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January 30, 2015

Ref: 11251.00

Ms. Suzanne Warner
U.S. EPA, Region 1
NCCW GP Processing
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

Attn: mailcode OEP 06-4

Re: Notice of Intent Submittal to Retain Coverage
Non-contact Cooling Water General Permit (MAG250977)
Union Wharf Condominium Trust
343 Commercial Street
Boston, Massachusetts

Dear Ms. Warner:

On behalf of the Union Wharf Condominium Trust (the Trust), Vanasse Hangen Brustlin, Inc., has prepared a report in response to the Notice of Intent Submittal Request issued on January 14, 2015. The Trust was authorized to discharge non-contact cooling water under the U.S. Environmental Protection Agency's non-contact cooling water general permit (NCCW GP) that was issued on July 31, 2008 and expired on June 30, 2013. An Administrative Continuation Request was submitted and approved, which extended coverage until the new permit was reissued in 2014. This report is submitted to retain coverage under the 2014 NCCW GP.

If you have any questions regarding the information included in the attached report, please contact me or Susan A. Bernstein at 781-290-5858 or by email at Susan@sabernlaw.com.

Sincerely,

Meghan Selby

Meghan E. Selby

Environmental Scientist
mselby@vhb.com

Engineers | Scientists | Planners | Designers

101 Walnut Street
PO Box 9151
Watertown, Massachusetts 02471
P 617.924.1770
F 617.924.2286

CC: MassDEP - Division of Watershed Management
Dan Flaherty, Manager, Union Wharf Condominium Trust
Susan A. Bernstein, Attorney at Law

APPENDIX 5
Suggested Notice of Intent Format

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION 1
FIVE POST OFFICE SQUARE SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

Request for General Permit Authorization to Discharge Noncontact cooling Water
Notice of Intent (NOI) to be covered by the General Permit

Noncontact Cooling Water General Permit (NCCWGP)
NPDES General Permits No. MAG250000 and NHG250000

A. Facility Information

1. Indicated applicable General Permit for discharge: MAG250000 ☒
   NHG250000 ☐

2. Facility Information/Location:
   Facility Name Union Wharf Condominium Trust
   Street/PO Box 343 Commercial Street City Boston
   State Massachusetts Zip Code 02109
   Latitude 42.365329 Longitude -71.050097
   Type of Business Residential Housing/Commercial Office
   SIC Codes(s) 6722 & 7311

3. Facility Mailing address (if different from Location Address):
   Facility Name _____
   Street/PO Box _____ City _____
   State _____ Zip Code _____

4. Facility Owner:
   Name Union Wharf Condominium Trust
   E-mail unionwharfmanager@comcast.net
   Street/PO Box 343 Commercial Street City Boston
   State Massachusetts Zip Code 02109
   Contact Person Manager: Dan Flaherty Tel 617-742-1647
   Owner is (check one): Federal _____ State _____ Tribal _____ Private X
   Other (describe) _____

5. Facility Operator (if different from above):
   Legal Name _____
   E-mail _____
   Street/PO Box _____ City _____
   State _____ Zip Code _____
   Contact Person _____ Tel _____

6. Current permit coverage: yes☒ no☐
   a) Has a prior NPDES permit (individual or general permit coverage) been granted for the discharge that is listed on the NOI? yes☒ no☐ If Yes, permit number MAG250977
   b) Is the facility covered by an individual NPDES permit for other discharges? yes☐ no☒
      If yes, Permit Number: _____

c) Is there a pending NPDES application on file with EPA for this discharge? yes☐ no☒
If yes, date of submittal: _____ and permit number, if available _____

7. Attach a topographic map indicating the location of the facility and the outfall(s) to the receiving water.
Map attached? ☒ See Attachment A.

B. Discharge Information (attach additional sheets as needed):

1. Name of receiving water into which discharge will occur: Boston Inner Harbor
Freshwater ☐ Marine Water ☒
State Water Quality Classification Class SB
Type of Receiving Water Body (e.g., stream, river, lake, reservoir, estuary, etc.) Marine inner harbor

2. Attach a line drawing or flow schematic showing water flow through the facility including sources of intake water, operations contributing to flow, treatment units, outfalls, and receiving water(s). **Line drawing or flow diagram attached**? ☒ See Attachment B.

3. Describe the discharge activities for which the owner/applicant is seeking coverage (e.g., building cooling, process line cooling, etc.) Building cooling

4. Number of Outfalls 1 Latitude and Longitude to the nearest second for each Outfall. See EPA's siting tool at http:/www.epa.gov/tri/reporting/siting_tool. Attach additional pages if necessary.

Outfall # 1 Latitude 42.365647 Longitude -71.049781
Outfall # Latitude _____ Longitude _____
Outfall # Latitude _____ Longitude _____

5. For each Outfall provide the following discharge information:

Outfall # 1
a) Maximum Daily Flow 0.98 MGD Average Monthly Flow 0.98 MGD
NOTE: EPA will use the flow reported here as the facility's permitted effluent flow limit.
b) Maximum Daily Temperature 80 °F Average Monthly Temperature n/a °F
c) Maximum Monthly pH 8.5 s.u. Minimum Monthly pH 6.0 s.u.
d) Outfall's discharge is: continuous ☐ intermittent ☐ seasonal ☒

Outfall # _____
a) Maximum Daily Flow _____ MGD Average Monthly Flow _____ MGD
NOTE: EPA will use the flow reported here as the facility's permitted effluent flow limit.
b) Maximum Daily Temperature _____ °F Average Monthly Temperature _____ °F
c) Maximum Monthly pH _____ s.u. Minimum Monthly pH _____ s.u.
d) Outfall's discharge is: continuous ☐ intermittent ☐ seasonal ☐

Outfall # _____
a) Maximum Daily Flow _____ MGD Average Monthly Flow _____ MGD
NOTE: EPA will use the flow reported here as the facility's permitted effluent flow limit.
b) Maximum Daily Temperature _____ °F Average Monthly Temperature _____ °F
c) Maximum Monthly pH _____ s.u. Minimum Monthly pH _____ s.u.
d) Outfall's discharge is: continuous ☐ intermittent ☐ seasonal ☐

6. Is the source of the NCCW potable water? yes☐ no☒
If yes, EPA will calculate a Total Residual Chlorine effluent limit for your facility.

7. Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water n/a* MGD
Attach any calculation sheets used to support stream flow and/or dilution calculations.
*Receiving water is a marine inner harbor.

8. **For facilities that discharge to Massachusetts surface waters:**
a) Submit the completed engineering calculation of the surface water temperature rise as shown in Attachment B of the General Permit. Calculation attached? ☐ n/a: surface water is a marine inner harbor.
b) Does the discharge occur in an Area of Critical Environmental Concern (ACEC)? yes☐ no☒
If yes, provide the name of ACEC _____
Note: See Part 3.4 and Appendix 1 of the General Permit for more information on ACEC.

C. Chemical Additives

1. Are any non-toxic neutralization and/or dechlorination chemicals used in the discharge(s)? yes☐ no☒

2. If yes, attach a listing of each chemical used. Include the chemical name and manufacturer; maximum and average daily quantity used on a monthly basis, as well as the maximum and average daily expected concentrations (mg/l) in the discharge, and the vendor's reported aquatic toxicity (NOAEL and/or LC_{50} in percent for typically acceptable aquatic organism).

3. Was the listing submitted with the facility's 2008 NCCWGP NOI? yes☐ no☒

D. NCCW Source Water Information

1.State the source of the NCCW (e.g., municipal water supply, private well, surface water withdrawal, etc.).
Source Surface water withdrawal Name of Source Water Boston Inner Harbor

2. Is the source water registered/permitted under MA Water Management Act or NHDES User Registration Rule (ENV WQ 2202)? yes☐ no☒ If yes, registration number _____

3. If the source water is groundwater (non-municipal well water), see Appendix 9 of the General Permit and submit effluent (and receiving water hardness) test results, as required in Part 5.4 of the General Permit.
Test results attached? ☐ n/a

4. Does the facility use both a primary and backup source of NCCW? yes☐ no☒ If yes, **attach information** that identifies and explains the primary and backup sources of NCCW and how often the backup supply was used in the past three years.

E. Best Technology Available for Cooling Water Intake Structures (CWISs)

If the facility's discharge is covered by this General Permit and the facility **withdraws non-contact cooling water from a surface water**, you are subject to the BTA requirements at Part 4.2 of the General Permit.

1. Are you subject to the BTA requirements of the General Permit? yes☒ no☐
a) If no, explain_____ and skip to F.
b) If yes, was the facility-specific BTA description submitted with the facility's 2008 NCCW GP NOI? yes☒ no☐
c) If yes, does that description accurately describe the facility current operations and practices? yes☒ no☐

2. If the facility is subject to the General Permit's BTA requirements and is requesting coverage under the NCCWGP for the first time, or if you answered "No" to question E.1.c. above, attach the facility-specific BTA description as required in Part 4.2 of the General Permit. For additional information and guidance, see Section IV of the Fact Sheet.

Include in your description:

a) Measures to meet the General Permit Part 4.3.a general BTA requirements, including documentation that describes the facility's monitoring program for impinged fish and/or invertebrate; or the required alternative monitoring plan frequency and/or protocol.
b) A characterization of the source water body's aquatic life habitat in the vicinity of each CWIS during the seasons when the CWIS may be in use.
c) The attributes of the current CWIS.
d) The design measures of the CWIS.
e) The operation measures of the CWIS.
f) The historical occurrence of impinged fish for the past five years.
g) If applicable, a demonstration that the facility's intake rate is commensurate with a closed-cycle recirculation system.
h) Other components to reduce impingement and/or entrainment of aquatic life.

3. Provide the following information for each CWIS to support your attached facility-specific BTA description:

a) The design capacity of the of the CWIS 0.98 MGD
b) Maximum monthly average intake of the CWIS during the previous five years 0.98 MGD
c) The month in which this flow reported in 3.b. occurred System is designed to restrict intake to 0.98 MGD.
d) The maximum through-screen design intake velocity 0.27 feet/second (fps) See Attachment C.

4. For facilities where the CWIS is located on a freshwater river or stream, provide the following information: n/a

a) The source water's annual mean flow in MGD as available from USGS or other appropriate source _____ MGD
b) The design intake flow as a % of the source water's annual mean flow _____ %
Attach calculations if equal to or less than 5% of annual mean flow.
c) The source water's 7Q10 _____ MGD
d) The design intake flow as a percent of the source water's 7Q10 _____%

5. Provide a map showing the location of each cooling water intake structure; NCCW Outfall(s) and CWIS features referred to in the BTA description. **Map attached?** ☒ See Attachment A.

F. Endangered Species Act Eligibility Information

Using the instructions in Appendix 2 of the NCCW GP, which of the following criteria apply to your facility? USFWS Criteria: A ☒ B ☐ C ☐

1. If you selected USFWS criteria B, has consultation with the U.S. Fish and Wildlife Service been completed?
yes☐ no☐

2. If consultation with US Fish & Wildlife Service and/or NOAA Fisheries Service was completed, was a written concurrence finding that the discharge is "not likely to adversely affect" listed species or critical habitat received?
yes☐ no☐

3. Attach documentation of ESA eligibility for USFWS as required at Part 3.4 and Appendix 2 of the General Permit.
Documentation attached? Yes, See Attachment D.

4. Please indicate if your facility **directly intakes water for non-contact cooling** from any of the following waterbodies: n/a

☐ Merrimack River
☐ Connecticut River
☐ Piscataqua River
☐ Taunton River

EPA will consult with the National Marine Fisheries Service on cooling water intakes covered under this permit in areas (in the above waterbodies) of the endangered Shortnose Sturgeon and Atlantic Sturgeon.

G. National Historic Properties Act Eligibility

1. Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility site or in proximity to the discharge? yes☒ no☐

2. Have any State or Tribal Historic Preservation Officers been consulted in this determination? yes☒ no☐
If yes, attach the results of the consultation(s). See Attachment B.

3. Which of the three National Historic Preservation Act scenarios listed in Appendix 3, Section C have you met?
☐ 1 ☒ 2 ☐ 3

H. Supplemental Information

Please provide any supplemental information, including antidegradation review information applicable to new or increased discharges. Attach any analytical data used to support the application. Attach any certification(s) required by the General Permit.

I. Signature Requirements

The NOI must be signed by the operator in accordance with the signatory requirements of 40 CFR § 122.22 (see below) including the following certification:

> I certify under penalty of law that (1) no biocides or other chemical additives except for those used for pH adjustment and/or dechlorination are used in the noncontact cooling water (NCCW) system; (2) the discharge consists solely of NCCW (to reduce temperature) and authorized pH adjustment and/or dechlorination chemicals; (3) the discharge does not come in contact with any raw materials, intermediate product, water product (other than heat) or finished product; (4) if the discharge of noncontact cooling water subsequently mixes with other wastewater (i.e. stormwater) prior to discharging to the receiving water, any monitoring provided under this permit will be only for noncontact cooling water; (5) where applicable, the facility has complied with the requirements of this permit specific to the Endangered Species Act and National Historic Preservation Act; and (6) this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.
>
> Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature Daniel Flaherty Date 11/30/2015

Printed Name and Title DANIEL FLAHERTY ONSITE PROPERTY MANAGER

Federal regulations require this application to be signed as follows:

1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively, or,
3. For a municipality, State, Federal or other public facility, by either a principal executive officer or ranking elected official.

