

DATOM GROUP LTD.

LAND DEVELOPMENT ENGINEERING

8 Skaha Court
Richmond Hill, Ontario L4C 9R8
Tel: (905) 787-8815
Fax: (905) 508-8853
E-mail: office.datom@rogers.com

DATE: August 26, 2004

TO: Town of Pelham
Pelham Municipal Building
20 Pelham Town Square
Pelham, Ontario
L0S 1E0

Attn: Alan Mannell

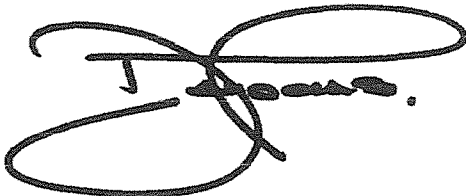
BL 2605

Re: **Award of Tender - Bacon Lane Subdivision, Pelham, Ontario - 16
Residential Lot Development - Town of Pelham**

Alan, please find enclosed your signed copy of the electrical and streetlight distribution installation contract for the above mentioned development.

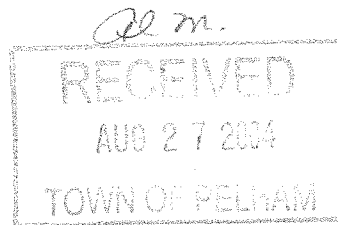
Should you have any questions please contact me at 905-787-8815 or fax 905-508-8853 or e-mail at office.datom@rogers.com.

Yours Truly,



David Tomingas, P.Eng., Dipm.B.A
Principal Engineer

Bacon008





Workplace Safety &
Insurance Board
Commission de la sécurité
professionnelle et de l'assurance
contre les accidents du travail

301 ST. PAUL STREET 8/FL
ST. CATHARINES, ONTARIO
L2R 7R4 (905) 687-8622

Clearance Certificate Certificat de décharge

CONTRACTOR
L'ENTREPRENEUR

WIENS UNDERGROUND
ELECTRIC LTD
RR 4
65 STEWART RD
NIAGARA ON THE LAKE ON
L0S 1J0

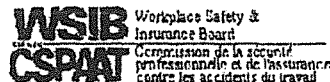
The Workplace Safety and Insurance Board (WSIB) hereby waives its rights under Section 141 of the Workplace Safety and Insurance Act to hold the Principal, that is in a contractual agreement with the Contractor named, liable for any Section 141 liability of the Contractor for premiums and levies of the WSIB owing now or within 60 days from the date of this Certificate

Par la présente, la Commission de la sécurité professionnelle et l'assurance contre les accidents du travail (CSPAAT) renonce aux droits qui lui sont conférés en vertu de l'article 141 de la Loi sur la sécurité professionnelle et l'assurance contre les accidents du travail et qui l'autorisent à tenir l'entrepreneur principal, qui a signé une entente contractuelle avec l'entrepreneur dont le nom figure sur le présent certificat, responsable du paiement de tout prime ou de toute somme que l'entrepreneur est tenu de verser à la CSPAAT immédiatement ou dans les 60 jours suivant la date indiquée sur ce certificat.

THIS CERTIFICATE IS VALID FOR ALL CONTRACTS OF
THE NAMED CONTRACTOR DURING THE EFFECTIVE PERIOD

LE PRESENT CERTIFICAT EST VALIDE POUR TOUS LES CONTRATS PASSES PAR
LEDIT ENTREPRENEUR PENDANT LA PERIODE D'APPLICATION DU CERTIFICAT

Valid only when signed by an authorized Officer of the WSIB.
Non valide sans la signature d'un agent autorisé de la CSPAAT.



Account No. / N° de compte	Firm No. / N° d'entreprise	Effective Date / Date d'entrée en vigueur
1833243	243199D	28JUN2004

Rate / Taux	Description	Rate / Taux	Description
4124001	POWER TRANSMISSION	4261000	ELECTRICAL WORK

Contract Description / Description du contrat

Certificate No. / N° de certificat
201899673

F9056822164

Contact the WSIB if you question the validity of this document.

Veuillez Communiquer avec la CSPAAT si vous doutez de la validité du présent document.

0190C (07/99)

CERTIFICATE OF INSURANCE

as effected through

THE ROSE, HORNE & STEVENSON GROUP

63 Church Street, P.O. Box 1627, St. Catharines, On L2R 7K1

THIS IS TO CERTIFY TO: **Town of Pelham**
20 Pelham Square, P.O. Box 400
Fonthill, On. L0S 1E0

The Policies of Insurance as herein described have been issued to the Insured Named below and are in force at this date and that Cogeco Cable Solutions are hereby added as an additional insured to the comprehensive general liability but only in regards to liability arising out of the operations of the named insured on this policy.

INSURER: Aviva Insurance Company of Canada
NAMED INSURED: Wiens Underground Electric Ltd
MAILING ADDRESS: R.R. #4, 65 Stewart Road,
Niagara-on-the-Lake, ON L0S 1J0
POLICY NUMBER: 81245233
EXPIRY DATE: 10/15/04

COVERAGES

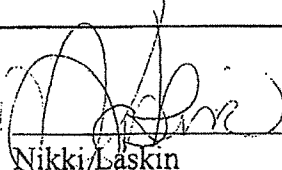
Commercial General Liability - Each Occurrence	\$5,000,000.
Claims Made _____ - General Aggregate	\$5,000,000.
Occurrence <u> x </u> -Products - Comp/ops Agg.	\$5,000,000.
-Personal Injury	\$5,000,000.
-Medical Expense (any one person)	\$ 25,000.
-Tenants Legal Liability	\$ 100,000.
-Non-owned Automobile	\$5,000,000.

***Property Damage Deductible is \$5,000.**

RE: Bacon Lane Subdivision

NOTE: Cancellation: should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavour to mail 30 days impose no obligation or liability of any kind upon the company, its agents or representatives. This Insurance afforded is subject to the Terms, Conditions and Exclusions of the applicable Policy. This Certificate is issued as a matter of information only and confers no rights on the Holder and imposes no Liability on the Insurer.

DATE: July 27, 2004


Nikki Laskin
Authorized Representative
The Rose, Horne & Stevenson Group



**THE GUARANTEE COMPANY
OF NORTH AMERICA**

4950 Yonge Street, Suite 1400
Madison Centre
North York, Ontario M2N 6K1
Tel.: (416) 223-9580
Fax: (416) 223-6577

PERFORMANCE BOND

NO: 5024344

KNOW ALL MEN BY THESE PRESENTS THAT **WIENS UNDERGROUND ELECTRIC LTD.** as Principal, hereinafter called the Principal, and **THE GUARANTEE COMPANY OF NORTH AMERICA** a corporation created and existing under the laws of Canada and duly authorized to transact the business of Suretyship in Canada as Surety, hereinafter called the Surety, are held and firmly bound unto **TOWN OF PELHAM** as Obligee, hereinafter called the Obligee, in the amount of **SIXTY-FIVE THOUSAND DOLLARS** Dollars (**\$65,000.00**) lawful money of Canada, for the payment of which sum, well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a written contract with the Obligee, dated the 13TH day of **August, 2004**, for

**INSTALLATION OF THE JOINT USE UNDERGROUND STREETLIGHT DISTRIBUTION
SYSTEM
BACON LANE SUBDIVISION**

in accordance with the Contract Documents submitted therefore which are by reference made part hereof and are hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly and faithfully perform the Contract then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Whenever the Principal shall be, and declared by the Obligee to be, in default under the Contract, the Obligee having performed the Obligee's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) complete the Contract in accordance with its terms and conditions:
- (2) obtain a bid or bids for submission to the Obligee for completing the Contract in accordance with its terms and conditions, and upon determination by the Obligee and the Surety of the lowest responsible bidder, arrange for a contract between such bidder and the Obligee and make available as work progresses (even though there should be a default, or a succession of defaults, under the contract or contracts of completion, arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract price", as used in this paragraph, shall mean the total amount payable by the Obligee to the Principal under the Contract, less the amount properly paid by the Obligee to the Principal.

DATOM GROUP LTD.

LAND DEVELOPMENT ENGINEERING

8 Skaha Court
Richmond Hill, Ontario L4C 9R8
Tel: (905) 787-8815
Fax: (905) 508-8853
E-mail: office.datom@rogers.com

DATE: July 26, 2004

TO: Wiens Underground Electric Ltd.
R.R. # 4, 65 Stewart Road
Niagara on the Lake, Ontario
L0S 1J0

Attn: Werner Wiens

Re: **Award of Tender - Bacon Lane Subdivision, Pelham, Ontario - 16 Residential Lot Development - Town of Pelham**

This letter is to confirm the award of the contract for the supply and installation of electrical and streetlight distribution plan for Town of Pelham administered project known as Bacon Lane Subdivision, Pelham, Ontario, a 16 residential lot development to Wiens Underground Electric Ltd.

Wiens Underground Electric Ltd. will be issued revised "Approved for Construction" drawings to reflect final design changes. Upon receipt of the Bell and CoGeCo tender document and design drawings, copies will be forwarded to your offices for your perusal.

All unit prices as per the submitted quote shall remain same and as per Cls. 1-8 attached contract, actual completed works and materials installed shall be the final unit quantities invoiced by the Contractor.

As conditions of the Award of Contract, Wiens Underground Electric Ltd. shall provide Town of Pelham with a schedule noting the number of working day required to complete the said works. Prior to commencing the said works, Wiens Underground Electric Ltd. shall complete a pre-inspection of the site with Town of Pelham - Alan Mannell - (905) 892-2607.

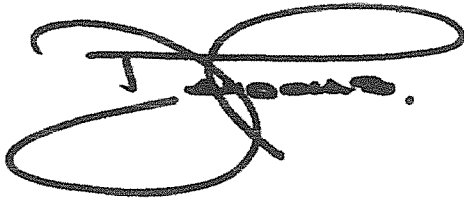
Please sign contracts where tabs have been inserted and initial the right hand bottom of this page to indicate that you have read the "Award of Tender" letter and the conditions within and are in agreement with the conditions of Award.

Note all invoicing for the project shall be certified by Datom Group Ltd. and addressed to Bacon Lane Subdivision c/o Town of Pelham, Attn: Alan Mannell.



Should you have any questions please contact me at 905-787-8815 or fax 905-508-8853
or e-mail at office.datom@rogers.com.

Yours Truly,

A handwritten signature in black ink, appearing to read 'David Tomingas', with a large, stylized loop at the end.

David Tomingas, P.Eng., Dipm.B.A
Principal Engineer

Bacon005



OFFICE OF THE:
MAYOR
CHIEF ADMINISTRATIVE OFFICER
CLERK
DIRECTOR OF FINANCIAL SERVICES
DIRECTOR OF OPERATIONS
DIRECTOR OF PLANNING SERVICES
DIRECTOR OF BUILDING & ENFORCEMENT SERVICES



THE CORPORATION OF THE
TOWN OF PELHAM

TEL. (905) 882-2607
FAX (905) 882-5058

POST OFFICE BOX 400
PELHAM MUNICIPAL BUILDING, 20 PELHAM TOWN SQUARE
FONTHILL, ONTARIO L0S 1E0

Fax (905) 508-8853

July 23, 2004

DATom Group Ltd.
8 Skaha Court
Richmond Hill ON L4C 9R8

Attn: David Tomingas, P.Eng., Dipm.B.A.

Dear Sir:

Re: Bacon Lane Severances - Electrical Servicing

We would like to acknowledge our acceptance of the tender submitted by Wiens Underground Electric Ltd. for this project.

As we have discussed, there is an urgency to complete the servicing as soon as possible and it would be appreciated if you would impress this upon the contractor. We would like a construction schedule noting the anticipated completion date.

Please contact me at (905) 892-2607, extension 13, if you have any questions or assistance is needed to expedite the project.

Yours truly,

TOWN OF PELHAM

A. R. Mannell, C.E.T., C.R.S.
Operations & Technical Services Coordinator

ARM/hes
Encl.

c L. J. Hodge, P. Eng., Director of Operations

**UNDERGROUND PRIMARY, SECONDARY AND STREETLIGHT
DISTRIBUTION INSTALLATION CONTRACT AND HYDRO ONE -
THOROLD OFFICE & TOWN OF PELHAM CONSTRUCTION /
INSTALLATION STANDARDS**

PROJECT:

**BACON LANE SUBDIVISION
16 RESIDENTIAL LOT DEVELOPMENT
TOWN OF PELHAM, ONTARIO**

ADMINISTRATOR:

**TOWN OF PELHAM
20 PELHAM TOWN SQUARE
P.O. BOX 400
FONTHILL, ONTARIO
L0S 1E0**

CONTRACT DETAILS:

ADMINISTRATOR: TOWN OF PELHAM
20 PELHAM TOWN SQUARE
P.O. BOX 400
FONTHILL, ONTARIO
L0S 1E0

ATTN: ALAN R. MANNELL, CET

CONTRACT: FOR THE INSTALLATION OF THE JOINT USE
UNDERGROUND PRIMARY, SECONDARY AND
STREETLIGHT DISTRIBUTION SYSTEM TO SERVICE A
16 RESIDENTIAL LOT DEVELOPMENT.

PROJECT: BACON LANE SUBDIVISION – TOWN OF PELHAM,
ONTARIO

LOCATION: PELHAM STREET AND BACON LANE, TOWN OF
PELHAM, ONTARIO

CLOSING DATE OF CONTRACT: JULY 16, 2004 @ 1:00 PM, DELIVERED AT THE OFFICES
OF DATOM GROUP, 8 SKAHA COURT, RICHMOND HILL,
ONTARIO, L4C 9R8

**NAME OF
CONTRACTOR:**

Wiens Underground Electric

**NAME OF
SURETY:**

The Guaranty Company of North

CONTACT:

DAVID TOMINGAS, P.ENG., DIPM.B.A. *America*
PRINCIPAL ENGINEER
DATOM GROUP

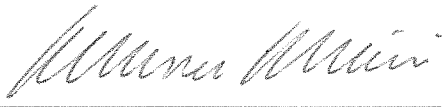
PHONE: (905) 787-8815

FAX: (905) 508-8853


**LIST OF ATTACHED HYDRO ONE - THOROLD OFFICE & TOWN OF
PELHAM STANDARDS, SPECIFICATIONS, APPROVED SHOP ORDER
DRAWINGS**

DRAWING #	DESCRIPTION
Brooklin - BCP110PC ICS - 186	Transformer Pad Foundation Drawing
Hy-Grade – TP-104	Transformer Pad Foundation Drawing Town of Pelham Standard – Local Road Section

I/We undersigned acknowledge receipt of Hydro One - Thorold Office and Town of Pelham Standards and Specifications, and all attached design and shop order drawings, and understand that these Standards, Specifications and Drawings are part and parcel of this contract.



SIGNATURE



DATE

PART 1 - INSTRUCTIONS TO BIDDERS

1-1 TENDERING PROCEDURE

The Owner reserves the right to reject any, or all tenders or to accept any tender should it be deemed in the interest of the Owner. Tenders which are incomplete, conditional, illegible or obscure, or which contain additions not called for, erasures, alterations or irregularities of any kind may be rejected.

All submitted tenders shall be on the forms as per this tender document and bidders must completely fill out all blank spaces. Mistakes in extensions, incomplete tenders, or an unbalanced bid, may render the tender invalid.

The tender shall indicate the Unit Prices and Total Extension for each item and the Sub-Total Contract Bid, 7% G.S.T., and Total Contract Bid.

In the Form of Tender, where quantities are set out in the Schedule of Quantities and Unit Prices, which forms part of the contract documents, it is pointed out that these quantities are approximate only, and are given as a basis for estimating and comparing bids by the Engineer. The Engineer reserves the right to increase or decrease considerably these quantities without making any change to the Unit Price submitted by the Bidder.

The works are to be constructed at the itemized prices as submitted in the Form of Tender and signed by the Bidder.

1-2 CONTRACT DOCUMENTS, STANDARDS AND SPECIFICATIONS

All Drawings, Contract Documents, Standards and Specifications are on file and may be obtained from the offices of the Engineer for a non-returnable deposit of \$10.00 per set.

The successful bidder shall receive four sets of drawings, construction standards and specifications as are necessary for the proper execution of the work requirements during the construction period.

If during the construction period, the Contractor requires additional prints, these will be provide at a cost of \$5.00 per print.

Any addendum's issued during the time of bidding shall be covered in the proposal and in closing the contract they will become part of the contract.

All tender proposals shall be addressed and delivered to the Engineer on or before the Tender Closing Date.

1-3 CONTRACT REVIEW AND FIELD VISIT

Prior to submitting tender proposals, bidders shall carefully examine all project drawings, contract documents, construction standards and specifications.

The contractor shall conduct a careful examination of the site and shall take all steps necessary to ascertain the conditions under which the contract is to be carried out, and ensure that the native soil is suitable for backfill. No extra money shall be paid due to soil conditions adversely affecting the work or any other matter affected by the site.

The contractor shall fully inform and satisfy themselves as to all existing soil, subsurface, traffic and other conditions affecting the work.

1-4 DISCREPANCIES

It is the intention that the construction drawings, standards and specifications shall be considered together as presenting complete information regarding the work required. Anything shown on the drawings but not mentioned in the specification, or mentioned in the specification but not shown on the drawings, shall be deemed to have been mentioned or shown on both.

Should discrepancies in, or omissions in the drawings or documents be discovered by the Bidder, or having any doubts as to the meaning or intent of any part of the drawings or documents, shall notify the Engineer promptly. The item of concern will be clarified in writing to all bidders. The Engineer will not be responsible for oral instructions.

Corrections or written clarifications issued during the time of bidding shall become part of the contract and shall be covered by all bidders in their proposals.

The Owner will not be responsible for any extra charges, which may occur through misinterpretation of the drawings or documents by the bidder.

1-5 PRICES

Where indicated, all Prices shall be submitted on a unit basis. Special Unit Prices shall be provided when requested as outlined in the Job Specifications. All prices submitted shall include all Provincial Sales Taxes. The Federal Goods and Services Tax - G.S.T. must be calculated separately and by such means as to not compound the Provincial Sales Taxes.

1-6 PERFORMANCE BOND

The successful tenderer shall be required to furnish a Performance Bond in triplicate in the amount of one hundred percent (100%) of the Total Amount of the Contract in a form satisfactory to the Owner within seven (7) days after being notified of the acceptance of his tender by the Owner.

At the Owners discretion, the amount of the bond may be reduced or eliminated. The cost of the bonding shall be paid by the Contractor.

The Performance Bond shall remain in effect until completion of the project. It shall remain the responsibility of the Contractor to renew the bond upon expiration, subject to the Owner's approval.

1-7 GUARANTEED MAINTENANCE

The Contractor guarantees and warrants in the form of a Maintenance Bond, that the said works detailed within this contract shall, for a period of two (2) calendar years after completion, remain in such condition as will be acceptable to the Engineer, and that he will, upon being required by the Engineer to make good any imperfections or failures in the materials used in the construction thereof or workmanship. The decision of the Engineer as to the nature, extent and cause of such imperfections or failures, and the necessity for remedying the same shall be final. Should the Contractor fail to comply with the directions of the Engineer, the matter may, after giving the Contractor twelve (12) hours of written notice, perform the necessary work, provided that in the event of an emergency, of which the Engineer shall be the sole judge, the Engineer may forthwith without notice, perform the necessary work and the cost of such work in either event may be deducted or collected by the Owner. If the Engineer notifies the Contractor in writing of imperfections or failures prior to the termination of the guaranteed maintenance period, the Contractor shall make good the imperfections or failures as specified above notwithstanding that the work of making good may commence after or extend beyond the end of the guarantee maintenance period.

1-8 QUANTITIES

Where quantities are set out in the Form of Tender - Schedule of Quantities and Unit Prices, which forms part of the contract documents, it is pointed out that the quantities are approximate only, and are given as a basis for estimating and comparing bids. Actual completed works and materials installed shall be the final unit quantities invoiced by the Contractor.

1-9 DEPOSIT CHEQUE

A Certified Cheque payable to the Owner or a Bid Bond in the standard C.C.A. approval form, issued by a recognized bonding company located in Ontario for five percent (5%) of the Total Tender Amount must be submitted with the Tender.

The certified cheque or bid bond of the bidder to whom the contract is awarded will be forfeited to the Owner if said bidder fails to furnish a satisfactory Performance Bond, and to sign the contract within ten (10) days of the acceptance of his tender by the Owner.

The submission of a tender by any bidder shall be deemed as an acknowledgment on his part of the purpose and conditions regarding the deposit cheque or bid bond.

The Deposit cheque shall be returned to the bidder, upon furnishing of the Contract Bond as specified and upon the acceptance of the said bond by the Owner.

The deposit cheques of the unsuccessful bidders will be returned forthwith by the Engineer.

1-10 SUB-CONTRACTORS

The names, detail of work to be performed and lists of personnel of all sub-contractors performing work on this contract shall be included as part of the initial tender submission in the Form of Tender.

Along with the details requested above, the contractor shall submitted in the initial tender submission details of previous work experience, detailing the projects and a contact person for those listed projects.

No sub-contractor shall be employed to whom the Electrical Utility or the Owner may object.

The contractor shall notify the Engineer in writing of any changes of sub-contractors during the duration of the contract. The authorization shall remain that of the Engineer to approve any change of sub-contractors.

All sub-contractors to be used shall be as per the Approved Bidders List of Electrical Utility involved.

The contractor shall be held as fully responsible to the Owner for the acts and omissions of his sub-contractors and of persons directly or indirectly employed by him.

1-11 FORMS OF AGREEMENT

Signature of a copy of the Forms of Agreement attached is required to execute a Formal Contract by the successful bidder.

1-12 INSURANCE

During the life of this contract, the contractor shall at his own expense, take out and maintain insurance as listed below:

(1) Three (3) year Public Liability Insurance Policy for a minimum amount of \$3,000,000.

(2) Property Damage Insurance for a minimum amount \$1,000,000.

The Contractor is also responsible for having any other insurance necessary to execute the conditions and work of the contract prior to the commencement of any work pertaining to this contract.

1-13 WORKPLACE SAFETY & INSURANCE BOARD LETTER

A letter or Certificate of Clearance from the WorkPlace Safety & Insurance Board is required, stating that the Contractor has complied with the requirements of the Workers' Compensation Act and that due are paid up to date as of the contract signing date.

A similar letter must be produced prior to the issuing of the Completion Payment Certificate covering the Contractor's standing as of the contract completion date.

1-14 OCCUPATIONAL HEALTH AND SAFETY ACT - CONSTRUCTION PROJECTS

The contractor is required to comply with all Occupational Health and Safety Act regulations, requirements and amendments in completion of the work performed under this contract. The Contractor will adequately train and instruct his workers in accordance with Occupational Health and Safety Act requirements. The Contractor will indemnify the Owner for any cost the Owner incurs as a result of his failure to comply with Occupational Health and Safety Act requirements.

1-15 HOLDBACK AND RELEASE

A holdback of ten (10%) percent will be taken on the value of the completed portion of the work (services and materials) supplied under the contract. This amount will be withheld until the final completion of the job to the satisfaction of the Electrical Utility Commission and until all liens that may be claimed against the holdback have expired, have been satisfied, discharged or payment into court.

In accordance with the Construction Lien Act, the holdback will then be released no later than forty - five (45) days from the date of substantial performance of the contract is published in a local construction trade newspaper as per Section 32 of the Construction Lien Act.

1-16 INVOICE PROCEDURE

Invoices in triplicate are to be sent to the attention of the Engineer. The invoices for the quantities of completed work shall be individualized as per the units specified in the tender documents. The Progress Payment Certificates will be issued by the Engineer, a copy of which will be forward to the Contractor.

1-17 LINESTAKING AND SURVEY

The Contractor shall be responsible for the detailed survey work of the job and shall employ an experienced personnel to carry out this work. This will include the establishment and checking of points, dimensions, lines, grades and bench marks as required in accordance with the supplied plans and specifications. These surveys should be conducted before construction so that no delays are encountered during the project.

The Developer shall provide for the Contractor, the site leveled and graded to within 6" (150 mm) of finished grade prior to the Contractor commencing the installation of the electrical plant.

Where errors result, and incorrect work performed, due to incorrect surveying of the work detailed in this contract, then the necessary corrections shall be carried out by the Contractor at no cost to the Owner.

The Contractor shall be responsible for the maintenance of survey stakes and bars. Replacement due to loss or damages shall be at the expense of the Contractor.

1-18 OTHER UTILITIES

Upon the request of Bell Canada and Cable T.V. to participate in a joint use trench, the Contractor will be required to install Bell Canada distribution system at the same time and in the hydro distribution system trench. Cable T.V. shall supply and place cables, pedestals and electronic equipment as per joint use agreement.

The contractor will bill Bell Canada and Cable T.V. for their respective shares of joint use plant installation in accordance with the unit prices listed in the Schedule of Quantities and Unit Prices or as per signed Joint Use Agreements whichever may be applicable to the said project, and will do so at no additional cost to the Owner.

The Contractor shall be responsible to contact all other utility offices at least twenty four (24) hours prior to commencing work, to have a representative accurately locate their underground facilities or infrastructure.

All such sewers, house drains, water mains, gas mains, house services, existing Bell Canada, power and other cables must be thoroughly protected during excavation, pipe laying, manhole construction backfilling, etc. to the entire satisfaction of the various Utility Companies concerned and to the Engineer or his representatives.

In the event that damage is incurred by any of the aforementioned services, they shall be replaced or repaired to the satisfaction of all parties concerned at the expense of the Contractor.

1-19 CONSTRUCTION COMMENCEMENT & COMPLETION DATE

The Contractor shall detail below his proposed work schedule and completion date.

The Owner proposes a construction commencement date of **JULY 29, 2004**. The construction commencement date can be changed at the discretion of the Owner with a written notice two (2) weeks prior to construction. The commencement date shall be firmed up by the Engineer in writing, two (2) weeks prior to the start of construction.

* Work shall be completed and full possession given to the Utility within a period of _____ calendar weeks after the above noted proposed commencement date of construction.

1-20 MATERIAL EXPEDITING & LIABILITY

The contractor shall expedite the materials to the site for installation. The contractor shall be responsible for all the materials until installed.

Quality Assurance of Materials received shall be the responsibility of the contractor and to make all necessary claims to the carrier.

All materials shall be ordered and in the possession of the contractor by **JULY 19, 2004.**

1-21 "AS CONSTRUCTED DRAWINGS"

The contractor shall keep one set of drawings for the purpose of recording clearly in red any deviations from the original. These drawings are to be kept up to date on a daily basis.

Any need to deviate from the associated plant installations as detailed in the approved drawings, it is the Contractors' responsibility to advise the Engineer immediately, unless verified by the Electric Utility Inspector.

