City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No:	Issue Date:	CBL:
04-1278		072 B002001

Location of Construction:	Owner Name:	Owner Address:	Phone:
520 Danforth St	Cianbro Corporation	328 W Commercial St	207-623-3521
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
n/a	Cianbro Corp.	328 W. Commercial Street Portland	2077735852
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	**Zone:**
n/a	n/a	Commercial	WPDZ

Past Use:	Proposed Use:	Permit Fee:	Cost of Work:	CEO District:
Commercial / Temporary office trailers & parking lot	Commercial / Construct new gas-insulated sub station.	$3,711.00	$410,000.00	3

FIRE DEPT: ☑ Approved ☐ Denied

Signature:

INSPECTION: Use Group: U Type: 1B SUB STATION 10/5/04

Signature:

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)

Action: ☐ Approved ☐ Approved w/Conditions ☐ Denied

Signature: Date:

Proposed Project Description:

Construct new gas - insulated gas sub station

Permit Taken By:	Date Applied For:
gg	08/30/2004

1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
2. Building permits do not include plumbing, septic or electrical work.
3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
☒ Shoreland (exempt by ordinance but well over 75' from HWM)	☐ Variance	☒ Not in District or Landmark
☐ Wetland	☐ Miscellaneous	☐ Does Not Require Review
☐ Flood Zone (Panel 16 Zone C)	☑ Conditional Use	☐ Requires Review
☐ Subdivision	☐ Interpretation	☐ Approved
☒ Site Plan 2004-0013	☑ Approved PLANNING BD	☐ Approved w/Conditions
Maj ☐ Minor ☒ MM ☐	☐ Denied	☐ Denied
Date: OK with conditions 9/3/04	Date: March 9, 2004	Date:

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT ADDRESS DATE PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE DATE PHONE

Form # P 04

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING INSPECTION

PERMIT

Permit Number: 041278

Please Read Application And Notes, If Any, Attached

This is to certify that Cianbro Corporation/Cianbro Corp.

has permission to Construct new gas - insulated gas sub station

AT 520 Danforth St CBL 072 B002001

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of buildings and structures, and of the application on file in this department.

Apply to Public Works for street line and grade if nature of work requires such information.

Notification of inspection must be given and written permission procured before this building or part thereof is lathed or closed-in. 24 HOUR NOTICE IS REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

OTHER REQUIRED APPROVALS

Fire Dept. [signature]

Health Dept.

Appeal Board

Other

Department Name

10/5/04

Director - Building & Inspection Services

PENALTY FOR REMOVING THIS CARD

CITY OF PORTLAND
BUILDING CODE CERTIFICATE
389 Congress St., Room 315
Portland, Maine 04101

TO: Inspector of Buildings City of Portland, Maine
Department of Planning & Urban Development
Division of Housing & Community Service

FROM: MICHAEL C. STIEFERMANN

RE: Certificate of Design

DATE: 08/25/2004

These plans and / or specifications covering construction work on:

STRUCTURAL PROVISIONS OF OUTDOOR METALCLAD SWITCHGEAR EQUIPMENT ENCLOSURE FOR CENTRAL MAINE POWER COMPANY'S FORE RIVER SUBSTATION

Have been designed and drawn up by the undersigned, a Maine registered Architect / Engineer according to the *BOCA National Building Code / 1999 (Fourteenth Edition)* and local amendments.

STATE OF MISSOURI
MICHAEL C STIEFERMANN
E-29562
8-25-04
REGISTERED PROFESSIONAL ENGINEER
(SEAL)

As per Maine State Law:

$50,000.00 or more in new construction, repair expansion, addition, or modification for Building or Structures, shall be prepared by a registered design Professional.

Signature: Michael C Stief

Title: ENGINEER

Firm: CENTRAL ELECTRIC MFG. CO.

Address: 7900 U.S. HWY 54
FULTON, MO 65251

CITY OF PORTLAND
BUILDING CODE CERTIFICATE
389 Congress St., Room 315
Portland, Maine 04101

TO: Inspector of Buildings City of Portland, Maine
Department of Planning & Urban Development
Division of Housing & Community Service

FROM DESIGNER: MICHAEL C. STIEFERMANN
CENTRAL ELECTRIC MANUFACTURING COMPANY

DATE: AUGUST 25, 2004

Job Name: FORE RIVER SUBSTATION

Address of Construction: 328 W. COMMERCIAL STREET; PORTLAND, MAINE

THE BOCA NATIONAL BUILDING CODE / 1999 (FOURTEENTH EDITION)
Construction project was designed according to the building code criteria listed below:

Building Code and Year BOCA-1999 Use Group Classification(s) S-2

Type of Construction 5B Bldg. Height 140" Bldg. Sq. Footage 432

Seismic Hazard Exposure Group II Seismic Performance Category C

Roof Snow Load Per Sq. Ft. 100 PSF Dead Load Per Sq. Ft. 12 PSF (ROOF)

Basic Wind Speed (mph) 90 MPH Effective Velocity Pressure Per Sq. Ft. 20.7 PSF

Floor Live Load Per Sq. Ft. 125 PSF

Structure has full sprinkler system? Yes ___ No X Alarm System? Yes X No ___

Sprinkler & Alarm systems must be installed according to BOCA and NFPA Standards with approval from the Portland Fire Department.

Is Structure being considered unlimited area building: Yes ___ No X

If mixed use, what subsection of 313 is being considered: NOT MIXED USE

List Occupant loading for each room or space, designed into this project. SINGLE SPACE, OCCUPANT LOAD = 15

(SEAL) STATE OF MISSOURI — MICHAEL C STIEFERMANN — NUMBER E-29562 — REGISTERED PROFESSIONAL ENGINEER — 8-25-04

Michael C Stiefermann
Designers Stamp & Signature

CITY OF PORTLAND
BUILDING CODE CERTIFICATE
389 Congress St., Room 315
Portland, Maine 04101

ACCESSIBILITY CERTIFICATE

Designer: NOT APPLICABLE

Address of Project: _____

Nature of Project: _____

_____

_____

The technical submissions covering the proposed construction work as described above have been designed in compliance with applicable referenced standards found in the Maine Human Rights Law and Federal Americans with Disability Act.

Signature: _____

Title: _____

(SEAL)

Firm: _____

Address: _____

_____

Phone: _____

City of Portland, Maine - Building or Use Permit

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No:	Date Applied For:	CBL:
04-1278	08/30/2004	072 B002001

Location of Construction:	Owner Name:	Owner Address:	Phone:
520 Danforth St	Cianbro Corporation	328 W Commercial St	207-623-3521
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
n/a	Cianbro Corp.	328 W. Commercial Street Portland	(207) 773-5852
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	
n/a	n/a	Commercial	

Proposed Use:	Proposed Project Description:
Commercial / Construct new gas-insulated sub station.	Construct new gas - insulated gas sub station

Dept: Zoning **Status:** Approved with Conditions **Reviewer:** Marge Schmuckal **Approval Date:** 08/31/2004

Note:

Ok to Issue: ☑

1) This is a reminder that section 14-320.3 requires that the noise levels shall not exceed 55 decibels on the A scale between 7:00 pm and 7:00 am measured at or within any residential zone. There has been information submitted to show that shows estimates of 45 and 51 dBA's.
2) Separate permits shall be required for any new signage. All lighting on site shall be shielded included any proposed signage.
3) This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.