Attachment A
Figures

■

Path: \\vhb\proj\Wat-EV\11251.00\GIS\project\1_Locus.mxd

vhb
Engineers | Scientists | Planners | Designers
101 Walnut Street, PO Box 9151, Watertown, MA 02471

Figure 1 – Locus Map

Union Wharf Condominim Trust
343 Commercial Street
Boston, Massachusetts

Path: \\vhb\proj\Wat-EV\11251.00\GIS\project\2_NCCW.mxd

Approximate Site Boudary

NHESP Priority Habitat*

NHESP Estimated Habitat*

0 100 200 Feet

* None present within current viewport

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Engineers | Scientists | Planners | Designers
101 Walnut Street, PO Box 9151, Watertown, MA 02471

Figure 2 – NCCW System Map

Union Wharf Condominim Trust
343 Commercial Street
Boston, Massachusetts

Attachment B
NOI Package 2009

SUSAN A. BERNSTEIN, Attorney at Law

200 Highland Avenue, Suite 306
Needham, MA 02494-3035
Tel: 781-290-5858
Fax: 781-247-4266
email: susan@sabernlaw.com
www.sabernlaw.com

September 10, 2009

Kathleen Keohane
Massachusetts Department of Environmental Protection
Division of Watershed Management
Surface Water Permits Program
627 Main Street, 2nd floor
Worcester, MA 01608

George Harding
US Environmental Protection Agency
NCCW GP Processing
Municipal Assistance Unit (CMU)
One Congress Street, Suite 1100
Boston, MA 02114-2023

RE: Union Wharf Condominium Trust, 343 Commercial Street, Boston, MA: Supplemental Notice of Intent for Noncontact Cooling Water General Permit

Dear Ms. Keohane and Mr. Harding:

This office represents Union Wharf Condominium Trust ("Union"), located at 343 Commercial Street, Boston, MA, which operates a non-contact cooling water ("NCCW") system, that utilizes an intake and discharge of seawater from Boston Harbor. When the NCCW system was installed in 1996, an application was filed with the Massachusetts Department of Environmental Protection ("MDEP") (copy of which is attached hereto). We were notified in June 2009 that the application was never acted upon, nor was it transferred to the US Environmental Protection Agency ("US EPA"). Accordingly, we are today filing a Notice of Intent to complete the original filing.

Please be advised that this system takes in seawater from Boston Harbor, puts it through its heating exchanger and discharges the seawater without any inclusion or discharge of chemicals or treatment. The water leaves the system, approximately 1,100 gallons per minute ("gpm"), with a minimal change in temperature, of not more than 10 degrees fahrenheit. Recent ph and temperature samplings are attached. Other than a slight temperature change, there is no change in the original seawater, which is looped through the system. At the time of the installation of the system, approvals were obtained from the following agencies: Wetlands Permit (Order of Conditions) from the Boston Conservation Commission, DEP File #6-668; Mass. DEP, c. 91, Public Waterways License #5908, and approval from the Massachusetts Historical Commission (copies attached hereto). A summary sheet of the current operation is also provided.

Please note that when we originally applied for the permit, we paid a filing fee in the amount of $362.50, which we understand will be applied to the current fee of $385.00. Accordingly, we are

sending a check in the amount of $22.50 to the DEP lock box (a copy of which is attached hereto) to make up the difference.

Please advise should you have any questions or require additional information.

Sincerely yours,

Susan A. Bernstein
Enclosures: Application, copy of filing fee, associated documents

cc: Board of Trustees, Union Wharf Condominium Trust
William Donovan, Senior VP, Barkan Mngmt. Corp.
Dan Flaherty, Manager, Union Wharf Condominium Trust

Enter your transmittal number → X229826
Transmittal Number

Your unique Transmittal Number can be accessed online: http://mass.gov/dep/service/online/trasmfrm.shtml or call MassDEP's InfoLine at 617-338-2255 or 800-462-0444 (from 508, 781, and 978 area codes).

Massachusetts Department of Environmental Protection

Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP
P.O. Box 4062
Boston, MA 02211

*** Note:**
For BWSC Permits, enter the LSP.

A. Permit Information

BRP WM 11 — 1. Permit Code: 7 or 8 character code from permit instructions
NCCW General Permit — 2. Name of Permit Category
Discharge from NCCW — 3. Type of Project or Activity

B. Applicant Information – Firm or Individual

UNION WHARF CONDOMINIUM TRUST — 1. Name of Firm - Or, if party needing this approval is an individual enter name below:
N/A — 2. **Last Name** of Individual; 3. **First Name** of Individual; 4. MI
343 Commercial Street — 5. Street Address
BOSTON — 6. City/Town
MA — 7. State
02109-1212 — 8. Zip Code
617-742-1647 — 9. Telephone #; 10. Ext. #
DAN FLAHERTY, MANAGER — 11. Contact Person
UNIONWHARFMANAGER@COMCAST.NET — 12. e-mail address (optional)

C. Facility, Site or Individual Requiring Approval

UNION WHARF CONDOMINIUM TRUST — 1. Name of Facility, Site Or Individual
343 Commercial St. — 2. Street Address
BOSTON, — 3. City/Town
MA — 4. State
02109 — 5. Zip Code
6177421647 — 6. Telephone #; 7. Ext. #
8. DEP Facility Number (if Known); 9. Federal I.D. Number (if Known); 10. BWSC Tracking # (if Known)

D. Application Prepared by (if different from Section B)*

SUSAN A. BERNSTEIN, ATTORNEY AT LAW — 1. Name of Firm Or Individual
200 HIGHLAND AVENUE, SUITE 306 — 2. Address
NEEDHAM — 3. City/Town
MA — 4. State
02494-3035 — 5. Zip Code
781-290-5858 — 6. Telephone #; 7. Ext. #
SUSAN A. BERNSTEIN — 8. Contact Person
9. LSP Number (BWSC Permits only)

E. Permit - Project Coordination

1. Is this project subject to MEPA review? ☐ yes ☒ no
If yes, enter the project's EOEA file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:
EOEA File Number

F. Amount Due

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

Special Provisions:

1. ☒ **Fee** Exempt (city, town or municipal housing authority)(state agency if fee is $100 or less).
There are no fee exemptions for BWSC permits, regardless of applicant status.
2. ☐ Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. ☐ Homeowner (according to 310 CMR 4.02).

3240 — Check Number
$ 22.50 — Dollar Amount
Sept. 10, 2009 — Date

SUSAN A. BERNSTEIN, ESQ.
[redacted]
200 HIGHLAND AVENUE, SUITE 306
NEEDHAM, MA 02494-3035

CITIZENS BANK
MASSACHUSETTS

3240

5-7017/2110

9/10/2009

PAY TO THE ORDER OF Com of Mass/DEP

$ **22.50

Twenty-Two and 50/100******

DOLLARS

Details on back.

Security Features Included

DEP
P.O. Box 4062
Boston, MA 02211

MEMO BRP WM 11-Union Wharf Condominium Trust/Seawater

Susan A. Bernstein

⑈003240⑈ ⑆211070175⑆ 110401627⑈

APPENDIX 5

Suggested Form for Notice of Intent (NOI) for the Noncontact Cooling Water General Permit

1. General facility information. Please provide the following information about the facility.

a) Name of facility: UNION WHARF CONDO. TRUST		**Type of Business:** Residential and Office
Facility Location Address : 243 Commercial St. BOSTON, MA 02109 **longitude:** 42.7159 (See Attached) **latitude:** 71.0303	**Facility SIC codes:** 6722 7311	**Facility Mailing Address (if not location address)** SAME
b) Name of facility owner: See Above		**Email address of owner:** [illegible]
Owner's Tel #: 617-742-1647 **Owner's Fax #** 617-742-2456		**Owner is (check one): 1. Federal____ 2. State _____ 3.Tribal_____ 4. Private X 5. Other _____(Describe)**
Address of owner (if different from facility address) SAME		

Legal name of Operator, if not owner: SEE ABOVE

Operator Contact Name: DAN FLAHERTY

Operator Tel Number: See Above **Fax Number:** _____

Operator's email: See Above

Operator Address (if different from owner)

d) Attach topographic map indicating the locations of the facility and the receiving water; all NCCW discharge points; upstream and downstream monitoring points. Map attached? YES

e) Check Yes or No for the following:

1. **Has a prior NPDES permit been granted for the discharge? Yes** ✓ **No____ If Yes, Permit Number:** FILED 1996 / NEVER ACTED UPON (see attached)
2. **Is the discharge a "new discharge" as defined by 40 CFR Section 122.22? Yes_____ No** X
3. **Is the facility covered by an individual NPDES permit? Yes_____ No** X **If Yes, Permit Number ____**
4. **Is there a pending application on file with EPA for this discharge? Yes** X **No _____ If Yes, date of submittal:**

2. Discharge information. Please provide information about the discharge, (attaching additional sheets as needed)

a) Name of receiving water into which discharge will occur: BOSTON INNER HARBOR
State Water Quality Classification: _____ Freshwater: _____ Marine Water: ✓

b) Describe the discharge activities for which the owner/applicant is seeking coverage: 1100gpd non-contact cooling water

c) FOR MASSACHUSETTS FACILITIES ONLY: Engineering Calculations: Submit the completed engineering calculation of the surface water temperature rise as shown in Attachment A of the General Permit. Check if attached: ✓

d) Number of outfalls 1 discharge. See attached Summary by Operator's

For each outfall:

e) What is the maximum daily and average monthly flow of the discharge? Note that EPA will use the flow reported here as the facility's permitted effluent flow limit. Max Daily Flow 1100 GPD Average Flow 1100 GPD

f) What is the maximum daily and average monthly temperature of the discharge (in degrees F)? Max Temp. 68° Average Temp. 58°

g) What is the maximum and minimum monthly pH of the discharge (in s.u.)? Max pH 6.97 SU Min pH _____ } see Attached

h) FOR MASSACHUSETTS FACILITIES ONLY: Is the source water of the NCCW potable water? Yes_____ No X If Yes, EPA will calculate the Total Residual Chlorine limit for facilities located in Massachusetts.

i) Is the discharge continuous? Yes _____ No ✓ If no, is the discharge periodic (P) (occurs regularly, i.e., monthly or seasonally, but is not continuous all year) or intermittent (I) (occurs sometimes but not regularly) or both (B) _____
If (P), number of days or months per year of the discharge 6 mos and the specific months of discharge May to November ;
If (I), number of days/year there is a discharge _____

j) Latitude and longitude of each discharge within 100 feet: outfall 1: long. -71°03'03" lat. 42°21'59"; outfall 2: long._____lat._____;
outfall .3: long._____lat._____ (See http://www.epa.gov/tri/report/siting_tool) SEE ATTACHED

k) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water _____ cfs
Please attach any calculation sheets used to support stream flow and dilution calculations. See General Permit Attachment B for equations and additional information.

MASSACHUSETTS FACILITIES: See Part 3.4 and Appendix 1 of the General Permit for more information on ACEC.
Areas of Critical Environmental Concern (ACEC): Does the discharge occur in an ACEC? Yes _____ No X
If yes, provide the name of the ACEC: _____

3. NCCW Source Water Information. Please provide information about the NCCW source water, using separate sheets as necessary:

a) Indicate source of the NCCW (i.e., municipal water supply, private well, surface water withdrawal, groundwater):
Source: BOSTON HARBOR
Name of Source Water: _____

Is the source registered/permitted under MA Water Management Act or NHDES Water User Registration Rule (Env Wq 2202)?
Yes_____ No_____

If yes, registration number: _____

b) If source water is surface water:
i) Is it a freshwater river or stream Yes_____ No X
ii) Is it a lake? _____ reservoir?_____
iii) Is it tidal river? _____ estuary? _____ ocean?_____

c) Is the source water groundwater? Yes _____ No X If yes, see Appendix 8 and submit effluent and surface water test results, as required in Part 5.4 of the General Permit.

d) Does the facility use both a primary and backup source of noncontact cooling water?
Yes _____ No X

If yes, attach information that identifies and explains the primary and backup sources of noncontact cooling water for and how often the backup supply was used in last three years.

4. Best Technology Available for CWIS See attached Original Application

Are you subject to BTA requirements at Part 4.2 of the General Permit? (Facility's discharge is covered by this General Permit and the facility withdraws noncontact cooling water from surface source water). Yes_____ No_____ If No, explain:

If YES, attach the facility-specific BTA description as required in Part 4.3 of the General Permit. For additional information and guidance, see Questions 13-23 of the NCCW Fact Sheet, posted at http://www.epa.gov/region1/npdes/nccwgp.html. Provide a map showing the location of each CWIS intake structure; NCCW outfall(s) and any CWIS feature referred to in the BTA description.

Include in your description:
_____ Measures to meet the General Permit Part 4.3.a general BTA requirements, including documentation that describes the facility's monitoring program for impinged fish and/or invertebrate; or the required alternative monitoring plan frequency and/or protocol
_____ A characterization of the source water body's aquatic life habitat in the vicinity of each CWIS during the seasons when the CWIS may be in use
_____ The attributes of the current CWIS
_____ Design measures of the CWIS
_____ Operation measures of the CWIS
_____ Historical occurrence of impinged fish for the past five years
_____ If applicable, a demonstration that the facility's intake rate is commensurate with a closed-cycle recirculation system
_____ Other components to reduce impingement and/or entrainment of aquatic life

4. BTA FOR CWIS CONTINUED: See attached Original Application

Provide the following information for each CWIS to support your attached facility-specific BTA description.
Design capacity of the of the CWIS _____MGD
Maximum monthly average intake of the CWIS during the previous five years _____MGD Month in which this flow occurred _____
Maximum through-screen design intake velocity _____feet/second (fps)

For facilities where the CWIS is located on a freshwater river or stream, provide the following information:
The source water's annual mean flow _____cubic feet/second (cfs) as available from USGS or other appropriate source
The design intake flow as a % of the source water's annual mean flow _____ Attach calculations if equal to or less than 5% of annual mean flow.
The source water's 7Q10 _____cfs. See Attachment B of the General Permit for more information on 7Q10 determinations.
The design intake flow as a percent of the source water's 7Q10 _____

5. Contaminant Information See Attached Summary of Operations

If applicable, attach a listing of all non-toxic pH neutralization and/or dechlorination chemicals used, including chemical name and manufacturer; maximum and average daily quantity used as well as the maximum and average daily expected concentrations (mg/l) in the NCCW discharge, and the vendor's reported aquatic toxicity (NOAEL and/or LC_{50} in percent for aquatic organism(s)).