All physical dimensions such as the location of splices, the alignment of the power trench, ducts, distances to streetlights, transformer and switchgear foundations, utility chambers, cable pulling pits, handwells, the location of road crossings, etc., must be referenced from the closest property lines.

Detailed design drawing information such as transformer location, size, voltages, number of services, serial number, ductbank and road crossing information, size and the number of ducts, easement and easement locations, type and location of the switchgear, size and description of cables installed, type of installation; direct buried or in duct, depth of installation, splice locations and splicers name. For streetlighting, the pole location, size and description of cables installed, type of installation; direct buried or duct, streetlight and traffic light supply points, type of luminaire, size and type of lamp, and description of streetlight poles shall be noted in the "As Constructed" drawings.

"As Constructed" drawings shall indicate all deviations and all the details (measurements, reasons for the deviations, who authorized the change, etc.) regarding the deviation(s).

Upon completion of the works detailed in this contract, it is the Contractors' responsibility to submit a signed copy of the "As Constructed" drawings to the Engineers office within ten (10) working days of the associated plant being energized.

1-21 LIAISON

The contractor shall contact the Electrical Utility, Bell Canada, Gas Companies, Cable Television Companies, and Municipal Public Works, a minimum of one week prior to commencing any installation for this contract.

Should deviations be made in the field, all affected parties should be notified. For efficient and effective implementation of this contract, it is imperative that the Contractor maintain close communications with all utilities at all times.

1-22 SECONDARY CABLE IDENTIFICATION

All secondary cables within the foundation of the transformer, or pulling pit and streetline where stubs have been trained for future energization, are to be identified by Hydro One – Thorold Office.

1-23 PAYMENT FOR PURCHASE OF MATERIALS

Should this development be delayed by others through no fault of the Contractor, the Contractor shall reserve the right to invoice for the “supply only” portion of materials purchased for this development upon receipt of such materials at the Contractors’ storage facilities.

All packing slips for materials received must be submitted to DATOM GROUP together with the Contractors’ invoice proof of payment. Failure to comply with this requirement may result in delays in processing of Progress Payment Certificates.

1-24 MATERIAL APPROVALS AND INSTALLATION

All materials utilized in this development project shall be as per the governing Electrical Utility's approved materials listing. Certified Test Reports (CTR) for primary and secondary cables and transformers, are to be submitted directly to the Electrical Utility. A copy of the CTR for materials are to be submitted to DATOM GROUP prior to commencement of installation. Failure to comply with this requirement may result in delays in processing of Progress Payment Certificates.

ACCEPTED ON BEHALF OF THE CONTRACTOR

SIGNATURE

PRINT

DATE

FORM OF AGREEMENT

This Agreement made in duplicate the 26th day of JULY, 2004 between;

BACON LANE SUBDIVISION C/O TOWN OF PELHAM
of 20 PELHAM TOWN SQUARE, P.O. BOX 400 in the TOWN
of FONTHILL, ONTARIO.

Hereinafter called the "Owner" of the FIRST PART,

And

WIENS UNDERGROUND ELECTRIC LIMITED of
RR#4 65 STEWART ROAD in the TOWN of
NIAGARA ON THE LAKE, ONTARIO.

Hereinafter called the "Contractor" of the SECOND PART,

Whereas, the Owner desires that certain works shall be constructed, namely,

THE INSTALLATION OF THE JOINT USE UNDERGROUND PRIMARY, SECONDARY & STREETLIGHT DISTRIBUTION SYSTEM FOR 16 UNIT RESIDENTIAL LOT DEVELOPMENT,

For the project known as BACON LANE SUBDIVISION in the TOWN of PELHAM, and has accepted a tender by the Contractor for the construction, completion and maintenance of such Works.

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this agreement words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and be read and construed as part of this agreement, namely:
 - a) Form of Tender – Schedule of Quantities and Unit Prices
 - b) Design Drawings
 - c) Information to Bidders
 - d) General Conditions of Contract
 - e) General and Material Specifications
 - f) Schedule of Quantities and Unit Prices including changes and addenda
 - g) Letter of Award – July 26, 2004

3. In consideration of the payments to be made by the Owner to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Owner to construct, complete and maintain the Works in conformity in all respects with the provisions of the Contract.
4. The Owner hereby covenants to pay to the Contractor in consideration of the construction, completion and maintenance of the Works, the Contract Price in the following manner:
- (a) 90% of the value of the work completed up to and including the last day of the month preceding, as invoiced by the Contractor and approved by the Engineer, less the aggregate of the previous payments; and
 - (b) The balance of the value of the work on completion of the works to the satisfaction of the Utility and the Engineer and subject to the receipt of:

A release by the Contractor releasing the Owner from all further claims relating to the contract.

A statutory declaration that all liabilities incurred by the Contractor and his sub-contractors in carrying out the Contract have been paid and that there are no liens, garnishes, attachments or claims relating to the work.

A clearance certificate from the Workplace Safety and Insurance Board.

IN WITNESS whereof the parties hereto have hereunto set their hand and seals and the parties herein described as the Owner and Contractor hereunto affixed their corporate seals duly attested by their proper officer in that behalf, that date and year first above written.

Dated at TOWN OF PELHAM this 16th day of AUGUST 20 04.

**SIGNED, SEALED AND DELIVERED
IN THE PRESENCE OF :**

} Ronald W. Reaven AUG. 16, 2004 MAYOR
 }
 } Cheryl Michette AUG. 16, 2004 CLERK
 } **BACON LANE SUBDIVISION** **DATE**
 } **C/O TOWN OF PELHAM**
 }
 } Munir Munir July 29/04
 } **WIENS UNDERGROUND ELECTRIC LTD.** **DATE**

PART 2 - FORM OF TENDER
&
SCHEDULE OF QUANTITIES AND UNIT PRICES

SUMMARY

**SCHEDULE OF
UNIT PRICE:** FOR THE INSTALLATION OF THE JOINT USE
UNDERGROUND PRIMARY, SECONDARY AND
STREETLIGHT DISTRIBUTION SYSTEM TO SERVICE A
16 RESIDENTIAL LOT DEVELOPMENT

ADMINISTRATOR: TOWN OF PELHAM
20 PELHAM TOWN SQUARE
P.O. BOX 400
FONTHILL, ONTARIO
L0S 1E0

ATTN: ALAN MANNELL, CET

LOCATION: PELHAM STREET AND BACON LANE, TOWN OF
PELHAM, ONTARIO

PROJECT: BACON LANE SUBDIVISION, TOWN OF PELHAM
ONTARIO

**SUB-TOTAL
CONTRACT:** \$ 40,574.65

7% G.S.T. \$ 2,840.23

**TOTAL PER UNIT
PRICE
CONTRACT:** \$ 43,414.88

SUBMITTED ON BEHALF OF THE CONTRACTOR AS BELOW:

COMPANY NAME:

Wiens Underground Electric.

**SIGNING
OFFICER:**

M. M. M. M.

DATE:

July 29/04

COMPANY SEAL:

FORM OF TENDER

FOR
 UNDERGROUND ELECTRICAL DISTRIBUTION SYSTEM
 LOCATION: BACON LANE SUBDIVISION, TOWN OF PELHAM

This Tender is submitted by : Wiers Underground Electric Ltd.
(FIRM NAME)
Rte# 4, 65 Stewart Rd. NOTL
(ADDRESS)
905-682-5060
(TELEPHONE NO.)

to the Owner:

1. I, Werner Wiers
 of Wiers Underground Electric Ltd

DECLARE that no person, firm or corporation other than the one whose signature or the signature of whose proper officers and the seal is or are attached, has any interest in this tender or in the contract proposed to be taken.

2. Wiers Underground Electric Ltd FURTHER DECLARE that this tender is made without any connection, knowledge, comparison of figures or arrangement with any other company, firm or person making a tender for the same work and is in all respects fair and without collusion or fraud.

3. Wiers Underground Electric Ltd FURTHER DECLARE that the several matters stated in the said tender are in all respect true.

4. Wiers Underground Electric Ltd FURTHER DECLARE that we have carefully examined the locality and site of the proposed works, as well as all the Plans, Drawings, Profiles, Specifications, Form of Tender, Instructions to Bidders, Job Specification, General Specification, General Conditions, Agreement and Bond relating thereto, prepared, submitted and rendered available by the Engineer, and hereby acknowledged, the same to the part and parcel and do hereby tender and offer to enter into a Contract to do all of the work and to provide all the labor and equipment and to provide, furnish, deliver, place and erect all materials mentioned and described or implied therein including in every case freight, duty, exchange and sales tax in effect on the date of acceptance of the tender, and all other charges, on the terms and conditions and under the provisions therein set forth and to accept in full payment therefore the sums set forth in the Tender herein as follows:

SCHEDULE OF QUANTITIES AND UNIT PRICES

20

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
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1	Supply Joint Use cable trenching.	170 M.	\$6.00	\$1,020.00
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Supply cable trenching for electrical utility cable and joint use. Width of trench varies with 0.6 m. minimum width and must have a depth that is suitable to maintain a minimum of 0.91 m cover over the upper most Direct buried ducting in accordance with Hydro One - Thorold latest Standards and the enclosed design drawings. Trenching sections covered under this item are for the main joint use trench containing primary, secondary, streetlight and communication cables along internal streets within the subdivision and within the R.O.W. on Regional Road # 36 - Pelham Street.

Note: The Contractor shall be responsible for the application for Road Allowance Cut Permits for work within the Public Right of Way.

Note: The contractor shall be responsible for all utility locates.

2	Supply streetlight and secondary joint use cable trenching.	215 M.	\$6.00	\$1,290.00
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Supply cable trenching for streetlight and secondary cables. Width of trench varies with 0.6 m minimum width and must have a depth that is suitable to maintain a minimum of 0.75 m cover over the upper most direct buried duct or duct structure in accordance with Hydro One - Thorold latest Standards and the enclosed design drawings. Trenching sections covered under this item are for streetlighting and secondary joint use trenching only. Secondary trenching shall be terminated at a location 1.0 m within the property and indicated by a 2" x 4" x 8' stud. Secondary cable shall be affixed to the marker.

Note: The Contractor shall be responsible for the application for Road Allowance Cut Permits for work within the Public Right of Way.

Note: The contractor shall be responsible for all utility locates.

SCHEDULE OF QUANTITIES AND UNIT PRICES

21

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
3	Backfill Above Cable Trench and Supply and Install "Warning Tape". Provide the labor and machinery that is required to backfill portions of above cable trench with the best, mostly stone free material that was excavated during the trenching process. Compact the native material to 95% S.P.D. in accordance with Hydro One - Thorold latest Standards and the enclosed design drawings. Backfill sections covered under this item are for the main joint use trench, streetlighting and secondary cable trench excluding all roadway crossings. Provide and Install "Warning Tape" prior to placing final 150 mm. of backfill.	385 M	\$2.00	\$770.00
4	Supply and Install 0.300 m deep sand envelope. Supply and install 0.300 m deep clean screened 'brick' sand envelope around all direct buried ducts or cables. Place sand prior to native backfilling where and as required. The sand envelope sections covered under this item are for all main joint use, secondary and streetlight trench sections.	385 M.	\$6.00	\$2,310.00
5	Supply Hand Excavation Premium. Supply a unit price Premium to be added to the above unit price for cable trenching. This premium will be applied in all locations where excavation is required over existing underground services or where space limitation only permit excavation by hand and not by any mechanical means. Hand excavation sections covered under this item are for trench sections where other services and the power trench have less than 1.0 m horizontal or vertical separation	70 M.	\$15.00	\$1,050.00

SCHEDULE OF QUANTITIES AND UNIT PRICES

22

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
6	Supply road crossing trenching on internal subdivision streets Only. Supply trenching and backfilling and compaction to 95% S.P.D. of 0.6 m wide trench across the roadway. Maintain a minimum cover of 1.25 m from the upper most ducts to finished grade. Include removal and replacement of Granular 'A' under the traveled portions of the roadway extended 1.5 m beyond curbs and in layers of 150 mm. compacted to 95% S.P.D. in accordance with Hydro One - Thorold and Town of Pelham Specifications and Standards and the enclosed design drawings. Road crossing trenching sections covered under this item are for two (2) roadcrossings on internal streets only.	25 M.	\$40.00	\$1,000.00
7	Cut and Replace Base Course Asphalt on internal streets Only. Cut and Replace base course asphalt at the above roadway crossing locations. Include the disposal of asphalt at an off site location and reinstate the roadway surface with asphalt of like grade and condition in accordance with Hydro One - Thorold and Town of Pelham Specification. Cut and Replacement Base course asphalt sections covered under this item are for all roadway crossing for main trench and secondary service trenches for two (2) roadcrossings on internal streets only.	20 M.	\$10.00	\$200.00

SCHEDULE OF QUANTITIES AND UNIT PRICES

23

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
8	Supply and Install one (1) - 50 mm. Direct Buried Duct. Supply and Install one (1) - 50 mm. Type DB2/ES2 PVC Duct in the above trenches as required. Include all 1/4" polypropylene fish rope and all solvent welded couplings, bends and bell ends. The installation shall be in accordance with Hydro One - Thorold Standards and Specifications and the enclosed design drawings. Direct Buried duct section covered under this item is for streetlight cable only.	180 M.	\$5.50	\$990.00
9	Supply and Install one (1) - 100 mm. Direct Buried Duct. Supply and Install one (1) - 100 mm. Type DB2/ES2 PVC Duct in the above trenches as required. Include all 1/4" polypropylene fish rope and all solvent welded couplings, bends and bell ends. The installation shall be in accordance with Hydro One - Thorold Standards and Specifications and the enclosed design drawings. Direct Buried duct section covered under this item is for road crossing duct.	165 M.	\$9.00	\$990.00
10	Supply Transformer Pre-cast Foundation. Supply only, transformer pre-cast foundation in accordance with Hydro One - Thorold Standards and Specifications attached. Approved Supplier: Hygrade: TP-104 Industrial Cast Stone: ICS 142 Brooklin Concrete Products: BCP110C Or Approved Equivalent NOTE: SUPPLY OF ALL GROUND WIRE, GROUND RODS, SINGLE BOLT COPPER CONNECTOR, COMPRESSION CONNECTORS, SILICON BRONZE NUTS AND BOLTS, BELLVILE WASHERS SHALL BE SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR.	2 UNITS	\$475.00	\$950.00

SCHEDULE OF QUANTITIES AND UNIT PRICES

24

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
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11	Install Transformer Pre-cast Foundation	2 UNITS	\$500.00	\$1,000.00
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Install only, Transformer Pre-cast foundation, Item #10 above. Excavation shall be 1400 mm (W) X 1700 mm (L) X 1200 mm (D) with a 200 mm. deep 3/4" compacted crushed stone bedding for the foundation. The top of the pad shall be 150 mm. above final grade. Installation shall be in accordance with Hydro One - Thorold Standards and Specifications.

12	Supply Triplex 3 - #3/0 AWG, 600V, Aluminum Conductor, XLPEI-PVCJ, Secondary Cable	810 M.	\$6.80	\$5,508.00
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Supply only 3 - #3/0 AWG, 600V, Aluminum Conductor, XLPEI-PVC Jacketed, Triplex, Underground Cable. Material to be in accordance with Hydro One - Thorold Secondary Cable Specification M299M 87 and CEA WCWG 04/93.

Approved manufacturers cable construction designs are;

Phillips - ITC No. 4165170 REV0
Alcatel - ITC No. 86 CL08 REV19
Pirelli - ITC No. 87/R64789 REV0

CONTRACTORS ARE TO QUOTE THIS ITEM WITH FIRM UNIT PRICES. THE UNIT PRICE WILL NOT BE SUBJECT TO METAL ESCALATION'S.

CONTRACTORS ARE TO PROVIDE HYDRO ONE - THOROLD WITH ALL CERTIFIED CABLE TEST RESULTS PRIOR TO ANY INSTALLATION.

SCHEDULE OF QUANTITIES AND UNIT PRICES

25

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
13	Install & Cap Triplex 3 - #3/0 AWG, 600V, Aluminum Conductor, XLPEI-PVCJ, Secondary Cable	810 M.	\$2.00	\$1,620.00
	Install only direct buried 3 - #3/0 AWG, 600V, Aluminum Conductor, XLPEI-PVC Jacketed, Triplex, Underground Cable direct buried within the above trenches and pulled through all required 100 mm. road crossing ducts in accordance with Hydro One - Thorold latest Standards and Specifications and the enclosed design drawings. After installation ends must be capped to prevent moisture ingress.			
14	Supply Single Conductor #2/0 AWG, Aluminum Conductor, XLPEI-LLDPEJ, 28 kV Primary Cable	395 M.	\$11.20	\$4,424.00

Supply only Single Conductor #2/0 AWG, Aluminum Strandfilled Conductor, TR-XLPEI-LLDPEJ, 28 kV, Primary Cable. Material to be in accordance with Hydro One Primary Cable Specification M372M 82A

Approved manufacturers cable construction designs are;

- Phillips
- Alcatel
- Pirelli

CONTRACTORS ARE TO QUOTE THIS ITEM WITH FIRM UNIT PRICES. THE UNIT PRICE WILL NOT BE SUBJECT TO METAL ESCALATION'S.

CONTRACTORS ARE TO PROVIDE HYDRO ONE - THOROLD WITH ALL CERTIFIED CABLE TEST RESULTS PRIOR TO ANY INSTALLATION.

SCHEDULE OF QUANTITIES AND UNIT PRICES

26

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
15	<p>Install Single Conductor #2/0 AWG, Aluminum Conductor, Concentric Neutral, TR-XLPEI-LLDPEJ, 28 kV Primary Cable</p> <p>Install only direct buried Single Conductor #2/0 AWG, Aluminum Strandfilled Conductor, Concentric Neutral, TR-XLPEI-LLDPEJ, 28 kV Primary Cable within the above trenches in accordance with Hydro One latest Standards and Specifications and the enclosed design drawings.</p> <p>CONTRACTOR SHALL RECORD ALL PULLING TENSIONS AND SUBMITTED TO ENGINEER FOR REVIEW.</p>	395 M.	\$2.50	\$987.50
16	<p>Supply 2 - #6 Cu., NMWU, 300V, CSA Approved Streetlight Cable</p> <p>Supply only 2 - #6 Cu., NMWU, 300V, CSA Approved Underground Streetlight Cable. Material to be CSA approved and in accordance with Hydro One - Thorold Standards and Specifications and enclosed design drawings.</p> <p>CONTRACTORS ARE TO QUOTE THIS ITEM WITH FIRM UNIT PRICES. THE UNIT PRICE WILL NOT BE SUBJECT TO METAL ESCALATION'S.</p> <p>CONTRACTORS ARE TO PROVIDE HYDRO ONE - THOROLD WITH ALL CERTIFIED CABLE TEST RESULTS PRIOR TO ANY INSTALLATION.</p>	210 M.	\$3.75	\$787.50
17	<p>Install & Cap 2 - #6 Cu., NMWU, 300V, Streetlight Cable in direct buried 50 mm. PVC duct in the main and secondary joint use and streetlight trench.</p> <p>Install only 2 - #6 Cu., NMWU, 300V, Underground Streetlight Cable in direct buried 50 mm. PVC duct within the above trenches in accordance with Hydro One - Thorold latest Standards and Specifications and the enclosed design drawings. After installation ends of cable must be capped to prevent moisture ingress.</p>	210 M.	\$1.75	\$367.50

SCHEDULE OF QUANTITIES AND UNIT PRICES

27

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
18	Supply Single Phase Faulted Circuit Indicators. Supply only, single phase, faulted circuit indicators having a 300A trip current for use on #2/0 AWG Cable. FCI's to be calibrated to the outside diameter of #2/0 AWG, 28 kV Primary Cable of 28.6 mm and in accordance with Hydro One - Thorold Specifications. Approved Suppliers: Fisher Pierce Cat# 1514SM-3A3-NGD-B	2 UNITS	\$290.00	\$580.00
19	Install Faulted Circuit Indicators in Low Profile Transformer and Switchgear Locations Install only, single phase, faulted circuit indicators in Low Profile Transformer and Switchgear locations. FCI's to be installed in accordance with Hydro One - Thorold Standard.	2 UNITS	\$20.00	\$40.00

SCHEDULE OF QUANTITIES AND UNIT PRICES

28

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
20	<p>Supply and Install 100W, HPS, 120V Holophane Post Top Luminaire – Type III Distribution and 7.62 m (25') Class A, Hexagon Décor Series Concrete Pole</p> <p>Supply and Install 7.62m (25'), Class A, Hexagon concrete pole suitable for direct buried installation, Style 140, Midnight Lace Polished Finish manufactured by StressCrete Cat# TEC 25 ALPO - CSA c/w S-10 s/f 140.</p> <p>Luminaire to be 100W, HPS, 120V, Post Top Luminaire, complete with photo receptacle and Photocontrol, glass refractor, Type III Light Distribution by Holophane Cat# RLPT100HP12BK33R.</p> <p>THE CONTRACTOR WILL BE RESPONSIBLE FOR INCLUDING ALL INTERNAL WIRING (NMD90 2#14 Cu., FROM HAND-HOLE TO LUMINAIRE), CONNECTION AND GROUNDING, ALL FUSING C/W FUSE HOLDER, FUSE AND WEATHERPROOF COVER BOOTS AND BACKFILLING OF POLES WITH COMPACTED LIMESTONE SCREENINGS IN ACCORDANCE WITH TOWN OF PELHAM LATEST STANDARDS AND SPECIFICATIONS.</p> <p>Note: Luminaire Light Distribution when ordering.</p>	5 UNITS	\$2,043.46	\$10,217.30
21	<p>Supply and Install Split Bolt Copper Connector, for #8 - #2 AWG.</p> <p>Supply and Install Split Bolt Copper Connector, #8 - #2 AWG, Copper Wire for connection of ground lead within the streetlight pole in accordance with Town of Pelham latest Standards and Specifications. Note specific split bolt connector size whether radial or loop feed.</p>	15 UNITS	\$9.25	\$138.75

SCHEDULE OF QUANTITIES AND UNIT PRICES

29

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
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22	Supply and Install Streetlight Pedestals	1 UNIT	\$2,250.00	\$2,250.00
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Supply and Install streetlight breaker pedestals complete with 18" Diameter concrete foundation to be a FPE CEMA 3 weatherproof service entrance enclosure Cat# RHBE 1-08-16 panel, with FPE 60A 2P Main service entrance circuit breaker (2P-60-NA) and maximum four (4) - 15A, 1P breakers (1P-15-NA) mounted in a Reltec Corp. pedestal Cat TV-1024 as per design drawings.

THE CONTRACTOR WILL BE RESPONSIBLE FOR INCLUDING ALL CONDUCTOR FROM TRANSFORMER TO PEDESTAL, CONNECTION AND GROUNDING VIA 2 - 5/8" X 10' GROUND RODS & 4/7 BARE CU., AND SHALL BE IN ACCORDANCE WITH HYDRO ONE - THOROLD LATEST STANDARDS AND SPECIFICATIONS AND ATTACHED DESIGN DRAWINGS.

THE CONTRACTOR WILL BE RESPONSIBLE FOR NOTIFYING AND OBTAINING ESA INSPECTION OF THE STREETLIGHT INSTALLATION. ANY COST ASSOCIATED WITH ESA INSPECTION OR RELATED HYDRO ONE PERMITS MUST ALSO BE INCLUDED IN THE UNIT PRICE.

SCHEDULE OF QUANTITIES AND UNIT PRICES

30

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
23	<p>Supply Quick Disconnect Secondary Stud Connector for 14 Position complete with Plasticol Cover for #3/0 AWG, Aluminum, Secondary Cable</p> <p>Supply only quick disconnect secondary stud connector for 5/8" – 11 stud for 14 conductors, for #3/0 AWG – 250 MCM, Al., Secondary Cable, for connection of secondary service cables to spade connector in transformers in accordance with Hydro One - Pelham latest Standards and Specifications.</p> <p>Approved Supplier:</p> <ul style="list-style-type: none"> • CCC – Cat# DU25014 • Ilsco – Cat# TUT14250 	6 UNITS	\$62.25	\$373.50
24	<p>Supply and Install Quick Disconnect Secondary Connector complete with cover for #3/0 AWG, 600V Secondary Cable in Padmounted Transformer.</p> <p>Supply and Install Quick Disconnect Secondary Connector complete with cover for #3/0 AWG, 600V Secondary Cable in Padmounted Transformer as per design drawings. Include labor and materials, identification of unit numbers and the installation of oxide inhibitor in accordance with Hydro One - Pelham Standards and Specifications.</p> <p>DOES NOT INCLUDE THE SUPPLY OF SECONDARY CONNECTOR. THEY HAVE BEEN ACCOUNTED FOR IN ITEM ABOVE</p>	6 UNITS	\$35.00	\$210.00
25	<p>Supply 200A, 28 kV, Loadbreak Separable Connector, Bushing Insert</p> <p>Supply only 200A, 28 kV, Loadbreak Separable Connector, Bushing Insert in accordance with Hydro One – Thorold Specifications.</p> <p>Approved Supplier:</p> <ul style="list-style-type: none"> • RTE • ELASTIMOLD 	4 UNITS	\$68.65	\$274.60

SCHEDULE OF QUANTITIES AND UNIT PRICES

31

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
26	<p>Install 200A, 28 kV, Loadbreak Separable Connector, Bushing Insert</p> <p>Install only 200A, 28 kV, Loadbreak Separable Connector, Bushing Insert in Padmounted Transformers in accordance with Hydro One – Thorold Standards and Specification and manufacturers instructions</p>	4 UNITS	\$35.00	\$140.00
27	<p>Supply #2/0 AWG, Aluminum, 28 kV, Loadbreak Separable Elbow Connector</p> <p>Supply only #2/0 AWG, Al., 28 kV, Loadbreak Separable Elbow Connector in accordance with Hydro One – Thorold Specifications.</p> <p>Approved Supplier:</p> <ul style="list-style-type: none"> • RTE • ELASTIMOLD 	4 UNITS	\$68.65	\$274.60
28	<p>Install #2/0 AWG, 28 kV, Loadbreak Separable Elbow Connector</p> <p>Install only #2/0 AWG, 28 kV, Loadbreak Separable Elbow Connector in Padmounted Transformers in accordance with Hydro One – Thorold Standards and Specification and manufacturers instructions</p>	4 UNITS	\$25.00	\$100.00
29	<p>Supply 28 kV Stand-off Plug for 200A Loadbreak Elbows</p> <p>Supply only 28 kV Stand-off Plug for 200A Loadbreak Elbow at normal open point within the required transformer in accordance with Hydro One – Thorold Specification.</p> <p>Approved Supplier:</p> <ul style="list-style-type: none"> • RTE • ELASTIMOLD 	1 UNIT	\$147.75	\$147.75

SCHEDULE OF QUANTITIES AND UNIT PRICES

32

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
30	<p>Install 28 kV Stand-off Plug for 200A Loadbreak Elbows</p> <p>Install only 28 kV Stand-off Plug for 200A Loadbreak Elbows at normal open point within the required transformer in accordance with Hydro One – Thorold Standards.</p>	1 UNIT	\$35.00	\$35.00
31	<p>Supply 28 kV Dead End Insulating Cap for 200A, 28 kV Loadbreak</p> <p>Supply only 28 kV Dead End Insulating Cap at normal open point within the required transformer in accordance with Hydro One – Thorold Specification. Approved Supplier:</p> <ul style="list-style-type: none"> • RTE • ELASTIMOLD 	1 UNIT	\$68.65	\$68.65
32	<p>Install 28 kV Dead End Insulating Cap for 200A, 28 kV Loadbreak</p> <p>Install only 28 kV Dead End Insulating Cap at normal open point within the required transformer in accordance with Hydro One – Thorold Standards.</p>	1 UNIT	\$35.00	\$35.00
33	<p>Supply High Potential Testing of Primary Cable</p> <p>Contractor to supply electrical services for high potential testing of primary and secondary cables prior to energization. The voltage is to be gradually increased from 0% to 100% of rated cable voltage in a period no less than 10 seconds and no more than 30 seconds. The test voltage at 100% (28 kV d.c.) shall be held for 5 minutes. Record Leakage current at 1.0 m intervals.</p> <p>A final report is to be submitted to Hydro One by the contractor.</p>	1 UNIT	\$425.00	\$425.00

SCHEDULE OF QUANTITIES AND UNIT PRICES

33

PROJECT: _____

ITEM	DETAIL OF WORK	TENDER QUANTITY	UNIT PRICE	TOTAL
34	THE SUPPLY OF A CERTAIN MATERIAL(S) OR INSTALLATION(S) SPECIFIED HEREWITHIN FOR USE IN THIS PROJECT MAY BE DELETED FROM THIS TENDER AND THEREFORE BE SUPPLIED "BY OTHERS". PRIOR TO THE PURCHASE OF MATERIALS, THE CONTRACTOR MUST CHECK THE MATERIALS "SUPPLY" WITH DATOM GROUP.			
35	CONTRACTORS ACKNOWLEDGE THAT ALL MATERIALS SPECIFIED FOR USE IN THIS PROJECT, WILL BE SUBJECT TO HYDRO ONE - THOROLD APPROVAL PRIOR TO PURCHASE OR INSTALLATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING ALL SUCH APPROVALS.			
A - SUB TOTAL (ABOVE ITEMS INCLUSIVE)			\$ 40,574.65	
B - SUB TOTAL (ADDENDUM TOTAL)			\$ -	
C - TOTAL (A + B)			\$ 40,574.65	
D - 7% G.S.T. (7% OF TOTAL C)			\$ 2,840.23	
E - TOTAL (C + D)			\$ 43,414.88	
CONTINGENCY - 5% OF TOTAL - E			\$ 2,170.74	
TOTAL AMOUNT OF TENDER			\$ 45,585.62	

PROJECT: _____

EXTRAS:

Do NOT include the following items in the total amount of contract. Unit Prices must include applicable Provincial Taxes. Do NOT include Federal 7% Goods and Services Tax as it will be accounted for at the time of the invoice. All additional work to be approved by Owner or Engineer prior to execution.