Dept: Building **Status:** Approved **Reviewer:** Mike Nugent **Approval Date:** 10/05/2004

Note:

Ok to Issue: ☑

Dept: Fire **Status:** Approved **Reviewer:** Lt. MacDougal **Approval Date:** 09/01/2004

Note:

Ok to Issue: ☑

Dept: Engineering **Status:** Open **Reviewer:** Tony **Approval Date:**

Note: PUBLIC WORKS ENGINEERING REVIEW....2/11/04

Ok to Issue: ☐

I have reviewed the submittal packet dated 1/30/04 and offer the following comments:

1. The plans need to specify the limits of excavation within West Commercial Street, associated with this project.
2. The applicant should consult Public Works regarding their plan for improvements near Beach Street. The CMP plan may represent a conflict.

Dept: Fire **Status:** Approved **Reviewer:** Lt. MacDougal **Approval Date:** 02/16/2004

Note:

Ok to Issue: ☑

Location of Construction:	Owner Name:	Owner Address:	Phone:
520 Danforth St	Cianbro Corporation	328 W Commercial St	207-623-3521
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
n/a	Cianbro Corp.	328 W. Commercial Street Portland	(207) 773-5852
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	
n/a	n/a	Commercial	

Dept: Planning **Status:** Approved **Reviewer:** William B. Needelman **Approval Date:** 03/23/2004

Note: 9-27-04

Ok to Issue: ☑

Project is set for a building permit as soon as the $300 site inspection fee is paid. With the letter of credit in place, Planning Staff indicated to CMP rep Mike Seavey that initial earth work may take place, and Planning will sign off for the buiding permit apon payment of the inspection fee. WBN

9-28-04
Inspection fee paid. OK to issue Building Permit. WBN

Comments:

9/17/2004-mjn: Called Mr. Mirabile and advised of the need for Geo Tech info, stamped Piling and foundation plans and Statement of Special Inspections. Received 9/27/2004

All Purpose Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted. 516-522

Location/Address of Construction: 328 WEST COMMERCIAL STREET, PORTLAND		
Total Square Footage of Proposed Structure 3,810	Square Footage of Lot 23,775	
Tax Assessor's Chart, Block & Lot Chart# 72 Block# B Lot# 2	Owner: CENTRAL MAINE POWER CO. 83 EDISON DRIVE AUGUSTA, ME 04336	Telephone: 207-623-3521
Lessee/Buyer's Name (If Applicable) NA	Applicant name, address & telephone: CENTRAL MAINE POWER 83 EDISON DRIVE AUGUSTA, ME 04336 207-623-3521	Cost Of Work: $ 410,000 Fee: $ 3,711.00

Current use: CIANBRO CORP. TEMPORARY TRAILER OFFICES & PARKING LOT

If the location is currently vacant, what was prior use: NA

Approximately how long has it been vacant: NA

Proposed use: ELECTRICAL SUBSTATION

Project description: CONSTRUCT A NEW GAS-INSULATED SUBSTATION (GIS), 12KV SWITCHGEAR, AND CONTROL HOUSE. THE GIS WILL INCLUDE MODULAR METAL COMPONENTS AND EQUIPMENT ON CONCRETE FOUNDATIONS.

Contractor's name, address & telephone: CIANBRO CORP. RICKER'S WHARF, PORTLAND, ME 04102 #773-5852

Who should we contact when the permit is ready: GERRY J. MIRABILE CMP #626-9557 xx cell

Mailing address: 83 EDISON DRIVE AUGUSTA, ME 04336

We will contact you by phone when the permit is ready. You must come in and pick up the permit and review the requirements before starting any work, with a Plan Reviewer. A stop work order will be issued and a $100.00 fee if any work starts before the permit is picked up. PHONE:

DEPT. OF BUILDING INSPECTION CITY OF PORTLAND, ME RECEIVED

IF THE REQUIRED INFORMATION IS NOT INCLUDED IN THE SUBMISSIONS THE PERMIT WILL BE AUTOMATICALLY DENIED AT THE DISCRETION OF THE BUILDING/PLANNING DEPARTMENT, WE MAY REQUIRE ADDITIONAL INFORMATION IN ORDER TO APROVE THIS PERMIT.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature of applicant: Gerry Mirabile	Date: 8/17/04

This is NOT a permit, you may not commence ANY work until the permit is issued.
If you are in a Historic District you may be subject to additional permitting and fees with the Planning Department on the 4th floor of City Hall

From: William Needelman
To: Marge Schmuckal
Date: Wed, Sep 1, 2004 9:15 AM
Subject: Re: CMP Substation - W. Comm.

Marge,

Not yet. We can discuss at today's Deverev.

Bill

>>> Marge Schmuckal 08/31/2004 2:16:13 PM >>>
Bill,
Cianbro has filed for a building permit on this project. Are you OK for a site plan release for it?
Marge

From: Marge Schmuckal
To: William Needleman
Date: Tue, Aug 31, 2004 2:16 PM
Subject: CMP Substation - W. Comm.

Bill,
Cianbro has filed for a building permit on this project. Are you OK for a site plan release for it?
Marge

Applicant: CMP Substation Date: 3/1/04

Address: 328 W. Commercial St C-B-L: 072-B-002

CHECK-LIST AGAINST ZONING ORDINANCE

Date - New lot

Zone Location - WPDZ

Interior or corner lot - Conditional Use Appeal with the Planning BD substituting for ZBA

Needs Approval

Proposed Use/Work - Utility Substation for CMP Approved 3/9/04

Sewage Disposal - City

Lot Street Frontage - None req

Front Yard - None req unless a pier Then 5' from edge of pier → This is not applicable

Rear Yard -

Side Yard -

Projections -

Width of Lot - N/A

Height - 45' max - 12' 3/8" shown - 20' shown to approx height top of Transformer sep. fire wall -

Lot Area - No min - 20,802 # per assessor

Lot Coverage/ Impervious Surface - 100% lot coverage

Area per Family - N/A

Off-street Parking - req at 50%

Loading Bays - N/A

Site Plan - yes # 2004-0013

Shoreland Zoning/ Stream Protection - exempt from The 75' setback but shown outside of Shoreland

Flood Plains - panel 16 Zone C

Atmosphere 60 45 & 51 Sound req under performance standard between 7:00pm & 7:00am Shall not exceed 55 decibels on the A scale measured at or within any residential zone

All lighting on site shall be shielded signage

Barbed wire 25-1

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
Zoning Copy

2004-0013
Application I. D. Number

Central Maine Power
Applicant

1/30/2004
Application Date

83 Edison Drive, Augusta, ME 04336
Applicant's Mailing Address

CMP Electrical Utility Substation
Project Name/Description

Consultant/Agent

328 - 328 W. Commercial St., Portland, Maine
Address of Proposed Site

Applicant Ph: (207) 621-4478 Agent Fax:
Applicant or Agent Daytime Telephone, Fax

072 B002001
Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): ☐ New Building ☐ Building Addition ☐ Change Of Use ☐ Residential ☐ Office ☐ Retail ☐ Manufacturing ☐ Warehouse/Distribution ☐ Parking Lot ☑ Other (specify) Electrical Utility Substation

4,000 s.f.
Proposed Building square Feet or # of Units

Acreage of Site

WPDZ
Zoning

Check Review Required:

☑ Site Plan (major/minor)
☐ Subdivision # of lots
☐ PAD Review
☐ 14-403 Streets Review
☐ Flood Hazard
☐ Shoreland
☐ HistoricPreservation
☐ DEP Local Certification
☐ Zoning Conditional Use (ZBA/PB)
☐ Zoning Variance
☐ Other

Fees Paid: Site Pla $400.00 Subdivision Engineer Review Date 2/4/2004

Zoning Approval Status:

Reviewer Marge

☐ **Approved**
☐ **Approved w/Conditions** See Attached
☐ **Denied**

Approval Date Approval Expiration Extension to ☐ Additional Sheets Attached

☐ Condition Compliance
signature date

Performance Guarantee ☐ **Required*** ☐ **Not Required**

* No building permit may be issued until a performance guarantee has been submitted as indicated below

☐ Performance Guarantee Accepted	date	amount	expiration date
☐ Inspection Fee Paid	date	amount	
☐ Building Permit Issue	date		
☐ Performance Guarantee Reduced	date	remaining balance	signature
☐ Temporary Certificate of Occupancy	date	☐ Conditions (See Attached)	expiration date
☐ Final Inspection	date	signature	
☐ Certificate Of Occupancy	date		
☐ Performance Guarantee Released	date	signature	
☐ Defect Guarantee Submitted	submitted date	amount	expiration date
☐ Defect Guarantee Released	date	signature	

Chapter 25

STREETS, SIDEWALKS AND OTHER PUBLIC PLACES*

ARTICLE I. IN GENERAL

Sec. 25-1. Barbed wire prohibited.

No fence of barbed wire, or of which barbed wire is a part, shall be erected or maintained along the line of any such streets, ways, or public places in the city without a revocable permit issued by the building inspector therefor. The city council may provide by order for a reasonable fee for such permit. No permit shall be issued unless the building inspector determines that such barbed wire will be erected and maintained in such a way as to adequately protect users of such streets, ways and public places.
(Code 1968, § 703.8; Ord. No. 118-82, 8-2-82)

Sec. 25-2. Excavations to be fenced.

The owner, lessee or occupant of property adjoining any street, way or public place in the city shall provide and maintain a sufficient fence for the protection of the public upon or near the line of the street, way or public place in the event an excavation exists on the property

---

*Cross references—Ordinances dedicating, naming, establishing, locating, relocating, opening, paving, widening, vacating, etc., any street or public way in the city saved from repeal, § 1-4(3); ordinances establishing or prescribing grades in the city saved from repeal, § 1-4(6); dogs running at large prohibited, § 5-17; buildings and building regulations, Ch. 6; cemeteries, Ch. 7; land use, Ch. 14; loitering, § 17-1; parks, recreation and public buildings, Ch. 18; peddlers and solicitors, Ch. 19; public markets, Ch. 21; sewers, Ch. 24; broadband communications network, Ch. 27; traffic and motor vehicles, Ch. 28; vehicles for hire, Ch. 30.

State law references—Highways generally, 23 M.R.S.A § 1 et seq.; local highway law, 23 M.R.S.A § 2701 et seq.

AZZ | CENTRAL ELECTRIC

August 25, 2004

Mr. Michael Seavey
Central Maine Power Company
53 Anthony Avenue
Augusta, ME 04330

Subject: C6331 Design Certificates

Dear Mr. Seavey:

Enclosed are the preliminary design documents that you requested for the electrical switchgear equipment enclosure at the Fore River Substation. The Accessibility Certificate is not considered applicable since this equipment shelter is not intended to accommodate the public and is only intended to be occupied by ambulatory individuals.

I have sealed the documents with my Missouri seal as I am presently in the process of applying for registration as a professional engineer in the State of Maine through comity. Final forms will be resubmitted at a later date with a Maine seal once such registration is complete.

Should you have any questions or require additional information, please feel free to contact me.

Sincerely,

Michael C. Stiefermann, P.E.

Enclosures (3)

CITY OF PORTLAND
BUILDING CODE CERTIFICATE
389 Congress St., Room 315
Portland, Maine 04101

TO: Inspector of Buildings City of Portland, Maine
Department of Planning & Urban Development
Division of Housing & Community Service

FROM: MICHAEL C. STIEFERMANN

RE: Certificate of Design

DATE: 08/25/2004

These plans and / or specifications covering construction work on:

STRUCTURAL PROVISIONS OF OUTDOOR METALCLAD SWITCHGEAR EQUIPMENT ENCLOSURE FOR CENTRAL MAINE POWER COMPANY'S FORE RIVER SUBSTATION

Have been designed and drawn up by the undersigned, a Maine registered Architect / Engineer according to the *BOCA National Building Code / 1999 (Fourteenth Edition)* and local amendments.

STATE OF MISSOURI
MICHAEL C STIEFERMANN
E-29562
8-25-04
REGISTERED PROFESSIONAL ENGINEER
(SEAL)

As per Maine State Law.

$50,000.00 or more in new construction, repair expansion, addition, or modification for Building or Structures, shall be prepared by a registered design Professional.

Signature: Michael C Stief

Title: ENGINEER

Firm: CENTRAL ELECTRIC MFG. CO.

Address: 7900 U.S. HWY 54
FULTON, MO 65251

CITY OF PORTLAND
BUILDING CODE CERTIFICATE
389 Congress St., Room 315
Portland, Maine 04101

TO: Inspector of Buildings City of Portland, Maine
Department of Planning & Urban Development
Division of Housing & Community Service

FROM DESIGNER: MICHAEL C. STIEFERMANN
CENTRAL ELECTRIC MANUFACTURING COMPANY

DATE: AUGUST 25, 2004

Job Name: FORE RIVER SUBSTATION

Address of Construction: 328 W. COMMERCIAL STREET; PORTLAND, MAINE

THE BOCA NATIONAL BUILDING CODE / 1999 (FOURTEENTH EDITION)
Construction project was designed according to the building code criteria listed below:

Building Code and Year BOCA-1999 Use Group Classification(s) S-2

Type of Construction 5B Bldg. Height 140" Bldg. Sq. Footage 432

Seismic Hazard Exposure Group II Seismic Performance Category C

Roof Snow Load Per Sq. Ft. 100 PSF Dead Load Per Sq. Ft. 12 PSF (ROOF)

Basic Wind Speed (mph) 90 MPH Effective Velocity Pressure Per Sq. Ft. 20.7 PSF

Floor Live Load Per Sq. Ft. 125 PSF

Structure has full sprinkler system? Yes ___ No X Alarm System? Yes X No ___

Sprinkler & Alarm systems must be installed according to BOCA and NFPA Standards with approval from the Portland Fire Department.

Is Structure being considered unlimited area building: Yes ___ No X

If mixed use, what subsection of 313 is being considered: NOT MIXED USE

List Occupant loading for each room or space, designed into this project. SINGLE SPACE, OCCUPANT LOAD = 15

STATE OF MISSOURI (SEAL) MICHAEL C STIEFERMANN NUMBER E-29562 REGISTERED PROFESSIONAL ENGINEER 8-25-04

Michael C Stiefermann
Designers Stamp & Signature

CITY OF PORTLAND
BUILDING CODE CERTIFICATE
389 Congress St., Room 315
Portland, Maine 04101

ACCESSIBILITY CERTIFICATE

Designer: NOT APPLICABLE

Address of Project: _____

Nature of Project: _____

_____

_____

The technical submissions covering the proposed construction work as described above have been designed in compliance with applicable referenced standards found in the Maine Human Rights Law and Federal Americans with Disability Act.