6. Determination of Endangered Species Act Eligibility: Provide documentation of ESA eligibility as required at Part 3.4 and Appendix 2, Part C, Step 4, of the General Permit. In addition, respond to the following questions. See attached original application

a) Are any listed threatened or endangered species, or designated critical habitat, in proximity to the discharge? Yes____ No X
b) Has any consultation with the federal services been completed? Yes___ No X
c) Is consultation underway? Yes ____ No X
d) What were the results of the consultation with the U.S. Fish and Wildlife Service and/or NOAA Fisheries Service (check one):
a "no jeopardy" opinion _____or written concurrence____ on a finding that the discharges are not likely to adversely affect any endangered species or
e) Which of the five eligibility criteria listed in Appendix 2, Section B (A,B,C,D or E) have you met? _____
f) Attach a copy of the most current federal listing of endangered and threatened species from the USF&W web site listed in Appendices 2, 2.1 and 4

7. Documentation of National Historic Preservation Act requirements: Please respond to the following questions:

a) Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility site or in proximity to the discharge? Yes X No ____
b) Have any State or Tribal historic preservation officers been consulted in this determination? Yes _____ or No _____ If yes, attach the results of the consultation(s).
c) Which of the three National Historic Preservation Act requirements listed in Appendix 3, Section C (1,2 o3) have you met? _____

8. Supplemental Information: Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit

9. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22 (see below) including the following certification:

I certify under penalty of law that (1) no biocides or other chemical additives except for those used for pH adjustment and/or dechlorination are used in the noncontact cooling water (NCCW) system; (2) the discharge consists solely of NCCW (to reduce temperature) and authorized pH adjustment and/or dechlorination chemicals; (3) the discharge does not come in contact with any raw materials, intermediate product, water product (other than heat) or finished product; (4) if the discharge of noncontact cooling water subsequently mixes with other wastewater (i.e.stormwater) prior to discharging to the receiving water, any monitoring provided under this permit will be only for noncontact cooling water; (5) where applicable, the facility has complied with the requirements of this permit specific to the Endangered Species Act and National Historic Preservation Act; and (6) this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.

Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility Name: Union Wharf Condominium Trust

Operator signature: [signature]

Title: Chair, Board of Trustees

Date: 9/3/09

Federal regulations require this application to be signed as follows:
1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively, or,
3. For a municipality, State, Federal or other public facility, by either a principal executive officer or ranking elected official.

EST
Associates, Inc.

Environmental Monitoring
Pipeline Services
Remediation Services
Industrial Services
Operations & Maintenance

FIELD SAMPLING REPORT

Client:	**Ms. Susan A. Bernstein, Esq.**
	200 Highland Ave
	Suite 306
	Needham, MA 02494-3035
Report Date:	**August 31, 2009**

Site Location:	**Union Wharf, 343 Commercial Street, Boston, MA**
Outfall Location(s):	**Outfall to Boston Harbor**
Sample Date:	**August 31, 2009**
Field Technician(s):	**Matt Gould**

Summary:

On the morning of August 31, 2009 EST field staff collected a pH and temperature sample from an outfall pipe to Boston Harbor containing non-contact cooling water. The line identified on site as "Seawater Discharge" was purged for five (5) minutes prior to sample collection. A pH of 6.97 s.u. and temperature of 19.4 °C was recorded. Field instrumentation was calibrated in accordance with the manufacturer's specifications prior to sample collection. A copy of the calibration record is provided as an attachment to this report.

Date of Sample Collection	8/31/2009
Time of Sample Collection	0915
Sample Site Identification	Non Contact Cooling Water
Field pH	6.97 s.u
Field Temperature	19.4 °C

Reviewed By: _____

Date:

Environmental Sampling Technology
Calibration Form

Purchase Order Number: _____

Reference Number: _____

Site: Union Wharf
Address: 343 Commercial St.
Boston Ma

Contact: Dan Flaherty
Title:
Phone:

Site Description:

Equipment On Site:

Model # 54X002608 Serial # 284069

Description of Service:

Special Instructions:

___pH ___Flow
Before Calibration: NA

___pH ___Flow
After Calibration: NA

STANDARD CALIBRATION	Before Calibration	After Calibration
pH Buffer 4.0	3.74	4.00
pH Buffer 7.0	7.25	7.00
pH Buffer 10.0	10.37	10.05

Notes:

Technician's Name: Matt Gould Signature: Matt Gould

EST Associates, Inc.

EST Associates, Inc.
51 Fremont Street
Needham, MA 02494
Phone (781) 455-0003
Fax (781) 455-8336
www.estassociates.com

Chain of Custody Record

Laboratory: n/a

Container Type
P - Plastic
G - Glass
V - VOA
B - Bacteria

Sample Type
1. Wastewater
2. Groundwater
3. Soil
4. Drinking Water
5. Surface Water
6. Storm Water
7. Other _____

Lab Invoice To: n/a
Lab Report To: susan@sabernlaw.com

EST Invoice To: Susan Bernstein
5858-

Site: Union Wharf
Address: 343 Commercial St.
Boston MA
Contact: Dan Flaherty
Phone #: (617) 742-1647
Description: *Non-contact Cooling Water*

Client: Susan A. Bernstein
Address: 200 Highland Ave, Ste 306
Needham MA 02494-3035
Contact: Susan A. Bernstein
Phone #: (781) 290-5858
Fax #: (781) 247-4266

☐ **Rush** _____Day Turnaround

LOCATION (Sample Identification)	Sample Type	Container			Sampling		Preservative *	Laboratory Analysis	Notes
		Size	Type	#	Date	Time			
Outfall to Boston Harbor	1	n/a	n/a	0	8/31	0915	None	Field pH = 6.97	
Outfall to Boston Harbor	1	n/a	n/a	0	↓	↓	None	Temp = 19.4	

Sampler's Name (Print)	*Signature*	DATE	TIME
Matt Gould	Matt Gould	8/31/09	0915

Additional Comments:

All samples chilled to 4 degrees celsius.

NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	Matt Gould			
2				
3				
4				
5				

3. Complete pH calibration record prior to sample collection (RD to provide with project paperwork)
4. Site contact will provide access to site. May need peristaltic pump with weighted strainer to draw sample
5. Carefully document sample location
6. Field tech to submit field data (to J. Costello) in order to generate field report within 24 hours of sample collection
7. Report to Susan A. Bernstein in electronic format to email address above

Please contact me if you have any questions.

Thanks,

John

John Carlin
President
EST Associates, Inc.
Phone:(781) 455-0003 x11.
Fax:(781) 455-8336
51 Fremont Street, Needham, MA 02494
www.estassociates.com

3. Complete pH calibration record prior to sample collection (RD to provide with project paperwork)
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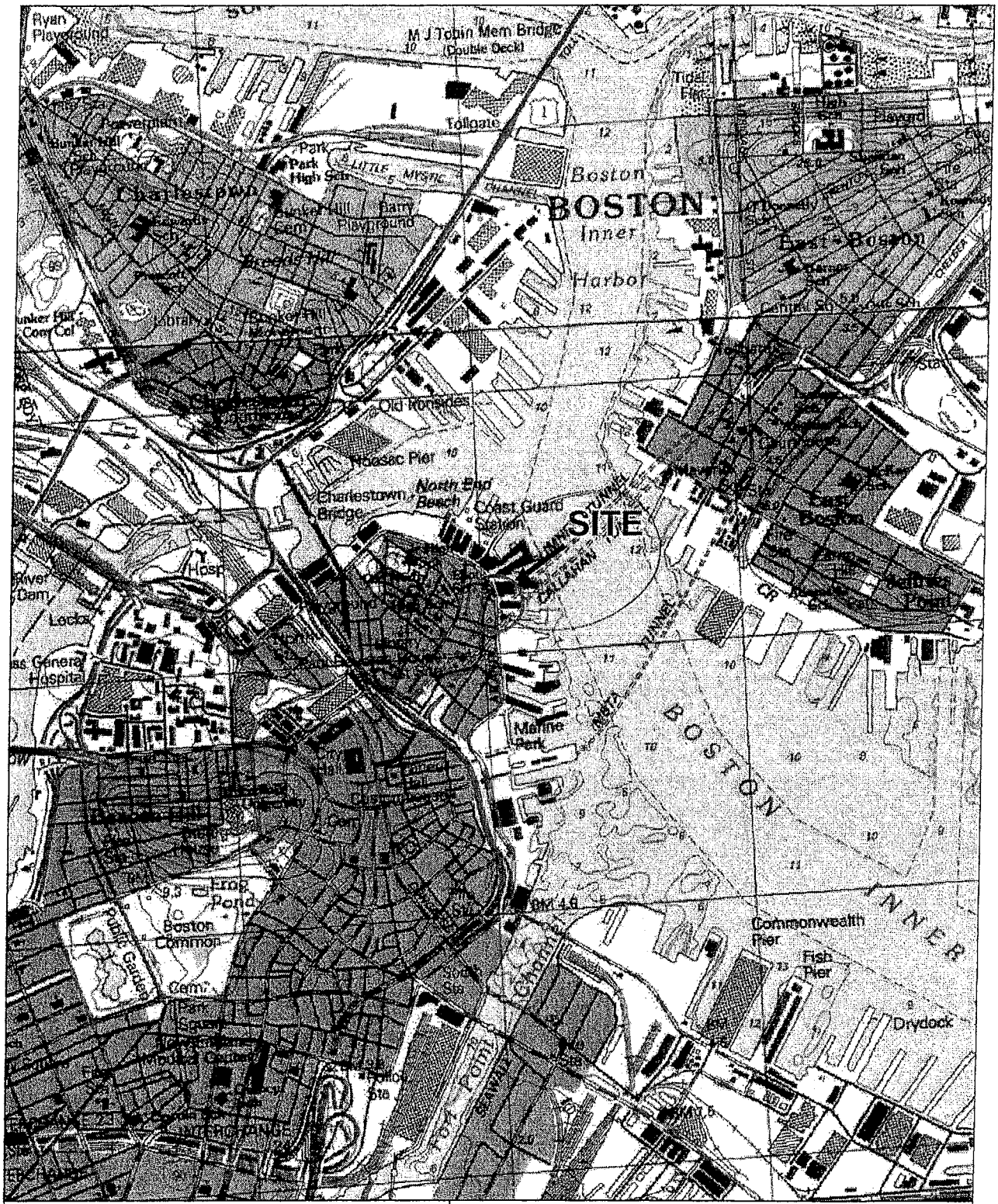
51 Fremont Street, Needham, MA 02494
www.estassociates.com

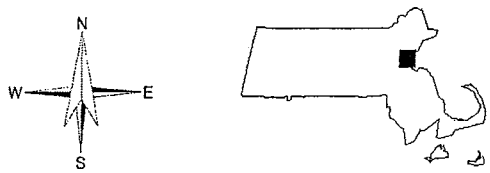
Union Wharf Condominium Trust, 343 Commercial Street, Boston, MA:
Noncontact Cooling Water Facility
Summary of Operations

(1) System discharges approximately 1,100 gallons per minute.
(2) System has the following outfalls:
    a) three (3) six inch pipes
    b) two (2) seawater intakes
    c) one (1) seawater discharge

(3) Average daily ocean temperature ranges from 50° in April to 68° in October, return temperatures vary by 0 (zero)° or no change (no change in ocean temperature) to a maximum of 10°.
(4) Typical operational cycle is from May 1st operating continuously through November 1st.
(5) The intake/discharge pipes are non-chemically cleaned annually. A diver inspects each line and removes by hand any aquatic growth on each of the pipes. The intakes have large strainers that prohibit suction of anything larger than 1/8th of an inch. Typically, only sand and seaweed are found in the pump strainers.
(6) The demand for cooling in the building is monitored by an automatic control panel in the building, which monitors both the loop and seawater temperatures. An automatic controller opens or closes a series of valves allowing condenser water to automatically bypass the titanium plate heat exchanger. The temperature fluctuation then varies depending on the actual seawater temperature.



SITE COORDINATES:42°21'56"N 71°3'4"W



U.S.G.S. QUADRANGLE: BOSTON SOUTH, MA

HALEY & ALDRICH

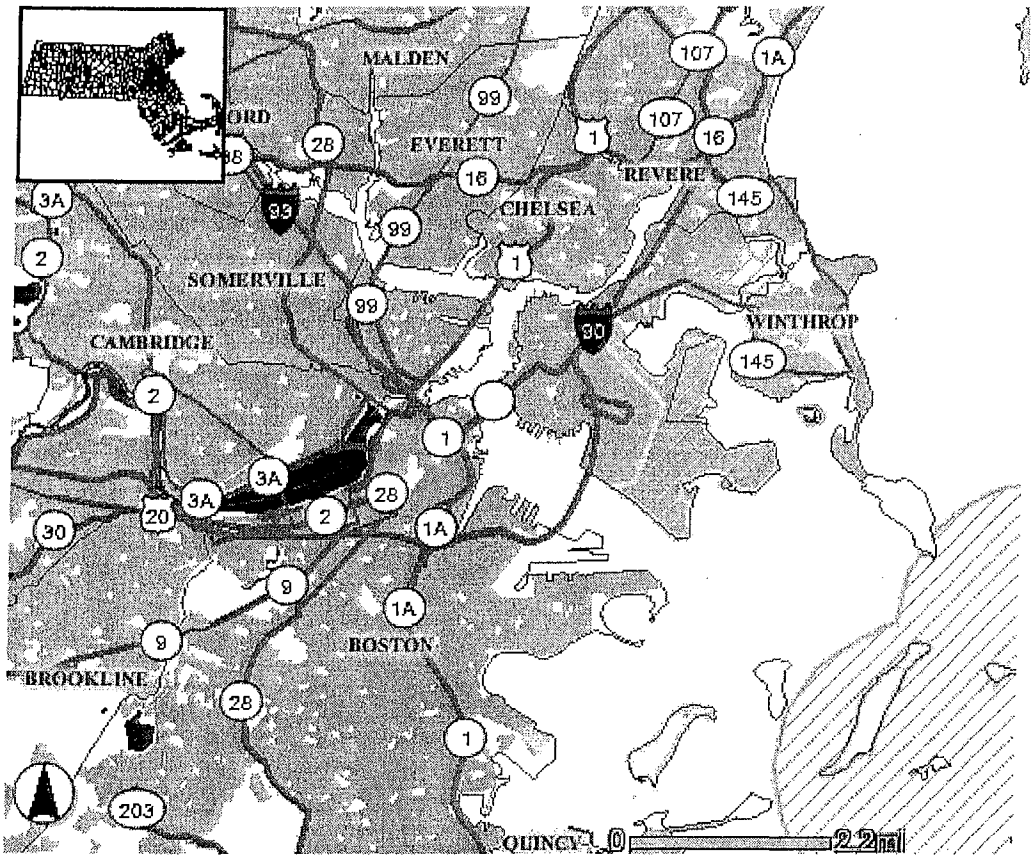
UNION WHARF
343 COMMERCIAL STREET
BOSTON, MASSACHUSETTS

PROJECT LOCUS

SCALE: 1:24,000
OCTOBER 2007

FIGURE 1

12132-033-A026.PDF



NHESP MAP 2006

To: Steven Lipman@Commissioner@DEP BOSTON
From: Kathleen Keohane
Cc: Bryant Firmin@BRP DWM
Bcc:
Subject: Union Wharf Condos
Attachment:
Date: 4/27/99 5:14 PM

I have a old application for a non-contact cooling water discharge for Union Wharf Condominiums that we could cover under the general permit for NCCW, but wanted to run by you. The discharge is for 1,000 gpm with a 10 degree F rise inside the mixing zone.