ITEM	DETAIL OF WORK	UNIT PRICE
36	Supply and Install Extra Sand Supply and Install extra deep sand backfill in above trenches around direct buried cables or ducts only if requested by the Hydro One - Thorold on site inspector. NOTE ANY INVOICES FOR EXTRA SAND MUST BE VERIFIED IN WRITING BY THE HYDRO ONE - THOROLD ON SITE INSPECTOR.	\$ 0.00 /M
37	As above except 0.15 m deep.	\$ 5.50 /M
38	As above except 0.30 m deep.	\$ 5.75 /M
39	As above except 0.45 m deep.	\$ 6.00 /M
40	Frost removal 0.0 m to 0.2 m. deep. No Charge.	\$ 0.00 /M
41	Frost removal 0.2 m to 0.4 m. deep.	\$ 3.00 /M
42	Frost removal 0.4 m to 0.6 m. deep.	\$ 6.00 /M
43	Frost removal 0.6 m to 0.8 m. deep.	\$ 9.00 /M
44	Frost removal 0.8 m to 1.0 m. deep.	\$ 12.00 /M
45	Frost removal over 1.0 m. deep.	\$ 15.00 /M
46	Test Pit - 1.5M x 1.5M - Hand Excavation	\$ 450.00/PIT

5. We agree that this offer is to continue open to acceptance until the formal contract is executed by the successful tenderer for said work and that the Owner may at any time within that period and without notice accept this tender whether any other tender has been previously accepted or not.
6. We agree that if we withdraw this tender before the Owner shall have considered the tenders and award the Contract in respect there of any time not later than the _____ day of _____, 20____, the amount of the deposit accompanying this tender shall be forfeited to the Owner.
7. We agree that the awarding of the Contract based on this tender by the Owner shall be an acceptance of this tender.
8. We, the undersigned, HEREBY AGREE to become bound as surety for _____ in a Performance Bond from a Canadian Company totaling ONE HUNDRED PERCENT (100%) of the CONTRACT amount, for the full and due performance of the works shown or described herein, if the Tender for the contract is accepted by the Owner.

IT IS A CONDITION of this Agreement that if the above mentioned Tender is accepted, application for a Performance Bond must be made to the Undersigned within TEN (10) DAYS of Notice of Contract Award, otherwise this Agreement shall be null and void.

DATED AT NOTL this 29th day of July, 2004.

NAME OF BONDING COMPANY

SIGNATURE OF AUTHORIZED PERSON
SIGNING COMPANY

(COMPANY SEAL)

POSITION

_____ propose _____
a company which is willing to become bound with _____
in the amount designated for the due performance and fulfillment of the contract, verified of the Form of Tender.

9. _____ agree that the date of completion for this work shall be _____, 20 ____.
10. A certified cheque in the amount of five percent (5%) of the Total Tender, _____ is enclosed.
11. The tender shall specify the list of sub-contractors to be employed to complete the work.

Sub-Contractors Name

Work to be Performed

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

SUBMITTED ON BEHALF OF THE CONTRACTOR;

Wiens Underground Electric

COMPANY NAME

Mona Wiens

SIGNING OFFICER

July 29/04

DATE

112 336 144 RT

GST REGISTRATION OR BUSINESS NO. #

PART 3 - JOB SPECIFICATION

3-1 TRENCHING, EXCAVATION AND BACKFILLING

The installation of sewer and water facilities must be complete prior to cable trench installation. This includes lateral connections.

All trenches profiles are to be installed as per approved design drawings. Depth of installation shall be determined by whether the installation is joint use or dedicated. Under roadways for road crossings, the minimum cover shall be 900 mm. under all installations with the center point to be elevated to provide 3% slope to extremities. Trench excavations for road crossing ducts shall be sufficient width to accommodate all ducts side by side. No extra charges will be paid to the Contractor for rock or shale excavation in trenches or at transformer pad or switch kiosk locations. It will be the responsibility of the Contractor to test bore at all trenches and pad locations and bid accordingly.

The Contractor shall not open more 300 m of trench before backfilling. All existing sodded areas, paved areas, curbs and other surfaces damaged during construction shall be restored by this Contractor at his own cost.

Cable sand backfill is required to provide a 150 mm bedding below and minimum cover of 150 mm over direct buried cables and duct in all locations. The remainder of the backfill material is to be excavated material, free of rocks, stones and debris and subject to approval by Hydro One – Thorold Office representative. It is recommended that the backfill be thoroughly tamped, and shall be done with proper tools and in layers so as to prevent settling of earth after completion. Warning tape to be placed prior to placing the final 150 mm. of backfill.

Backfill of roadcrossing trenches shall consist of two 75 mm. layers of sand over ducts followed by 150 mm layers of granular "A" compacted to 95% Proctor and extending 2.0 m beyond curb lines in accordance with the Town of Pelham and Hydro One – Thorold Office. All crossings are to be offset 1.5 m from transformer foundation edge if possible to allow for ease of ingress and egress of ducts. All road crossing ends shall be marked with suitable marker.

All dimensions given for trench locations shall be from the center line of the trench to a property line or curb. Main trench offset to property line shall be 2.8 m. Secondary trench offset to property line shall also be 2.8 m. as per Design Drawings.

Length of service from the main or secondary trench to or beyond the front property line shall be 3.8 m. This dimension will generally locate the end of the service trench 1.0 m. beyond the front property line and this shall be where the Contractor shall place the secondary cable 2"x 4" stub with 3 m. coil of

secondary cable buried at the base of the stud.

All trenches and ducts must be pumped free of water prior to placing of cables.

3-2 DUCTS

All ducts subject to direct buried or concrete encased installation, shall be rigid PVC Type DB2/ES2, 100 mm. for primary and secondary installation, and 50 mm. for streetlighting where specified unless otherwise indicated. Bell ends are to be placed on all open duct ends.

For roadcrossings, secondary cables shall be installed a maximum two (2) per duct, streetlight cable shall installed maximum two (2) per duct and all primary shall be installed one (1) per duct.

Ducts for road crossings shall be installed side by side. Center of duct crossing shall be elevated sufficiently to provide 2% downward slope to each end. A spare duct shall be installed at each crossing location, this spare duct to be complete with 1/4" nylon polypropylene rope and capped at both ends. Ends of ducts for road crossings shall be marked by 2" x 4" x 8" marker.

Reference approved design drawings for specific details.

3-3 GRADES

The Owner will supply key Steel Iron Bars (S.I.B's) to enable the Contractor to carry out all staking in accordance with Section 1-17. Lot boundary stakes shall be placed so that locations for the distribution system can be determined. Responsibility for the survey markers and monuments rests with the Developer.

Gravel road base must be completed and boulevards must be level and graded to within 6" (150 mm) of finished grade. The Developer shall provide a level area to within 6" (150 mm) more or less of finished grade, within the radius of 3.0 m of all electrical transformer locations. Further, the Developer or his consultant will confirm in writing all grades prior to cable laying and trenching.

The Developer will advise, or cause the Contractor to be advised a minimum of 1 month in advance of the installation of the electrical plant, the location of driveways and walkways so that conflicts may be avoided.

3-4 TRANSFORMERS AND TRANSFORMER FOUNDATIONS

Transformer shall be low profile single phase pad-mounted units supplied by and installed by the Hydro One - Thorold Office.

Transformers shall be pad-mounted single phase units in accordance with Hydro One - Thorold Specification, 50 kVA, 4800 - 120/240V, supplied and installed by the Hydro One - Thorold Office complete with grounding.

Transformer foundations are to be supplied and installed by the Contractor in accordance with Hydro One - Thorold Office requirements. Location and orientation of the foundation(s) shall be as per approved design drawings. All dimensions given for pad locations will be from the pad center lines to the curb and / or lot lines or projected lot lines. The pad shall be centered on the lot line projection unless otherwise noted.

Excavation dimension for the foundation shall be:

- Width - 1400 mm
- Length - 1700 mm.
- Depth - 1200 mm.

The Contractor shall supply and install 200 mm of 3/4" crushed stone as base into each excavation. This shall be leveled horizontally to provide for the top of the pad to be 150 mm. above final grade.

A minimum of two 3.0 m ground rods shall be driven vertically on opposite corners of the vault. The distance between ground rods shall not be less than 3.0 m. The tops of these ground rods shall be no less than 0.2 m below the finished grade.

A continuous uncut copper ground wire shall completely encircle the vault at a distance of 1.0 m outside the vault. Both ends of the ground wire shall be brought into the vault for termination. The ground wire shall be secured to the ground rods using galvanized steel ground rod clamps. Selection of ground wire shall be #4/7 copper for single phase transformer installations, or #1/0 AWG, copper for multiple phase or switch installations.

Following grounding of the foundation, the Contractor shall backfill around the pad and compact to grade level.

3-5 SECONDARY CABLES

All secondary cables shall be rated 600V, single conductor, compact aluminum, polyethylene insulated (PE) and polyvinyl chloride jacketed (PVC), Rated 75° C, suitable for direct buried or ducted installation.

For 200A services, the secondary cable shall be triplex construction, 3 - #3/0 AWG or 3 - 250 MCM Aluminum as indicated per the design drawings.

All secondary cable shall be purchased in accordance with Hydro One - Thorold Specification, and approved manufacturers catalogue and drawing numbers;

- Alcatel, ITC No. 86 CL08 Rev. 19
- Phillips, ITC No. 4165170 Rev. 0
- Pirelli, ITC No. 87/R64789 Rev. 0

Secondary cables shall be installed direct buried except for road crossings where the secondaries shall be installed in 75 mm. PVC Type DB2/ES2 duct as per approved design drawings. For road crossings, installation shall be maximum two (2) secondary service cables per duct.

Pulling tensions **WITH PULLING EYES**, shall not exceed cable manufacturers suggested pulling tension as listed below:

Cable Size	Maximum Pulling Tension (lbs)
3-#3/0 AWG, Triplex	4000
3 – 250 MCM, Twisted	4200

During installation, considerable care must be taken in the handling and laying of cables to avoid damage to the insulation.

After installation, the Contractor shall cap both ends of the conductor to prevent moisture ingress.

At each transformer, tagging and material required to identify which lot the secondary conductor serves will be done by the cable installer.

3-6 SECONDARY CABLE TERMINATIONS

All Secondary cables within the transformer shall be terminated by Hydro One - Thorold Office.

3-7 STREETLIGHTING

Streetlighting is to be supplied and installed in accordance with Town of Pelham requirements and subject to the Town of Pelham and Hydro One - Thorold approval.

Streetlight poles shall be 7.62 m (25') Class A, Décor Series Hexagon concrete poles, midnight lace polished finish, 3" IPS x 4" tenon, manufactured by StressCrete Cat# TEC 25 ALPO CSA S10 S/F 140 in accordance with Town of Pelham standards and specifications.

Luminaire shall be post top style, 100W HPS, 120V, Type III light distribution, HPF Reactor Type Ballast, complete with photo receptacle and photocontrol, flat glass refractor, by Holophane Cat# RLPT100HP12BK33R. Mounting height shall be 5.48 m.

Streetlighting to be supplied shall be complete with lamps, hardware, wiring, fusing, connections, grounding, photocells, and backfilled with limestone screening.

Each streetlight pole shall be equipped with two "TRON" single pole, non-break 600V 0-30A fuse holders c/w insulating boots, fused in accordance with Commission requirements and installed in the pole hand hole.

Streetlight poles shall be located as per design drawings with proper off sets from the curb. For a 20.0m Standard Urban Road, streetlights shall be installed with center 3.8 m from the property line. The typical burial details shall be as per manufacturer instructions. The minimum depth of installation of the pole shall be 1.52 m. in depth. A 100 mm. to 150 mm. coarse gravel bedding shall be provided for a firm base on which to set the pole. Auger the setting hole, with the minimum auger size being 200 mm. to 250 mm. greater in diameter than the pole butt.

All wiring between the transformer, the house service meterbase and circuit breakers, photocells, and the termination's in the hand holes of the poles shall be complete and in accordance with Town of Pelham and Hydro One Standards.

The streetlight cable shall be 2 - #6 AWG, Cu., & 1 - #10 AWG, Cu., Ground Wire, 300V, Type NMWU, CSA approved conductor. The raceway conductor from the hand hole to the luminaire shall be NMD-90 2/C #14 AWG Cu., & 1-#14 AWG, Bare Cu., Ground Wire, 300V, CSA approved. All streetlight conductor shall be installed in direct buried 50 mm PVC Type DB2/ES2 duct.

Streetlight conductor shall installed direct buried within the main trench. In roadcrossings, streetlight cable shall be installed one cable per 100 mm duct as per design drawings.

3-8 RECORD DRAWINGS

The contractor shall maintain, as work progresses, accurate records of changes to the design drawings. Upon completion of the project, the contractor shall deliver marked up design drawings to the Engineer with all changes clearly indicated.

3-9 INSTALLATION

All installations are subject to supervision of a Hydro One - Thorold Office Inspector assigned to the project. In all cases, the Hydro One - Thorold Inspector shall have final say in cases of construction problems and plant installation.

All plant installations shall be in accordance with the approved design drawings attached hereto. In cases of conflict with design drawings and Hydro One - Thorold Office Standard Drawings and / or Specification in Appendix 'A' and 'B', the approved design drawings shall generally govern the installation. Shall the issue remain unresolved, clarification shall be obtained from the Hydro One - Thorold Office Inspector.

3-10 INSPECTION

The contractor shall notify the Hydro One - Thorold Office Inspector or Jack Braybrook at 905-227-5294 Ext. 232, when construction is ready for inspection, and to advise daily when contracting crews are on site.

It is the contractors responsibility to maintain liaison with the Hydro One - Thorold Office inspector at all times through out the contract, giving one working day minimum notice when construction is ready for inspection, and especially at the following stages:

- Immediately before trenching is started and again after trenching is complete, prior to the installation of any sandfill
- Immediately after trenches are prepared, ready for the installation of cable and ducts
- Immediately after ducts are laid, prior to backfilling or concrete encasement
- Before pads for transformers and switch kiosks are placed
- Immediately before any installation of cable (primary or secondary)

3-11 TRENCHING JOINT USE WITH BELL CANADA AND CATV

The Engineer shall be required to make all arrangements directly with joint use parties.

The contractor shall ensure that Bell Canada and C.A.T.V joint use parties have made an arrangement with, and satisfactory to, the Utility, prior to commencing construction of any joint use trenching. The forgoing requirement is necessary to satisfy the current general agreement between joint use parties and the Utility.

The entire joint use installation shall be in accordance with "planned separation" and depth of installation as detailed per the design drawings.

3-12 GUARANTEE AND INSPECTION

Hydro One - Thorold Office will accept ownership and thus responsibility for the maintenance and operation of the distribution system upon energization.

3-13 RESPONSIBILITIES

All materials except Bell Canada and Cable T.V. materials must be supplied and installed by the contractor unless otherwise noted, in accordance with the latest applicable Utility Standards and manufacturers instructions, and subject to Utility approval prior to purchase.

The specifications for the various materials are on file with the approved manufacturers and with the Utility.

Material quantities in the Form of Tender are approximate only, and are not sufficient for ordering or billing purposes.

Material transportation to the job site will be the responsibility of the Contractor.

The Contractor is to supply all materials, tools, and labor to install the entire Hydro, Bell and Cable T.V. distribution system as per design drawings.

S.I.B. and final grade stakes only shall be provided by the Owner. Stakes lost during construction are to be replaced at the Contractor's cost.

The Owner will arrange the grade at all cable routes will be within 150 mm of final grade.

Energization of the system will be carried out by Hydro One - Thorold after the total installation is complete.

3-14 **HYDRO ONE - THOROLD SPECIFICATION FOR TRENCHING AND BACKFILLING BY DEVELOPER FOR INSTALLATION OF HYDRO ONE - THOROLD FACILITIES**

The attached Appendix 'A' detailing Hydro One - Thorold's requirements shall form part and parcel of this Specification and Tender Document.

3-15 **PRIMARY CABLES**

All primary cables shall be rated 28 kV, single conductor, #2/0 AWG, compact aluminum, tree retardant crosslinked polyethylene insulated (TR-XLPE) and LLDPE jacketed complete with Water Block Agents suitable for direct buried and ducted installation.

Main feeder cable shall be rated 28 kV, single conductor, 350 MCM, compressed copper, tree retardant crosslinked polyethylene insulated (TR-XLPE) and PVC jacketed suitable for direct buried and ducted installations.

All primary cable shall be purchased in accordance with Hydro One Specification, and approved manufacturers catalogue and drawing numbers;

- Alcatel
- Phillips
- Pirelli

Primary cables shall be installed direct buried with the exception of road crossings where the primary cable shall be installed in 100 mm. PVC Type DB2/ES2 duct as per approved design drawings. Installation shall be one (1) primary cables per duct.

Pulling tensions **WITH PULLING EYES**, shall not exceed cable manufacturers suggested pulling tension as listed below:

Cable Size	Maximum Pulling Tension (lbs)
1 - #2/0 AWG, Al., 28 kV Cable	1000 lbs
1 - 350 MCM, Cu., 28 kV Cable	3850 lbs

During installation, considerable care must be taken in the handling and laying of cables to avoid damage to the insulation.

After installation, the Contractor shall cap both ends of the conductor to prevent moisture ingress.

Minimum bending radius of primary cable shall be 0.355 m. or 10 to 12 times the outside diameter of the cable.

3-16 PRIMARY CABLE TERMINATIONS

All primary cable terminations within the transformer and switchgear locations for separable connectors (elbows & bushing inserts) and the terminal pole (terminations) shall be installed by the electrical contractor.

3-17 CONNECTIONS

Electrical Contractor will make all electrical connections, permanent terminations and test the complete system. Hydro primary cables shall be installed in the extreme left or right duct(s) so as to obtain maximum separation between primary cable(s) and communication cables.

PART 4 - GENERAL SPECIFICATION

4-1 TRENCHING, EXCAVATION & SHORING

Excavations required shall be made to levels specified as per design drawings and trench profiles. Where not specified, trenching shall be such that buried plant will be such that a minimum cover of 750 mm. for secondary and streetlight cable and 900 mm for primary cables below finished grade, but in no case shall the installation be where a minimum cover below existing grade is not achieved. All excavations will be subject to inspection by the Utility inspector and an Inspector from the Town's Engineering Department. All trench excavations shall comply with all applicable Provincial Acts, Regulations and by-laws including the Occupational Health and Safety Act and Regulations for Construction Projects - November 1993 or latest edition. An open trench with depth of 1.2 m. or greater shall be properly sloped or shored to ensure proper worker protection. Where shoring is required, the Contractor shall supply and erect same without extra compensation, and shall be solely responsible for its stability.

If the Contractor should deem it necessary to carry the excavation to a greater depth than specified, he shall notify the inspector before proceeding.

Where required, all trenches are to be left open for the inspection of cables by Hydro One - Thorold Inspector or personnel.

4-2 WATER AND DRAINAGE

Excavations shall be kept free from water during the installation of cables, ducts, or concrete. The Contractor shall provide and maintain suitable pumps and related equipment shall it be deemed by the Engineer or the Utility inspectors to remove any substantial accumulation of water.

4-3 CONCRETE

The concrete used shall be a minimum of 20 Mpa, 28 day compressive strength from an approved ready mix concrete supplier per CSA Std. CAN 3-A23.1-M90 or latest revision.

4-4 DUCT & DUCTBANKS

All duct shall be polyvinyl chloride Type DB2/ES2 duct, approved by the Hydro One - Thorold Office, suitable for direct buried or concrete encased installation.

Contractor shall refer to trench profile as per design drawings for proper trench details and proper bedding and cover.

Concrete encased duct banks shall be in accordance and installed as per Hydro One - Thorold Office Standards if applicable. Where concrete encase, Hydro One - Thorold approved, duct spacers shall be used and secured in place before the concrete is poured to ensure that the duct structure remains intact and does not collapse. Where direct buried, all joints shall be solvent welded before backfill is placed. During construction, the ends of all ducts shall be sealed with a suitable plug to keep debris and dirt out. When construction is complete, all ducts shall be freed of all obstructions and cleaned throughout their entire length.

All duct placement must be inspected by the Hydro One - Thorold Office Inspector before the Contractor pours the concrete (for concrete encased ducts), and/or before backfilling (for direct buried ducts). The inspector must witness the mandrel and cleaning of all ducts.

Ducts banks for road crossings shall be installed per Town of Pelham and Hydro One - Thorold Office requirements.

4-5 FISH WIRE

The Contractor shall place a 6 mm. polypropylene rope shall be pulled into each duct after being mandrelled.

4-6 DIRECT BURIED CABLES AND DUCTS

Cables shall be installed as per design drawings and trench profiles. All direct buried cables and ducts shall be enveloped (bedding and cover) with 150 mm. of 'cable' sand. The remaining backfill shall consist of existing soil free from rocks, stones or any debris that may cause damage to the underground plant.

4-7 TEMPORARY ROAD CLOSING AND REPAIR

Permission to open, cut or encumber any roadway must be obtained from the governing road authority. It will be the Contractor's responsibility to obtain the actual permit, assume all charges made by the road authority, and make the necessary arrangements with the police and traffic departments.

4-8 MATERIALS

All materials as per items listed in the Schedule of Quantities, unless otherwise stated, shall be supplied by the Contractor. All materials used for the project shall be new and approved by the Hydro One - Thorold Office. The Contractor must obtain the necessary written approvals from the Utility for all materials supplied by him.

4-9 EXISTING UTILITIES

Where ever piping, conduit, wires, or unmarked services are encountered or damaged, the Contractor shall immediately notify the proper officials, persons of corporations owning them. The Contractor shall provide adequate protection from same in conjunction with the owning authority. Liability for any damages incurred shall be the responsibility of the Contractor.

PART 5 - GENERAL CONDITIONS

5-1 SCOPE OF WORK

The work required to be done by the Contractor under this Contract comprises all requisite excavations and materials and the removal of all materials and obstructions in any way required for the proper carrying out of the work; the formation, construction, completion and maintenance of the several works referred to in the Contract as set in the Articles of Agreement or respective specifications.

The contract documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intention of the documents is to include all labor and materials reasonably necessary for the proper execution of the work. It is not intended, however, that materials or work not covered by or properly inferable from any heading, section or trade in the specifications shall be supplied unless distinctly so noted on the drawings or Schedule of Quantities, Description of Materials or Work in words which so applied have well known technical or trade meanings shall be held to refer to such recognized standards.

Specifications of the "Municipality" or the "Commission" or the "Utility" for all works shall govern the construction of the works. Should the specifications conflict with the approved design drawings, the design drawings should govern. In the case of discrepancies between drawings, those of later date shall govern. All drawings and specifications shall be interpreted in conformity with the Agreement and these General Conditions, which shall govern.

5-2 DEFINITIONS

"Contract" - Wherever used in any agreement, bond, specification, condition or plan herein referred to, shall mean and includes the Agreement to do the work entered into with the Owners, the Bond or Security, the Specification or Specifications, General Conditions, Instructions to Bidders, the Plans, the Tender and other documents referred to or connected with the said Agreement.

"Owner" - Whenever used, shall mean the legal party or parties accepting this tender and executing the Contract.

"Engineer" - Wherever used, shall mean "DATOM GROUP" or their appointed representative.

"Contractor" - Wherever used, shall mean the party or parties executing the Contract and who have undertaken to carry out the works under the Contract.

"Plans" - Represent all plans, drawings, sketches or copies thereof exhibited,

used or prepared for or in connection with the work constructed under this Contract.