Signature: _____

Title: _____

(SEAL)

Firm: _____

Address: _____

_____

Phone: _____

AZZ | CENTRAL ELECTRIC

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Central Maine Power Company
53 Anthony Avenue
Augusta, ME 04330

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I have sealed the documents with my Missouri seal as I am presently in the process of applying for registration as a professional engineer in the State of Maine through comity. Final forms will be resubmitted at a later date with a Maine seal once such registration is complete.

Should you have any questions or require additional information, please feel free to contact me.

Sincerely,

Michael C. Stiefermann, P.E.

Enclosures (3)

BK 21684 Pg 106
08-18-04
Cumberland County Registry of Deeds

SHORT FORM QUITCLAIM DEED
WITH COVENANT

KNOW ALL PERSONS BY THESE PRESENTS, that **CIANBRO CORPORATION**, a Maine corporation with a mailing address of One Hunnewell Square, Pittsfield, Maine 04967, FOR CONSIDERATION PAID, grants to **CENTRAL MAINE POWER COMPANY**, a Maine corporation with a mailing address of 83 Edison Drive, Augusta, ME 04336, WITH QUITCLAIM COVENANT, the following described real property located in Portland, Cumberland County, State of Maine:

Real estate described on Exhibit A attached hereto and made a part hereof.

IN WITNESS WHEREOF, CIANBRO CORPORATION has caused this instrument to be executed by Peter G Vigue, its duly authorized President + CEO, this 13th day of August, 2004.

WITNESS:

Jessica E. Brown

CIANBRO CORPORATION

By: Peter G Vigue
Its: President + CEO
Print Name: Peter G. Vigue

STATE OF MAINE
COUNTY OF SOMERSET, SS. August 13, 2004

Personally appeared the above-named Peter G Vigue, President + CEO of Cianbro Corporation, as aforesaid, and acknowledged the foregoing instrument to be his/her free act and deed in his/her said capacity and the free act and deed of said Cianbro Corporation.

Before me,

H. Bonnie Brown
Notary Public/~~Attorney at Law~~
H. Bonnie Brown
Notary Public
My commission expires
October 5, 2004

EXHIBIT A

A certain lot or parcel of land located adjacent to the northerly sideline of West Commercial Street, so-called, and adjacent to the southerly sideline of Danforth Street, so-called, in the City of Portland, County of Cumberland, State of Maine, bounded and described as follows:

Beginning on the northerly sideline of said West Commercial Street at the southeasterly corner of property now or formerly of Portland Water District, as described in a deed recorded in the Cumberland County Registry of Deeds in Book 4006, Page 304, thence by the following courses and distances:

1) N 33° 20' 27" W along said land of Portland Water District, and along land now or formerly of P&D Real Corp., as described in a deed recorded in the Cumberland County Registry of Deeds in Book 15299, Page 96, a distance of One Hundred Forty and 47/100 (140.47) feet to a point on the southerly sideline of said Danforth Street.

2) N 56° 35' 37" E along said Danforth Street, a distance of Twenty-Six and 45/100 (26.45) feet to a point.

3) Northeasterly along said Danforth Street, and along a curve to the right having a radius of Six Hundred Nine and 44/100 (609.44) feet, an arc distance of Fifty-Eight and 80/100 (58.80) feet to the westerly line of land now or formerly of Portland Terminal Company, as described in a deed recorded in said Registry in Book 394, Page 113.

4) Southeasterly along said land of Portland Terminal Company, and along a curve to the left having a radius of One Thousand Twenty-One and 53/100 (1,021.53) feet, an arc distance of Two Hundred Forty-Three and 66/100 (243.66) feet to the northerly sideline of said West Commercial Street.

5) S 73° 28' 37" W along the northerly sideline of said West Commercial Street a distance of Two Hundred Twenty-Eight and 74/100 (228.74) feet to the point of beginning.

Description based on a plan and survey entitled "Standard Boundary Survey for Proposed Electrical Substation," West Commercial Street, Portland, Maine made for Central Maine Power, prepared by Titcomb Associates, dated January, 2004, last revised July 21, 2004 (the "Plan").

Bearings are based on grid north, Maine State Plane Coordinate System, West Zone, NAD 83.

Meaning and intending to convey and hereby conveying all of the property conveyed to Cianbro Corporation by the following deeds:

a. Edward F. Lally to Cianbro Corporation, Book 4179, Page 166, February 27, 1978
b. James O. Cobb to Cianbro Corporation, Book 3567, Page 293, July 1, 1974
c. Nellie Jacobson to Cianbro Corporation, Book 3209, Page 218, January 13, 1972
d. William Leavitt (Receiver of Bernstein and Jacobson, Inc.) to Cianbro Corporation, Book 3207, Page 802, December 22, 1971
e. William Leavitt (Receiver of Bernstein and Jacobson, Inc.) to Cianbro Corporation, Book 3207, Page 806, December 22, 1971, except that portion of the premises

conveyed by Cianbro Corporation to James O. Cobb by deed of July 1, 1974 recorded in said Registry at Book 3567, Page 291, and

f. Deed of Vacation from the State of Maine to Cianbro Corporation dated March 24, 2004 recorded in said Registry at Book 21160, Page 209 that released to Cianbro Corporation a parcel of land that had been taken by the State of Maine by Notice of Layout and Taking dated November 13, 2002 recorded in said Registry at Book 19154, Page 155, said Taking being of a portion of the premises conveyed to Cianbro Corporation by aforesaid deeds recorded in said Registry at Book 3207, Page 806, and Book 3209, Page 218.

And any interest in the premises acquired by virtue of the judgment in *Cianbro Corporation, et al. v. The State of Maine, et al.* in Superior Court Civil Action Docket No. 78-1469 dated June 18, 1979 recorded in said Registry at Book 4448, Page 90;

Also releasing to Central Maine Power Company all rights, if any, of Cianbro Corporation in the land of Portland Terminal Company lying northeasterly of and adjacent to the premises herein conveyed.

Subject to the following:

Easements from Cianbro Corporation to Portland Water District dated June 28, 1976 and January 27, 1999 recorded respectively in said Registry at Book 3874, Page 41 and Book 14524, Page 13.

Rights reserved in the aforesaid Deed of Vacation from the State of Maine to Cianbro Corporation.

License from Cianbro Corporation to P&D Realty Corp and Coachworks, Inc. dated March 23, 2004 recorded in said Registry at Book 21153, Page 115.

Easement from Cianbro Corporation to the City of Portland dated August 13, 2004, recorded in said Registry at Book 21674, Page 290.

Real estate taxes not yet due and payable.

CITY OF PORTLAND, MAINE
PLANNING BOARD

March 23, 2004 (resubmitted for signature August 24, 2004)

Michael Seavey, Project Manager
Central Maine Power
53 Anthony Avenue
Augusta, Maine 04330

RE: Fore River Substation, 328 West Commercial Street

CBL: 72-B-2

Dear Mr. Seavey:

On March 9, 2004, the Portland Planning Board voted 4 to 0 (Delogu and Lowry absent, Silk recused) to approve each of the following motions:

i. **Conditional Use:**

That the substation plan **is** in conformance with the Conditional Use Standards for Waterfront Port Development Zone and Section 14-474 of the Land Use Code;

ii. **Waivers:**

A. Sidewalk

That the two following criteria **do** apply, (namely that *a safe alternative-walking route is reasonably available, for example, by way of a sidewalk on the other side of the street,* and *strict adherence to the sidewalk requirement would result in the loss of significant site features related to landscaping or topography that are deemed to be of a greater public value)* and therefore the Board **waives** the requirement for sidewalk.