Bryant suggested I send you a copy of their application so you'll know what's proposed, and for your input. Thanks.

Massachusetts Department of Environmental Protection

Transmittal Form for Permit Application and Payment

For DEP Use Only	
Permit No.	
Received Date	
Reviewer	
Permit ☐ Appr. ☐ Denied	
Decision Date	

57953
Transmittal #

185594
Facility ID (if known)

RO.275304

INSTRUCTIONS

1. Use a separate Transmittal Form for each permit application/category.

2. Use an ***original***, 3-part Transmittal Form for each permit application/category. Photocopies ***will not*** be accepted for permit application or payment. (You may use photocopies for reserve location, where applicable.)

3. Make check payable to ***Commonwealth of Massachusetts***. Please mail check and ***yellow*** copy of transmittal form to: Dept. of Environmental Protection, P.O. Box 4062, Boston, MA, 02211.

4. Both fee exempt and non-exempt applicants ***must mail yellow copy*** of transmittal form to: Dept. of Environmental Protection, P.O. Box 4062, Boston, MA, 02211.

A Permit Information

BRPWM11
Permit Code (seven character code from the title of your application form)

Discharge/NonContactCoolingWater
Permit Name

Installation of Seawater Cooling System
Brief Project Description

B Applicant/Legally Responsible Official

Union Wharf Condominium Trust
Name

Union Wharf
Address

Boston 617 367 3346
City/Town *Telephone*

Susan Levitt
Contact

C Facility Information

Union Wharf Condominiums
Name of Facility

Union Wharf / 343 Commercial St
Address

Boston 617 367 3346
City/Town *Telephone*

D Application Prepared By

Eric R. Hooper, P. E.
Name

Cortell Assoc. 244 Second Ave
Address

Waltham 617 890 3737
City/Town *Telephone*

Contact

E Other Related Permits: *Are you applying for other permits related to this permit? If so, please list them below.*

Transmittal No.	Permit Category No.	Description
		Order of Conditions/Boston Conservation Comm.
		Army Corps of Engineers Programmatic General
		EPA/MA DEP NPDES Permit

F Amount Due

Special Provisions: ☐ **Fee Exempt** (city, town, district, or municipal housing authority) (state agency if permit fee is $100 or less)
☐ **Hardship Request** (payment extension according to 310 CMR 4.04(3)(c)
☐ **Alternative Schedule Project Request** (according to 310 CMR 4.05 and 4.10)

Check No. 10520 Dollar Amount $ 250 Date April 3, 1996

Make check payable to ***Commonwealth of Massachusetts***. Please mail check and ***yellow*** copy of transmittal form to: Dept. of Environmental Protection, P.O. Box 4062, Boston, MA, 02211

Saunders Real Estate Corporation, Agent — Union Wharf Condominium Trust

DATE	INVOICE NO.	DESCRIPTION	INVOICE AMOUNT	DISCOUNT	NET
4-02-96	960402	Permit-Sea Water Syst.	112.50		112.50
4-02-96	960402	Permit-Sea Water Syst.	250.00		250.00
CHECK DATE 4-03-96	CHECK NUMBER 10520	TOTALS >	362.50	.00	362.50

PLEASE DETACH AND RETAIN FOR YOUR RECORDS

Saunders Real Estate Corporation, Agent
Union Wharf Condominium Trust
20 Park Plaza 7th Floor
Boston, MA 02116-4399

The Bank of Boston
The First National Bank of Boston

10520

5-39
110

DATE	CHECK NO.	AMOUNT
April 3, 1996	10520	**********362.50**

Pay: Three hundred sixty-two dollars and 50 cents

PAY TO THE ORDER OF Commonwealth of Massachusetts

2 Signatures Required Over $1,000.00

⑈00105 20⑈ ⑆011000390⑆ 511 5950 2⑈

Union Wharf

Okay from ACOE
May - Oct discharge
warm months

temp from design engineers

measured at inlet

1000 gpm

10°F ΔT

permit limit

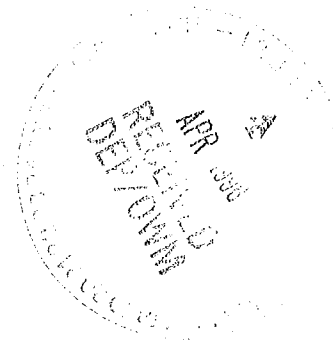
rise in temp < 1.5°F

in summer

< 4°F in winter

83°

CORTELL
ASSOCIATES



April 3, 1996

Kathleen Koehane
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
Office of Watershed Management
40 Institute Road
North Grafton, MA 01536

re: Notice of Intent/Request for General Permit Coverage, Surface Water Discharge of Non-Contact Cooling Water, Proposed Seawater Cooling System at Union Wharf, Boston, Massachusetts

Dear Ms. Koehane:

On behalf of the Union Wharf Condominium Trust, enclosed are two copies of application materials for the above-referenced project in compliance with the requirements of Massachusetts Department of Environmental Protection Request for General Permit Coverage, Surface Water Discharge of Non-Contact Cooling Water. A check covering the $250.00 permit application fee has been forwarded to the MA DEP Lock Box.

Copies of this Notice have also been submitted to the Boston Conservation Commission, as well as the U.S. EPA and U.S. Army Corps of Engineers in compliance with requirements concerning applicable permits and regulations.

Should you have any questions regarding the enclosed materials, please do not hesitate to contact me at (617) 890-3737.

Thank you for your consideration.

JASON M. CORTELL AND ASSOCIATES INC.

Eric R. Hooper, P.E.

Eric R. Hooper, P.E.
Environmental Engineer

Enclosure

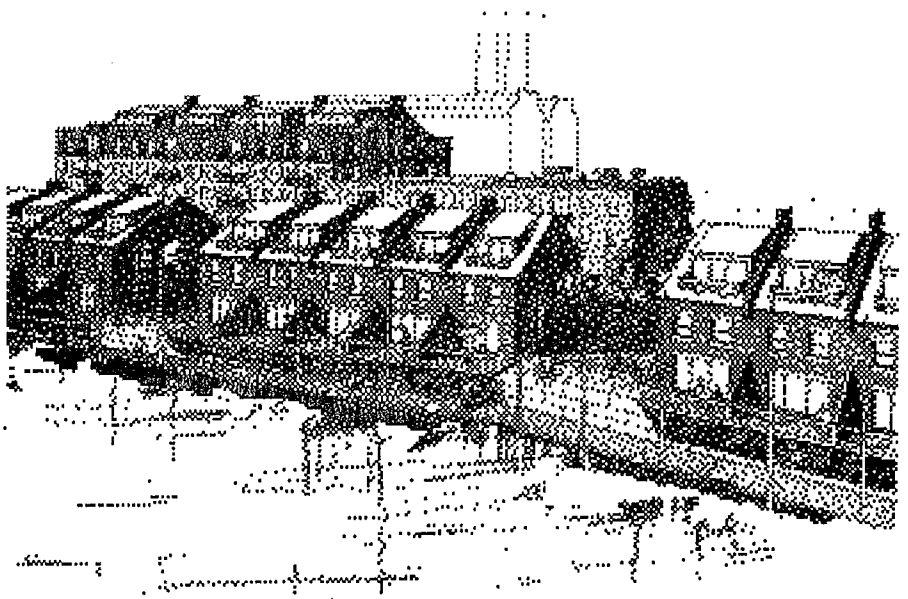
cc: J. Cortell
P. Hogan, DEP

JASON M. CORTELL AND ASSOCIATES INC. Environmental Consultants and Planners 244 Second Avenue Waltham, Massachusetts 02154 TEL 617/890-3737 FAX 617/890-3430

Union Wharf Condominium Trust

Application for Environmental Permits

Seawater Cooling System



CORTELL
ASSOCIATES

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF ATTACHMENTS

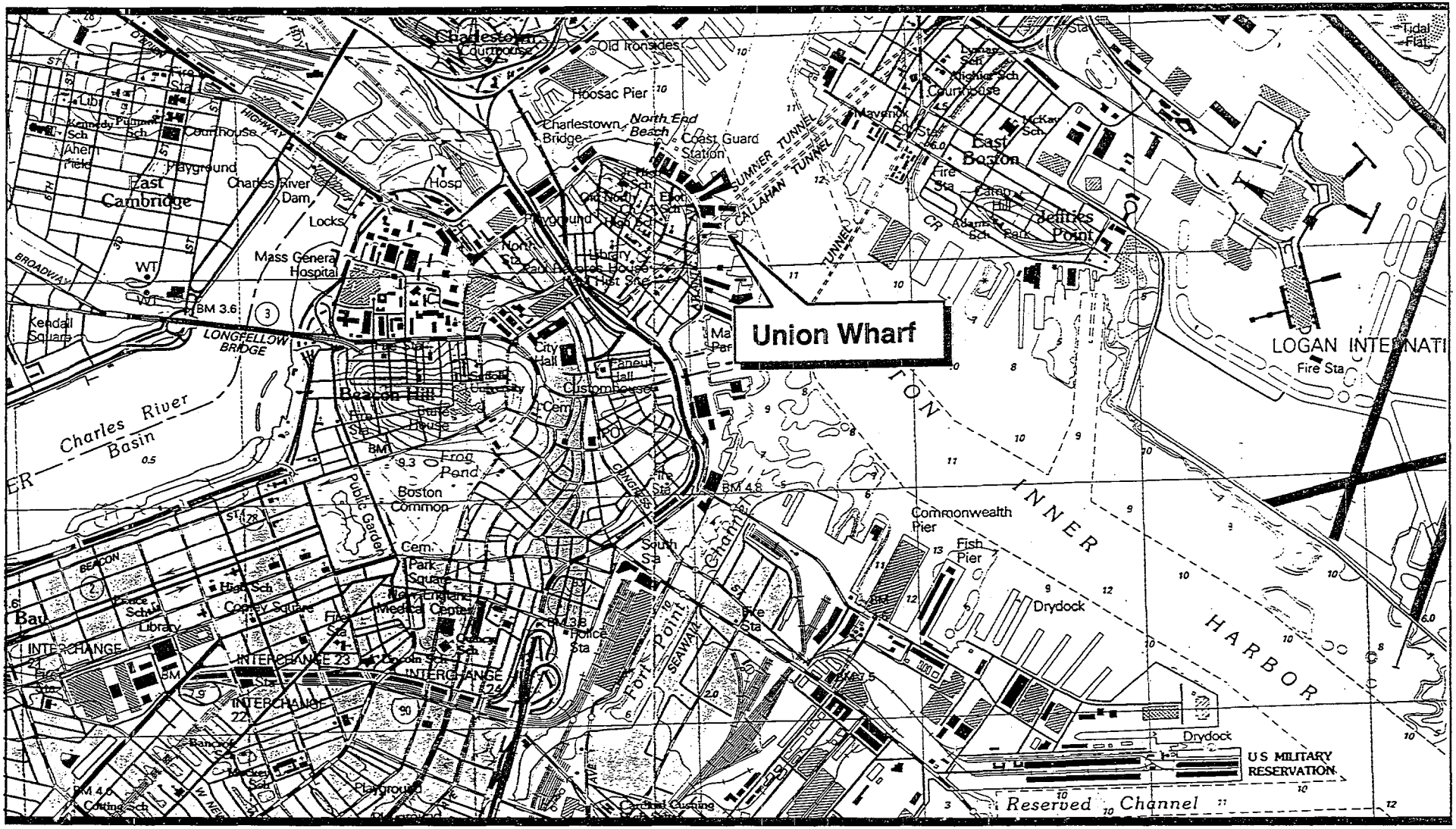
1.0 Introduction

Union Wharf is located along the east side of Commercial Street. It is bounded on the north by a channel of irregular width extending to Lincoln Wharf and on the south by a channel approximately 100 feet wide extending to Sargents Wharf. Boston Inner Harbor forms the site's eastern boundary (see Figure 1-1).

In 1978, the building at 343 Commercial Street on the Union Wharf site was converted into condominiums. As part of this renovation, an entirely new heating and cooling system was installed in the building. The cooling tower for this system is located adjacent to the old MBTA Power Plant which has also been converted into condominiums. The operation of the cooling tower has resulted in elevated noise levels which, in turn, have resulted in Noise Citations from the City of Boston.

As a result, the Union Wharf Condominium Trust has agreed to replace the cooling tower system with a seawater cooling system. This system will pump cool seawater from Boston Inner Harbor through a heat exchanger located in a partially below grade vault. Both the seawater pumped through the heat exchanger and fresh water circulating from the heat exchanger to individual heating and cooling units in each condominium will be circulated at approximately 1,000 gallons per minute (gpm). The seawater flow rate of 1,000 gpm is primarily required to prevent marine growth in the seawater system.