"Authorized", "Directed", "Required", "Approved", "Ordered", "Sanctioned" and "Satisfactory" when they occur in these specifications, unless some other meaning is obvious from the context shall mean respectively, authorized, directed, required, approved, ordered or sanctioned by or satisfactory to the Engineer.

"Works" or "Work" (unless the context requires different meaning), shall mean the whole of the works, materials, matters and things required to be done or supplied, mentioned or referred to in the tender, specifications, plans and drawings, including all extra or additional work or materials, matters or things which may be ordered by the Engineer as herein provided.

"Municipality" or "Commission" or "Utility" - Wherever used, shall mean any and all municipal bodies incorporated under the laws of the Province of Ontario and under whose area jurisdiction the works described in this contract are to be carried out.

5-3 PLANS AND DRAWINGS

The specifications, plans and design drawings are intended to cooperate so that any work shown in the drawings and not mentioned in the specifications, or vice-versa, is to be executed in the same manner as if mentioned in the specifications and set forth in the plans, drawings and specifications.

5-4 DISCREPANCIES

Should any discrepancies appear, or differences of opinion or misunderstanding arise as to the meaning of the Contract or of the General Conditions, specifications or plans, or as to any omissions therefrom, or mis-statements therein in any respect, or as to the quality, or dimensions, or sufficiency of the materials or work, or any part thereof, or as to the due and proper execution of the works, or as to the measurement, or quantity, or valuation of any works executed or to be executed, under the contract, or as to extras thereupon, or additions thereto, or deductions therefrom, or as to any other questions or matters arising out of the contract. The same shall be determined by the Engineer, whose decision shall be final and binding upon all parties concerned, and from it there shall be no appeal.

5-5 MATERIALS AND PLANT

The Contractor shall provide and furnish all required labor and materials, water, fuel, machinery, tools and equipment or other plant in all respects to the satisfaction of the Engineer, and these shall not during the progress of the works be removed without the consent or instruction of the Engineer in writing.

5-6 WORKMANSHIP

All labor and workmanship shall be carried on in a thoroughly workmanlike manner, to the satisfaction of the Engineer.

5-7 DISTRIBUTION OF MATERIALS

All materials except as previously stated in Job Specifications, shall be furnished by the Contractor. The Contractor being responsible in all respects for the materials and all accidents arising thereto, or by reason thereof.

5-8 INSPECTION AND SUPERVISION

The general supervision shall be carried out by the Owners who are hereby authorized to appoint such assistants and inspectors as they may deem proper, to inspect the works to be done under this Agreement, and the materials, machinery and plant to be supplied thereunder, and to see that the same strictly correspond with the said plans and drawings, and the specifications hereto annexed and therein contained. Inspection shall be carried out by the appropriate Utility representative and the Contractor shall abide by the Inspector's instructions.

5-9 DISPUTES

To prevent all disputes and litigation, the Engineer shall in all cases determine the amounts of work to be done which are to be paid for under this Contract, or in connection with said works, and he shall decide all questions which may arise relative to the interpretation and execution of the contract, or to said works, on the part of the Contractor, and his estimate, directions and decisions shall be final and conclusive, and unimpeachable for any cause whatsoever.

5-10 EXTRAS AND DEDUCTIONS

The Engineer shall have the right to make or order any alterations and changes such as he may deem advisable at any time before or during the prosecution of the works in the location, elevation, grade, plan or detail, or to omit any portion of the work, or to increase or decrease dimensions or the quantity of materials or

work, or to vary in any other way the work herein contracted for, or to order any additional or extra work to be done, or additional or extra materials to be furnished and the contractor shall, in pursuance of the Engineer's written order to the effect, proceed with and carry out the works as directed, in pursuance of such orders, without being entitled to any extension of time for completion or any additional payment on account thereof, except only as herein provided.

In each and every case where additional or extra work or materials of any kind is ordered to be done or supplied, the Contractor is required, before commencing any such work or procuring any such material, to obtain from the Engineer a written order therefor, stating that the same is an extra, and will be paid for as such, and also defining nature of such extra work or material and the amount the Contractor is to receive therefor, or the terms under which the same is to be paid for, and the extension of time (if any) which is to be granted by reasons thereof, and the Contractor shall deliver to the Engineer a monthly account of any extra or additional work.

Any extra work ordered by the Engineer to be done by day's work shall be so done by the Contractor, who shall be paid therefor (subject in all respects to the above condition, and provisions) only the actual cost thereof, as determined by the Engineer's estimation, plus fifteen per cent thereof for use of plant, tolls, etc., and to cover Contractor's profits, and the time of foreman and superintendent, and the Contractor shall furnish the Engineer with satisfactory vouchers for all labor and material expended on the extra work.

In case of the Contractor's neglect or failure to observe fully and faithfully the above conditions, he shall forfeit all right to payment therefor which he otherwise have had.

If any work, labor or material which the contractor was required to perform or supply under these specifications is directed by the Engineer to be changed or omitted, whereby a less quantity of work, labor, or material performed or supplied, then the Engineer shall deduct from the contract price the value of any work, labor or material not required to be performed or supplied, and the Engineer's decision shall be final and conclusive.

5-11 COMPLETION

The works embraced in this contract shall be commenced in each part thereof at such time as the Engineer shall direct, and the works shall be carried on continuously until final completion, and such portions of the work shall be completed in each month as the Engineer may consider fair proportion thereof, and the whole of the works shall be completed and full possession thereof given the Utility on the _____ day of _____, 2004.

*

5-12 PENALTY

Should the Contractor fail to make deliveries or to finish the works at or before the time agreed upon or specified, he shall pay to, or allow the Owner the actual loss sustained per week thereafter the said works shall remain incomplete, due allowance to be made for extension of time for additional work or alterations as laid down in Clause. 10 of these General Conditions, and should any work be delayed by the inclemency of the weather or by reason of a general strike in any particular trade or calling, the Engineer shall have power to extend the time for the completion of the works, making a just and reasonable extension for that purpose.

5-13 EXTRA ENGINEERING

In the case the Contractor fails to have the works completed, or to deliver the materials, plant or machinery contracted for within the time specified, the Owner shall deduct from any amounts due to the Contractor, a sufficient sum to reimburse the Owners for any extra engineering and inspection that may be necessary by such failure of the Contractor.

5-14 RESPONSIBILITY

The care of the works until their completion is to remain with the Contractor and his sureties, and the said Contractor and his sureties shall be held severally responsible for all accidents arising from any cause whatsoever and chargeable for anything that may be stolen, removed, destroyed or injured by fire and water, and he shall also be held responsible for the making good of all damages and defects occasioned by carelessness, deficiency of strutting, fencing, watching or lighting, whether to the said works or to the adjoining buildings and premises, from bad workmanship, or any other cause whatsoever, and whether such damage or defects may be or might have been discovered during the progress of the said work, or in consequence thereof, or shall appear after the completion thereof, or whether payment may wholly or partially have been made, or the work approved as supposed to have been properly done and no certificate or approval of any work by any officer of the Utility or any member of such Utility shall effect or prejudice the right of the Owner against the Contractor or be considered or held as at all conclusive as to the sufficiency of any work or materials.

5-15 WATCHMEN

Watchmen shall be employed on the work at night by the Contractor whenever in the opinion of the Engineer it shall be necessary.

5-16 DISMISSAL

If any person employed by the Contractor on the work shall appear to the Engineer to be incompetent, intoxicated or disorderly, he shall, on the requisition of the Engineer, be immediately discharged and such person shall not again be employed on the work without the permission of the Engineer.

5-17 FORFEITURE FOR DELAY

In case the works are not carried on with such expedition and with such materials, machinery, plant and workmanship as the Engineer may deem proper, then the Engineer may give the Contractor six (6) days notice in writing to supply such additional force, machinery, plant, or materials as in the opinion of the Engineer is necessary and if the Contractor fails to supply the same, the Owner may dismiss the Contractor and employ other persons to finish the works in such manner as the Engineer may direct, and in accordance with the plans and specifications; and all payments made on account thereof shall be deemed a payment on account of the Contractor, but without prejudice to the right of the Owner to recover any money in excess of the contract price, which may be paid for so finishing the works or any other damage caused by breach of this contract. In case the work, or any part thereof, is taken out of the hands of the Contractor, as herein provided, it shall in no way affect the relative obligations of the Owner, or the Contractor or his sureties in respect of his or their obligations, or in respect of the remainder of the work, if any, and all material, plant, cofferdams, dredges, pumps, machinery, fixed tackle and other erections shall, at the option of the Engineer, remain on the work until completion, at such a rental, if any, as the Engineer may consider reasonable.

5-18 DELAY

No charges shall be made by the Contractor for hindrances or delay from any cause during the progress of any portion of the work embraced in this contract.

5-19 FOREMAN

In the absence of the Contractor from the works, his agent, foreman or other persons in charge for him shall be considered as acting in his place, and all orders or instructions given to any such agent, or other person by the Engineer shall be as binding on the Contractor as though given to him in person.

5-20 BANKRUPTCY

It shall be lawful for the Owner in case the said Contractor shall fail in the due performance of any part of his undertaking, or shall become bankrupt or insolvent, or shall compound with his creditors or propose any composition with his creditors for the settlement of his debts, or shall carry on, or propose to carry on his business under inspectors on behalf of his creditors, or shall commit any act of bankruptcy, to re-let the undertaking of said contract, or any part thereof, and upon such conditions as they may think fit or from time to time may engage workmen and provide all such material, instruments and apparatus, or may obtain and use the machinery, tools and apparatus of the Contractor in completing the works and employ the same in such a manner as the Owner may think necessary and proper for completing the said works or any part of them, and any loss, damage or deficiency that may arise in consequence of said bankruptcy or failure on the part of the Contractor shall be paid and deducted out of any moneys retained by the Owner out of any work previously performed by the said Contractor; and should said money so retained not be sufficient to indemnify and cover such losses, the deficiency then due shall be a charge on the Bond accompanying this instrument.

5-21 NO-SUBLETTING

The Contractor shall not assign or make over this Contract to any other person, nor under-let to, nor make a sub-contract with any workman or workmen for the execution of any work appertaining thereto, without the permission of the Owner but shall employ his own men for the labor thereof, who are to be paid by him in wages by the day or week, And in case the Contractor assigns or makes over this contract, or under-lets or makes a sub-contract contrary to the agreement, he shall forfeit to the Owner a sum to be assessed by the Engineer, which shall be deemed liquidated and ascertained damages, and may be covered by action, or deducted by the Owner from any sum or sums due, or to become due, to the said Contractor under this Contract, or otherwise howsoever or should the Contractor under this Contract, or otherwise howsoever or should the Contractor or his agent give any gratuity to any office of the Owner, the Owner shall be at the liberty to terminate this contract, and the Contractor shall forfeit to the Owner the sums so assessed as liquidated damages for the non-performance of this contract.

5-22 WAGES

In the event of the Contractor failing or neglecting for two weeks to pay the wages of the men employed on the works, the Owner reserves to themselves the right to pay any such wages ascertained to be due, and to deduct the amount of same from any moneys due or coming due to the Contractor on this or any other contract, in addition to any rights under the Construction Lien Act, January 1992 or latest revision.

5-23 MAINTENANCE

The Contractor shall at his own expense maintain the works, machinery, and plant, and every part thereof in perfect order and complete repair and condition during the space of twenty four months from the date of completion thereof, as herein provided and make good and repair the work and every part thereof including alterations and additions thereto, and all damages or injury to the works both during their construction and during the period of maintenance as aforesaid, and should the Contractor from any cause fail to do so, then the Owner may do so and employ such other person or persons as the Engineer may deem proper to make such repairs or do such work, and the whole costs, charges and expenses so incurred may be deducted from any amounts due to the Contractor, or may be collected otherwise by the Owner from the Contractor. The decision of the Engineer is to be final as to the necessity of repairs or of any work required to be done under the provisions of this clause or any other clause or clauses in the specifications or in these general conditions, and as to the amounts expended therefor.

5-24 PAYMENTS

Subject to the conditions precedent herein contained, the Contractor shall be entitled to receive cash payments according to the Engineer's estimate as follows:

Monthly payments equal to the value of work done and material supplied up to ninety percent (90%).

These payments shall be made on progress estimates, and are not to be taken or construed as an acceptance of the work or any admission that the Owner is in any way liable to the Contractor in respect thereof.

5-25 FINAL CERTIFICATE

Forty five days after the completion of the work embraced in this Contract to the Engineer's satisfaction, a final certificate or estimate shall be issued by the Engineer to the Contractor, and the balance of the contract moneys, less all forfeiture and deductions as aforesaid, will be paid to the Contractor; but only on condition that the terms of this Contract shall have been fulfilled.

5-26 LIABILITIES

It is hereby agreed that the said Contractor shall indemnify and same the Owner harmless from and against all claims against the Owner for labor done, materials, machinery and plant furnished under this Contract and shall furnish the Owner with satisfactory evidence when called for by them, that all persons who have done work or furnished materials, machinery and plant, for the execution of this Contract for which the Owner may become liable, have been fully paid or satisfactorily secured; and in case such evidence is not furnished, an amount necessary and sufficient to meet the claims of persons aforesaid shall be retained from money due to the Contractor under this Contract, until the liabilities aforesaid shall be fully discharged or satisfactorily secured.

5-27 SUITS

And in case of any action, suit or proceedings being brought or taken against the Owner or any of their officers or servants, in respect of any such damage or defects, or any loss, damage or injury by reason thereof or consequent thereupon, the Contractor shall fully indemnify them, and each of them, therefrom, and forthwith pay to him or them all costs, charges, damages and expenses which he or they have been put to or have incurred in reference thereto. The Owner shall notify the Contractor within six days of the time such suit has been entered. And the Owner may, if not notified to the contrary by the Contractor, compromise any such action, suit or other proceedings, or any claim in respect of any such damage as other proceedings, or any claim in respect of any such damages as aforesaid, on such terms as they shall think fit; and the Contractor shall thereupon forthwith pay to them the sum or sums paid by the Owner upon the occasion thereof, and shall in every case pay to them such a sum or sums as shall fully indemnify them, according to the present stipulation. In case the Contractor requires the Owner to defend any action or actions he shall give security to the Owner for such damages and costs as may be recovered in such action or actions to the satisfaction of the solicitor of the Owner and in default of such security being given by the Contractor, the Owner may compromise such action or actions as hereinbefore provided. And it shall be competent to the Owner to deduct the amount of all such damages, and the costs thereof, out of any money due or to become due from them to the said

Contractor on this or any other Contract.

5-28 PERFORMANCE BOND

And the said Contractor will execute and deliver to the Owner a Bond for the sum of 100% of the Tender Bid for the faithful performance of this contract, conditions to indemnify and save harmless the said Owner from all suits or actions of every name and description brought against the said Owner for or on account of any damages received or sustained by any party or parties by or from the said Contractor, his servants or agents, in the construction of said works or by or in consequence of any negligence in guarding the same, or any improper materials, machinery or plant, furnished by the said Contractor, or his agents and for the faithful performance of this Contract by the said Contractor; and the said Contractor hereby further agrees that so much of the money due to him under and by virtue of this agreement, as shall be considered necessary by the said Owner may be retained by the said Owner until all such suits or claims for damages, as aforesaid, shall have been settled, and evidence to that effect furnished to the satisfaction of the said Owner.

5-29 CLOSING TIME

Date and time of closing and place for receiving the Tender Bids shall be clearly named in the Information to Bidder.

5-30 LOWEST TENDER

Lowest tender or any tender need not necessarily be accepted.

5-31 CONTINGENCIES

Contingency item's that occur during the course of the works shall be charged as "extra works". All charges within the value of the contingency item in the contract shall be at the discretion of the Engineer, and shall be agreed upon prior to proceeding.

5-32 BASE METAL FLUCTUATIONS

The prices quoted for the supply and installation of cables will be firm for the duration of the contract except for metal fluctuations.

Current Metal Base Rate: This will be the current metal base at the time of tendering.

Cable Factor: Is the multiplying weight factor issued by the cable manufacturer as it applies to each individual cable construction.

Delivery Metal Base Rate: This will be the current metal base rate at the time the contractor receives delivery of the cable. Base metal prices will be monitored and recorded by the Engineer, DATOM GROUP.

The copper base metal exchange is controlled by Comex.
The aluminum base metal exchange is controlled by Alcan.

The fluctuation is derived from a bi-weekly average.

**PART 6 - MATERIAL SPECIFICATION
AND
STANDARD & DETAIL DRAWINGS**

6-1 MATERIALS

All materials to be supplied under this contract by the Contractor shall be approved prior to purchase by the Utility and are to conform to the latest applicable specifications

These specifications are on file with the various manufacturers and are also available at the offices of the Engineer.

Included are the most recent manufacture / specifications.

PRIMARY CABLE	<ul style="list-style-type: none">• #2/0 AWG, XLPEI, LLDPEJ, 28 kV RATED
----------------------	--

APPROVED MANUFACTURER	<ul style="list-style-type: none">• Alcatel Canada Wire• Pirelli Cable Inc.• BICC Phillips Inc.
----------------------------------	---

SECONDARY CABLE	<ul style="list-style-type: none">• TRIPLEX, 3-#3/0 AWG, Al., 75° C Rated, PEI-PVCJ, 600V• Twisted, 3 – 250 MCM, Al., 75° C Rated, PEI-PVCJ, 600V
----------------------------	--

APPROVED MANUFACTURER	<ul style="list-style-type: none">• Alcatel Canada Wire - ITC No. 86 CL08 Rev. 19• Pirelli Cable Inc. - ITC No. 87/R64789 Rev. 0• BICC Phillips Inc. - ITC No. 4165170 Rev. 0
----------------------------------	---

SECONDARY STREETLIGHT CABLE	<ul style="list-style-type: none">• 2/C - #6 AWG, Cu., NMWU, 300V, CSA Approved
--	---

APPROVED MANUFACTURER	<ul style="list-style-type: none">• Alcatel Canada Wire• Pirelli Cable Inc.• BICC Phillips Inc.• Alcan Wire and Cable
----------------------------------	--

TRANSFORMER FOUNDATIONS	<ul style="list-style-type: none">• 1016 (W) X 1473 (L) X 1067 (D) Pre-Cast Transformer Foundation
------------------------------------	--

APPROVED MANUFACTURER	<ul style="list-style-type: none">• Industrial Cast Stone - ICS-142• Brooklin Concrete - BCP-110C
----------------------------------	--

3" PVC DUCT	<ul style="list-style-type: none">• PVC, 3" (75 mm), Type DB2/ES2 Duct, c/w Bell End, CSA C22.2 #211.1
--------------------	--

DISTRIBUTOR	<ul style="list-style-type: none">• Royal DB2003• IPEX 34-030-21-200
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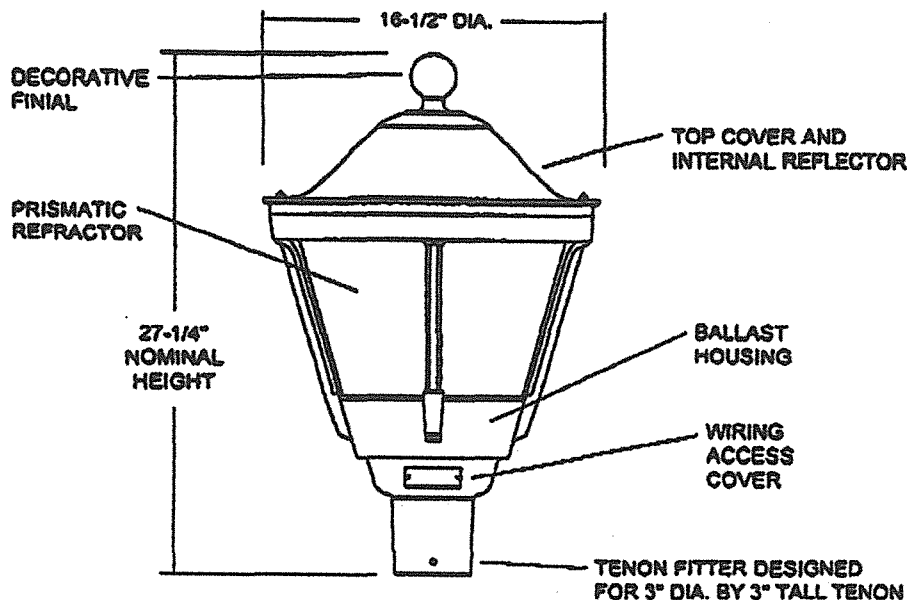
APPENDIX 'A'

HYDRO ONE - THOROLD OFFICE - STREETLIGHTING REQUIREMENTS

RSL-350° Series Luminaire Residential Lighting Post Top

Maximum weight - 52 lbs

Maximum effective projected area - 1.3 sq. ft.



ORDERING INFORMATION

RLPT	050HP	12	BK	33
BALLAST TYPE (MOGUL BASE)				
050HP = 50W HPS				
070HP = 70W HPS				
100HP = 100W HPS				
15AHP = 150W 55V HPS				
175MH = 175W MH				
100MV = 100W MV				
175MV = 175W MV				
250MV = 250W MV				
(ONLY AVAILABLE WITH 33 OPTICS)				
VOLTAGE				
12 = 120 VOLT				
20 = 208 VOLT				
24 = 240 VOLT				
27 = 277 VOLT				
48 = 480 VOLT				
MT = 120/208/240/277 VOLT MULTITAP (NOT AVAILABLE)				
COLOR				
BK = BLACK				
BZ = BRONZE				
GN = DARK GREEN				
AS = AS SPEC.				
OPTICS				
33 = ASYMMETRIC GLASS REFRACTOR				
13 = ASYMMETRIC POLYCARBONATE REFRACTOR (NOT AVAILABLE WITH 250W MV)				
15 = SYMMETRIC POLYCARBONATE REFRACTOR (NOT AVAILABLE WITH 250W MV)				

OPTIONS

- PS - PROTECTED STARTER FOR HPS UNITS ONLY
R - PHOTOCONTROL RECEPTACLE (NOT AVAILABLE WITH MT)

ACCESSORIES

- F1 - SINGLE FUSING FOR 120, 240, 277 VOLT (FIELD INSTALLED, NOT UL LISTED)
F2 - DOUBLE FUSING FOR 208, 240, 480 VOLT (FIELD INSTALLED, NOT UL LISTED)
RLPTSCXX - DECORATIVE CAST SCROLL (SHIPPED SEPARATE)
RLPTFGXX - DECORATIVE FILLIGREE (SHIPPED SEPARATE)
RLPTCPXX - DECORATIVE CUPOLA, FOR USE WITH R OPTION (SHIPPED SEPARATE)
RLPTDLP12XX - 120 VOLT PHOTOCONTROL KIT (FIELD INSTALLED IN ACCESS COVER, NOT UL LISTED)
RLPTDLP12XX - 208, 240, 277 VOLT PHOTOCONTROL KIT (FIELD INSTALLED IN ACCESS COVER, NOT UL LISTED)

Specifications

GENERAL DESCRIPTION

This attractive post top luminaire is designed to complement contemporary or traditional residential architecture, and utilizes a precision optical system to maximize post spacings while maintaining uniform illumination.

OPTICAL SYSTEM

The optical system consists of a precisely molded prismatic refractor used in conjunction with a highly diffuse, optically designed metal reflector located inside the top cover. Gaskets located above and below the refractor create a sealed optical compartment. Refractors designed to provide an I.E.S. Type III distribution are available, molded from thermal resistant borosilicate glass, acrylic or polycarbonate plastic. Refractors for I.E.S. Type V distribution are available in acrylic and polycarbonate only. The vent burning HID lamp maximizes utilization, uniformity and luminaire spacing.

LUMINAIRE HOUSING

The luminaire housing, die cast of copper-free aluminum, houses the electrical components and supports four vertical mullions that cradle the refractor. The housing is designed to mount on a 3 inch O.D. post tenon by three stainless steel cone point set screws with nylon patch, and contains a 1-1/2 inch wiring access door.

TOP COVER

The spun aluminum decorative cover mounts over the luminaire's four vertical mullions. Two of the mullions 180 degrees to each other, have studs which run through the cover. The cover is secured to the studs with two locknuts.

ELECTRICAL ASSEMBLY

The electrical assembly consists of an easily removable galvanized steel plate which holds both the ballast components and a nickel plated lamp grip socket positioned by a socket strap at the correct light center position of the refractor.

BALLAST

(Refer to Ballast Data Sheet for specific operating characteristics)

120 volt High Pressure Sodium (HPS) ballasts are Power Factor Reactor type. All other HPS ballasts are High Power Factor Autotransformer type.

175 watt Metal Halide (MH) ballasts are Peak Load Autotransformer type.

All Mercury Vapor (MV) ballasts are High Power Factor Constant Wattage Autotransformer (CWA) type.

FINISH

All exposed metal parts are finished with a polyester powder paint applied after a seven stage pretreatment process to insure maximum durability.

UL LISTING

The luminaire is UL listed as suitable for wet locations at a 25 degree C ambient temperature.

INSTALLATION

Refer to the instruction manual provided with each luminaire as to the specific method of wiring and mounting the luminaire.

UNIQUE SOLUTIONS ORDER NO:

TYPE:

DRAWING NO: US-107

THIS DRAWING WHEN APPROVED SHALL BECOME THE COMPLETE SPECIFICATION FOR THE MATERIAL TO BE FURNISHED BY UNIQUE SOLUTIONS ON THE ORDER NOTED ABOVE. A UNIT OF SIMILAR DESIGN MAY BE SUPPLIED, BUT ONLY AFTER APPROVAL BY THE CUSTOMER IN WRITING. ON POLE ORDERS AN ANCHOR BOLT TEMPLATE PRINT WILL BE SUPPLIED WITH EACH ANCHOR BOLT ORDER TO MATCH POLE PROVIDED.

THIS PRINT IS THE PROPERTY OF UNIQUE SOLUTIONS AND IS LOANED SUBJECT TO RETURN UPON DEMAND AND UPON EXPRESS CONDITION THAT IT WILL NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTERESTS, AND ONLY IN CONNECTION WITH MATERIAL FURNISHED BY UNIQUE SOLUTIONS.