B. Curbing

That the two following criteria **do** apply, (namely that *the street is scheduled for major reconstruction* and *strict adherence to the curb requirement would result in the loss of significant site features related to landscaping or topography that are deemed to be of a greater public value*) and therefore the Board **waives** the requirement for granite curbing.

ii. **Site Plan:**

That the substation plan **meets** the Site Plan Standards of the City Land Use Code;

Subject to the following conditions of approval:

a. That the City accepts the applicant's proposal of funding $5000 worth of landscaping and that the applicant and the City work to resolve whether some component of that could not reasonably be included on-site in such a way that it does not obscure visibility of the interior of the transformer area from the street.

b. That the access apron from West Commercial Street be reduced to a width equal to or less than the width of the facility fencing as shown.

c. That the applicant explore with the City a revised drainage and stormwater management plan, not to exceed an additional $5000 in cost. If the applicant and the City reach an impasse, the applicant can return to the Board for resolution.

The approval is for an electrical substation and associated electrical duct banks. The applicant should note the final location and installation details of the duct bank system to be located in the City right of way will need to be coordinated with the City Department of Public Works, as proposed at the Public Hearing

The approval is based on the submitted site plan and the findings related to site plan review standards as contained in Planning Report #7-04, which is attached.

Please note the following provisions and requirements for all site plan approvals:

1. Where submission drawings are available in electronic form, the applicant shall submit any available electronic CADD.DXF files with seven (7) sets of the final plans.

2. A performance guarantee covering the site improvements as well as an inspection fee payment of 2.0% of the guarantee amount and 7 final sets of plans must be submitted to and approved by the Planning Division and Public Works prior to the release of the building permit. If you need to make any modifications to the approved site plan, you must submit a revised site plan for staff review and approval.

3. The site plan approval will be deemed to have expired unless work in the development has commenced within one (1) year of the approval or within a time period agreed upon in writing by the City and the applicant. Requests to extend approvals must be received before the expiration date.

4. A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.

5. Prior to construction, a preconstruction meeting shall be held at the project site with the contractor, development review coordinator, Public Work's representative and owner to review the construction schedule and critical aspects of the site work. At that time, the site/building contractor shall provide three (3) copies of a detailed construction schedule to the attending City representatives. It shall be the contractor's responsibility to arrange a mutually agreeable time for the preconstruction meeting.

6. If work will occur within the public right-of-way such as utilities, curb, sidewalk and driveway construction, a street opening permit(s) is required for your site. Please contact Carol Merritt at

874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)

The Development Review Coordinator must be notified five (5) working days prior to date required for final site inspection. The Development Review Coordinator can be reached at the Planning Department at 874-8632. Please make allowances for completion of site plan requirements determined to be incomplete or defective during the inspection. This is essential as all site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions, please contact Bill Needelman, Senior Planner at 874-8722.

Sincerely,

Orlando Delogu, Chair
Portland Planning Board

cc: Lee D. Urban, Planning and Development Department Director
Alexander Jaegerman, Planning Division Director
Jack Lufkin, Economic Development Division Director
Sarah Hopkins, Development Review Services Manager
Bill Needelman, Senior Planner
Jay Reynolds, Development Review Coordinator
Marge Schmuckal, Zoning Administrator
Karen Dunfey, Inspections
Michael Bobinsky, Public Works Director
Traffic Division
Tony Lombardo, Project Engineer
Eric Labelle, City Engineer
Jeff Tarling, City Arborist
Penny Littell, Associate Corporation Counsel
Lt. Gaylen McDougall, Fire Prevention
Don Hall, Appraiser, Assessor's Office
Approval Letter File

Central Maine Power

August 30, 2004

Mr. Michael Nugent
Building Inspector
City of Portland, Maine
City Hall, 389 Congress Street
Portland, ME 04101-3503

RE: CMP New Fore River Substation, West Commercial Street
Application for Building Permit

Dear Mr. Nugent:

Central Maine Power Company (CMP) hereby applies for a Building Permit for its proposed Fore River Substation, to be constructed on West Commercial Street in Portland. This new electrical substation is necessary to provide reliable and ample electrical service to the Portland peninsula. The Portland Planning Board granted this project Site Plan and Conditional Use approval on March 9, 2004.

Specifically, CMP proposes to construct a new electrical substation on the Cianbro parcel at 328 West Commercial Street. The substation will tap into the existing 115 kV underground transmission line Section 275 that extends from Cape Substation in South Portland, to the Sewall Street Substation in Portland. This substation will provide transformation to 12 kV for local distribution circuits. Substation details include:

- Two circuit breakers within the substation will split and protect transmission line Section 275;
- The substation 115 kV bus will serve two additional 115 kV circuit breakers that will feed two 115/12 kV, 22.4 MVA transformers;
- The two power transformers will serve a 12 kV metal-clad switchgear unit with attached control house;
- The metal-clad switchgear unit will have two 12 kV low side circuit breakers that will serve two 12 kV buses with associated bus tie circuit breaker;
- The 12 kV buses will serve a total of eight 12 kV distribution circuits with associated circuit breakers.

Attached to this letter are the following:

- Completed Building Permit Application;
- Copy of the Planning Board's March 9, 2004 Site Plan and Conditional Use approval of this substation;
- Building Permit application fee check in the amount of $3,71.00, payable to "City of Portland";

- Copy of the signed and recorded Quitclaim Deed from Cianbro Corporation to CMP for the project property;
- One full sized set and one reduced (11" x 17") set of the following drawings:
    1. Standard Boundary Survey for Proposed Electrical Substation, revised 8/17/04;
    2. Site Plan, Existing Conditions/Demo Plan, Fore River S/S, dated 8/13/04;
    3. Site Plan, General Location Plan, Fore River S/S, dated 8/13/04;
    4. Site Plan, Drainage, Grading & Erosion Plan, Fore River S/S dated 8/13/04;
    5. Site Plan, 115 kV Line Profile, Fore River S/S, dated 8/13/04;
    6. Site Plan, Detail Sheet, Fore River S/S (Sheets 5 & 6), dated 8/13/04;
    7. Site Plan, 115 kV Detail, Fore River S/S and Sewall Street S/S, dated 8/13/04;
    8. Site Plan, Manhole Detail, Fore River S/S, dated 8/13/04;
    9. Foundation Details, Foundation Plan, Fore River S/S (Sheet 1), dated 8/13/04 (Note: details are being finalized and, as such, this drawing is not yet stamped by a Professional Engineer);
    10. Site Plan, Retaining Wall Detail, Fore River S/S, dated 8/13/04;
    11. Equipment Layout, Metalclad Switchgear – Control House, revised 8/19/04; and
    12. Fire Alarm System, Metalclad Switchgear – Control House, revised 8/19/04.
- Letter dated August 25, 2004 from Michael C. Stiefermann, P.E., of Central Electric Manufacturing Company (Fulton, Missouri), manufacturer of the substation control house, with the following attachments:
    - A completed, signed and stamped Certificate of Design;
    - A completed, signed and stamped Building Code Certificate; and
    - Accessibility Certificate (not applicable; see cover letter).