At the seawater intakes, strainers will be fitted to the dual intake pipes to prevent fish and other large material from being entrained in the circulation system. After passing through the heat exchanger, chilled fresh water will be pumped from the heat exchanger to the individual heating and cooling units in each condominium. Heated seawater will be discharged back into Boston Inner Harbor. The maximum temperature change within both the seawater and fresh water systems is expected to be 10°F.



Project Location

Union Wharf Condominium Trust	*Application for Environmental Permits* **Seawater Cooling System**	*Scale*	*Figure* 1-1	CORTELL ASSOCIATES

2.0 Environmental Permit Application Forms

This section provides completed environmental permit application forms associated with implementation of the proposed seawater cooling system. The Notice of Intent (NOI) filed herein under the MA Wetlands Protection Act and the City of Boston's wetlands bylaw also serves as formal application to the U.S. Army Corps of Engineers (ACOE) under their Programmatic General Permit. The NOI also serves as formal application for a U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) General Permit. A Request for General Permit Coverage/Surface Water Discharge Non-Contact Cooling Water from the MA Department of Environmental Protection (MA DEP) is also provided. Other sections of this document are incorporated by reference in this consolidated Application for Environmental Permits.

Notice of Intent

310 CMR 10.99

DEP File No. [ ]

(To be provided by DEP)

Form 3

City/Town Boston

Applicant Union Wharf Condominium Trust

Commonwealth of Massachusetts

Department of Defense United States of America

Notice of Intent Under the Massachusetts Wetlands Protection Act, G.L. c. 131, §40 and Application for a Department of the Army Permit

Part I: General Information

1. Location: Street Address 343 Commercial Street

   Lot Number Ward 03, Parcel No. 03038-200

2. Project: Type Seawater Intake/Discharge Description The project involves installation of a seawater cooling system. The system will consist of seawater intake and discharge pipes, heat exchangers and tenant heat pumps. The heat exchangers and intake pumps will be located in a partially below grade concrete vault. The intake and discharge pipes will be attached to the bulkhead wall.

3. Registry: County _____ Current Book _____ & Page _____

   Certificate (if Registered Land) _____

4. Applicant Union Wharf Condominium Trust Tel. (617) 742-1647

   Address 343 Commercial Street, Boston, MA 02109

5. Property Owner Same as Applicant Tel. _____

   Address _____

6. Representative Jason M. Cortell and Associates Inc. Tel. (617) 890-3737

   Address 244 Second Avenue, Waltham, MA 02154

7. a. Have the Conservation Commission and the Department's Regional Office each been sent, by certified mail or hand deliver, 2 copies of completed Notice of Intent, with supporting plans and documents?

   Yes ☒ No ☐ See supporting documentation in Attachment A

   b. Has the fee been submitted? Yes ☒ No ☐

   c. Total Filing Fee Submitted $250 under MA WPA; $1,500 under City of Boston Title 14, Section 450

   d. City/Town Share of Filing Fee ~~$1,637.50~~ (sent to City/Town) State Share of Filing Fee $112.50 (⅓ of fee in excess of $25, sent to DEP)

   e. Is a brief statement attached indicating how the applicant calculated the fee? ☒ Yes ☐ No See supporting documentation in Attachment B

8. Have all obtainable permits, variances and approvals required by local by-law been obtained?
Yes ☒ No ☐

Obtained	Applied for:	Not Applied for:
	BCC Order of Conditions	

9. Is any portion of the site subject to a Wetlands Restriction Order pursuant to G.L. c. 131, §40A or G.L. c. 130, §105? Yes ☐ No ☐

10. List all plans and supporting documents submitted with this Notice of Intent.

Identifying Number/Letter	Title, Date
Attachment C	Site Plan-Seawater Intake/Discharge: April 2 , 1996

11. Check those resource areas within which work is proposed:

(a) ☒ Buffer Zone

(b) Inland:

- ☐ Bank*
- ☐ Bordering Vegetated Wetland*
- ☐ Land Under Water Body & Waterway*

Land Subject to Flooding
- ☐ Bordering
- ☐ Isolated

(c) Coastal:

- ☐ Land Under the Ocean*
- ☐ Coastal Beach*
- ☐ Barrier Beach*
- ☐ Rocky Intertidal Shore*
- ☐ Land Under Salt Pond*
- ☐ Fish Run*
- ☐ Designated Port Area*
- ☐ Coastal Dune
- ☒ Coastal Bank
- ☐ Salt Marsh*
- ☐ Land Containing Shellfish*

*Likely to involve U.S. Army Corps of Engineers concurrent jurisdiction. See General Instructions for Completing Notice of Intent.

12. Is the project within estimated habitat which is indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands Wildlife (if any) published by the Natural Heritage and Endangered Species Program?

YES [ ] NO [X] Date printed on the Estimated Habitat Map
NO MAP AVAILABLE [ ] (if any) Boston South (1995)

If yes, have you sent a copy of the Notice of Intent to the Natural Heritage and Endangered Species Program via the U.S. Postal Service by certified or priority mail (or otherwise sent it in a manner that guarantees delivery within two days) no later than the date of the filing of this Notice of Intent with the conservation commission and the DEP regional office?

YES [ ] NO [ ]

If yes please attach evidence of timely mailing or other delivery to the Natural Heritage and Endangered Species Program.

Part II: Site Description

Indicate which of the following information has been provided (on a plan, in narrative description or calculations) to clearly, completely and accurately describe existing site conditions.

Identifying Number/Letter (of plan, narrative or calculations)	
	Natural Features
See Section 3.1.1	Soils
Section 3.1.2	Vegetation
Section 3.1.3	Topography
Section 3.1.4	Open water bodies(including ponds and lakes)
N/A	Flowing water bodies(including streams and rivers)
N/A	Public and private surface water and ground water supplies on or within 100 feet of site
Section 3.1.5	Maximum annual ground water elevations with dates and location of test
Section 3.1.4 and Attachment C	Boundaries of resource areas checked under Part 1, item 11 above
	Other
	Man-made Features:
Section 3.2 and Attachment C	Structures (such as buildings, piers, towers and headwalls)
Section 3.2.2	Drainage and flood control facilities at the site and immediately off the site, including culverts and open channels (with inverts), dams and dikes
N/A	Subsurface sewage disposal systems
Section 3.2.3	Underground utilities

See Section 3.2.4 and Attachment C	Roadways and parking areas
Section 3.2.4 and Attachment C	Property boundaries, easements and rights-of-way
_____	Other

Part III: Work Description

Indicate which of the following information has been provided (on a plan, in narrative description or calculations) to clearly, completely and accurately describe work proposed within each of the resource areas checked in Part I, item 11 above.

Identifying Number/Letter (of plan, narrative or calculations)	
	Planview and Cross Section of:
See Attachment C	Structures (such as buildings, piers, towers and headwalls)
N/A	Drainage and flood control facilities, including culverts and open channels (with inverts), dams and dikes
Section 3.2.3 and Attachment C	Subsurface sewage disposal systems & underground utilities
N/A	Filling, dredging and excavating, indicating volume and composition of material
N/A	Compensatory storage areas, where required in accordance with Part III, Section 10.57(4) of the regulations.
N/A	Wildlife habitat restoration or replication areas
_____	Other
Section 4.0 and Attachment C	Point Source Discharge Description of characteristics of discharge from point source (both closed and open channel), when point of discharge falls within resource area checked under Part I, item 11 above, as supported by standard engineering calculations, data and plans, including but not limited to the following:

1. Delineation of the drainage area contributing to the point of discharge;
2. Pre-and post-development peak run-off from the drainage area, at the point of discharge, for at least the 10-year and 100-year frequency storm;
3. Pre- and post-development rate of infiltration contributing to the resource area checked under Part I, item 11 above;
4. Estimated water quality characteristics of pre- and post-development run-off at the point of discharge.

Part IV: Mitigating Measures

1. Clearly, completely and accurately describe, with reference to supporting plans and calculations where necessary:

   (a) All measures and designs proposed to meet the performance standards set forth under each resource area specified in Part II or Part III of the regulations; or

   (b) Why the presumptions set forth under each resource area specified in Part II or Part III of the regulations do not apply.

☒ Coastal ☐ Inland Resource Area Type: Coastal Bank	Identifying number or letter of support documents
No adverse modifications of any coastal banks are proposed. Temporary impacts will occur along approximately 10 lineal feet of bank at the point where the bulkhead will be breached by the intake and discharge pipes. Proposed actions will not affect the structural integrity or stability of the coastal bank. A temporary silt and debris net will enclose the bulkhead wall where breaching will take place to restrict debris spillover into the harbor during project work on the bulkhead wall.	Sections 5.1 and Attachment C

☐ Coastal ☐ Inland Resource Area Type:	Identifying number or letter of support documents:

☐ Coastal ☐ Inland Resource Area Type:	Identifying number or letter of support documents

2. Clearly, completely and accurately describe, with reference to supporting plans and calculations where necessary:

   (a) all measures and designs to regulate work within the Buffer Zone so as to ensure that said work does not alter an area specified in Part I, Section 10.02(1)(a) of these regulations; or

   (b) if work in the Buffer Zone will alter such an area, all measures and designs proposed to meet the performance standards established for the adjacent resource area, specified in Part II or Part III of these regulations.

☒ Coastal ☐ Inland Resource Area Type Bordered By 100-Feet Discretionary Zone: Buffer Zone	Identifying number or letter of support documents
A partially below-grade vault will be installed within the buffer zone of the coastal bank and will contain the seawater intake pumps and heat exchange unit. Pipe trenches for the seawater and heat exchange loops will also be excavated within this buffer zone. Hay bales will be placed at the limits of disturbance prior to initiation of project work to limit potential erosion/siltation-related impacts.	Section 5.2 and Attachment C

Part V: Additional Information for a Department of the Army Permit

1. COE Application No._____
(to be provided by COE)

2. Boston Inner Harbor
(Name of waterway)

3. Names and addresses of property owners adjoining your property:

See Attachment D

4. Document other project alternatives (i.e., other locations and/or construction methods, particularly those that would eliminate the discharge of dredged or fill material into waters or wetlands).

5. 8½" x 11" drawings in planview and cross-section, showing the resource area and the proposed activity within the resource area. Drawings must be to scale and should be clear enough for photocopying. See Figure 1-1

Certification is required from the Division of Water Pollution Control before the Federal permit can be issued. Certification may be obtained by contacting the Division of Water Pollution Control, 1 Winter Street, Boston, Massachusetts 02108.

Where the activity will take place within the area under the Massachusetts approved Coastal Zone Management Program, the applicant certifies that his proposed activity complies with and will be conducted in a manner that is consistent with the approved program.

Information provided will be used in evaluating the application for a permit and is made a matter of public record through issuance of a public notice. Disclosure of this information is voluntary; however, if necessary information is not provided, the application cannot be processed nor can a permit be issued.

I hereby certify under the pains and penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents and supporting data are true and complete, to the best of my knowledge.

Susan Leavitt — 4/2/96
Signature of Applicant — Date

Eric R. Hooper P.E. — 4/2/96
Signature of Applicant's Representative — Date

FORM
NED 100 (TEST)
1 MAY 82

"Exception to ENG Form 4345 approved by HQUSACE, 6 May 1982"

"This document contains a joint Department of the Army and State of Massachusetts application for a permit to obtain permission to perform activities in United States waters. The Office of Management and Budget(OMB) has approved those questions required by the US Army Corps of Engineers. OMB Number 0702-0036 and expiration date of 30 September 1983 applies". This statement will be set in 6 point type.

Request for General Permit Coverage Surface Water Discharge of Non-Contact Cooling Water

APPENDIX A (BRP WM 11)
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
REQUEST FOR GENERAL PERMIT COVERAGE
SURFACE WATER DISCHARGE OF NON-CONTACT COOLING WATER

PROJECT PROPONENT
Name: Union Wharf Condominium Trust
Address: 343 Commercial Street
City/Town/Zip: Boston, MA 02109
Contact Person: Steve Donovan | Telephone: (617) 742-1647

CORPORATE HEADQUARTERS OR HOLDING COMPANY, IF DIFFERENT FROM ABOVE
Name:
Address:
City/Town/Zip:
Contact Person: | Telephone:

FACILITY INFORMATION AND LOCATION (Attach topographic map or other map showing facility location.)
Name: Union Wharf Condominium Trust
Address: 343 Commercial Street
City/Town/Zip: Boston, MA 02109
Latitude/Longitude: 42°22'00"/71°03'00" | USGS Quad Name: Boston South

Standard Industrial Codes (SIC) and Descriptions:

N/A (Residential Condominiums)

EFFLUENT CHARACTERISTICS (Refer to General Permit in 59 FR 22048)	Average Monthly	Maximum Daily
Flow, gpd [< 1 MGD]		1,440,000 gpd
Temperature [Warm water fishery effluents must be <83°F (28.3°C)] [Cold water fishery effluents must be <68°F(20°C)]		76°F
pH [See part I.A.1.i or j]		6.5-8.5 S.U.

Water Source of Non-Contact Cooling Water (e.g. municipal, stream withdrawal): Boston Inner Harbor Withdrawal

Receiving Waterbody: Boston Inner Harbor

CERTIFICATIONS (To be signed by responsible corporate officer)

(1) The applicant certifies that the discharge consists solely of non-contact cooling water to reduce temperature, and does not come in direct contact with any raw material, intermediate product, waste product (other than heat), or finished product.

☒ Yes ☐ No

(2) The applicant certifies that no biocides or other chemical additives for any purpose are used in the non-contact cooling water.