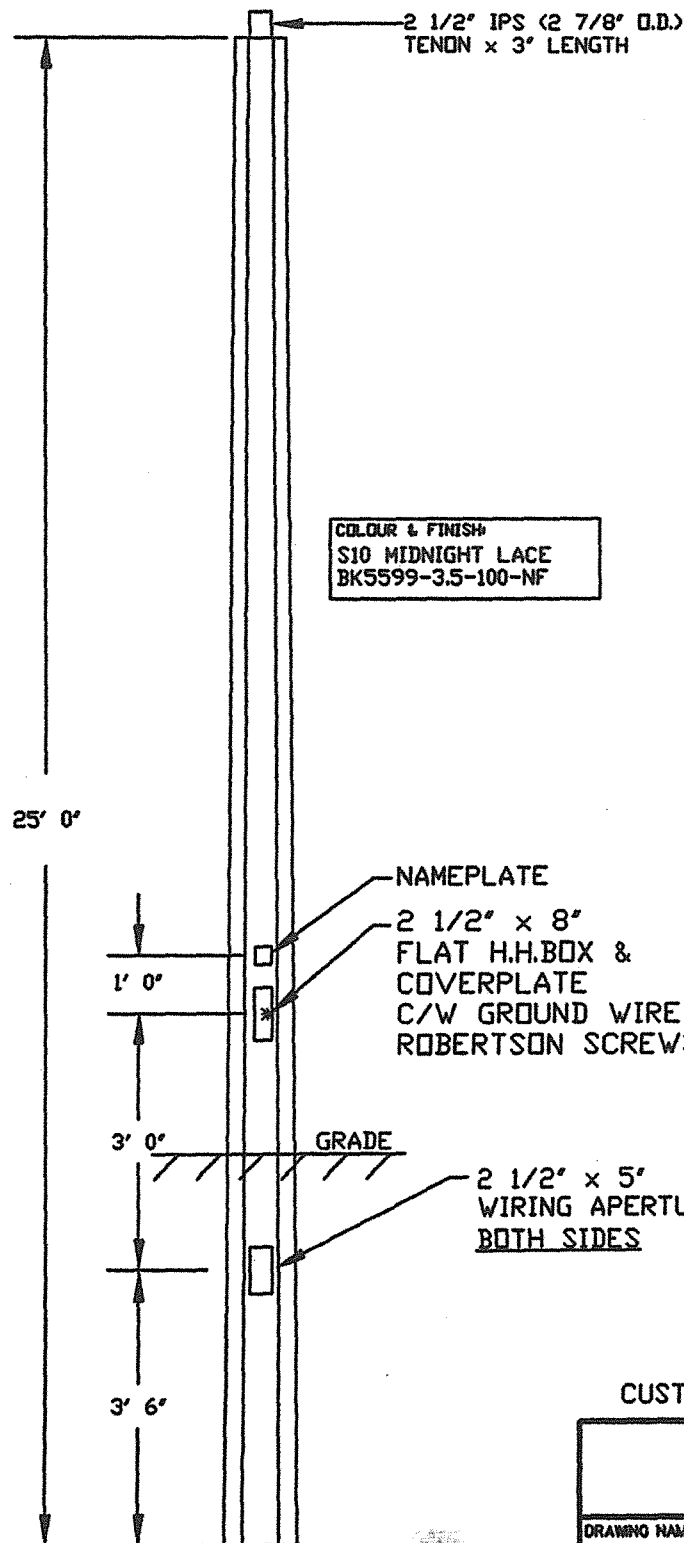
**UNIQUE
SOLUTIONS**

A DIVISION OF HOLOPHANE
515 MCKINLEY AVENUE
NEWARK, OHIO 43055

SCALE: NONE
DRAWN: RAF
APP'D:
DATE: 07-07-97

POLE TOP: 4" FL/FL

REV.	ALTERATION	E.C.N.	DATE	BY



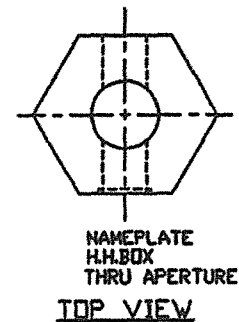
PROD. E250APH-ST.CATH1

OUR ORDER NO.

CUSTOMER ORDER NO.

CATALOGUE NO.: E250-APH-G-S10
C/W 140-30/30
SECTION: HEXAGONAL
COLOUR: MIDNIGHT LACE
FINISH: POLISHED
POLE LENGTH: 25' 0"
POLE TOP: 4" FL/FL
POLE BUTT: 8 3/4" FL/FL
APPROX. WGT.: 882 LBS
QUANTITY:

COLOUR & FINISH:
S10 MIDNIGHT LACE
BK5599-3.5-100-NF



CUSTOMER APPROVAL: _____

DRAWING NAME: APPROVAL DWG.	DWG. NUMBER: CATH25AP-1	DATE: 04/22/98	DWG BY: A.A.	REV.
PROJECT/CUSTOMER: ST. CATHERINES				

\\SPEC\CATH25AH



Brooklin

CONCRETE PRODUCTS LIMITED

OVER
40
YEARS

HEAD OFFICE
BROOKLIN, ONTARIO, CANADA
P.O. BOX 370, HWY 12
LOB 1C0

(905) 655-3311
TOR (416) 798-7354
FAX (905) 655-3847

NEWMARKET
18599 Yonge St. N.
R.R. #1, Newmarket, Ontario
L3Y 4V8

(905) 895-2373
TOR (905) 841-7702
FAX (905) 898-3264

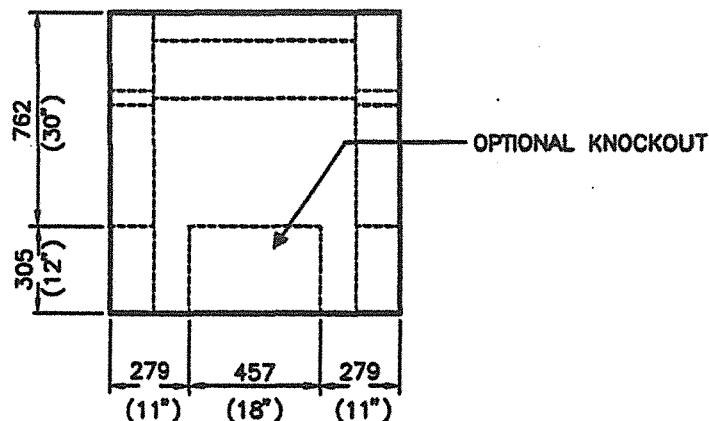
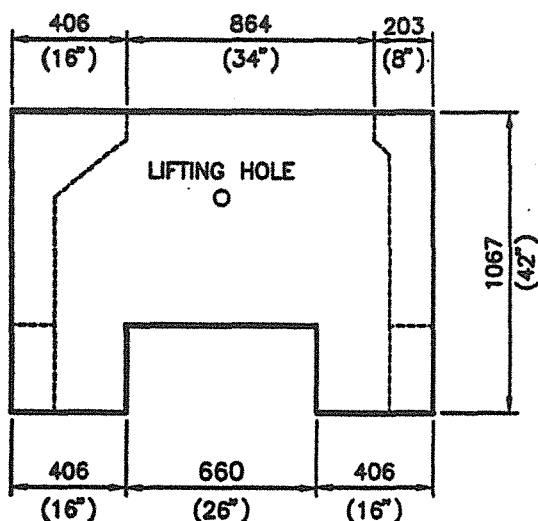
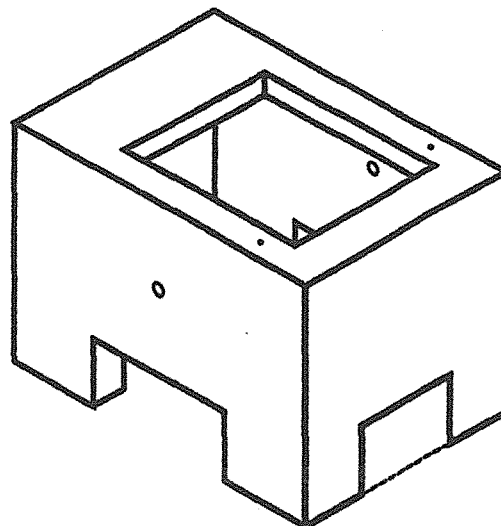
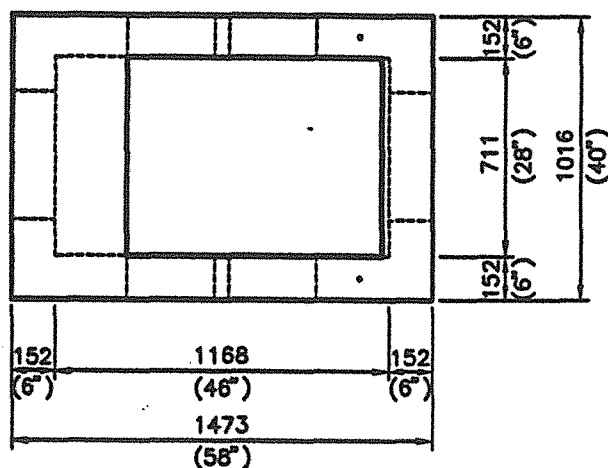
HUNTSVILLE
P.O. Box 599, Hwy. 11
POA 1K0

(705) 789-2338
FAX (705) 789-9829

HALIBURTON
P.O. Box 818, Hwy. 121
KOM 1S0

(705) 457-1395
FAX (705) 457-1395

BCP-110C



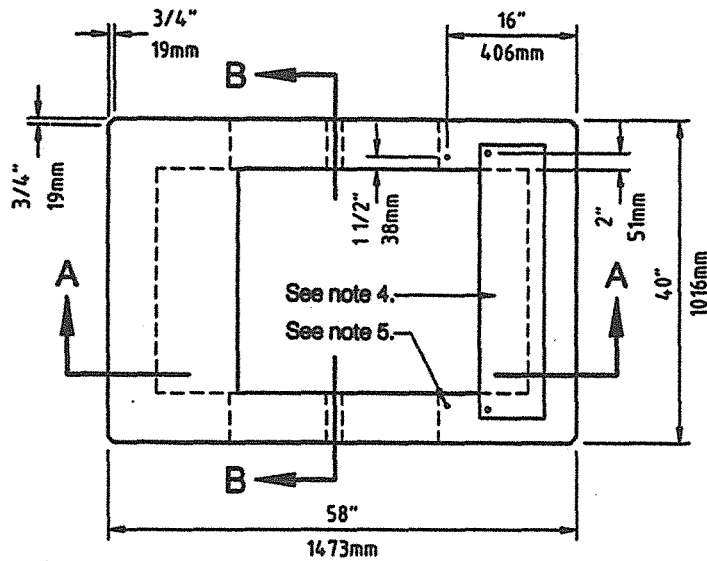
SPECIFICATIONS

- CABLE ENTRY OPENINGS - 26" x 12" AND 18" x 12"
- CONCRETE STRENGTH - 4500 PSI (MINIMUM)
- DIMENSION - 58" x 40" x 42"(H) c/w 6" WALLS
- LIFTING HOLES - TWO (2)
- REINFORCING - STEEL
- THREADED INSERTS - 1/2" NC DIA. x 1-1/2"
- WEIGHT - 3650 LBS. (APPROXIMATE)

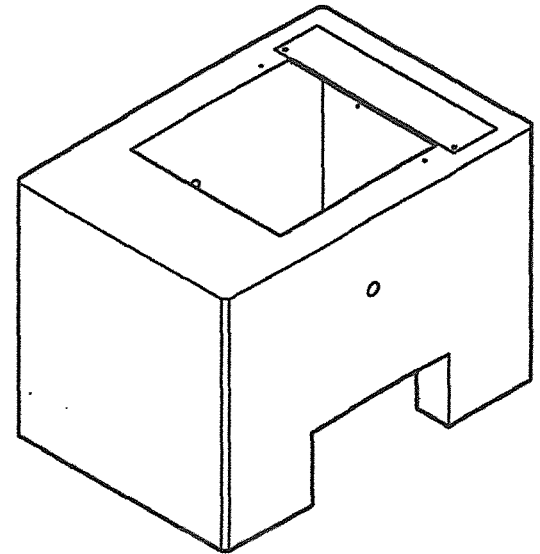
PRECAST FOUNDATION FOR
PADMOUNT TRANSFORMER

INDUSTRIAL CAST STONE LTD.

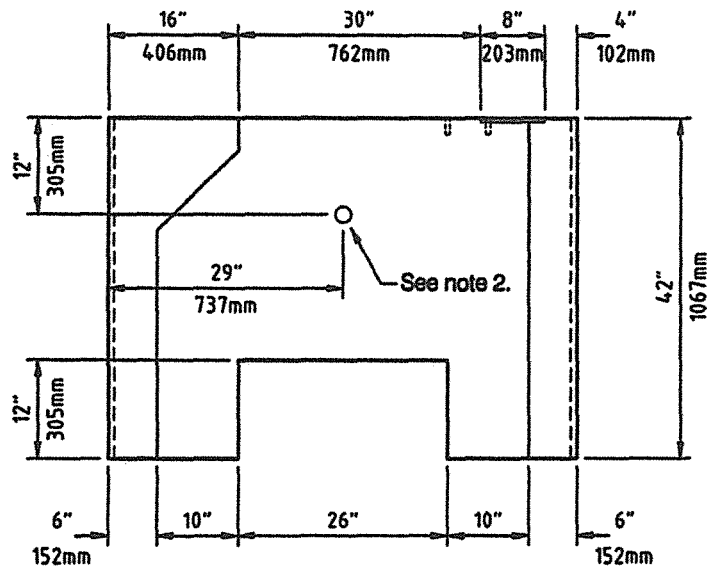
MANUFACTURERS OF
PRE-CAST CONCRETE PRODUCTS
ESTABLISHED OVER 40 YEARS



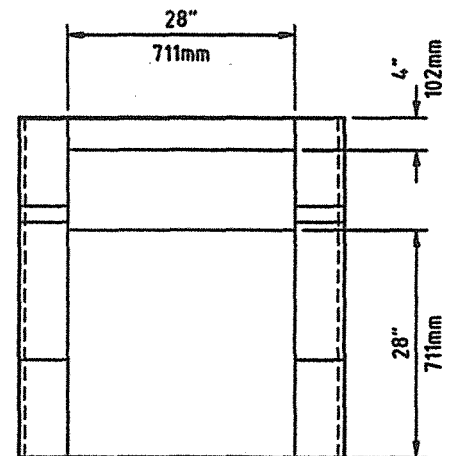
PLAN



ISOMETRIC



SECTION A - A



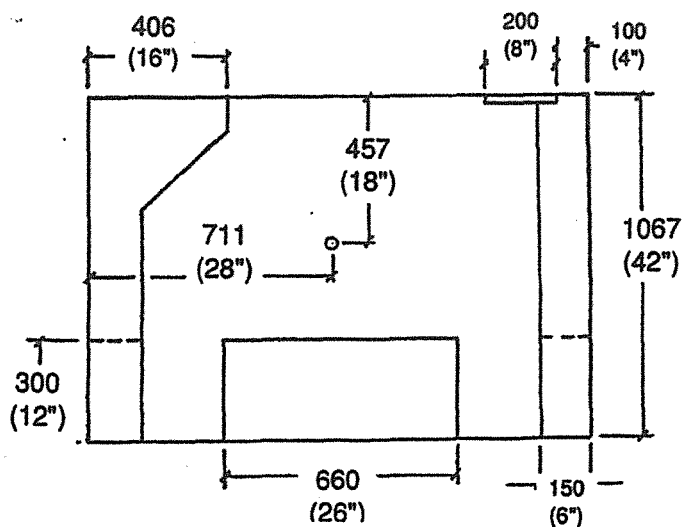
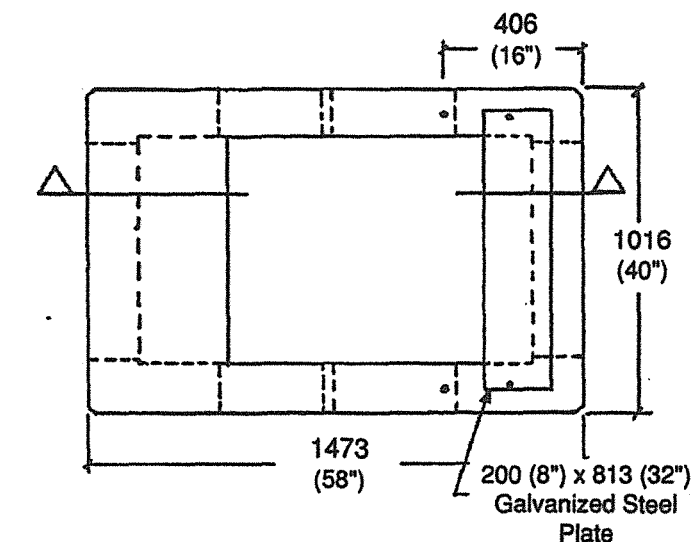
SECTION B - B

NOTES:

- Concrete - in excess of 4500 psi (31030 kPa), air entrained, low slump, steel reinforced.
- 2" (50mm) diameter lifting holes - 2 required.
- Approximate weight - 3850 lbs (1660 kg).
- 1/2" (13mm) x 8" (203mm) x 3/4" (19mm) steel plate c/w two 5/8" (16mm) galvanized inserts and plated bolts.
- 1/2" (13mm) galvanized concrete inserts plugged with plated bolts - 2 required.



Transformer Pad TP104



SECTION

NOTES:

Type A: Cable Openings on Ends
Type B: Cable Openings on Sides

Concrete Strength
30 MPA (4350psi)

Reinforcing Bars
10M (#4)
200 (8") O.C. B/W

Hy-Grade Precast Concrete
2411 First Street Louth
St. Catharines, Ontario, Canada L2R6P7
Tel: 905-684-8568
Toll Free: 800-229-8568
Fax: 905-684-8560



Hy-Grade Precast Concrete Products, Inc.
PO Box 148
South Byron, New York, USA 14557
Tel: 585-548-2730
Toll Free: 877-897-2730
Fax: 585-548-2731

APPENDIX 'A'

HYDRO ONE - THOROLD OFFICE - STREETLIGHTING REQUIREMENTS

2.14 Street Lighting

On Municipal Property:

The Developer is responsible for the design and installation of a complete street lighting system which meets the requirements of the Municipal (Township) corporation.

The installation must have a power pedestals and/or fused control devices located on each supply circuit of the street lighting system and these must meet the requirements of the Electrical Safety Code and be inspected and accepted by Electrical Inspection prior to connection. Distances between the power pedestal and utility transformers to be specified by the Technician at the Operation Centre.

Underground street light distribution systems on public property are not under the jurisdiction of the Electrical Safety Code. The installation should therefore be installed to CSA Standards and must be acceptable to the Municipality.

Ontario Hydro may accept a joint trench for street lighting conductor with our primary and secondary cables providing the Developer accepts and agrees to the following:

- i) Prior to any repair work on the street lighting conductor, the Developer must have the underground cable located by our Utility or qualified private contractor. The following may be omitted at the operations centres discretion.
- ii) If the Developer has a private contractor complete the repair work, the contractor must be a certified Electrical Contractor with a EUSA qualification or a qualified Power Lines Journey person.
- iii) The Developer must accept full responsibility for any and all damages to our plant by their contractor working in this joint trench. Our Utility will be invoicing the Developer for any and all damages incurred by their contractor.
- iv) The street light conductor is installed in a minimum 5 cm. hard duct from transformer to light standards and between all light standards if applicable.

The Developer will be responsible for the above until such time the Municipality accepts the ownership of the street lighting system under the Developers agreement with the Municipality.

On Private Lands:

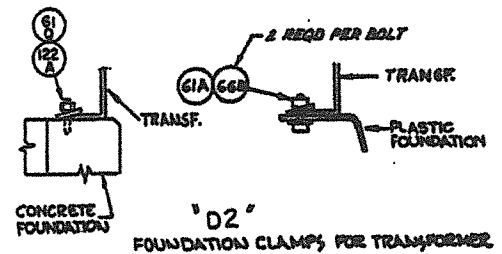
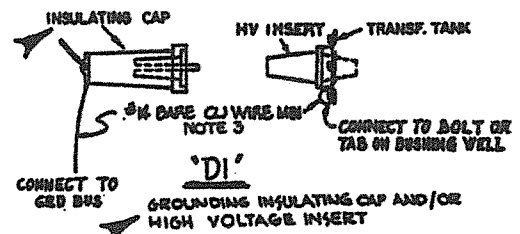
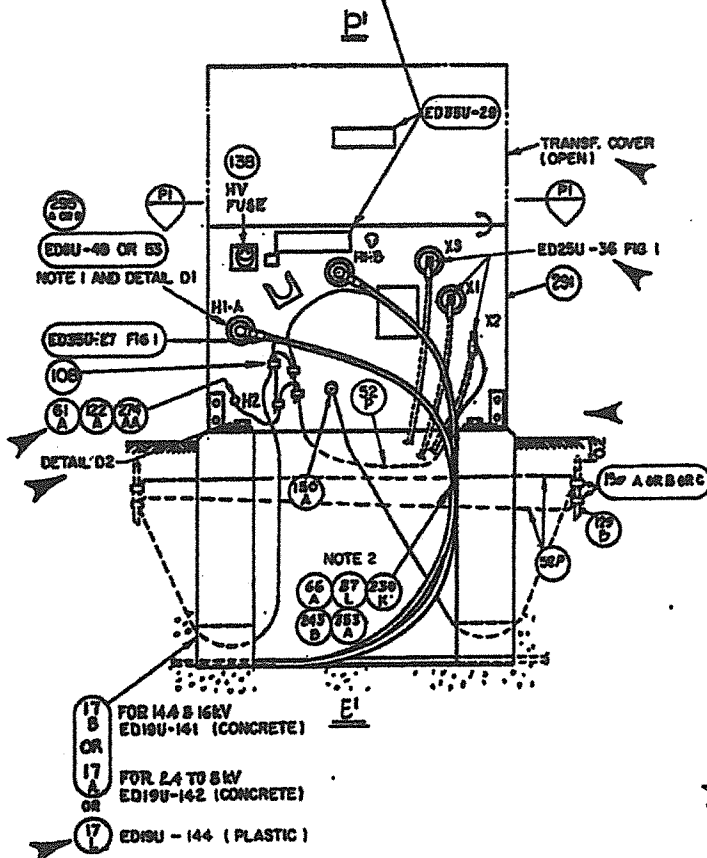
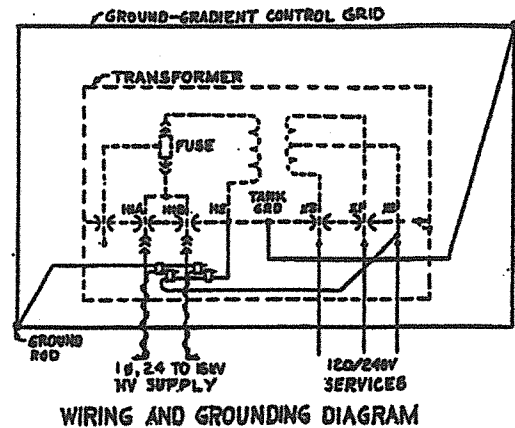
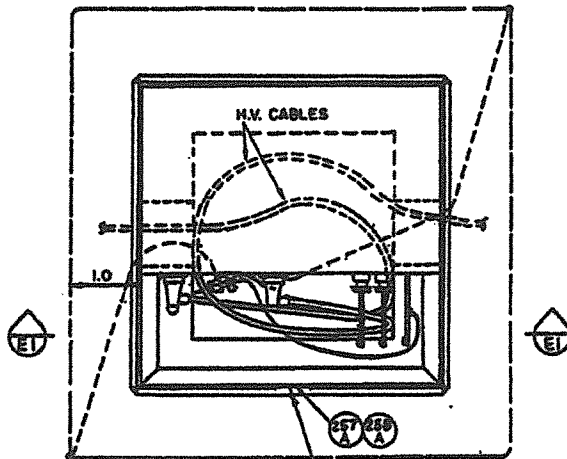
Be responsible for the design and installation of a complete street lighting system that meets the requirements of the Municipal (Township) Corporation and the Electrical Safety Code. The installation is subject to Electrical Inspection and must meet their requirements.

Points of supply must have a separate service and be metered in locations approved by our Utility, the Municipality and Electrical Inspection, prior to installation of the main distribution system. Street lighting cables must be installed in a separate trench from the main distribution system trench.

APPENDIX 'B'

**HYDRO ONE - THOROLD OFFICE - 'SPECIFICATION FOR TRENCHING
AND BACKFILLING BY DEVELOPER FOR INSTALLATION OF HYDRO ONE
- THOROLD FACILITIES'**

APPROVED *Miller*



NOTES

1. COVER ANY UNUSED HV INSERTS WITH INSULATING CAP ITEM 324A OR B
2. SECURE EACH HV CABLE TO FOUNDATION WALL. (EXCEPT WITH PLASTIC FOUNDATIONS)
3. USE CONCENTRIC NEUTRAL STRAND FROM DISCARDED SECTION OF U/G CABLE.

