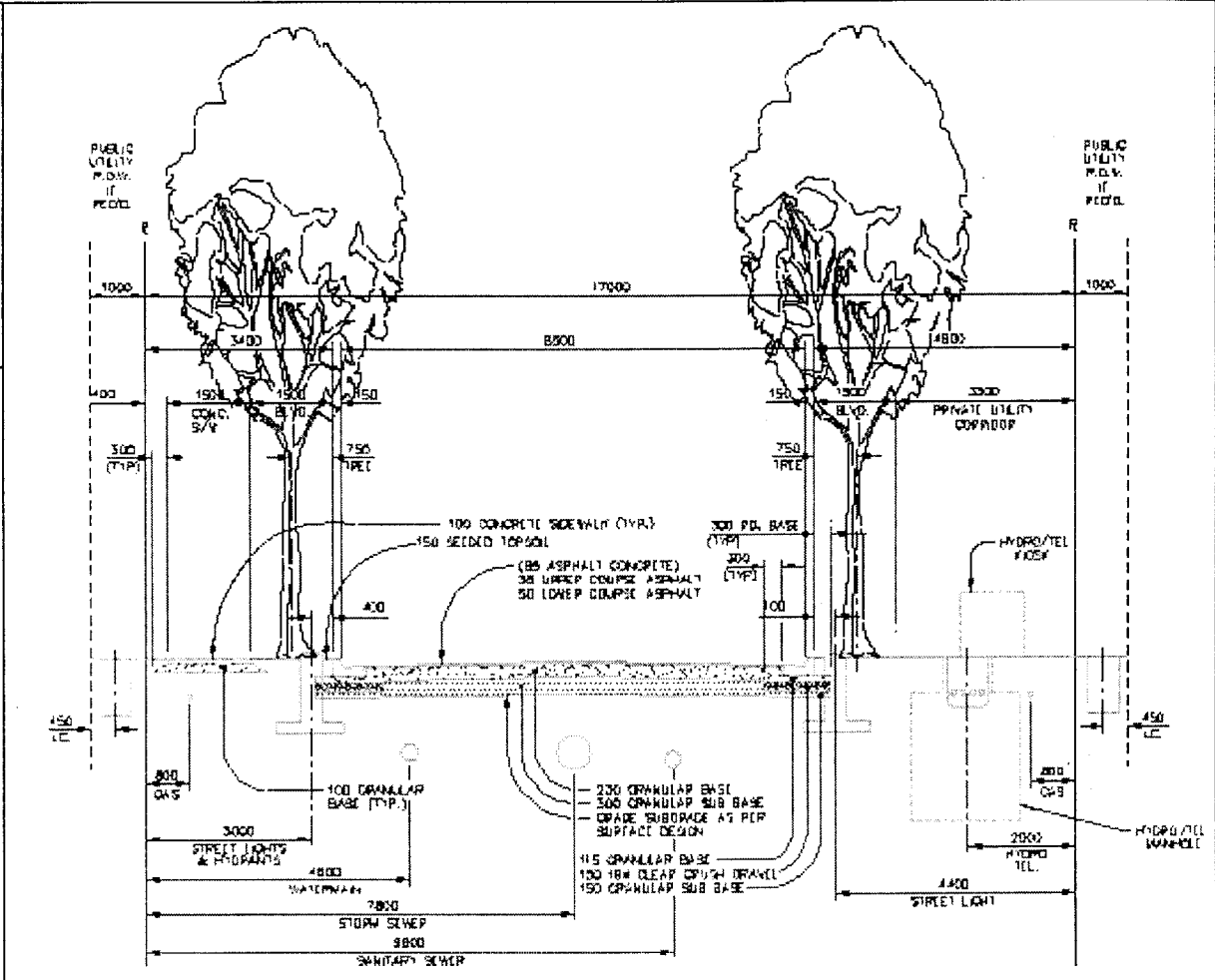
NOTE 1. SIDEWALK OFFSET MAY ENCRUSH OR MEANDER THROUGH HYDRO/TEL DUCTS CORRIDOR WHERE THERE ARE FEW UTILITY SERVICE CONNECTIONS (I.E. OUTSIDE OF SINGLE FAMILY DEVELOPMENTS)