☒ Yes ☐ No

SIGNATURE: [signature] Date: 4/2/96

NOI PREPARER
Name: Jason M. Cortell and Associates Inc.
Address: 244 Second Avenue
City/Town/Zip: Waltham, MA 02154
Contact Person: Eric R. Hooper P.E. | Telephone: (617) 890-3737

Rev.2/23/95

3.0 Site Description

The building at 343 Commercial Street on Union Wharf was originally constructed as a warehouse in 1823. The structure is surrounded by other buildings dating from the same period. This entire area of the Boston harborfront has been gradually restored and redeveloped during the past two decades.

The following discussion describes existing site features associated with Union Wharf and, specifically, the area associated with the proposed seawater cooling system.

3.1 Natural Features

The entirety of Union Wharf consists of solid fill contained within a granite bulkhead wall. No natural features, other than Boston Inner Harbor, are present onsite.

3.1.1 Soils

As indicated above, Union Wharf consists of solid fill contained within a granite bulkhead wall. The fill material likely consists of typical urban fill.

3.1.2 Vegetation

Other than landscaping associated with buildings onsite, no naturally vegetated areas are associated with Union Wharf. The sites through which trenching will be conducted for intake and discharge pipe installation, as well as the proposed vault location, consists of stone dust and some scattered ornamental plantings.

3.1.3 Topography

Union Wharf is essentially flat, exhibiting negligible topographic relief.

3.1.4 Surface Water Features

Surface water features associated with Union Wharf consist of the waters of Boston Inner Harbor. To the north is a channel of irregular width extending to Lincoln Wharf while, to the south, a private channel approximately 100 feet wide is between Union Wharf and Sargents Wharf. Boston Inner Harbor also forms the site's eastern boundary. As indicated in Attachment C, portions of Union Wharf are also subject to flooding during 100 year storm events (City of Boston Flood Insurnace Rate Map; April, 1982).

3.1.5 Groundwater Features

No groundwater features are associated with the Union Wharf site.

3.2 Man-Made Features

The entirety of Union Wharf is comprised of man-made structures constructed on solid fill behind a granite bulkhead wall. In addition to the building at 343 Commercial Street, 5 other buildings are located on the Union Wharf property.

3.2.1 Structures

The main building at 343 Commercial Street on Union Wharf was originally built as a warehouse in 1823. The structure is surrounded by other buildings dating from the same period. The current configuration of Union Wharf consists of four townhouse buildings, the original warehouse building, and a small building located at the Commercial Street entrance (see Attachment C).

The granite bulkhead wall at the proposed location for the intake and discharge pipes is approximately 12 feet thick at the base, 6 feet thick at the top and 26 feet in height above the harbor bottom.

As defined under the MA Wetlands Protection Act regulations at 310 CMR 10.30(2), coastal bank means the seaward face or side of any elevated landform, other than a coastal dune, which lies at the landward edge of a coastal beach, land subject to tidal action, or other wetland. At Union Wharf, the granite bulkhead meets this definition, serving as the landward edge of land subject to tidal action.

3.2.2 Drainage and Flood Control Features

No drainage or flood control structures are associated with the work area of the proposed seawater cooling system.

3.2.3 Subsurface Sewage Disposal and Underground Utilities

No subsurface sewage disposal and underground utilities are presently associated with the work area of the proposed seawater cooling system.

3.2.4 Roadways, Parking Areas, Property Boundaries, Easements and Rights-of-Way

No roadways, parking areas, property boundaries, easements and rights-of-way are associated with the work area of the proposed seawater cooling system.

4.0 Work Description

The proposed seawater cooling system will consist of a heat exchanger and pumps, coupled with existing tenant heat pumps. Initially, the cooling tower will remain active until new equipment testing and contractor assurance that the seawater cooling system operates in accordance with specified performance standards.

The heat exchanger, circulation and intake pumps, along with attendant valves and strainers, will be located in the proposed partially below grade precast concrete vault. This vault will measure 20 feet long, 10 feet wide and 9 feet deep. The upper 3 feet of the vault will be above existing grade.

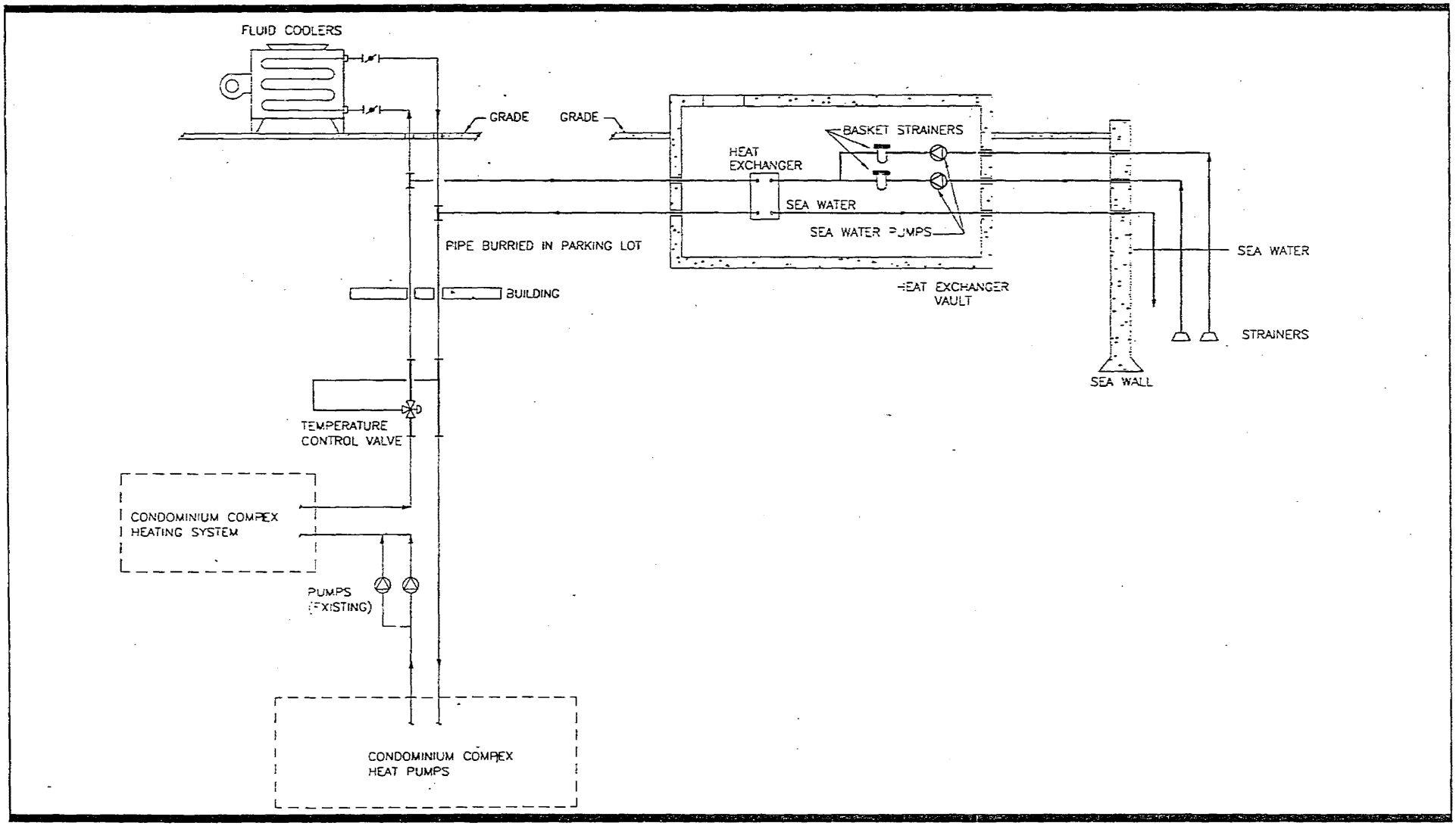
Within the vault, cool seawater from Boston Inner Harbor will be pumped through a titanium, multivaned heat exchanger. Both the seawater, pumped through the heat exchanger, and chilled fresh water, circulating from the heat exchanger to individual heating and cooling units in each condominium, will be circulated at approximately 1,000 gallons per minute (gpm). The high seawater flow rate of 1,000 gpm is required to prevent marine growth in the seawater system. Strainers will be fitted to the intake pipes to prevent fish and other large material from being entrained in the circulation system.

Chilled fresh water will be pumped from the heat exchanger to the individual heating and cooling units in each condominium. Seawater will be discharged back into Boston Inner Harbor. The maximum temperature delta between the intake and discharge seawater will not exceed 10°F.

Two breeches in the bulkhead wall (i.e. coastal bank) will be made, one to accommodate the two seawater intake pipes and the other to accommodate the single seawater discharge pipe. These pipes will be located approximately 10 feet apart, and be 6 inches in diameter. The three pipes will be installed through the granite bulkhead approximately 3 feet above mean high water. This will be accomplished through the temporary removal of the upper portions of the granite bulkhead. Following pipe installation, the upper portion of the bulkhead will be replaced. The pipes' extension to approximately 3 feet below mean low water will involve attaching the pipes to the face of the bulkhead with support brackets. This will require a limited number of small holes into the granite facing to secure the pipes.

Connection of the intake and discharge pipes to the vault and condominium units will involve trench excavation, to a depth of approximately 4 feet. These activities, in conjunction with vault installation, will be limited in duration, occurring over an estimated one month period. Immediately upon the completion of pipe installation activities, trenches will be backfilled. The stabilization of disturbed areas, including landscaping, will be implemented following equipment testing and contractor assurance that all equipment operates in accordance with specified performance standards.

A new pipe connecting the heat exchanger located in the new vault and the existing pipes leading from the cooling tower to the condominiums will be installed in the parking lot north of the condominium building (see Figure 4-1 and Attachment C). The pipe trench will be at least 4 feet deep, i.e. below the frost line, to avoid pipeline freezing.



Seawater Cooling System

SOURCE: R.G. Vanderweil Engineers, Inc. (1996)

Union Wharf Condominium Trust

Application for Environmental Permits

Seawater Cooling System

Scale

Figure 4-1

CORTELL ASSOCIATES

The connection between the proposed heat exchange unit and the existing cooling tower pipes will be maintained as insurance against malfunctioning of the seawater cooling system. In the event of seawater cooling system needs to be shut down, the existing cooling tower will be temporarily reactivated while repairs are conducted. Following contractor assurance that all equipment operates in accordance with specified performance standards, the cooling tower will be taken off-line.

5.0 Impacts/Mitigation Measures/Regulatory Compliance

5.1 Conformance with MA Wetlands Protection Act Performance Standards – Coastal Bank

Coastal banks at Union Wharf consist of the granite bulkhead through which both the proposed intake and discharge pipes will be placed. As set forth in 310 CMR 10.30, when a coastal bank is determined to be significant to storm damage prevention of flood control because it is a vertical buffer to storm waters, the following shall apply:

> Any project on such a coastal bank or within 100 feet landward of the top of such coastal bank shall have no adverse effects on the stability of the coastal bank [310 CMR 10.30(6)]
>
> Bulkheads, revetments, seawalls, groins or other coastal engineering structures may be permitted on such a coastal bank except when such bank is significant to storm damage prevention or flood control because it supplies sediment to coastal beaches, coastal dunes, and barrier beaches [310 CMR 10.30(7)]
>
> Notwithstanding the provisions of 310 CMR 10.30(3) through (7), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37 [310 CMR 10.30(8)].

As described below, the proposed project complies with each of the above-referenced performance standards.

With respect to 310 CMR 10.30(6), the proposed installation of the intake and discharge pipes through the bulkhead (i.e. coastal bank) will not adversely affect the stability of this structure. Due to the relatively small diameter (i.e. 6 inches) of both the intake and discharge pipes, limited bank disturbance will be required for pipe installation. In this regard, it should be noted that both pipes will also be installed through the granite bulkhead approximately 3 feet above mean high water. This will be accomplished through the temporary removal of the upper portions of the granite bulkhead. Consequently, the bulkhead's structural stability will not be adversely affected.

The pipes' extension to approximately 3 feet below mean low water will involve attaching the pipes to the face of the bulkhead with support brackets. Such actions, however, will not adversely affect the structural stability of the coastal bank, in that only a limited number of small holes into the granite facing will be required to secure the pipes.

Since the coastal bank onsite consists of granite, it does not supply sediment to other resource areas, including coastal beaches, coastal dunes, and barrier beaches. Moreover, based on the Massachusetts Natural Heritage Atlas (1995-96 Edition), proposed activities at Union Wharf will not adversely effect rare wetlands wildlife habitat, in that such areas are not associated with the subject property. Consequently, the performance standards set forth at 310 CMR 10.30(7) and (8) are not applicable to the proposed project.

5.2 Conformance with Performance Standards - Buffer Zone

No performance standards are contained in the MA Wetlands Protection Act regulations relative to buffer zones which, with respect to Union Wharf, extends 100 feet landward from the coastal bank. From an environmental perspective, however, buffer zone activities of primary relevance with respect to the Union Wharf project are the duration of construction, and soil erosion and sediment controls.

As described in Section 4.0, work within the buffer zone will involve trench excavation, to a depth of approximately 4 feet, associated with intake/discharge pipe installation and excavation required for installation of the concrete vault housing the intake pump and heat exchanger. These activities will be limited in duration, with actual construction to occur over an estimated one month period. Immediately upon the completion of pipe installation activities, however, trenches will be backfilled. The stabilization of disturbed areas, including landscaping, will be implemented following equipment testing and contractor assurance that all equipment operates in accordance with specified performance standards.

During the construction process, all disturbed areas will be contained by soil erosion and sediment controls to reduce erosion and retain sediment onsite during and after construction. These controls will be installed prior to the initiation of construction and be maintained, as necessary, throughout the construction period.