REFERENCES

REFERENCES
SECTION 25U ---- SECONDARIES AND SERVICES
SECTION 13U ---- U/G CABLE

APPROVED R G WYKES
T & O DESIGN ENGINEER

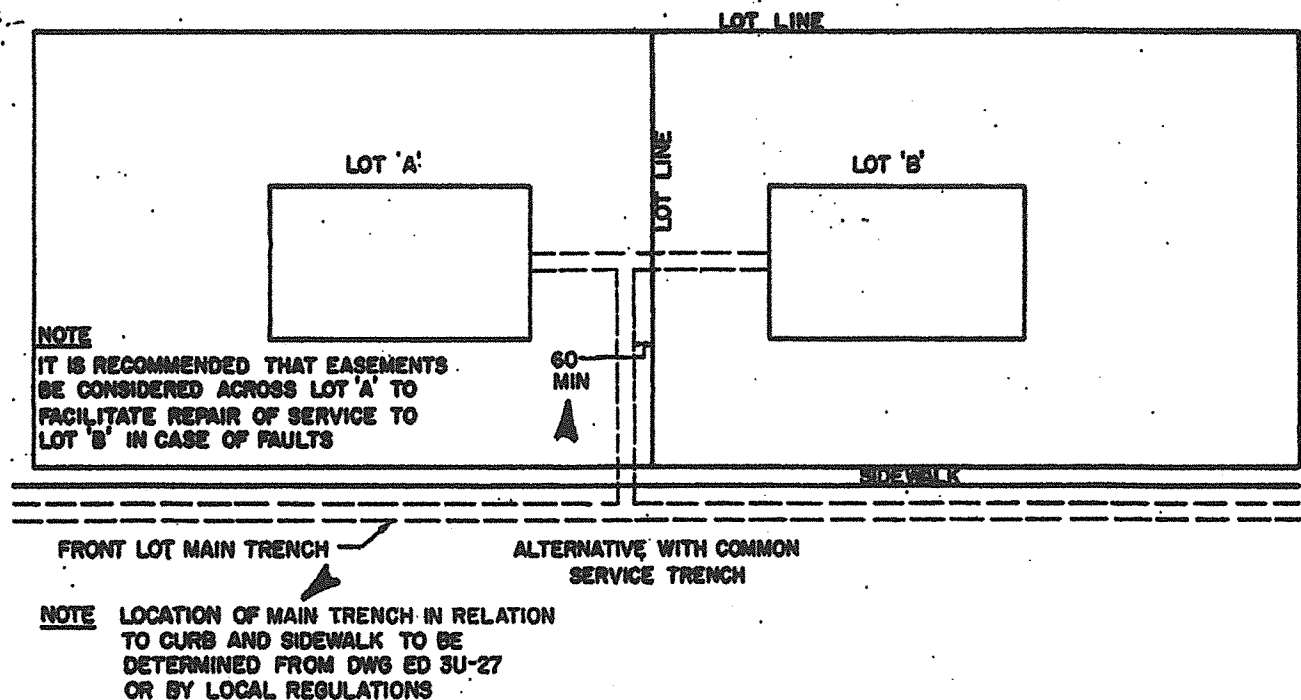
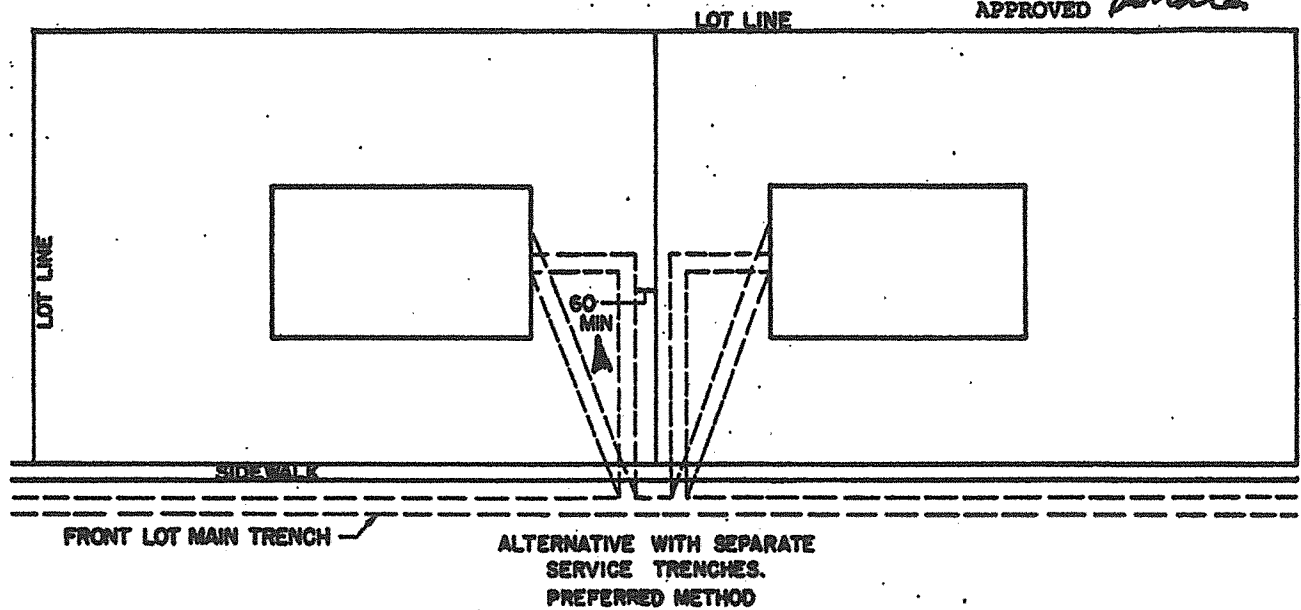
DATE MAY 1973 (ORIGINAL ISSUE) _____

SINGLE-PHASE PAD-MOUNTED TRANSFORMER INSTALLATION 25 TO 167 kVA, 10, 2.4 TO 16 kV

LINEAR DIMS. SHOWN IN CENTIMETRES

M

ED 3U-25
NOVEMBER 1986
APPROVED *W. J. W. J.*



APPROVED *B. J. Wykes*
T. & E. DESIGN ENGINEER
DATE DEC. 1970 (ORIGINAL ISSUE)

**TYPICAL LAYOUT
OF UNDERGROUND SERVICES**

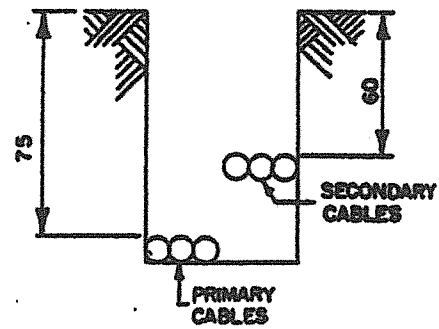
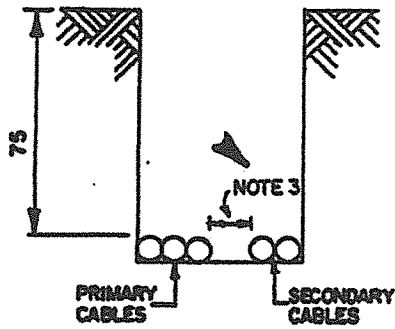
EDU-28

NOVEMBER 1986

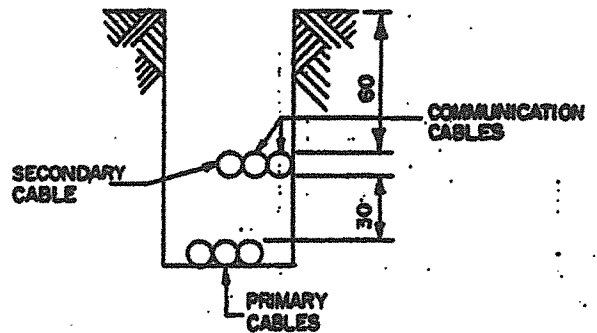
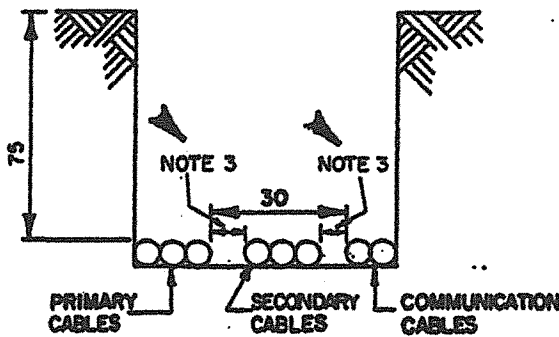
APPROVED *J. M. Lee*

M

LINEAR DIMS SHOWN IN CENTIMETRES



POWER



JOINT USE

NOTES

1. ALL SEPARATIONS AND DEPTHS OF BURIAL ARE MINIMUM
2. TRENCH WIDTH MINIMUM IS 20 cm
3. ALTHOUGH SEPARATION IS DESIRABLE BETWEEN PRIMARY AND SECONDARY CABLES AND BETWEEN SECONDARY AND COMMUNICATIONS CABLES, CONTACT IS PERMITTED

APPROVED

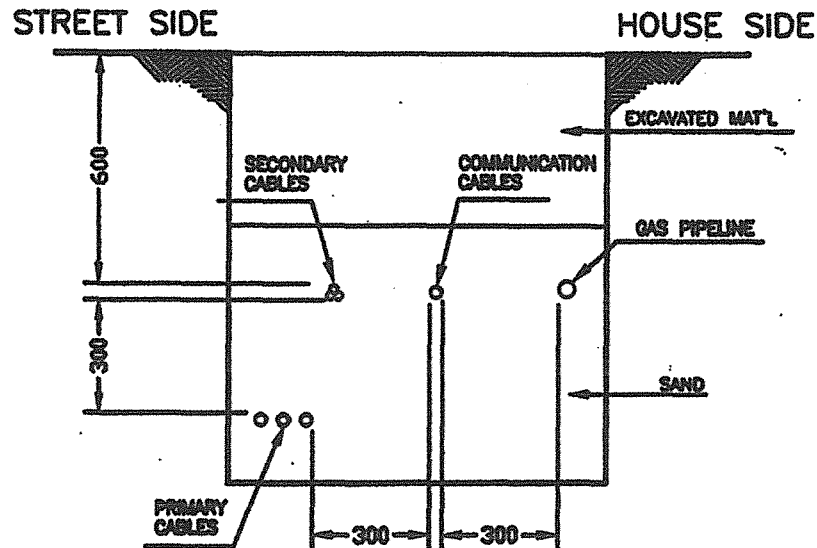
J. M. Lee
DISTRIBUTION ENGINEER

DATE DEC 1970 (ORIGINAL ISSUE)

**TYPICAL MAIN TRENCH
ARRANGEMENTS**

ED3U-28A

DECEMBER 2001

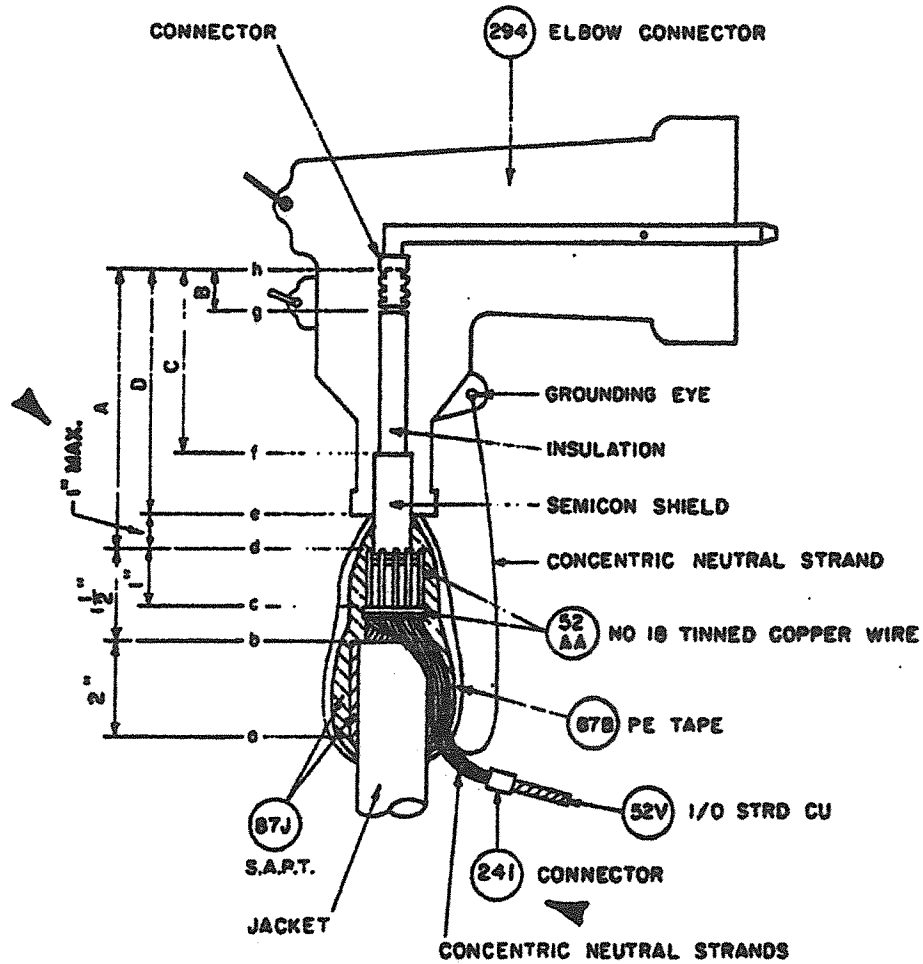


NOTES

1. ALL DIMENSIONS ARE IN MM
2. ALL SEPARATIONS AND DEPTHS OF BURIAL ARE MINIMUM
3. ALTHOUGH SEPARATION (150 MM) IS DESIRABLE BETWEEN PRIMARY AND SECONDARY CABLES AND SECONDARY AND COMMUNICATION CABLES, CONTACT IS PERMITTED
4. A MINIMUM OF 50 MM OF FINE SAND IS REQUIRED AROUND ALL CABLES

TYPICAL JOINT USE (INCL. GAS)
TRENCH ARRANGEMENT

ED **IIU**-49
JUNE 1977



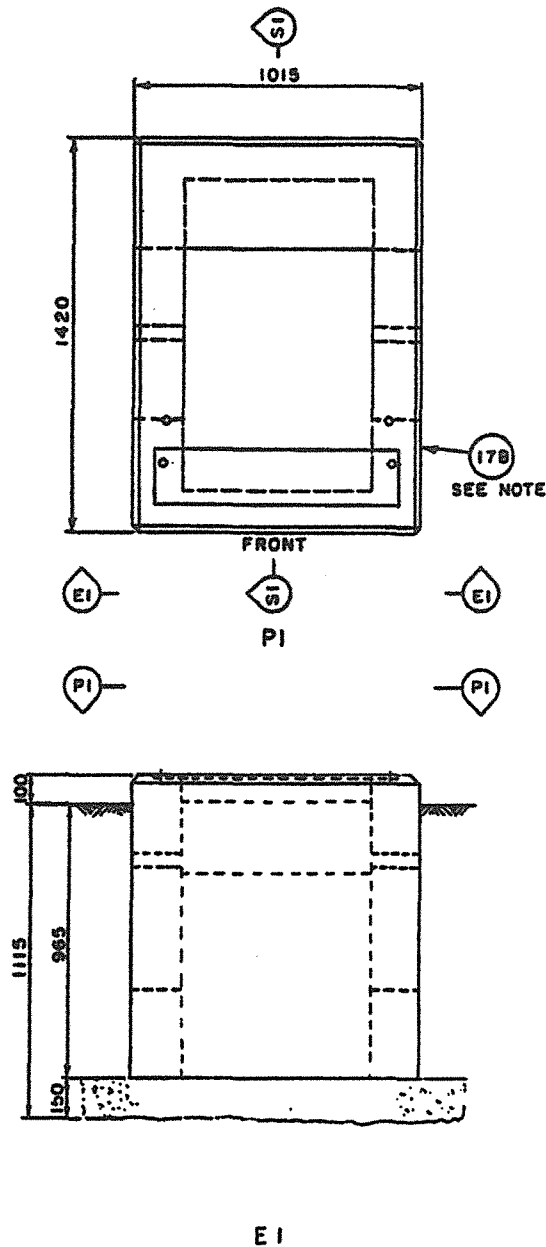
NOTES

1. DIMENSIONS A, B, C & D ARE SUPPLIED BY THE ELBOW CONNECTOR MANUFACTURER
2. ALL DIMENSIONS TO BE HELD TO TOLERANCE $\pm \frac{1}{8}$ "

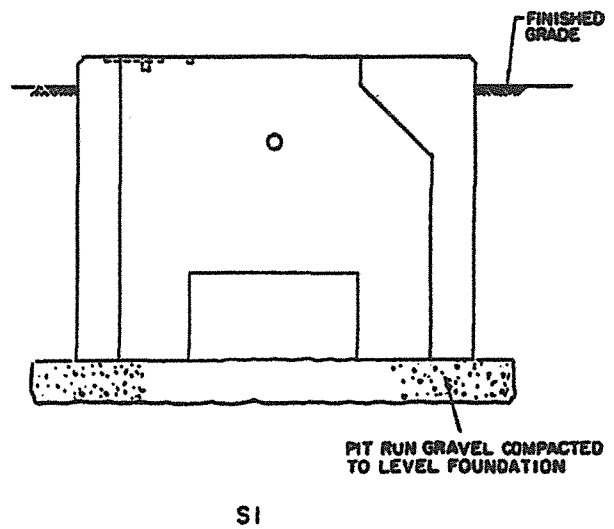
APPROVED *BG. Wlykes*
MANAGER, DISTRIBUTION ENGINEERING

DATE MARCH 1976 (ORIGINAL ISSUE)

ELBOW CONNECTOR FOR
CONCENTRIC NEUTRAL CABLE
15 AND 28 kV



NOTE
 APPROX MASS 1630 kg



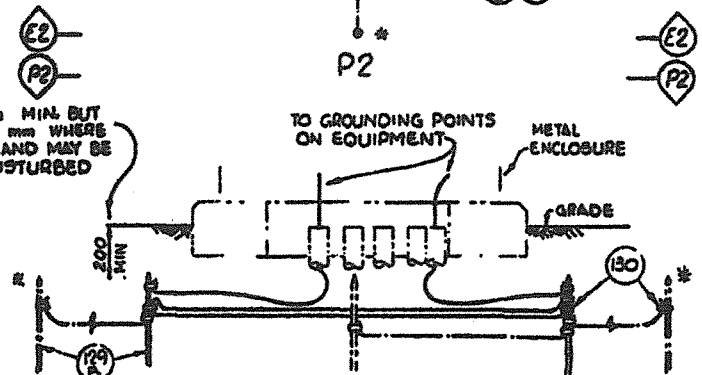
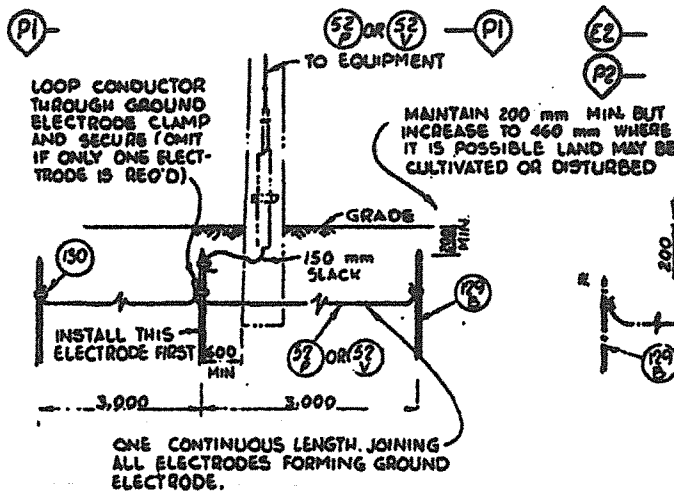
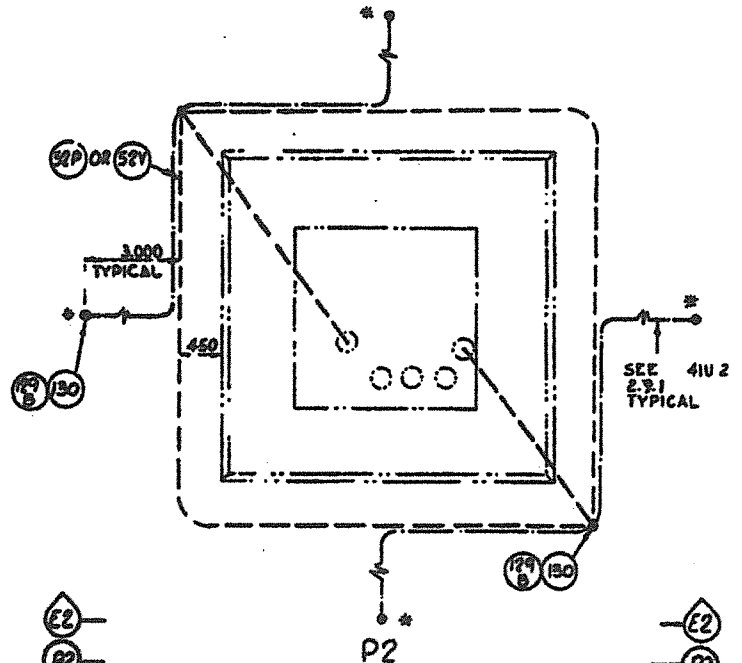
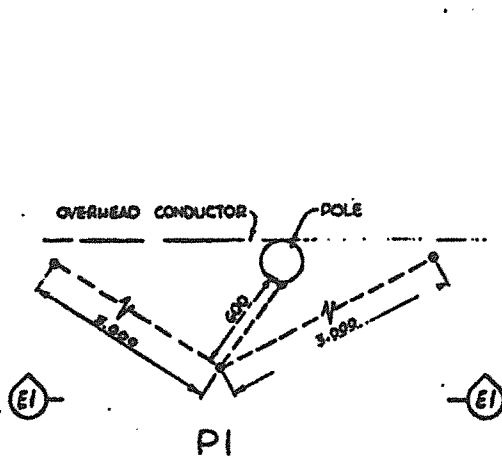
APPROVED 
 MANAGER, DISTRIBUTION PLANNING & DESIGN
 DATE APR 1985 (ORIGINAL ISSUE)

CONCRETE WELL-TYPE
 FOUNDATION INSTALLATION
 FOR 10 PAD-MOUNTED TRANSFORMER
 25 TO 167 kVA, 10, 14.4 & 16 kV

LINEAR DIMENSIONS
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

M

ED41U-25
DEC 1977



REFERENCE DWGS.
SECTION 15-----HARDWARE

NOTE

- DO NOT INSTALL THE GROUND ELECTRODE CONNECTOR ON THE TAPERED SECTION OF THE GROUND ELECTRODE

APPROVED

J. B. Sparks
DISTRIBUTION ENGINEER

DATE DEC 1977 (ORIGINAL ISSUE)

GROUNDING COMPONENTS
TYPICAL ARRANGEMENTS
BELOW GRADE

*Note - Manufacturer part number may be outdated

APPENDIX "F"

Hydro One
MATERIAL SPECIFICATIONS

BUSHING INSERTS & BUSHING ARRESTORS				
HONI ITEM #	HONI CAT ID #	MATERIAL DESCRIPTION	MANUFACTURERS / PART #	POSSIBLE VENDERS
295B	0000011295	BUSHING INSERT, SEPARABLE INSULATED LOADBREAK, 200 A, 28 KV CLASS,	ELASTIMOLD C/O EAGLE UTIL (PART # 2701A4CS854), RTE CORP (PART # 2637612C02MC)	COOPER POWER SYSTEMS, ELASTIMOLD C/O EAGLE UTILITY, GLE INC, GRAFTON UTILITY SUPPLY LIMITED, LAPRAIRIE ELECTRICAL PRODUCT
N/A	0000038749	SURGE & LIGHTNING ARRESTOR, BUSHING ARRESTOR, 6 KV RATED, 5.1 KV MCOV, 28 KV HOUSING	ELASTIMOLD C/O EAGLE UTIL, PART # 273BSA-10	GRAFTON UTILITY SUPPLY LIMITED
N/A	0000038750	SURGE & LIGHTNING ARRESTOR, BUSHING ARRESTOR, 10 KV RATED, 8.4 KV MCOV, 28 KV HOUSING	ELASTIMOLD C/O EAGLE UTIL, PART # 273BSA-12	GRAFTON UTILITY SUPPLY LIMITED
N/A	0000008790	SURGE & LIGHTNING ARRESTOR, BUSHING ARRESTOR, 21KV RATED, 17 KV MCOV, 28 KV HOUSING	ELASTIMOLD C/O EAGLE UTIL, PART # 273BSA-21	GRAFTON UTILITY SUPPLY LIMITED
N/A	0000034025	28 KV, DOUBLE BUSHING INSERT FOR PAD MOUNT TRANS	MANUFACTURERS: ELASTIMOLD C/O EAGLE UTIL, PART # 2702A1	GRAFTON UTILITY SUPPLY LIMITED
CAPS, FEEDTHROUGHS, ELBOWS, ELBOW ARRESTOR, SPLICE KIT & ACCESSORIES				
324B	0000011294	CAP, INSULATING, FOR UNUSED 28 KV LOAD BREAK BUSHING WE. L200 A, 16.2 KV PHASE TO GROUND. TO BE SUPPLIED WITH A FLEXIBLE, TINNED COPPER GROUND LEAD & A PROTECTIVE CAP.	CGE (PART # 9U01BEW500), ELASTIMOLD C/O EAGLE UTIL (PART # 270DRGCS854), RTE CORP (PART # 2606591A02M OR PART # 2606591A02MC)	COOPER POWER SYSTEMS, ELASTIMOLD C/O EAGLE UTILITY, GLE INC, GRAFTON UTILITY SUPPLY LIMITED, LAPRAIRIE ELECTRICAL PRODUCT, NEDCO DIV OF WESTBURNE
294D	0000011292	ELBOW LOADBREAK 28 KV 0.930/1.040 INSULATED 2/O ALUMINUM 200A WITH TEST POINT	CGE (PART # 9U01BAA585), ELASTIMOLD C/O EAGLE UTIL (PART # 274LRH5240CCS886), RTE CORP (PART # 2604740B5620)	COOPER POWER SYSTEMS, ELASTIMOLD C/O EAGLE UTILITY, GLE INC, GRAFTON UTILITY SUPPLY LIMITED
N/A	0000036358	SURGE & LIGHTNING ARRESTOR, ELBOW ARRESTOR, 6 KV RATED, 5.2 KV MCOV, 28 KV ELBOW	ELASTIMOLD C/O EAGLE UTIL (PART # 273ESA-10), JOSLYN (PART # 8132B0006J001)	COMPOSITE POWER GROUP, GRAFTON UTILITY SUPPLY LIMITED
N/A	0000036360	SURGE & LIGHTNING ARRESTOR, ELBOW ARRESTOR, 10 KV RATED, 10.2 KV MCOV, 28 KV ELBOW	ELASTIMOLD C/O EAGLE UTIL (PART # 273ESA-12), JOSLYN (PART # 8132B0010J001)	COMPOSITE POWER GROUP, GRAFTON UTILITY SUPPLY LIMITED
N/A	0000008789	SURGE & LIGHTNING ARRESTOR, ELBOW ARRESTOR, 21 KV RATED, 17 KV MCOV, 28 KV ELBOW	ELASTIMOLD C/O EAGLE UTIL (PART # 273ESA-21), RTE CORP (PART # 3237758C18M)	GRAFTON UTILITY SUPPLY LIMITED
416B	0000011296	FEEDTHROUGH, LOADBREAK, 28KV 200A, SEPARABLE, INSULATED	MANUFACTURERS: RTE CORP (PART # 2637167C01MC)	VENDORS: COOPER POWER SYSTEMS, ELASTIMOLD C/O EAGLE UTILITY, GRAFTON UTILITY SUPPLY LIMITED
N/A	0000038748	SURGE ARRESTOR, PARKING STAND ARRESTOR, 10KV RATED, 8.4KV MCOV, 28 KV HOUSING	MANUFACTURERS: ELASTIMOLD C/O EAGLE UTIL (PART # 273PSA-12)	VENDORS: GRAFTON UTILITY SUPPLY LIMITED