NOTE 2. TREES ARE TO BE A MIN. 3.0 METRES AWAY FROM MANSIONS

Drawing # 1

City of
Richmond

| | | | |
|-----------|--|---------------------------------------|--|
| TITLE | | LOCAL ROAD - PEDIANAL (SINGLE FAMILY) | |
| DESIGNER | | S. WATKINSON | |
| CHECKED | | S. WATKINSON | |
| DRAWN | | R-5 | |
| SCALE | | 1"=10' | |
| DATE | | DECEMBER 1998 | |
| SHEET NO. | | 1 OF 1 | |



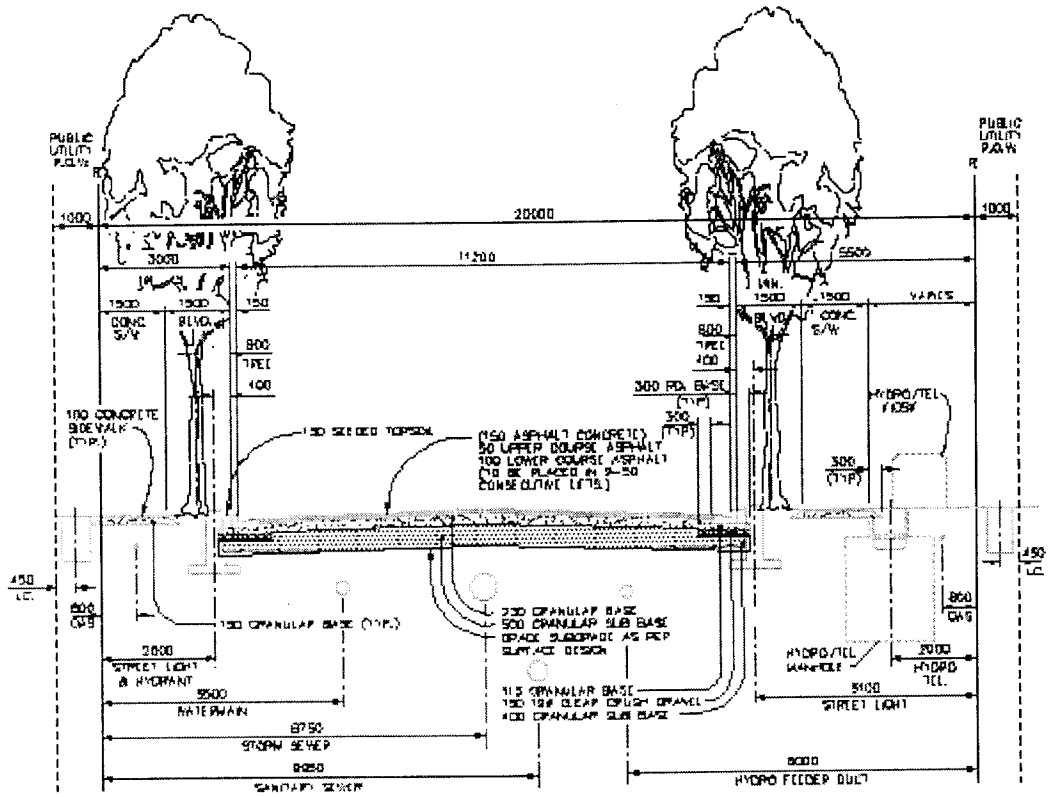
Drawing # 2

6811 HIL 3 ROAD, FRIENHOOD B.C. V0V 2C1

City of Richmond

| | | |
|---------------------|---------------|------------------|
| DESIGNER: | DRG. NO.: | DATE: |
| DRAWN: S. MATHIESEN | P-7 | DECEMBER 1988 |
| CHECKED: | SCALE: N.T.S. | SHEET NO. 1 OF 1 |
| ENGINEER: | SPEC. NOS.: | |