5.3 Conformance with Department of the Army Programmatic General Permit Standards

The proposed project will require review and authorization by the U.S. Army Corps of Engineers (ACOE)/New England Division (NED) under the Programmatic General Permit (PGP) program for Massachusetts. In their issuance of this PGP, ACOE/NED set forth thirty-two (32) conditions under which projects could proceed in conformance with the PGP. Several of these conditions are procedural in nature pertaining, for example, to construction and post-construction inspections by ACOE/NED personnel, as well as conditions relative to natural resources and historic features not present on the Union Wharf property. Consequently, of all the PGP conditions, only 6 are directly relevant to the proposed project. These conditions, or criteria to be associated with projects permittable under the PGP, include:

Minimal individual and cumulative adverse environmental impacts

A single and complete activity

No unreasonable interference with navigation

Adequate sedimentation and erosion control management measures, practices and devices to reduce erosion and retain sediment onsite during and after construction

Consistency of pollutant discharges with applicable water quality standards, effluent limitations, standards of performance, prohibitions, and pretreatment standards and management practices

Construction implemented in a manner designed to maintain, to the extent practicable, and to minimize adverse impacts to, existing fish, wildlife, and natural resource values

As described throughout this document, the proposed project will comply with each of these PGP conditions.

5.4 Conformance with National Pollutant Discharge Elimination System Permit Standards (USEPA)/Discharge to Surface Waters Permit Standards (MADEP)

To achieve compliance with the provisions of the Federal Clean Waters Act (CWA) and Massachusetts Water Quality Standards, discharges of non-contact cooling waters must meet the following water quality criteria:

> The rise in temperature due to a discharge to Class SB waters (Boston Inner Harbor) shall not exceed 1.5°F (0.8°C) during the summer months (July through September) nor 4°F (2.2°C) during the winter months (October through June) and natural seasonal and daily variations shall be maintained [314 CMR 4.05(4)(a)2].

The circulated seawater associated with the proposed cooling system at Union Wharf is considered to be non-contact cooling water in that no chemicals are added to the water and it does not come into contact with any raw material, intermediate product, waste product (other than heat) or finished product.

As indicated previously, water will be circulated on both sides of the heat exchange unit in the partially below ground vault at approximately 1,000 gallons per minute. The flow rate of 1,000 gpm for both intake and discharge pipes is primarily required to prevent marine growth in the seawater system since no chemicals will be added to the seawater to prevent marine growth. Strainers will be fitted to the intake pipes to prevent fish and other large material from being entrained in the circulation system. Chilled fresh water will be pumped from the heat exchanger to the individual heating and cooling units in each condominium. Heated seawater will be discharged back into Boston Inner Harbor.

The maximum temperature delta between the intake and discharge seawater will not exceed 10°F. This maximum temperature change will occur only during the summer cooling period. Maximum discharge temperature is expected to be 76°F. This is based on a normal observed high temperature for Boston Inner Harbor waters in the vicinity of the Union Wharf of 66°F.

At the maximum temperature increase of 10°F, approximately 4,500 gpm would have to be entrained to reduce the temperature of the discharge water to 1.5°F above ambient temperatures in accordance with water quality standards. Therefore, under existing State regulations regarding thermal discharges, this volume constitutes the mixing zone for the initial dilution of the proposed 1,000 gpm discharge. This mixing zone is not anticipated to interfere with the migration or free movement of fish or other aquatic life, and will not cause nuisance conditions or otherwise diminish the existing designated uses of Boston Inner Harbor. Consequently, the proposed discharge of thermal waters at Union Wharf is expected to comply with the applicable standards set forth at 314 CMR 4.00.

Certification that the discharge consists solely of non-contact cooling water and that no chemical additives are used in the non-contact cooling water system is enclosed as Attachment E. A proposed discharge monitoring program is enclosed as Attachment F.

Attachment A

Regulatory Agency Correspondence

CORTELL
ASSOCIATES

April 2, 1996

Judith McDonough, Executive Director
MASSACHUSETTS HISTORICAL COMMISSION
80 Boylston Street
Boston, MA 02116

re: Union Wharf Seawater Cooling System, Boston, Massachusetts

Dear Ms. McDonough:

JASON M. CORTELL and ASSOCIATES, INC. has been retained as environmental consultant to The Union Wharf Condominium Trust with respect to the Trusts' proposed seawater cooling system for the building at 345 Commercial Street. In this regard, CORTELL is presently preparing environmental permit applications, including an application for a Programmatic General Permit (PGP) with the U.S. Army Corps of Engineers (ACOE).

As required under ACOE's PGP program, it is the intent of this letter to notify your office of proposed activities, and request any information on the location and existence of archaeologic/historic resources onsite. A map showing the locations of any such areas/resources would be most helpful.

The proposed seawater cooling system will be located on vacant lands within Trust property on Union Wharf, and will replace the current evaporative cooling tower. No portion of the building will be disturbed. System components will consist of two seawater intake pipes, a partially below grade precast concrete vault, a new freshwater circulation pipe connecting to existing pipes servicing the building, and a discharge pipe. The vault will house a heat exchanger and pumps, ancillary valves and strainers, coupled with existing tenant heat pumps. The vault, itself, will measure 20 feet long, 10 feet wide and 9 feet in height. The upper 3 feet of the vault will be above existing grade.

Two breeches in the existing granite bulkhead wall will be made, one to accommodate the dual seawater intake pipes and the other to accommodate the single seawater discharge pipe. The intake and discharge pipes will be located approximately 10 feet apart, and be 6 inches in diameter. All pipes will be installed through the granite bulkhead approximately 3 feet above mean high water. This will be accomplished through the temporary removal of the upper portions of the granite bulkhead, which will be replaced following pipe installation. All other surface features, including disturbed portions of the harbor walk, will be returned to pre-construction status prior to completion of the project.

JASON M. CORTELL AND ASSOCIATES INC. | Environmental Consultants and Planners | 244 Second Avenue Waltham, Massachusetts 02154 | TEL 617/890-3737 FAX 617/890-3430

The Trust recognizes that the building at 345 Commercial Street on Union Wharf was originally constructed as a warehouse in 1823, and that the structure is surrounded by other buildings dating from the same period. The Trust further recognizes that this entire area of the Boston harborfront has been gradually restored and redeveloped during the past two decades and, as such, replacing an above-ground evaporative cooling tower with a primarily below-ground seawater system is in keeping with this trend.

To assist in your review, enclosed is a USGS topographic map indicating the approximate location of the project, as well as a site plan of the proposed seawater cooling system.

Please call with any questions regarding this material.

Sincerely,

JASON M. CORTELL and ASSOCIATES INC.

Eric R. Hooper

Eric R. Hooper, P.E.
Environmental Engineer

cc: J. Cortell
M. Dennis
File 91241

Enclosure

Attachment B

City of Boston Notice of Intent Check-Off Sheet and City/State Filing Fee Calculation Worksheet

This Attachment contains the City of Boston Notice of Intent Check-off Sheet, as well as the City/MA DEP Filing Fee Calculation Worksheet. As indicated in the NOI form (Section 2.0), the NOI filing fee under the MA Wetlands Protection Act (MA WPA) is $250, with 50% of the total in excess of $25 constituting the amount to be filed with MA DEP. The remainder represents the amount to be filed with the City under the MA WPA.

In accordance with City of Boston Title 14, Section 450, "For projects with a fair cost of more than $100,000.00 the fee shall be 0.075% of the fair cost provided, however, that in no case shall the fee be more than $1,500.00." Since project costs of approximately $240,000 are anticipated, a City filing fee of $180 is to be provided.

Guidelines for Filing a Notice of Intent with the Boston Conservation Commission

In order for BCC to effectively process your Notice of Intent filed under the Massachusetts Wetlands Protection Act M.G.L. Ch. 131, S. 40, the Boston Conservation Commission requests that you complete this check-off sheet and include it with your submission.

To the Conservation Commission:

[X] a) ~~Two (2)~~ Eight (8) copies of a completed Notice of Intent (form 3 of Section 10.99).

[X] b) ~~Two (2)~~ Eight (8) copies of plans in their final form with engineer's stamp affixed, supporting calculations and other documentation necessary to completely describe the proposed work and mitigating measures.

[X] c) Two (2) copies of an 8 1/2" x 11" section of the USGS quadrangle map of the area, containing sufficient information for the Conservation Commission and the Department to locate the site of the work.

[X] d) Have you answered question 12 of the Notice of Intent, page 3-3, pertaining to wildlife habitat? The Conservation Commission and the Natural Heritage & Endangered Species Program have the maps necessary to make this determination.

[ ] e) Any photographs related to this project which may show the pending wetlands areas.

[ ] f) (if applicable) Drainage calculations including: rooftops, parking lots, driveways, etc. for 100 year storm event.

[ ] g) Details of drainage system, including: oil separating catch basins, oil separating tanks, detention basins, outfalls, sewer connections, etc.

[X] h) Plans delineating wetlands vegetation, 100 year Flood Hazard Burden, and 100 foot buffer zone from Flood Hazard Area.

NOTICE OF INTENT FEE TRANSMITTAL FORM

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WETLANDS AND WATERWAYS

NOTICE OF INTENT (NOI) APPLICANT:

Name Union Wharf Condominium Trust

Street 345 Commercial Street

City/Town Boston

State MA Zip Code 02109

Phone Number (617) 742-1647

PROPERTY OWNER:

Name Same as Applicant

Street _____

City/Town _____

State _____ Zip Code _____

Project Location: Street/Lot Number 345 Commercial Street

City/Town Boston, MA 02109

DEP FILE NUMBER (if available) _____

NOI FILING FEE

Total NOI Filing Fee: $ 250.00

State Share of Filing Fee: $ 112.50
(1/2 of fee in excess of $25.00)

City/Town Share of Filing Fee: $ 137.50

DISPUTED FEE

Total Disputed Fee: $ _____
(as determined in Notice of Insufficient Fee letter from conservation commission)

State Share of Fee: $ _____
(1/2 of total disputed fee)

City/Town Share of Fee: $ _____
(1/2 of total disputed fee)

INSTRUCTIONS

1. Send this Fee Transmittal form with a check or money order, payable to the Commonwealth of Massachusetts, to the DEP Lock Box at:

   Department of Environmental Protection
   Box 4062
   Boston, MA 02211

2. Attach a copy of this form to the Notice of Intent submitted to the local Conservation Commission.

3. Attach a copy of this form and a copy of the DEP check to each of the Notice of Intent forms submitted to the DEP regional office.

11/10/89

Wetlands Filing Fee Calculation Worksheet

For Notices of Intent Filed under the Massachusetts Wetlands Protection Act (G.L. Ch. 131, Sec. 40)*

		$	#
CATEGORY 1	**$55 Per Activity**		
a.	Existing House/Residential Lot (addition, deck, garage, pool, shed or driveway)		
b.	Site Preparation (each Single Family House (SFH) lot; removal of vegetation, excavation grading where house construction is not proposed under same NOI)		
c.	Control of Nuisance Vegetation (removal, herbicides, etc.; per lot under 10.53(4))		
d.	Resource Area Improvement (under 10.53(4); other than removal of aquatic nuisance vegetation)		
e.	Septic System (or any part thereof; construction, replacement, upgrade)		
f.	Monitoring Wells (installation activities except access road)		
g.	New Agricultural or Aquacultural Projects		
TOTAL CATEGORY 1 ACTIVITIES			
CATEGORY 2	**$250 Per Activity**		
a.	Construction of Each New SFH (including site preparation, retention/detention basins, utilities, septic systems, roadway/driveway except under 10.53(3e); under single NOI)		
b.	Parking Lot (any size)		
c.	Beach Nourishment (placement of sand)		
d.	Coastal Activities (pursuant to 10.24(7a-c) (including electric generating facilities, public utilities, limited projects e.g.: repair/maintenance of existing piers, buildings, culverts)		
e.	Limited Project Activities (in 10.53(d and f-l); per footprint)		
f.	Each Driveway Crossing (associated with a SFH pursuant to 10.53(3e))		
g.	Any Point Source Discharge	$250	1
h.	Control of Nuisance Vegetation (under 10.53(4); except on a SFH Lot)		
i.	Raising or Lowering Surface Water Levels		
j.	Any Other Activity not described in Cat.1, 3, 4 & 5		
TOTAL CATEGORY 2 ACTIVITIES		$250	1
CATEGORY 3	**$525 Per Activity**		
a.	Site Preparation for Development (except SFH ; including removal of vegetation, excavation & grading when actual construction not proposed under same NOI)		
b.	Construction of Each Building within Commercial, Industrial, Institutional, or Apartment/Condo/ Townhouse Development (including: site preparation, retention/detention basins, septic systems, parking lots, utilities, point source discharges, package sewage treatment plants, roadways/driveways- except under 10.53(3e) if under single NOI)		
c.	Each Roadway/Driveway Crossing (if not reviewable under 10.53(3e) or associated with SFH)		
d.	Hazardous Waste Cleanup (except as in Cat 4)		
TOTAL CATEGORY 3 ACTIVITIES			
CATEGORY 4	**$725 Per Activity**		
a.	Each Roadway/Driveway Crossing (under 10.53(3e) associated with commercial, industrial, institutional development or residential subdivision construction)		
b.	Flood Control Structures (construction, repair, maintenance)		
c.	Landfills (public & private); creation, maintenance, operation		
d.	Sand and Gravel Operations (creation, maintenance, operation)		
e.	Railroad Lines (new or extensions of existing)		
f.	Bridges (construction, reconstruction, expansion, maintenance; except for a SFH Lot)		
g.	Alteration of Resource Area to Divert Water (associated with hazardous waste cleanup, non-exempt mosquito control projects, other purpose not identified elsewhere in this schedule)		
h.	Dredging Activities in Water Bodies (except associated with new dock, pier or other structure)		
i.	Package Sewage Treatment Plant (construction; discharge from)		
TOTAL CATEGORY 4 ACTIVITIES			
CATEGORY 5	**$2 per Linear Foot Minimum $50. Maximum $1,000.**		
a.	Docks, Piers, Revetments, Dikes or Other Engineering Structures (construction, reconstruction, repair, or replacement; coastal or inland; including placement of rip-rap or other material)		
TOTAL CATEGORY 5 ACTIVITIES			
TOTAL FILING FEE (Sum of Totals in Categories 1 - 5)		$250	1

Person Calculating Fee Schedule Eric R. Hooper, Env. Eng.