*Note - Manufacturer part number may be outdated

HONI ITEM #	HONI CAT ID #	MATERIAL DESCRIPTION	MANUFACTURERS / PART #	POSSIBLE VENDERS
N/A	0000015564	SURGE ARRESTOR, PARKING STAND ARRESTOR, 6KV RATED, 5.2KVMCOV, 28 KV HOUSING	MANUFACTURERS: ELASTIMOLD C/O EAGLE UTIL (PART # 273PSA-10)	VENDORS: GRAFTON UTILITY SUPPLY LIMITED
N/A	0000011901	2/0 AWG COMPACT ALUMINIUM PRIMARY UNDERGROUND QUICK SPLICE, 28KV, C/W 200 KV BIL MOULDED RUBBER SPLICE JACKET BODY, EPDM INSULATION	3M (PART # CE100682265)	ANIXTER CANADA INC
N/A	0000008804	SURGE & LIGHTNING ARRESTOR, PARKING STAND ARRESTOR, 21KV RATED, 17KV MCOV, 28 KV HOUSING	ELASTIMOLD C/O EAGLE UTIL (PART # 273PSA-21)	VENDORS: GRAFTON UTILITY SUPPLY LIMITED
257A	0000000429	PADLOCK, 5 PIN TUMBLER 50 MM CASE NO KEYS	ABUS (PART # 8550), CISA (PART # 2201350)	ACKLANDS-GRAINGER INC., SOUTHWEST DOORS & HARDWARE LTD., SWAIN BROTHERS
TERMINATORS, RISER POLE ARRESTERS, SECONDARY COMPRESSION LUGS & FAULT INDICATORS				
280S	0000011251	TERMINATION, OUTDOOR, SILICON COLD SHRINK RUBBER FOR 2/0 AWG COMPACT STRAND ALUMINUM 28KV CABLE, OVER XLPE INSULATION 24 - 26.03 MM DROP LEAD SHALL BE 1/0AWG STANDARD STRAND COPPER, COMPRESSION CONNECTOR - PARA 6.1.1, 6.1.2 AND 6.1.3.IEEE STANDARD 48, CLASS 2.	ELASTIMOLD C/O EAGLE UTIL (PART # 16THGGH1204CS183319) <i>3M - 66100 662340.</i>	ALCATEL CANADA WIRE, CANADA POWER PRODUCTS, WESCO DISTRIBUTION CANADA
274V	0000010323	CONNECTOR, TERM COMP PAD, 4/0 AWG, 1 HOLE M12 STUD, ALUMINUM, HYDRO ONE SPEC L 877, COMPACT ROUND	MANUFACTURERS: ALCAN (PART # HT401CPRT), BURNDY (PART # YJA40AT12TN), ILSCO (PART # ACC40), LAPRAIRIE (PART # KL40ATN)	ALCAN CABLE DIVISION OF ALCA, TYCO ELECTRONICS CANADA LTD, CALORITECH INC, ELECTRIC POWER ACCESSORIES C, FCI CANADA INC, GRAFTON UTILITY SUPPLY LIMITED, LAPRAIRIE ELECTRICAL PRODUCT, WESTBURNE RUDDY ELECTRIC
274G	0000010022	CONNECTOR, TERM COMP PAD, 250 KCMIL, 2 HOLE PAD M12 STUD, ALUMINUM, COMPACT ROUND	ALCAN (PART # HT252T), BURNDY (PART # YJA250A2NTN), LAPRAIRIE (PART # KL025A2NTN), PENNUNION (PART # KUL)	TYCO ELECTRONICS CANADA LTD, BEL VOLT SALES LTD, CONTINENTAL ELECTRONIC, FARGO MANUFACTURING COMPANY, GRAFTON UTILITY SUPPLY LIMITED, LAPRAIRIE ELECTRICAL PRODUCT
274D	0000010023	CONNECTOR, TERM COMP PAD, 500 KCMIL, 2 HOLE M12 STUD, ALUMINUM, COMPACT ROUND	ALCAN (PART # HT502T), BURNDY (PART # YJA500A2NTN), KEARNEY (PART # 401331), LAPRAIRIE (PART # KL050A2NTN)	ALCAN CABLE DIVISION OF ALCA, TYCO ELECTRONICS CANADA LTD, CALORITECH INC, ELECTRIC POWER ACCESSORIES C, FCI CANADA INC, GRAFTON UTILITY SUPPLY LIMITED, LAPRAIRIE ELECTRICAL PRODUCT,
61W	0000001423	BOLT, HEX HD SILICON BR, 1/2" DIA, 2" LONG, LESS NUT, UNC, FINISHED, ASTM F468	STELCO (PART # 1423)	ALL STATE FASTENER CORP., ATLAS ALLOYS, ENERGY STEEL & SUPPLY COMPANY

*Note - Manufacturer part number may be outdated

HONI ITEM #	HONI CAT ID #	MATERIAL DESCRIPTION	MANUFACTURERS / PART #	POSSIBLE VENDERS
354B	0000011279	CONN UGRD, TAP COMP, INSUL 8 POSN 4AWG-500KCMIL	BLACKBURN (PART # UPC81), ESP (PART # UC81)	TYCO ELECTRONICS CANADA LTD, BEL VOLT SALES LTD, CONTINENTAL ELECTRONIC, FARGO MANUFACTURING COMPANY, GRAFTON UTILITY SUPPLY LIMIT, LAPRAIRIE INC., SLACAN A DIVISION OF TRIDEM, WESTBURNE RUDDY ELECTRIC
5056B	0000011272	CONN UGRD, TAP BLTD, 14 POSN, 7 PER SIDE, URD, FOR PAD MOUNT TRANS SECONDARY	CANADIAN CONNECTOR CORP. (PART # DU25014), ILSCO (PART # TUT14250)	TYCO ELECTRONICS CANADA LTD, BEL VOLT SALES LTD, CONTINENTAL ELECTRONIC, FARGO MANUFACTURING COMPANY, GRAFTON UTILITY SUPPLY LIMIT, LAPRAIRIE INC., NEDCO DIV OF WESTBURNE, SLACAN A DIVISION OF TRIDEM, WESTBURNE RUDDY ELECTRIC
245A	0000010925	CONNECTOR, TERM BLTD PAD, 6 AWG-250 KCMIL, 1 HOLE PAD, TINNED ALUMINUM	BURNDY (PART # KA29UCG1), ETLIN (PART # CA250Z), ILSCO (PART # TA250AS)	FCI CANADA INC, GRAFTON UTILITY SUPPLY LIMIT, LAPRAIRIE INCORPORATED, NEDCO DIV OF WESTBURNE
245B	0000010926	CONNECTOR, TERM BLTD PAD, 4/0 AWG-500 KCMIL, 1 HOLE PAD, TINNED ALUMINUM	BLACKBURN (PART # ADR50), BURNDY (PART # KA36U), ETLIN (PART # CA500), ILSCO (PART # TA500AS)	FCI CANADA INC, GRAFTON UTILITY SUPPLY LIMIT, LAPRAIRIE INCORPORATED, NEDCO DIV OF WESTBURNE
245C	0000010931	CONNECTOR, TERM BLTD PAD, 350/800 KCMIL, 1 HOLE PAD, TINNED ALUMINUM	BURNDY (PART # KA40U), ETLIN (PART # CA800Z), ILSCO (PART # TA800AS)	FCI CANADA INC, GRAFTON UTILITY SUPPLY LIMIT, LAPRAIRIE INCORPORATED, NEDCO DIV OF WESTBURNE
245D	0000010960	CONNECTOR TERMINAL BOLTED TWO 6AWG/250KCMIL CONDUCTORS TO 1 HOLE PAD ALUMINUM ALLEN WRENCH INSTALL TINNED STRAIGHT	BLACKBURN (PART #ADR2521) BURNDY (PART # K2A29U) ETLIN (PART # TCA250), ILSCO (PART # AU250AS)	FCI CANADA INC., GRAFTON UTILITY SUPPLY LIMIT, LAPRAIRIE INCORPORATED NEDCO DIV OF WESTBURNE
108	0000009655	CONNECTOR TAP BOLTED PARALLEL 1/0 - 4/0AWG STRANDED COPPER RUN TO 8AWG 4/0 AWG STRANDED COPPER TAP COPPER BODY. Q.P.L.: PENNUNION VTW 2L EPAC LIMITED KR3 BURNDY INC.KVSW28CGI (DWG. CSC23734 R1)	BURNDY INC (PART # KVSW28CG1), EPAC (PART # KR3), PENN UNION (PART # VTW2L)	TYCO ELECTRONICS CANADA LTD, BEL VOLT SALES LTD, CONTINENTAL ELECTRONIC, FARGO MANUFACTURING COMPANY, GRAFTON UTILITY SUPPLY LIMITED, LAPRAIRIE ELECTRICAL PRODUCTS, NEDCO DIV OF WESTBURNE, SEDIWER CANADA INC, WESTBURNE ELECTRIC
130C	0000010543	CONNECTOR GROUND ROD BOLTED GALVANIZED FOR FOUR 1/0AWG STRANDED COPPER TO 19.05MM OD STEEL ROD 3/8" BOLT	AMP (PART # 814113), TRIDEM (PART # APG50M)	BEL VOLT SALES LTD, FARGO MANUFACTURING COMPANY, GRAFTON UTILITY SUPPLY LIMITED, LAPRAIRIE ELECTRICAL
66J	0000001964	WASHER, BELLEVILLE, FOR GALVANIZED 3/8" BOLT	KEY BELLEVILLES INC. (PART # K0750-C-076-ZC), STELCO INC STELCO TOWER (PART # 1964)	ALL STATE FASTENER CORP., CHARLES JONES INDUSTRIAL, DIEMAKERS SUPPLIES LTD.
66K	0000001879	WASHER, LOCK HELICAL SPRING, 1/2" BOLT, 0.879" OD, REG., SILICON BRONZE	NIAGARA FASTENERES (PART # BZLW12), STELCO (PART # 1879)	NIAGARA FASTENERES, STELCO

*Note - Manufacturer part number may be outdated

HONI ITEM #	HONI CAT ID #	MATERIAL DESCRIPTION	MANUFACTURERS / PART #	POSSIBLE VENDERS
199C	0000009644	CONNECTOR, TERM BLTD PAD, 4-1/0 AWG, 1 X 8.3 MM HOLE PAD, COPPER, CSAC22.2 NO. 65 M, FRONT ENTRANCE	BURNDY (PART # KPA25), ET LIN (PART # FT125Z)	FCI CANADA INC, GRAFTON UTILITY SUPPLY LIMIT, LAPRAIRIE INCORPORATED NEDCO DIV OF WESTBURNE
230L	0000001760	NUT, HEX FINISHED SILICON BRONZE, 1/2" BOLT, 2B UNC, REGULAR, DBL CHAMFERED	STELCO (PART # 1760)	ALL STATE FASTENER, CCS INDUSTRIAL, GOULD FASTENERS LIMITED, HASKINS SUPPLY CO.
1429	0000001964	BOLT, HEX HD SILICON BR, 3/8" DIA, 1-1/2" LONG, LESS NUT, UNC, FINISHED, ASTM F468	BURNDY (PART # HEB38X150), STELCO (PART # 1419),	ALL STATE FASTENER CORP., ATLAS ALLOYS DIVISION OF RIOALGOM LTD
230D	0000001759	NUT, HEX FINISHED SIL BRONZE, 3/8" BOLT, 2B UNC, REGULAR, M256, DBL CHAMFERED	BURNDY (PART # HEN38), STELCO (PART # 1759),	ALL STATE FASTENER CORP., ENERGY STEEL & SUPPLY COMPANY
N/A	0000036348	FAULT INDICATOR FOR PAD MOUNT TRANSFORMER, 300 AMP, FOR USE ON PRIMARY CABLES UP TO 4/0 CONDUCTOR	FISHER PIERCE (PART #1514SM-3A3-NGD-B)	FISHER PIERCE
274AA	0000010409	CONNECTOR, TERM COMP PAD, 4 AWG ACSR, 1 HOLE M 12 STUD, ALUMINUM	ALCAN (PART # HT41T), BURNDY (PART # YJA4CAT12TN), LAPRAIRIE (PART # KL4ATN)	ALCAN, FCI CANADA INC., GRAFTON UTILITY SUPPLY LIMIT, LAPRAIRIE INC., SLACAN DIVISION OF TRIDEM
N/A	0000041232	SURGE ARRESTER, DISTRIBUTION CLASS, RISER POLE 21KV, 17.2KVMCOV, POLYMERIC	HUBBELL (PART # 218617)	GRAFTON UTILITY SUPPLY LIMIT
N/A	0000041233	SURGE ARRESTER, DISTRIBUTION CLASS, RISER POLE 18KV, 15KVMCOV, POLYMERIC	HUBBELL (PART # 218615)	GRAFTON UTILITY SUPPLY LIMIT
N/A	0000041234	SURGE ARRESTER, DISTRIBUTION CLASS, RISER POLE 9KV, 7.65KVMCOV, POLYMERIC	HUBBELL (PART # 218608)	GRAFTON UTILITY SUPPLY LIMIT
N/A	0000041235	SURGE ARRESTER, DISTRIBUTION CLASS, RISER POLE 6KV, 5.1KVMCOV, POLYMERIC	HUBBELL (PART # 218605)	GRAFTON UTILITY SUPPLY LIMIT
PRIMARY & SECONDARY UNDERGROUND CONDUCTOR & ACCESSORIES				
255H	0000015888	PRIMARY UNDERGROUND WATER BLOCK CONDUCTOR, 28 KV, 2/0 AWG COMPACT STRANDED ALUMINUM, CONDUCTOR DIAMETER -9.57MM, MIN DIAMETER OVER INSULATION - 24.5MM, MAX DIAMETER OVER INSULATION- 26.0MM, TREE RETARDANT XLPE INSULATION, ENCAPSULATED LINEAR LOW DENSITY POLYEHTYLENE JACKET, ANNEALED PLAIN COPPER WIRE CONCENTRIC NEUTRAL (15 X #4 AWG), IN ADDITION TO CEA WCWG01 AND CSA C68.3	ALCATEL CABLE, (2/0 AWG CSA)	ALCAN CABLE DIVISION OF ALCATEL, NEXANS CANADA INC., ALCATEL CANADA WIRE DIVISION

*Note - Manufacturer part number may be outdated

HONI ITEM #	HONI CAT ID #	MATERIAL DESCRIPTION	MANUFACTURERS / PART #	POSSIBLE VENDERS
255JJ	0000009530	350 KCMIL, 28KV, 1C, COPPER COMPACT STRANDED CONDUCTOR, XLPE INSULATION, CONCENTRIC NEUTRAL, PVC JACKET FOR DIRECT BURIAL	GENERAL CABLE	GENERAL CABLE
255L	0000009429	1/0, 28KV, SOLID ALUMINUM SUBMARINE CONDUCTOR, XLPE INSULATION, POLYETHYLENE COVERED STEEL WIRE ARMOUR WIRE	GENERAL CABLE (PART # M355)	GENERAL CABLE, PIRELLI CABLES INC.
N/A	0000009601	4/0, 600V, 3C - (2BLK & 1WHITE), TWISTED SECONDARY, 4/0 STRANDED CONCENTRIC COMPACT ACM ALUMINUM EQUAL SIZE XLPE INSULATION PVC JACKET, 90CEL, CSA C22.2 NO 52 TYPE USE190	ALCAN (PART# USE190), ANIXTER CANADA INC (PART # 6CS-4043)	ALCAN CABLE DIVISION OF ALCAN, ALCATEL CANADA INC, ANIXTER CANADA INC
70A	0000002369	SCREW LAG 1/4" DIA 2-1/2" SQUARE HEAD GALVANIZED GIMLET POINT	STELCO (PART # 2369)	ALL STATE FASTENER CORP, ENERGY STEEL & SUPPLY CO.
255C	0000009231	3/0, 600V, 3C - (2BLK & 1WHITE), TWISTED SECONDARY ALUMINUM UNDERGROUND CONDUCTOR, PE / XLPE / EPR 75 CELCUS INSULATED PVC JACKET, CEA WCWG04 93	ALCATEL CANADA WIRE INC, (PART # 639625)	ALCAN CABLE DIVISION OF ALCAN, ALCATEL CANADA INC, ANIXTER CANADA INC.
255F	0000009241	250 KMIL, 600V, 3C - (2BLK & 1WHITE), TWISTED SECONDARY ALUMINUM UNDERGROUND CONDUCTOR, PE / XLPE / EPR 75 CELCUS INSULATED PVC JACKET, CEA WCWG04 93	ALCATEL CANADA WIRE INC, (PART # 433185)	ALCAN CABLE DIVISION OF ALCAN, ALCATEL CANADA INC, ANIXTER CANADA INC
410E	0000009307	500 KMIL, 600V, 3C - (2BLK & 1WHITE), TWISTED SECONDARY ALUMINUM UNDERGROUND CONDUCTOR, PE / XLPE / EPR 75 CELCUS INSULATED PVC JACKET, CEA WCWG04 93	ALCATEL CANADA WIRE INC, (PART # 433185)	ALCAN CABLE DIVISION OF ALCAN, ALCATEL CANADA INC, ANIXTER CANADA INC
133C	0000000880	STRAP CABLE GUARD SIZE 60 60MM GALV CSA C83.55M	MCGRAWEDISON (PART # 9892) SLACAN (PART # 22265)	BEL VOLT SALES LTD, POW COM UTILITIES SUPPLY INC., GRAFTON UTILITY SUPPLY,
133D	0000000882	STRAP CABLE GUARD SIZE 80 80MM GALV CSA C83.55M	MCGRAWEDISON (PART # 9893) SLACAN (PART # 22266)	BEL VOLT SALES LTD, POW COM UTILITIES SUPPLY INC., GRAFTON UTILITY SUPPLY,
133K	0000001093	STRAP CABLE GUARD SIZE 100 100MM GALV CSA C83.55M	MCGRAWEDISON (PART # 9894) SLACAN (PART # 22267)	BEL VOLT SALES LTD, POW COM UTILITIES SUPPLY, GRAFTON UTILITY SUPPLY,
132D	0000000869	GUARD CABLE 60MMX2.4M GALV STEEL OR ALUM CSA C83.53M	MCGRAWEDISON (PART # 9882) SLACAN (PART # 7533)	BEL VOLT SALES LTD, POW COM UTILITIES SUPPLY, GRAFTON UTILITY SUPPLY
132E	0000000868	GUARD CABLE 80MMX2.4M GALV STEEL OR ALUMCSA C83.53M	MCGRAWEDISON (PART # 9884) SLACAN (PART # 7535)	BEL VOLT SALES LTD, POW COM UTILITIES SUPPLY, GRAFTON UTILITY SUPPLY
132F	0000001061	GUARD CABLE 100MMX2.4M GALV STEEL OR ALUM CSA C83.53M	SLACAN (PART # 22260)	BEL VOLT SALES LTD, POW COM UTILITIES SUPPLY, GRAFTON UTILITY SUPPLY

*Note - Manufacturer part number may be outdated

HONI ITEM #	HONI CAT ID #	MATERIAL DESCRIPTION	MANUFACTURERS / PART #	POSSIBLE VENDERS
323C	0000011565	DUCT PVC DB2 4" X 10FT DIRECT BURIAL BELL END CSA B196.1 AND CSA C22.2 NO 211.1	PURSLEY (PART # 11565) SCEPTER (PART # DB2)	GERRIE ELECTRIC WHOLESALE GUILLEVIN INTERNATIONAL INC., IDEAL SUPPLY COMPANY LIMITED WESTBURNE RUDDY ELECTRIC
263Q	0000011564	DUCT PVC DB2 3" X 10FT DIRECT BURIAL BELL END CSA B196.1 AND CSA C22.2 NO 211.1	PURSLEY (PART # 11564) SCEPTER (PART # DB2)	GERRIE ELECTRIC WHOLESALE GUILLEVIN INTERNATIONAL INC., IDEAL SUPPLY COMPANY LIMITED WESTBURNE RUDDY ELECTRIC
263R	0000011566	DUCT PVC DB2 2" X 10FT DIRECT BURIAL BELL END CSA C196.1, CSA C22.2 NO 211.1	PURSLEY (PART # 11566) SCEPTER (PART # DB2)	GERRIE ELECTRIC WHOLESALE GUILLEVIN INTERNATIONAL INC., IDEAL SUPPLY COMPANY LIMITED, WESTBURNE RUDDY ELECTRIC
265B	0000005395	DUCT, POLY, 100 MM, CORRUGATED, FOR DIRECT BURIAL	BIGO (Part # 451) PLASTIDRAIN (Part # 204)	GERRIE ELECTRIC WHOLESALE GUILLEVIN INTERNATIONAL INC, IDEAL SUPPLY COMPANY LIMITED
70B	0000002084	BOLT, LAG, FETTER DRIVE, CONE PT, HEX HD, GALV, 3/8" DIA, 4" LG, UNC,M256	MC GRAW EDISON (PART # DF6L4), STELCO (PART # 2084)	ALL STATE FASTENER CORP, ENERGY STEEL & SUPPLY CO., LAWSON PRODUCTS INC
409C	0000010598	TIE FARGO GJ8568 CABLE RISER 1.12/1.50"OD RANGE 15"LG BLACK W/ MOUNTING BRACKET FOR 1/2" LAG BOLT	FARGO (PART # GJ8568)	COOPER POWER SYSTEMS, ELASTIMOLD C/O EAGLE UTILITY, GLE INC, GRAFTON UTILITY SUPPLY LIMIT, LAPRAIRIE INC.
409D	0000010598	TIE FARGO GJ8578 CABLE RISER 1.50/1.80"OD RANGE 16"LG PINK W/ MOUNTING BRACKET FOR 1/2" LAG BOLT	FARGO (PART # GJ33366A)	COOPER POWER SYSTEMS, ELASTIMOLD C/O EAGLE UTILITY, GLE INC, GRAFTON UTILITY SUPPLY LIMIT
87B	0000010598	TAPE ELEC, INSULATING, 3/4" X 66 FT X 8.5 MIL PVC COLD TEMPERATURE	3M (PART #37 & 88), PAISLEY PRODUCTS OF CANADA (PART # ET3M0037750), PLYMOUTH RUBBER (PART # 4243)	3M CANADA INC, BEL VOLT SALES LTD, ELECTROWIND SUPPLY INC., NEDCO DIV OF WESTBURNE, PAISLEY PRODUCTS OF CANADA
87J	0000012293	TAPE ELEC, INSULATING, 2" WIDE, POLYMERIC SELF ALMAGAMATING 10YD X 20MIL	PAISLEY PRODUCTS OF CANADA (PART # ETRTN2501B00), ROTUNDA (PART # PIB)	3M CANADA INC, BEL VOLT SALES LTD, KABAR INDUSTRIES LIMITED, NEDCO DIV OF WESTBURNE, PAISLEY PRODUCTS OF CANADA
87L	0000012292	ELECTRICAL INSULATION, TAPE (PVC) BLACK, VINYL, ADHESIVE 3/4"WIDE	3M (PART # TEMFLEX 33947), HASKEL (PART # 8MIL), PAISLEY PRODUCTS OF CANADA (PART# ET3MTMF750)	3M CANADA INC, BEL VOLT SALES LTD, NEDCO DIV OF WESTBURNE, PAISLEY PRODUCTS OF CANADA
87S	0000015790	RED EMBOSING TAPE, PRESSURE SENSITIVE 12MM	DYMO (PART # 410429) PCM (PART # ROTEX)	N/A
87P	0000015787	BLACK EMBOSING TAPE, PRESSURE SENSITIVE 12MM	DYMO (PART # 410413) PCM (PART # ROTEX)	N/A
144T	0000013098	MARKER PHASE RED 3-1/8" PRESSURE SENSITIVE	IMAGE LABELS LTD (PART # 13098),R&M PLASTIC PRODUCTS LTD (PART # RMRPD-3)	GRAFTON UTILITY SUPPLY LIMIT, IDENTIFAB INDUSTRIES LIMITED

*Note - Manufacturer part number may be outdated

HONI ITEM #	HONI CAT ID #	MATERIAL DESCRIPTION	MANUFACTURERS / PART #	POSSIBLE VENDERS
144U	0000013099	MARKER PHASE RED 3-1/8" PRESSURE SENSITIVE	IMAGE LABELS LTD (PART # 13099), R&M PLASTIC PRODUCTS LTD (PART # RMWPD-3)	GRAFTON UTILITY SUPPLY LIMIT, IDENTIFAB INDUSTRIES LIMITED
144V	0000013100	MARKER PHASE BLUE 3-1/8" PRESSURE SENSITIVE	IMAGE LABELS LTD (PART # 13100), R&M PLASTIC PRODUCTS LTD (PART # RMBPD-3)	GRAFTON UTILITY SUPPLY LIMIT, IDENTIFAB INDUSTRIES LIMITED
193B	0000013541	DANGER SIGN "DO NOT DIG OR DRIVE STAKES", BILINGUAL 68MM X140MM SELF ADHESIVE BLACK / RED / WHITE DWG	ALPINE GRAPHIC PRODUCTION (PART # 13541)	ALPINE GRAPHIC PROD., B&T SIGNS, CENTURY ENGRAVING CLEMMER TECHNOLOGIES INC
139C	0000013604	"CAUTION DO NOT OPERATE FUSE TO ENERGIZE OR ISOLATE TRANSFORMER" SIGN 50X75MM BLACK & GREY ON YELLOW.	IMAGE LABELS LTD (PART # 13604)	ACKLANDS-GRAINGER INC. B&T SIGNS, PRIME SIGNS & ENGRAVING, TOP TAPE & LABEL LTD.
297A	0000013100	3/4" RED VINYL / POLY PRESSURE SENSITIVE TAPE	3M (PART # 471), MYSTIC TAPE (PART #1419)	N/A
297B	0000015807	3/4" WHITE VINYL / POLY PRESSURE SENSITIVE TAPE	3M (PART # 471), MYSTIC TAPE (PART #1419)	N/A
297C	0000013100	3/4" BLUE VINYL / POLY PRESSURE SENSITIVE TAPE	3M (PART # 471), MYSTIC TAPE (PART #1419)	N/A
243A	0000011756	TIE CABLE APPROX 1/4"W X 13-1/2"L, BLACK NYLON OUTDOOR 120LB TENSILE SELF LOCKING	BURNDY(PART # TF7X), PANDUIT (PART # PLT4HDO), WIELAND (PART # ET13MDX)	ANIXTER CANADA INC., GUILLEVIN INTERNATIONAL INC.
204A	0000013202	NUMBER 1, YELLOW POLYETHYLENE 32MM HIGH WITH 2 HOLES	ALPINE GRAPHIC PRODUCTION (PART # 13202)	FERRANTI PACKARD TRANSFORMER, WESTBURNE RUDDY ELECTRIC
204B	0000013202	NUMBER 2, YELLOW POLYETHYLENE 32MM HIGH WITH 2 HOLES	ALPINE GRAPHIC PRODUCTION (PART # 13203)	FERRANTI PACKARD TRANSFORMER, WESTBURNE RUDDY ELECTRIC
298A	0000013039	MARKER NUMBER "1" SILVER ADHESIVE 127MM HIGH REFLECTIVE FOR TRANSFORMERS	3M (PART # PRAC3270)	FERRANTI PACKARD TRANSFORMER, MACFARLANE NAMEPLATE & ANODIZING INC., WESTBURNE RUDDY ELECTRIC
298B	0000013040	MARKER NUMBER "2" SILVER ADHESIVE 127MM HIGH REFLECTIVE FOR TRANSFORMERS	3M (PART # PRAC3270)	FERRANTI PACKARD TRANSFORMER, MACFARLANE NAMEPLATE & ANODIZING INC., WESTBURNE RUDDY ELECTRIC
298C	0000013041	MARKER NUMBER "3" SILVER ADHESIVE 127MM HIGH REFLECTIVE FOR TRANSFORMERS	3M (PART # PRAC3270)	FERRANTI PACKARD TRANSFORMER, MACFARLANE NAMEPLATE & ANODIZING INC., WESTBURNE RUDDY ELECTRIC
298D	0000013042	MARKER NUMBER "4" SILVER ADHESIVE 127MM HIGH REFLECTIVE FOR TRANSFORMERS	3M (PART # PRAC3270)	FERRANTI PACKARD TRANSFORMER, MACFARLANE NAMEPLATE & ANODIZING INC., WESTBURNE RUDDY ELECTRIC
298E	0000013043	MARKER NUMBER "5" SILVER ADHESIVE 127MM HIGH REFLECTIVE FOR TRANSFORMERS	3M (PART # PRAC3270)	FERRANTI PACKARD TRANSFORMER, MACFARLANE NAMEPLATE & ANODIZING INC., WESTBURNE RUDDY ELECTRIC