Please call me at 626-9557 if you have any questions regarding the attached information. Thank you for your attention to this.

Sincerely,

Gerry J. Mirabile

Gerry J. Mirabile
Lead Analyst – Compliance

Attachments

cc: MD Seavey, CMP Project Manager

GEOTECHNICAL ENGINEERING SERVICES
PROPOSED CMP FORE RIVER SUBSTATION
328 WEST COMMERCIAL STREET
PORTLAND, MAINE

04-0058 **September 2, 2004**

PREPARED FOR:

Louis Berger Group
Attention: Rick Stewart, P.E.
1001 Elm Street
Manchester, NH 03101

PREPARED BY:

Timothy J. Boyce, P.E.
286 Portland Road
Gray, Maine 04039

Table of Contents

S.W.COLE ENGINEERING, INC. • Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

04-0058

September 2, 2004

Louis Berger Group
Attn: Rick Stewart, P.E.
1001 Elm Street
Manchester, NH 03101

Subject: Geotechnical Engineering Services
Proposed CMP Fore River Substation
328 West Commercial Street
Portland, Maine

Dear Rick:

In accordance with our Agreement dated May 24, 2004, we have made a subsurface investigation of the proposed Central Maine Power (CMP) Fore River Substation on West Commercial Street in Portland, Maine. The purpose of our work was to obtain subsurface soils information in order to develop geotechnical recommendations for design of foundations and retaining walls associated with the proposed construction. This report summarizes our findings and recommendations and its contents are subject to the limitations set forth in Attachment A.

1.0 INTRODUCTION

1.1 Scope of Work

Our scope of work included the making of three test borings, eight test pits and nine auger probes, geotechnical laboratory testing, a geotechnical evaluation of the subsurface findings relative to the proposed construction and preparation of this report. We received written notice to proceed with exploration work on May 28, 2004. We received verbal authorization to complete our geotechnical evaluation on June 21, 2004.

1.2 Proposed Construction

Based on information provided by Louis Berger Group (project engineer) and CIANBRO (project design-build contractor), we understand the proposed substation will consist of two power transformers with associated switchgear and below grade power duct banks. We understand the transformers will be separated by a 20-foot high concrete and

masonry blast-fire wall. We understand proposed site improvements include an overall tapered cut of the site requiring a perimeter earth retaining wall varying in height from about 2 to 8 feet with a positive 2H:1V backslope and level foreslope. Proposed and existing site features are shown on the "Exploration Location Plan" attached as Sheet 1.

Based on discussions with Louis Berger Group and CIANBRO, we understand the transformers each weight on the order of 70 kips. Additionally, we understand the transformers are extremely sensitive to foundation movement with a differential settlement tolerance of 1/8-inch in 10 feet.

2.0 EXPLORATION AND TESTING

2.1 Exploration Work

Three test borings (B-1 through B-3), nine auger probes (P-1 through P-9) and eight test pits (TP-1 through TP-8) were made on the site on June 9, 2004. The test borings were made by Northern Test Boring of Gorham, Maine working under subcontract to S.W.COLE ENGINEERING, INC. The test pits were made by Shaw Bros. Construction working under subcontract to CIANBRO. The test boring and test pit locations were selected by S.W.COLE ENGINEERING, INC based upon information provided by Louis Berger Group. The auger probes were selected by CIANBRO Construction based upon proposed duct bank alignments.

The exploration locations were established in the field based upon taped measurements from existing site features. Logs of the test borings and test pits are attached as Sheets 2 through 8. The depth to refusal information from the auger probes is tabulated on Sheet 1 along with depth to refusal information from the test borings and test pits. The elevations shown on the logs were estimated based upon topographic information shown on Sheet 1. A key to the note and symbols used on the logs is attached as Sheet 9.

2.2 Laboratory Testing

Geotechnical laboratory testing was completed on selected soil samples obtained from the test borings. The results of moisture content testing are shown on the test boring logs.

3.0 SITE AND SUBSURFACE FINDINGS

3.1 Site Conditions

The site is located at 328 West Commercial Street on the western point of the Portland peninsula along the Fore River in Portland, Maine. Based on information provided by CIANBRO (former owner of the site), we understand the site has been used as an industrial construction yard for several years with some relic construction debris (bridge decks and demolished concrete) being buried on the site. Based on historical information, we understand that much of the West Commercial Street area was created from filling of the Fore River over the years.

The southern two-thirds of the site is relatively flat and level. The northern one-third of the site slopes upward at an approximate 3H:1V inclination until intersecting the concrete wingwall of the Danforth Street Bridge over the Guilford Railroad tracks. The southern one-third of the site is paved and the northern two-thirds is grassed covered.

3.2 Subsurface Conditions

Test borings B-1 through B-3 and test pits TP-6 through TP-8 were made in the area of the proposed transformer, switchgear, control house and equipment pads (substation). Below a surficial layer of grass or pavement, these explorations generally encountered a soil profile consisting 4 to 8 feet of fill overlying marine sediments overlying bedrock. The surficial fills generally consisted of mixed layers of silty sand and clayey silty sand with varying amounts of gravel, brick, concrete and organics. The marine sediments generally consisted sandy silt with organics (relic marsh deposit) overlying soft gray silty clay overlying silty sand with gravel and clay. The marine sediments were penetrated in test borings B-2 and B-3 encountering bedrock at depths of 17.0 feet and 15.8 feet, respectively. Test boring B-1 was terminated in the marine sediments at a depth of 20.0 feet. Test pit TP-6 encountered a buried concrete slab, which according to CIANBRO was a demolished bridge deck used to fill the site.

Test pits TP-1 through TP-4 were made along the proposed site retaining wall. These explorations encountered a soil profile generally consisting of 3 to 6 feet of mixed sand and rock fill overlying silty sand with seams of silt and clay. Test pits TP-1 through TP-4 were terminated at depths of 6.5 to 8.0 feet in apparent native silty sand.

Test pit TP-5 was made to assess the depth of the Danforth Street bridge wingwall footing. TP-5 encountered a soils profile consisting of gravelly silty sand fill overlying brown sand with gravel and silt. The exposed wingwall bridge footing had 5 feet of soil cover above a 2-foot thick footings. A sketch of the wingwall bridge footing is diagramed on the log for TP-5.

Auger probes P-1 through P-8 were made along the planned duct bank alignments. Probes P-1, P-5 and P-7 through P-9 encountered refusal surfaces (probable bedrock) at depths varying from 6 to 14 feet below the ground surface. P-6 encountered a buried relic bridge deck at a depth of 0.1 feet. P-2 through P-4 were terminated in soil deposits at depths of 15 to 25 feet below the ground surface without encountering a refusal surface within the depth explored.

Please refer to the attached logs for a more detailed description of the subsurface findings at the boring locations. The depth to refusal, where encountered, is tabulated on Sheet 1.

3.3 Frost and Seismic Conditions

The design freezing index for the Portland area is 1,250 Fahrenheit degree days, which corresponds to a frost penetration depth of about 4.5 feet. Based on the subsurface findings, we interpret the subsurface soils to correspond to a Seismic Site Class E (IBC 2000) and Seismic Soil Profile Type S_3 (BOCA 1999).