TYPICAL CROSS SECTION
COLLECTOR ROAD
20.00m P.O.W. - 11.20m PAVEMENT

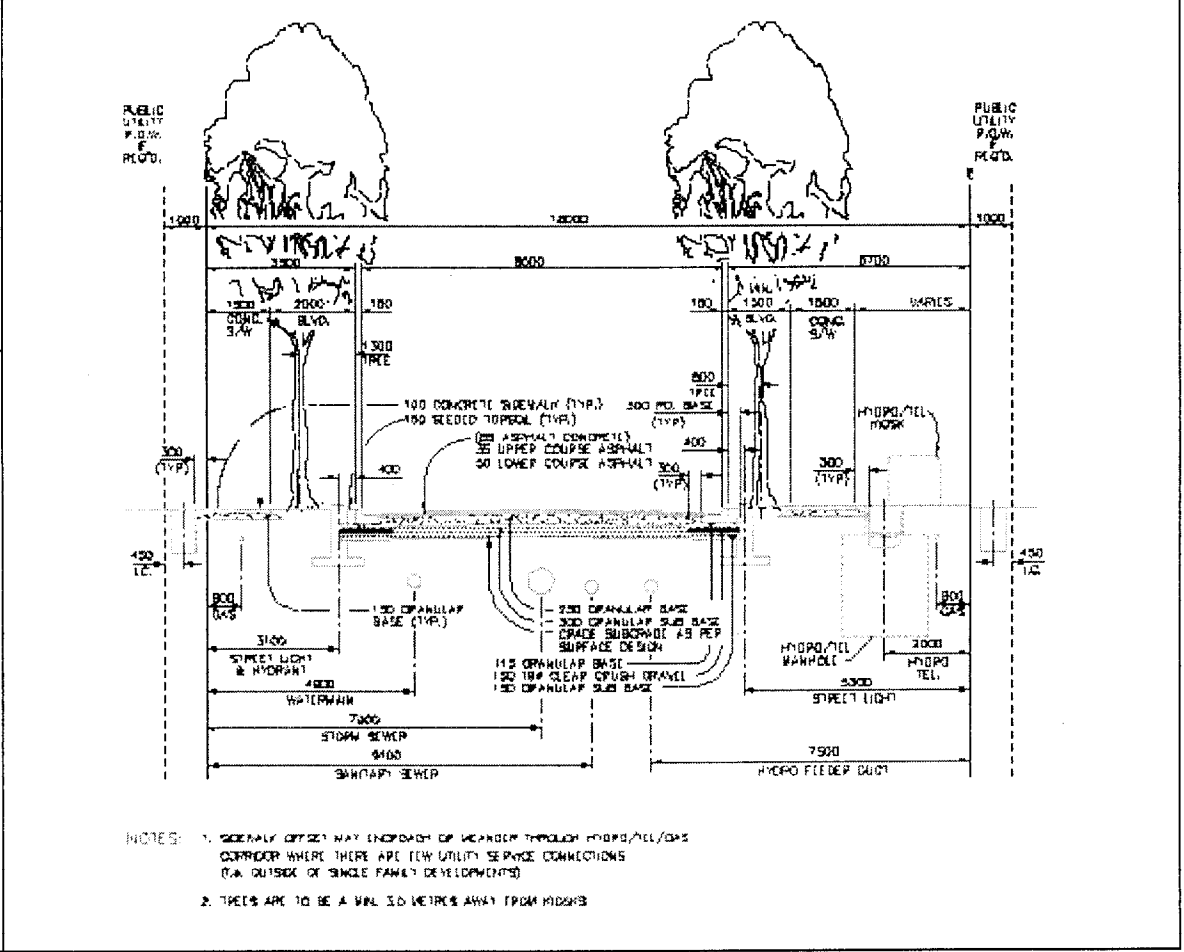


- NOTES:
1. SIDEWALK OFFSET MAY ENOUGH OF WEARDER THROUGH HYDRO/TEL/DAS CORRIDOR WHERE THERE ARE (OR WERE) SERVICE CONNECTIONS (I.E. OUTSIDE OF SINGLE FAMILY DEVELOPMENTS)
 2. TREES ARE TO BE A MIN. 3.0 METRES AWAY FROM ROADS