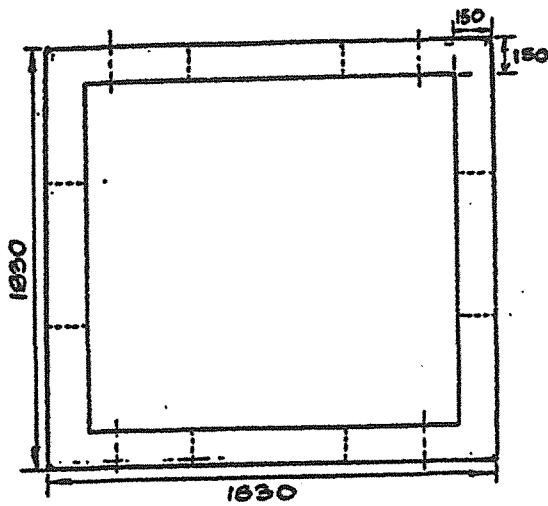
*Note - Manufacturer part number may be outdated

HONI ITEM #	HONI CAT ID #	MATERIAL DESCRIPTION	MANUFACTURERS / PART #	POSSIBLE VENDERS
298F	0000013044	MARKER NUMBER "6" SILVER ADHESIVE 127MM HIGH REFLECTIVE FOR TRANSFORMERS	3M (PART # PRAC3270)	MACFARLANE NAMEPLATE & ANODIZING INC., WESTBURNE RUDDY ELECTRIC
298G	0000013045	MARKER NUMBER "7" SILVER ADHESIVE 127MM HIGH REFLECTIVE FOR TRANSFORMERS	3M (PART # PRAC3270)	MACFARLANE NAMEPLATE & ANODIZING INC., WESTBURNE RUDDY ELECTRIC
298H	0000013046	MARKER NUMBER "8" SILVER ADHESIVE 127MM HIGH REFLECTIVE FOR TRANSFORMERS	3M (PART # PRAC3270)	MACFARLANE NAMEPLATE & ANODIZING INC., WESTBURNE RUDDY ELECTRIC
298J	0000013047	MARKER NUMBER "9" SILVER ADHESIVE 127MM HIGH REFLECTIVE FOR TRANSFORMERS	3M (PART # PRAC3270)	MACFARLANE NAMEPLATE & ANODIZING INC., WESTBURNE RUDDY ELECTRIC
298K	0000013048	MARKER NUMBER "0" SILVER ADHESIVE 127MM HIGH REFLECTIVE FOR TRANSFORMERS	3M (PART # PRAC3270)	MACFARLANE NAMEPLATE & ANODIZING INC., WESTBURNE RUDDY ELECTRIC
202A	0000012923	STEEL UNDERGROUND CABLE MARKER, 1 1/2" PIPE X 1525 MM, C/W 150 X 100 MM MARKER, C/W 2 PRESSURE SENSITIVE MARKERS	ALMAT METAL (Part # A6021)	CUSCO FABRICATORS LTD., KABAR INDUSTRIES LTD., TRIDEM MANUFACTURED PRODUCT
203B	0000013034	UNDERGROUND CABLE (DISC) SCREW IN TYPE	CHANCE (Part # C5540000)	FERRANTI PACKARD, IDENTIFAB INDUSTRIES LTD. MACFARLANE NAMEPLATE & MID-CANADA FIBERGLASS LTD PRIME SIGNS & ENGRAVING, WESTBURNE RUDDY ELECTRIC WESTON MODULAR IND.
185Y	0000013420	"DANGER DO NOT ENERGIZE TRANSFORMER UNLESS" 150MM X 100MM RED SYMBOL / BLACK LETTERS / WHITE BACKGROUND SELF ADHESIVE	FLEXCON (PART # ELV400)	ALPINE GRAPHIC PROD., B&T SIGNS, CENTURY ENGRAVING, CLEMMER TECHNOLOGIES INC., TOP TAPE & LABEL LTD WAGNER SIGNS INC.

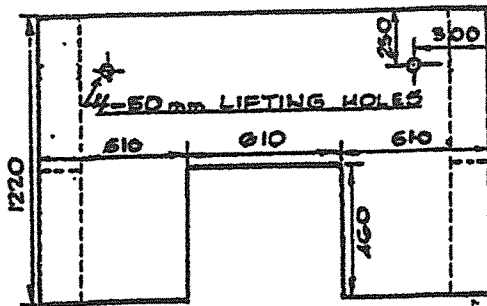
PAD MOUNT FOUNDATIONS

HONI ITEM #	HONI CAT ID #	MATERIAL DESCRIPTION	POSSIBLE VENDERS
17B	0000038246	(DL 23130B 03) PRECAST CONCRETE FOUNDATION FOR SINGLE PHASE PAD MOUNT TRANSFORMER, 25 TO 167KVA	BROOLIN CONCRETE PRODUCTS, ORILLIA PRECAST CONCRETE LTD., MACGREGOR CONCRETE PRODUCTS, PORTER'S SEPTIC TANK SERVICES, INDUSTRIAL CAST STONE, ACTON PRECAST CONCRETE LIMITED, CUSTOM CONCRETE, RAINBOW CONCRETE, ANCHOR CONCRETE PRODUCTS, QUITE PRECAST, UTILITY STRUCTURES INC., MILLAR PRECAST, LAFARGE PRECAST,
17C	0000038247	(SM1986-04-09 R1) PRECAST CONCRETE FOUNDATION FOR THREE PHASE PAD MOUNT TRANSFORMER, 150 TO 500 KVA	BROOLIN CONCRETE PRODUCTS, ORILLIA PRECAST CONCRETE LTD., MACGREGOR CONCRETE PRODUCTS, PORTER'S SEPTIC TANK SERVICES, INDUSTRIAL CAST STONE, ACTON PRECAST CONCRETE LIMITED, CUSTOM CONCRETE, RAINBOW CONCRETE, ANCHOR CONCRETE PRODUCTS, QUITE PRECAST, UTILITY STRUCTURES INC., MILLAR PRECAST, LAFARGE PRECAST,
17D	0000038248	(SM1986-04-09 R1) PRECAST CONCRETE FOUNDATION FOR THREE PHASE PAD MOUNT TRANSFORMER, 500 TO 1000 KVA	BROOLIN CONCRETE PRODUCTS, ORILLIA PRECAST CONCRETE LTD., MACGREGOR CONCRETE PRODUCTS, PORTER'S SEPTIC TANK SERVICES, INDUSTRIAL CAST STONE, ACTON PRECAST CONCRETE LIMITED, CUSTOM CONCRETE, RAINBOW CONCRETE, ANCHOR CONCRETE PRODUCTS, QUITE PRECAST, UTILITY STRUCTURES INC., MILLAR PRECAST, LAFARGE PRECAST,

BOTTOM SECTION

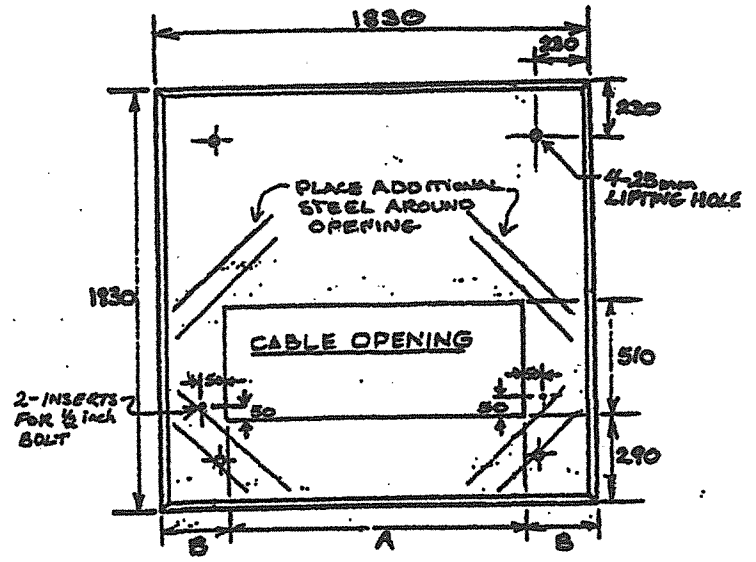


PLAN VIEW

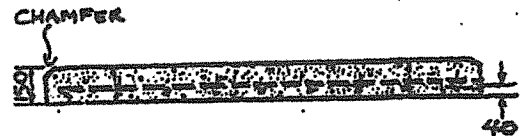


FRONT VIEW

TOP SECTION



PLAN VIEW



FRONT VIEW

CONCRETE - MINIMUM STRENGTH 30 MPa

REINFORCING STEEL - 15M STEEL BARS SPACED 150mm @ BOTHWAYS.

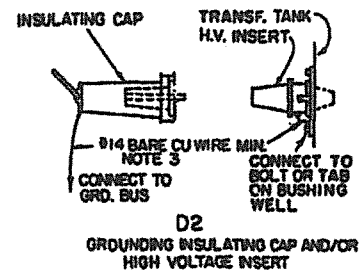
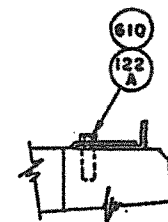
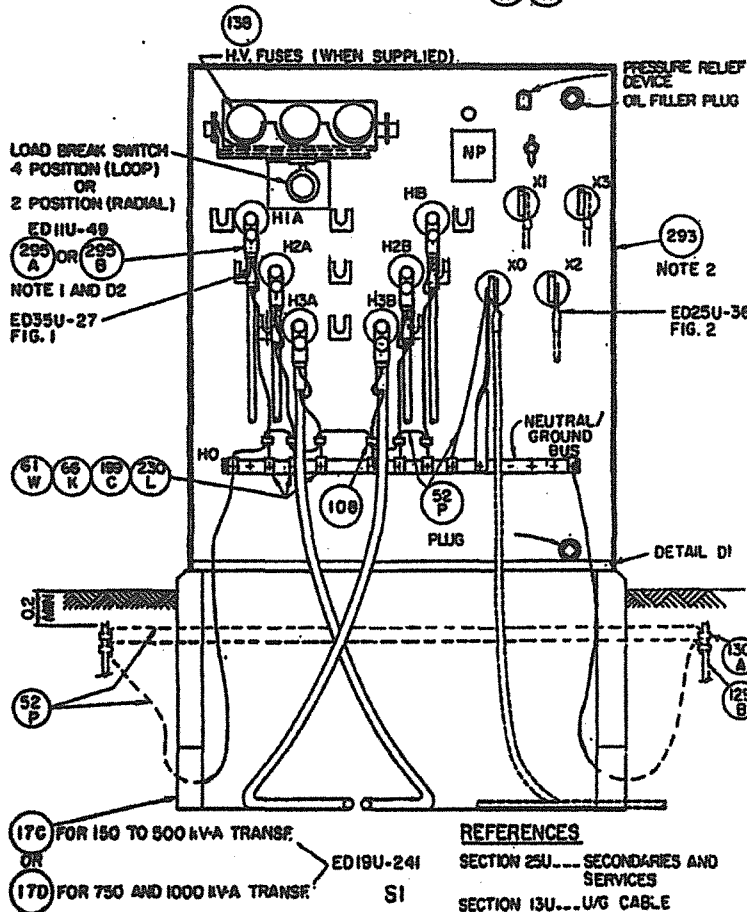
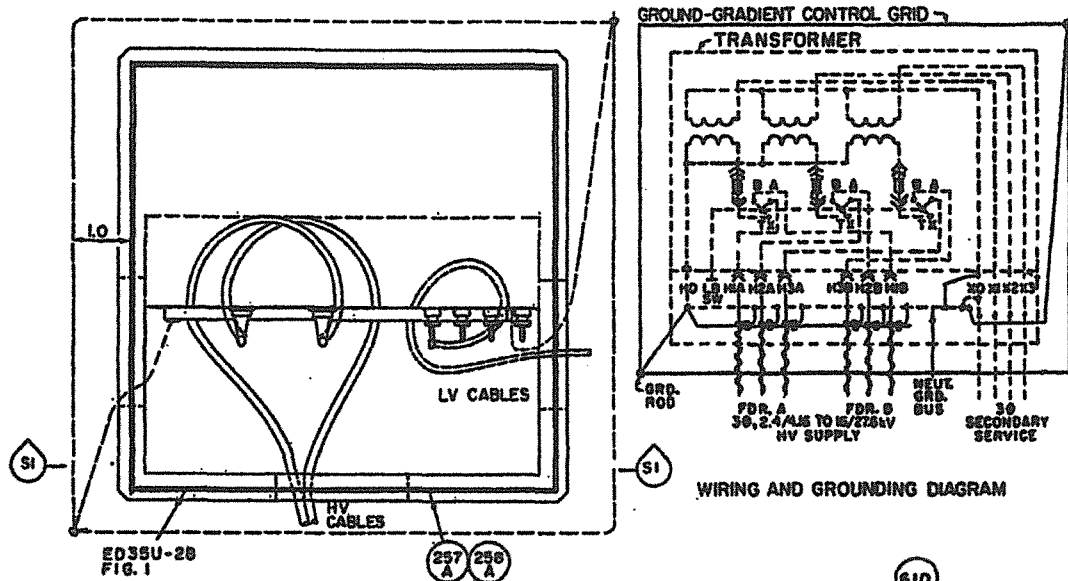
SURFACES - TOP AND CABLE ENTRANCES TO BE FINISHED SMOOTH.

DIMENSIONS - MILLIMETRES

TOP	TRANSFORMER KVA SIZE	DIMENSIONS (mm)	
		A	B
#1	150 TO 500	1050	390
#2	500 TO 1000	1250	290

ITEM NO.	ONT. HYDRO CODE NO.	ASSEMBLY
17C	153-A3183	BOTTOM + TOP #1
17D	153-A3190	BOTTOM + TOP #2

CONCRETE WELL-TYPE FOUNDATION
FOR 3PH PAD-MOUNTED TRANSFORMER
150-1000 KVA, 3 ϕ , 24/4.16-16/27.6KV



NOTES

- IF REQUIRED, COVER ANY UNUSED H.V. INSERTS WITH INSULATING CAP ITEM 324A OR B.
- LOOP FEED TRANSFORMER SHOWN IS TYPICAL ONLY. RADIAL FEED MAY ALSO BE USED.
- USE CONCENTRIC NEUTRAL STRAND FROM DISCARDED SECTION OF U/G CABLE

REFERENCES

SECTION 25U... SECONDARIES AND SERVICES
SECTION 13U... U/G CABLE

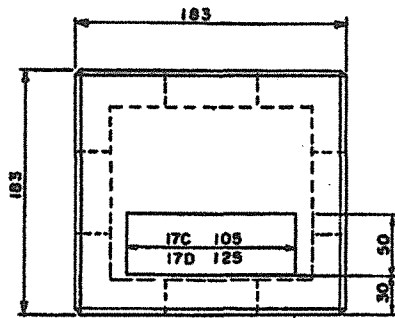
APPROVED *William K. Miller*
A/MANAGER, DISTRIBUTION PLANNING & DESIGN
DATE NOV. 1986 ORIGINAL ISSUE

THREE-PHASE PAD-MOUNTED
TRANSFORMER INSTALLATION
150 TO 1000 kVA, 30, 2.4/4.16 TO 16/27.6 kV

M LINEAR DIMS SHOWN IN CENTIMETERS

ED19U-241

JAN 1989
APPROVED *[Signature]*



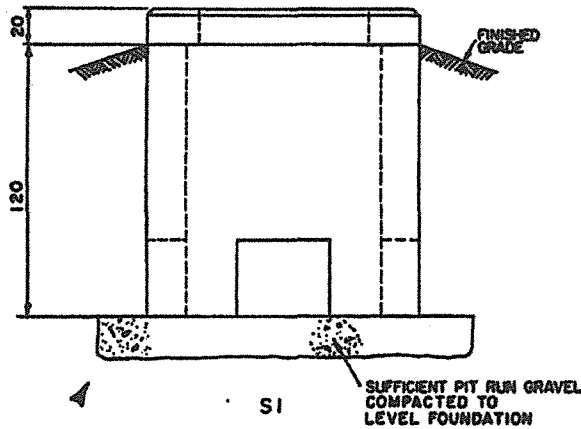
NOTE

1. APPROX. MASSES ITEM **(17C)** 3000kg
ITEM **(17D)** 3500kg
2. FOUNDATION DIMENSIONS ARE FOR REFERENCE ONLY.
3. FOUNDATION IS MADE UP OF 2 PARTS
BOTTOM SECTION AND TOP SECTION

(17C) FOR 150 TO 500KVA TRANSF.
OR
(17D) FOR 750 AND 1000 KVA TRANSF. **NOTE 1**

(S1)

(S1)



METRIC Cm	IMPERIAL (APPROX)
20	8"
30	12"
50	20"
105	3'-6"
120	4'-0"
125	4'-2"
183	6'-0"

APPROVED *[Signature]*
MANAGER, DISTRIBUTION PLANNING & DESIGN
DATE NOV. 1986 (ORIGINAL 1986)

CONCRETE WELL -TYPE FOUNDATION
INSTALLATION FOR 3PH PAD - MOUNTED
TRANSFORMER
150 TO 1000 KVA, 30, 2.4/4.16 TO 16/27.6 KV

M

ED35U-27

APRIL 1989

APPROVED *W. J. Macdonald*

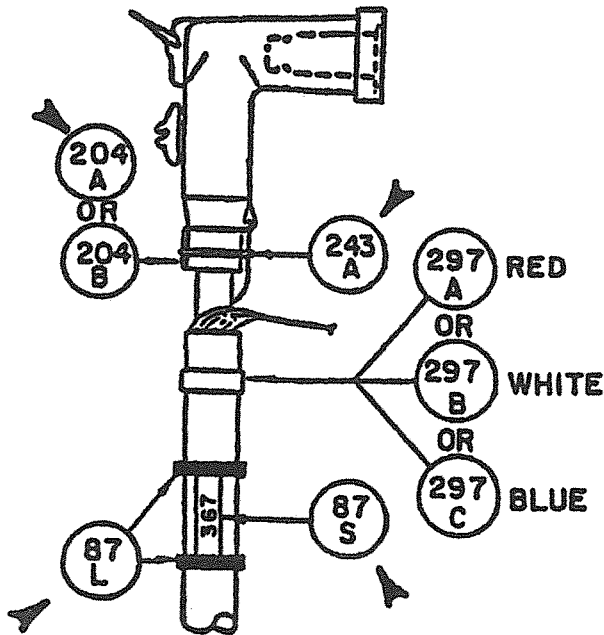


FIG. 1
IDENTIFICATION OF
PRIMARY CABLES WITH
LOAD BREAK ELBOWS

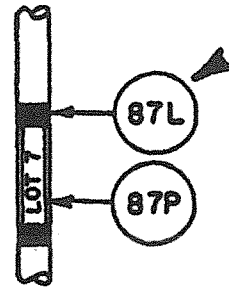


FIG. 2
IDENTIFICATION
OF SECONDARY CABLE
SINGLE PHASE (BELOW 750V)
(FOR 3-PHASE SERVICE
SEE DWG ED35U-29.1 FIG.2)

ITEM NO	DESCRIPTION
87L	TAPE INSULATING ELECTRICAL VINYL BLACK
87S	RED VINYL EMBOSING TAPE (FOR IDENTIFICATION OF PRIMARY CABLES)
87P	BLACK VINYL EMBOSING TAPE (FOR IDENTIFICATION OF CUSTOMERS LOT NUMBER)
204A & B	YELLOW POLYETHYLENE NUMBERS 1 & 2 (FOR SWITCHING DEVICE IDENTIFICATION SUFFIX NUMBER)
243A	BLACK NYLON CABLE TIE STRAP
297A B OR C	RED, WHITE OR BLUE ADHESIVE VINYL TAPE (FOR PHASE IDENTIFICATION)

APPROVED . ORIGINALLY SIGNED BY B. G. VITTES.
T & D DESIGN ENGINEER

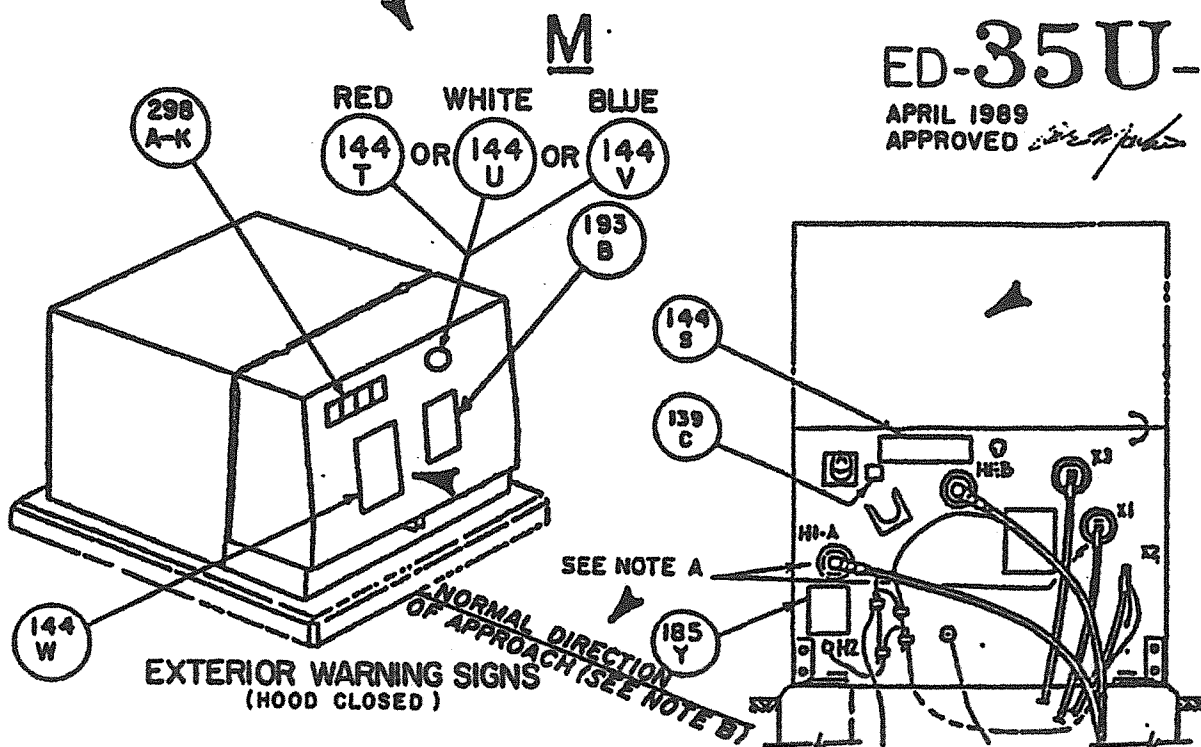
DATE MAR 1975 ORIGINAL ISSUED

IDENTIFICATION MARKERS
FOR UNDERGROUND CABLE

ED-35U-29

APRIL 1989

APPROVED



EXTERIOR WARNING SIGNS
(HOOD CLOSED)

INTERIOR WARNING SIGNS
(HOOD OPEN)

NOTES:

- (A) FOR MARKING OF PRIMARY LOAD BREAK ELBOWS AND SECONDARY CABLES SEE ED35U-27 FIG.1 & FIG.2
(B) IF DIRECTION OF APPROACH IS DIFFERENT THAN INDICATED ADD LOCATION NUMBER (ITEMS 298A-K) AND PHASE MARKER (ITEMS 144T,U or V) TO THAT SIDE

ITEM N°	DESCRIPTION	REMARKS
139C	"CAUTION DO NOT OPERATE FUSE TO ENERGIZE OR ISOLATE TRANSFORMER"	NORMALLY SUPPLIED BY MANUFACTURER REQUIRED ON ALL UNITS SUPPLIED WITH DRY WELL CANISTERS.
144S	"CAUTION LOOP FEED"	USE FOR LOOP FEED TRANSFORMER ONLY.
144 T,U,V	PHASE IDENT. DISKS RED, WHITE, BLUE 3 1/8" DIA.	LOCATE ON MOST NOTICEABLE SIDE(S). REQUIRED ON ALL UNITS. (SEE NOTE B)
144 W	"DANGER, HIGH VOLTAGE, KEEP OUT UNAUTHORIZED"	LOCATE ON MOST NOTICEABLE SIDE(S). REQUIRED ON ALL UNITS.
185Y	"DANGER DO NOT ENERGIZE TRANSFORMER UNLESS"	REQUIRED ONLY ON DUAL AND MULTIPLE VOLTAGE TRANSFORMERS.
193B	"DANGER, DO NOT DIG OR DRIVE STAKES"	LOCATE ON MOST NOTICEABLE SIDE(S). REQUIRED ON ALL UNITS.
298 A-K	NUMBERS 0-9 SELF ADHESIVE FOR TRANSFORMER (LOCATION NUMBER)	SILVER, REFLECTIVE, 127mm HIGH, LOCATE ON SIDE FACING NORMAL DIRECTION OF APPROACH. (SEE NOTE B) REQUIRED ON ALL UNITS.

APPROVED

B.G. Wykes
TBD DESIGN/ENGINEER

DATE MAR, 1975 (ORIGINAL ISSUE)

SIGNS & MARKERS FOR
SINGLE PHASE LOW PROFILE
PAD MOUNTED TRANSFORMERS