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings and our understanding of the project, the proposed construction appears feasible from a geotechnical standpoint. Considering the subsurface conditions encountered uncontrolled fills overlying relic marsh deposits that are prone to post-construction settlement and the stringent differential settlement tolerances, we recommend the substation (transformers, switch gear, control house, equipment pads and blast wall) be founded on one continuous, pile-supported, reinforced concrete mat. As discussed with CIANBRO and Louis Berger Group, a soil-supported mat foundation is feasible in our opinion, but not without risk of post-

construction settlements that will likely exceed the tolerable differential settlements of 1/8-inch in 10 feet.

As discussed with CIANBRO and Louis Berger Group, we recommend the perimeter site retaining wall consist of a segmental retaining wall system that can tolerate post-construction settlement, such as Redi-rock by Superior Concrete of Auburn, Maine.

4.2 Substation Foundation

As discussed above, we recommend the entire substation be supported on one continuous pile-supported reinforced concrete mat foundation. For piles, we recommend 50-ksi steel H-piles with cast steel driving tips driven to practical refusal on bedrock. Specifically, we recommend HP8x36 or HP10x42 steel H-piles with an allowable axial compressive capacity of 74 kips (37 tons) including 1/8-inch allowance for corrosion. Based on the subsurface findings, we estimate bedrock varies from 15 to 30 feet below the ground surface. S.W.COLE ENGINEERING, INC. should observe and log pile-driving activities. Pile load testing is generally not required for piles driven to practical refusal on hard sound bedrock with allowable axial capacities of 40 tons or less.

For frost protection, we recommend the pile-supported mat foundation be underlain by foundation insulation overlying a prism of non-frost susceptible gravel overlying a blanket underdrain. In our opinion, this means of frost protection will eliminate costly grade beams and frost walls and will allow the mat to be cast as a simple monolithic concrete placement. Details of the recommended substation foundation frost protection and underdrainage system are presented on Sheet 10.

4.3 Site Retaining Wall

We recommend the site retaining wall consist of a segmental retaining wall system, such Redi-rock by Superior Concrete, in order to accommodate post-construction settlement and for ease of construction. Based on the subsurface findings, we anticipate the site retaining wall will be founded on granular fills overlying stable native soils. We recommend the retaining wall base be underlain by 12-inches of compacted crushed gravel overlying a 12-inch thick blanket underdrain wrapped in woven geotextile fabric founded on densified existing sandy fills. S.W.COLE ENGINEERING,

INC must observe the densification process of the subgrade soils prior to placement of the blanket underdrain. If the subgrade becomes soft or yielding during the densification process, we recommend overexcavating the affected areas and backfilling with compacted MDOT Type D Crushed Gravel or Crushed Stone. The wall should be backfilled with at least 4.0 feet (horizontal measure behind wall) of non-frost susceptible free-draining sand and gravel, such as MDOT 703.06 Type D Gravel modified for a maximum fines content of 5.0 percent to help control frost thrust on the wall. Geotechnical details of the recommended site retaining wall are illustrated on Sheet 11.

For segmental retaining walls founded on properly prepared subgrades, we recommend a net allowable soil bearing capacity of 3.0 ksf with a base friction factor of 0.4. For wall backfill within the geogrid-reinforced and non-frost susceptible backfill zone behind the wall, we recommend MDOT 703.06 Type D Gravel modified for a maximum fines content of 5.0 percent with a unit weight of 130 pcf and an internal friction angle of at least 32 degrees. For the in-situ sandy soils behind the geogrid-reinforced and non-frost susceptible backfill zone, we recommend design consider a unit weight of 120 pcf with an internal friction angle of 28 degrees or less.

4.4 Gravel Surfaced Yard

As discussed, with Louis Berger Group, we understand that CMP requires a yard section consisting of 6 inches of crushed stone overlying 18 inches of gravel. Considering the site is underlain with relatively impervious clayey soils, we anticipate that surface water infiltrating into the gravel-surfaced yard will become perched on the relatively impervious clayey substrate. Consequently, we recommend that design and construction consider installation of a perimeter underdrainage system with a positive gravity outlet to drain the gravel-surfaced yard. We recommend a 6-inch diameter ADS, slotted, smooth-bore Type B underdrain pipe enveloped and backfilled with MDOT 706.22 Type B Underdrain Sand up to the bottom of the 6-inch crushed stone surfacing. The subgrades and crushed stone surface should be sloped to shed water to the perimeter of the site.

4.5 Backfill and Compaction

Based on the subsurface findings and our understanding of the proposed construction, we anticipate that on-site soils generated from excavation will not generally be suitable

for reuse on-site, except potentially to backfill proposed duct banks if acceptable to CMP based upon observation made during construction. For the proposed construction, we recommend the following fill materials and compaction requirements:

MDOT 703.06 Type D Gravel modified for 5.0 percent fines: Clean, free-draining, non-frost susceptible, sand and gravel free of organics and other deleterious materials meeting requirements of 2002 MDOT 703.06 Type D Subbase Aggregate with the additional requirement for not more than 5.0 percent by weight pass the U.S. No. 200 Sieve. Modified Type D Gravel is recommended for use as:

- Non-frost susceptible prism beneath the substation mat foundation
- Non-frost susceptible backfill zone behind the segmental site retaining wall
- Backfill for repair of soft yielding areas above the groundwater table

Common Borrow: Sand, gravel, silt, and clay soils that form a compactable earth fill. Common Borrow is recommended for use as:

- Backfill above concrete encased duct banks up to the bottom of the 24-inch thick gravel yard surfacing.
- Fill in landscape areas and earthen containment berms

Crushed Stone / Underdrain Stone: Crushed, washed, hard, durable rock meeting the gradation requirements for MDOT 703.22 Underdrain Backfill Material Type 'C'.

- Drainage aggregate for foundation and retaining wall blanket underdrains
- Fill / Backfill below water

Underdrain Sand: Crushed, washed, or naturally occurring hard, durable sand meeting the gradation requirements for MDOT 703.22 Underdrain Backfill Material Type 'B'.

- Drainage aggregate for gravel surfaced yard underdrains
- Fill / Backfill below water

Placement and Compaction: Fill should be placed in horizontal lifts and be compacted. Lift thickness should range between 6 to 12 inches depending upon the size and type of equipment such that the desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment. We recommend that fill placed below structures and the gravel surfaced yard be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. Fill within landscape areas should be compacted to at least 90 percent of ASTM D-1557. Foundation backfill should be compacted to at least 95 percent of ASTM D-1557. Backfill for retaining walls should be compacted to between 90 to 95 percent of ASTM D-1557 to avoid additional lateral stress on the walls associated with overcompaction. Crushed stone should be compacted to 100 percent of its dry rodded unit weight as determined by ASTM C-29.

4.6 Geotechnical Design Review

We understand the proposed segmental retaining wall is being design by others. Following design of the segmental retaining wall, S.W.COLE ENGINEERING, INC. must provided with wall plans, profiles and sections in order to complete a global stability analysis considering any geogrid reinforcement and the actual wall configuration.

S.W.COLE ENGINEERING, INC. must review the design plans and specifications to ensure that our recommendations have been appropriately interpreted and implemented.

5.0 CLOSURE

We trust this report meets your current needs and we look forward to working with you as design and construction proceeds. Please call if you have any question or require additional assistance.

Sincerely,

S.W.COLE ENGINEERING, INC.