Drawing # 3

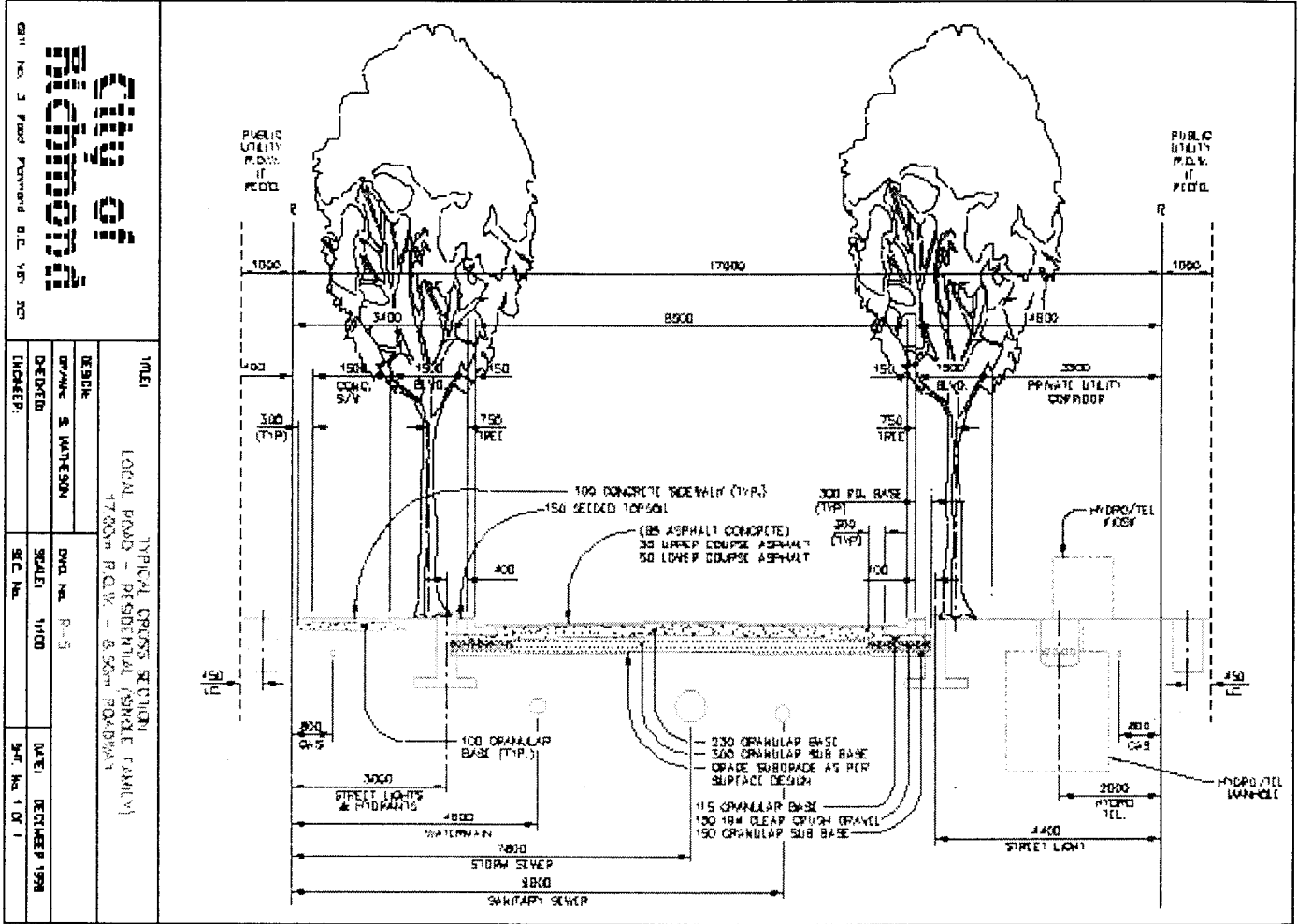
4011 No. 3 Road Richmond B.C. V6V 3C3
City of Richmond

| | | |
|---|---------------------|------------------|
| TITLE | DESIGNER | DATE |
| LOCAL ROAD - RESIDENTIAL (MUL-TI-FAMILY) 10.00M ROW - 3.50M PROPOSED | D. WATSON | DECEMBER 1998 |
| TYPICAL CROSS SECTION | SCALE: 1/8" = 1'-0" | SHEET NO. 1 OF 1 |
| DRWING & LAYOUT | SCALE: 1/8" = 1'-0" | |
| CHECKED | SCALE: 1/8" = 1'-0" | |
| ENGINEER | SCALE: 1/8" = 1'-0" | |



- NOTES:
1. SIDEWALK CURB MAY ENDOASH OF WALKER THROUGH HYDRO/TEL/GAS CORRIDOR WHERE THERE ARE FEW UTILITY SERVICE CONNECTIONS (I.E. OUTSIDE OF SINGLE FAMILY DEVELOPMENTS)
 2. TREES ARE TO BE A MIN. 3.0 METRES AWAY FROM HIGHWAYS

Drawing # 4



City of Richmond

Drawn: S. WATKINSON
 Checked: []
 Date: []
 Scale: 1/100
 Date: []

TITLE: TYPICAL CROSS SECTION LOCAL ROAD - RESIDENTIAL (SINGLE FAMILY) 1700mm R.O.W. - 8.5cm ROADWAY

DATE: []
 SCALE: 1/100
 SHEET NO. 1 OF 1

Drawing # 5