STATE OF MAINE
TIMOTHY J. BOYCE
No. 9263
REGISTERED
PROFESSIONAL ENGINEER

Timothy J. Boyce, P.E.
Senior Geotechnical Engineer

Attachment A
Limitations

This report has been prepared for the exclusive use of the Louis Berger Group for specific application to the Proposed CMP Fore River Substation at 328 West Commercial Street in Portland, Maine as described herein. S.W.COLE ENGINEERING, INC. has endeavored to conduct the work in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

S.W.COLE ENGINEERING, INC.'s scope of work has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S.W.COLE ENGINEERING, INC. should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S.W.COLE ENGINEERING, INC.

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-1
SHEET: 1 OF 1
PROJECT NO.: 04-0058
DATE START: 6/9/04
DATE FINISH: 6/9/04
ELEVATION: 17' +/-
SWC REP.: KBG

PROJECT / CLIENT: FORE RIVER SUBSTATION / LOUIS BERGER GROUP
LOCATION: WEST COMERCIAL STREET, PORTLAND MAINE
DRILLING CO. : NORTHERN TEST BORING, INC. DRILLER: BRIAN

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140lb	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS APPEARED SATURATED BELOW 8' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.2'	ASPHALT PAVEMENT
	1D	24"	18"	2.0'	11	11	14	14	0.8'	BROWN GRAVELLY SILTY SAND (FILL) ~MEDIUM DENSE~
									2.5'	BROWN SILTY SAND SOME GRAVEL WITH BRICK (FILL)
	2D	24"	22"	7.0'	3	3	3	6		BROWN TO OLIVE CLAYEY SILTY SAND (FILL) ~LOOSE~
	3D	24"	18"	9.0'	3	3	3	3	8.3'	
	4D	24"	12"	12.0'	2	1	3	4		BROWN TO GRAY SANDY SILT WITH ORGANICS (POSSIBLE RELIC TIDAL ZONE / RELIC MARSH DEPOSIT) ~LOOSE~
	5D	24"	1"	17.0'	2	3	1	8	15.5'	
										GRAY SILTY SAND SOME GRAVEL TRACE CLAY WITH OCCASIONAL COBBLES
									20.0'	~LOOSE~
										BOTTOM OF EXPLORATION AT 20.0' (AUGERS DEFLECTED OFF BOULDER OR ROCK SURFACE WHILE ADVANCING BORE HOLE TO 20' MAKING FURTHER ADVANCEMENT IMPOSSIBLE)

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-1

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-2
SHEET: 1 OF 1
PROJECT NO.: 04-0058
DATE START: 6/9/04
DATE FINISH: 6/9/04
ELEVATION: 18' +/-
SWC REP.: KBG

PROJECT / CLIENT: FORE RIVER SUBSTATION / LOUIS BERGER GROUP
LOCATION: WEST COMERCIAL STREET, PORTLAND MAINE
DRILLING CO. : NORTHERN TEST BORING, INC. DRILLER: BRIAN

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"		
SAMPLER:	SS	1 3/8"	140lb	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS APPEARED SATURATED BELOW 8' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
SSA									0.2'	ASPHALT PAVEMENT
	1D	24"	20"	2.0'	8	7	9	12		BROWN SAND AND SILT
										TRACE GRAVEL TRACE CLAY (FILL)
	2D	24"	18"	4.0'	6	6	7	10	4.0'	~MEDIUM DENSE~
										BROWN SILTY SAND
▼	3D	24"	16"	7.0'	4	5	7	9		TRACE GRAVEL TRACE ORGANICS
CASING										(POSSIBLE RELIC TIDAL ZONE / RELIC MARSH DEPOSIT)
TO 10'	4D	24"	22"	9.0'	2	2	3	4	8.0'	~LOOSE~
▼										GRAY SANDY SILTY CLAY
OPEN									9.5'	~LOOSE~
HOLE	5D	24"	12"	12.0'	WOM / 12"		WOH / 12"		10.8'	GRAY SILTY CLAY ~MEDIUM~
▼	6D	24"	20"	14.0'	1	2	1	8		GRAY SILTY SAND
										SOME GRAVEL TRACE CLAY
	7D	24"	6"	17.0'	1	2	2	50/5"	17.0'	~LOOSE~
										REFUSAL AT 17.0'
										(PROBABLE BEDROCK)

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST.

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-2

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-3
SHEET: 1 OF 1
PROJECT NO.: 04-0058
DATE START: 6/9/04
DATE FINISH: 6/9/04
ELEVATION: 18.5' +/-
SWC REP.: KBG

PROJECT / CLIENT: FORE RIVER SUBSTATION / LOUIS BERGER GROUP
LOCATION: WEST COMERCIAL STREET, PORTLAND MAINE
DRILLING CO. : NORTHERN TEST BORING, INC. DRILLER: BRIAN

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"		
SAMPLER:	SS	1 3/8"	140lb	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS APPEARED SATURATED BELOW 7' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
SSA									0.5'	BROWN SANDY TOPSOIL WITH ORGANICS
	1D	24"	21"	2.0'	5	11	13	12		BROWN SILTY SAND
										TRACE CLAY TRACE GRAVEL
	2D	24"	24"	4.0'	4	6	9	15		WITH SHELLS (FILL)
									6.0'	~MEDIUM DENSE~
▼	3D	24"	20"	7.0'	6	3	4	10	6.8'	GRAY SILTY CLAY ~MEDIUM~
CASING										BROWN TO ORANGE SILTY SAND
TO 10'	4D	24"	6"	9.0'	4	4	4	2		WITH GRAY SILTY SAND SEAMS
▼									9.5'	~LOOSE~
OPEN										
HOLE	5D	24"	3"	12.0'	1	2	4	9		GRAY SAND AND SILT
▼										SOME GRAVEL TRACE CLAY
	6D	8"	6"	15.7'	8	50/3"			15.8'	~LOOSE~
										REFUSAL AT 15.8'
										(PROBABLE BEDROCK)

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-3

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: FORE RIVER SUBSTATION / LOUIS BERGER GROUP
LOCATION: WEST COMERCIAL STREET, PORTLAND MAINE
PROJECT NO. 04-0058

TEST PIT TP-1

DATE: 6/9/2004 SURFACE ELEVATION: 19.5' +/- LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.2'	BROWN SANDY TOPSOIL WITH ORGANICS	
		3.0'	BROWN SILTY SAND SOME GRAVEL (FILL)	
		7.5'	BROWN TO ORANGE SILTY SAND WITH SEAMS OF GRAY SILTY SAND AND SEAMS OF GRAY SILTY CLAY	
			BOTTOM OF EXPLORATION AT 7.5'	

COMPLETION DEPTH: 7.5' NOTES: NO SEEPAGE, NO CAVING

TEST PIT TP-2

DATE: 6/9/2004 SURFACE ELEVATION: 23.5' +/- LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.1'	BAMBOO AND SUMAC WITH ORGANICS	
		2.8'	BROWN GRAVELLY SILTY SAND (FILL)	
		6.0'	FRACTURED BEDROCK WITH SAND (FILL)	
		6.5'	BROWN SAND SOME TRACE GRAVEL TRACE SILT	
			BOTTOM OF EXPLORATION AT 6.5'	

COMPLETION DEPTH: 6.5' NOTES: NO SEEPAGE, NO CAVING