Address Jason M. Cortell and Associates Inc.
244 Second Avenue, Waltham, MA 02154

Telephone 617-890-3737

Signature Eric R Hooper PE Date 4/2/96

* *Categories as in 310 CMR 10.03(7)(c); Fees as in 801 CMR 4.02*

Prepared by the Massachusetts Association of Conservation Commissions. Revised 12/1/93.

Attachment C

Site Survey/Site Plan

Sheet 1 of 1

"Seawater Intake Study"
Union Wharf
Boston, MA
March 1996

Childs Engineering Corp.

Attachment D

List of Abutters/Affidavit of Service/Abutter Notification

LIST OF ABUTTERS

San Marco/Lincoln Wharf Condominium Trust
c/o Jonathan K. Dayton
THE CODMAN COMPANY, INC.
211 Congress Street
Boston, MA 02110

Mr. Gary A. Pappas, Esq.
Chairman, Mariner Condominium Association
300 Commercial Street, Unit 704
Boston, MA 02109

Ms. Marisa Largo, Director
BOSTON REDEVELOPMENT AUTHORITY
Boston City Hall
1 City Hall Square
Boston, MA 02201

Mr. William Donovan, Regional Manager
THE FINCH GROUP
77 North Washington Street, 8th Floor
Boston, MA 02114

Mr. Mark Sullivan
Burrough's Wharf Condominiums
40 Battery Street
Boston, MA 02109

JASON M. CORTELL AND
ASSOCIATES INC.

AFFIDAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act

(to be submitted to the Massachusetts Department of
Environmental Protection and the Conservation Commission
when filing a Notice of Intent)

I, Eric R. Hooper, hereby certify under the pains and penalties of perjury that on April 4, 1996, I gave notification to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and the **DEP Guide to Abutter Notification** dated April 8, 1994, in connection with the following matter:

> Notice of Intent filed under the Massachusetts Wetlands Protection Act by Union Wharf Condominium Trust with the Boston Conversation Commission on April 4, 1996 for property located at 345 Commercial Street.

The form of the notification, and a list of the abutters to whom it was given and their addresses, are attached to this Affidavit of Service.

Eric R Hooper P.E.
Name

4/12/96
Date

Notification to Abutters Under the Massachusetts Wetlands Protection Act

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, you are hereby notified of the following.

A. The name of the applicant is Union Wharf Condominium Trust.

B. The applicant has filed a Notice of Intent with the Conservation Commission for the municipality of Boston seeking permission to remove, fill, dredge or alter an Area Subject to Protection Under the Wetlands Protection Act (General Laws Chapter 131, Section 40).

C. The address of the lot where the activity is proposed is 345 Commercial Street.

D. Copies of the Notice of Intent may be examined at Conservation Commission Office, Boston City Hall between the hours of 9 am and 5 pm on the following days of the week: Monday through Friday.

For more information, call: (617) 742 - 1647.

Check One: This is the applicant ☐, representative ☐, or other ☒ (specify): Building Manager.

E. Copies of the Notice of Intent may be obtained from either (check one) the applicant ☐, or the applicant's representative ☐, by calling this telephone number (617) 742 - 1647 between the hours of 9 am and 5 pm on the following days of the week: Monday through Friday.

F. Information regarding the date, time, and place of the public hearing may be obtained from Steven Donovan

by calling this telephone number (617) 742 - 1647 between the hours of 9 am and 5 pm on the following days of the week:

Check One: This is the applicant ☐, representative ☐, or other ☒ (specify): Building Manager.

NOTE: Notice of the public hearing, including its date, time, and place, will be published at least five (5) days in advance in the Boston Globe (name of newspaper).

NOTE: Notice of the public hearing, including its date, time, and place, will be posted in the City or Town Hall not less than forty-eight (48) hours in advance.

NOTE: You also may contact your local Conservation Commission or the nearest Department of Environmental Protection Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call:

Central Region: 508-792-7650

Northeast Region: 617-935-2160

Southeast Region: 508-946-2800

Western Region: 413-784-1100

Attachment E

Discharge/Non-Contact Cooling System Certification

JASON M. CORTELL AND
ASSOCIATES INC.

DISCHARGE/NON-CONTACT COOLING SYSTEM CERTIFICATION

I certify with this Notice of Intent that no chemicals are used in the Non-Contact Cooling System servicing the Union Wharf as required by the NPDES General Permit for Non-Contact Cooling Water Discharges as issued in the Federal Register dated April 28, 1994 at Part IV Section B.

I further certify that the discharge consists solely of non-contact cooling water and that no other waste streams are discharged with the cooling water discharge. At the date of this certification, the Notice of Intent is appropriate for the facility, and the facility is in compliance with the NPDES General Permit for Non-Contact Cooling Water Discharges

I also certify that I have the authority required by the conditions of the NPDES General Permit for Non-Contact Cooling Water Discharges as issued in the Federal Register dated April 28, 1994.

I also certify under penalty of law that this document and all attachments were prepared under my direction in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the persons who manage the system, and those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signed: Susan Leavitt Date: 4/2/96

Name: Susan Leavitt

Position: President of Trustees, Union Wharf

Attachment F

Discharge Monitoring Program

JASON M. CORTELL AND
ASSOCIATES INC.

DISCHARGE MONITORING PROGRAM

Monitoring results from monthly sampling of flow, temperature and pH will be summarized on separate Discharge Monitoring Report Forms (DMR) postmarked no later than the 15th day of the month following the completed reporting period. The reports are due on the 15th day of January and July. Signed copies of the DMRs will be submitted to the following:

U.S. Environmental Protection Agency
NPDES Program Operations Section
P.O. Box 8127
Boston, MA 02114

Massachusetts Department of Environmental Protection
Northeast Regional Office
10 Commerce Way
Woburn, MA 01801

Massachusetts Department of Environmental Protection
Office of Watershed Management
40 Institute Road
North Grafton, MA 01536

MONITORING LOCATION AND PROCEDURE

Flow will be reported as a total daily volume as recorded on a totalizing meter located on the intake line.

Temperature and pH will be reported as the maximum and average of 4 grab samples. Samples will be obtained at three locations:

At the discharge location and depth,

At a distance of 10 feet from the discharge at the depth of the discharge, and

At a distance of 25 feet from the discharge at the depth of the discharge.

All samples will be obtained during a weekday early afternoon to provide result consistency.

MONITORING FREQUENCY

Monthly monitoring is required.

310 CMR 10.99

DEP File No 6-668

(To be provided by DEP)

Form 5

Commonwealth
of Massachusetts

City/Town Boston

Applicant Union Wharf Condominium Trust

Order of Conditions Massachusetts
Wetlands Protection Act
G.L. c. 131, s. 40

From Boston Conservation Commission (BCC) Issuing Authority

To Union Wharf Condominium Trust (Name of Applicant) Union Wharf Condominum Trust (Name of property owner)

Address 343 Commercial Street, Boston, MA, 02190 Address 343 Commercial Street

This order is issued and delivered as follows:

☐ by hand delivery to applicant or representative on _____ (date)

☐ by certified mail, return receipt requested on 5/13/96 (date)

This project is located at 343 Commercial Street, Ward 3, Parcel No. 03038-200

The property is recorded at the Registry of Suffolk

Book _____ Page _____

Certificate (if registered) _____

The Request for Amended Order of Conditions for this project was filed on ____ (date)

The public hearing was closed on 4/17/96 (date)

Findings

The BCC has reviewed the above - referenced Notice of Intent and plans and has held a public hearing on the project. Based on the information available to the BCC at this time, the BCC has determined that the area on which the proposed work is to be done is significant to the following interests in accordance with the Presumptions of Significance set forth in the regulations for each Area Subject to Protection Under the Act (check as appropriate):

☐ Public water supply	☐ Flood Control	☐ Land containing shellfish
☐ Private water supply	☐ Storm damage prevention	☒ Fisheries
☐ Ground Water supply	☒ Prevention of pollution	☐ Protection of Wildlife Habitat

Total Filing Fee Submitted $_____ State Share _____ (1/2 fee in excess of $25)

City/Town Share _____

Total Refund Due $____ City/Town Portion _____ (1/2 total) State Portion $_____ (1/2 Total)

Therefore, the BCC hereby finds that the following conditions are necessary, in accordance with the Performance standards set forth in the regulations, to protect those interests checked above. The BCC orders that all work shall be performed in accordance with said conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications or other proposals submitted with the Notice of Intent, the conditions shall control.

General Conditions

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this order.

2. The order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.

3. This order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state or local statutes, ordinances, by-laws or regulations.

4. The work authorized hereunder shall be completed within three years from the date of this order unless either of the following apply:
   (a) the work is a maintenance dredging project as provided for in the Act, or
   (b) the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance and both that date and the special circumstances warranting the extended time period are set forth in this Order.

5. This order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.

6. Any fill used in connection with this project shall be clean fill, containing no trash, refuse, rubbish or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles or parts of any of the foregoing.

7. No work shall be undertaken until all administrative appeal periods from this order have elapsed or, if such an appeal has been filed, until all proceedings before the Department have been completed.

8. No work shall be undertaken until the Final order has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of registered land, the Final order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is to be done. The recording information shall be submitted to the BCC on the form at the end of this order prior to commencement of the work.

9. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words, "Massachusetts Department of Environmental Protection.
File Number 6-668"

10. Where the Department of Environmental Protection is requested to make a determination and to issue a superseding order, the Conservation Commission shall be a party to all agency proceedings and hearings before the Department.

11. Upon completion of the work described herein, the applicant shall forthwith request in writing that a Certificate of Compliance be issued stating that the work has been satisfactorily completed.

12. The work shall conform to the following plans and special conditions:

Plans:

Title	Dated	Signed and stamped by:	on File with:

Special Conditions (Use additional paper if necessary)

See Attached.

(Leave Space Blank)

Issued By Boston Conservation Commission

Signature(s) _____

Elisa M. Speranza

This order must be signed by a majority of the conservation commission.

On this 18th day of April 19 96, before me

personally appeared Vineet Gupta, to me known to be the person described in and who executed the foregoing instrument and acknowledged that he/she executed the same as his/her free act and deed.

Notary Public

12/4/98
My commission expires

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land upon which the proposed work is to be done, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the Department of Environmental Protection to issue a Superseding Order, providing the request is made by certified mail or hand delivery to the Department, with the appropriate filing fee and Fee Transmittal Form as provided in 310 CMR 10.03(7), within ten days from the date of issuance of this determination. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and the applicant.

Detach on dotted line and submit to the _____ prior to commencement of work.

To Boston Conservation Commission Issuing Authority

Please be advised that the Order of Conditions for the project at _____

File Number 6-669 has been recorded at the Registry of _____ and

has been noted in the chain of title of the affected property in accordance with General Condition 8 on

_____. 19_____.

If recorded land, the instrument number which identifies this transaction is _____

If registered land, the document number which identifies this transaction is _____

Signature _____ Applicant

13. The provisions of this Order shall apply to and be binding upon the applicant, its employees, contractors and subcontractors, and all successors and assignees in interest or control. The applicant and its leaseholder assume all responsibility for the proper conduct of all activities permitted including proper monitoring of any contractors' compliance with the Conditions of this Order. The proponent is hereby instructed to review such conditions with all contractors and workers involved in on site operations prior to any new construction. Any contractors and workers arriving after construction commences shall likewise be appraised of these conditions.

14. Members and agents of the Commission shall have the right to enter and inspect the premises to evaluate compliance with the Conditions of this Order and the Act, and to require the submittal of any data deemed necessary for that evaluation.

15. Any errors in the plans or information submitted by the applicant shall be considered changes. Any changes made or intended in the submitted plans shall require the proponent to inquire to the Commission in writing as to whether the changes warrant further formal Commission review.

16. The Commission reserves the right to impose additional conditions or require the submittal of additional information as necessary to protect the interests of the Act.

17. If at any time during the implementation of the project a fish kill or significant water quality problem occurs in the vicinity of the project, all site related activities impacting the water shall cease until the source of the problem is identified and adequate mitigating measures employed to the satisfaction of the Commission.

18. Where relevant, all facilities and equipment will be continually operated and maintained so as to comply with the conditions and the Act. The applicant, owner successor or assignees shall be responsible for maintaining all on site drainage structures and outfalls, assuring the lasting integrity of the surface cover on the site and site activities so as to prevent erosion, siltation, sedimentation, chemical contamination or other detrimental impact to the on-site and/or off-site resources areas. This condition shall be a maintenance condition, and shall not expire upon the issuance of a certificate of compliance.

19. A copy of this Order of Conditions, including all referenced documents and plans, and all other subsequent approvals and directives issued by the Boston Conservation Commission, shall be available for inspection or reference at the site.

20. All land side project related materials shall be contained to prevent erosion into the water by using all practical precautions, including but not limited to placement of haybales and silt fence or temporary barriers to prevent erosion of these materials

21. All practical precautions shall be used during seawall and inflow and outflow work including but not limited to silt curtains attached to a floating boom to minimize turbidity and other water quality impacts.

22. The proponent shall place haybales around sewer and storm drains to prevent the escape of any material or other potential pollutants.

23. The proponent shall clean the work area at the end of each workday to prevent wind deposition of fugitive dust and accumulation of debris in the buffer zone or in the water.

24. During and after work on this project, there shall be no discharge or spillage of fuel, oil, or any other pollutant into the waters of Boston Harbor.

25. The proponent shall develop a spill management plan for any hazardous materials which may be employed during work in the buffer zone or over the water. Specifically, the proponent should prepare to effectively deal with spillage of fuel or hydraulic fluids from equipment. A quick-absorbent material, such as "Speedy Dry" or equivalent, will be stored in a dry readily available area, and used in the event petroleum based fluids are spilled or leaked. The spent material is then to be containerized and disposed of property. An emergency fuel boom shall be stored on site for deployment in the event of spillage caused by any equipment utilized in the proponents operations.

26. Prior to commencement of any construction on the seawall or cooling system, all catch basins on the property shall be cleaned.

27. The gate and fence between Union Wharf and Lincoln and Burrough's Wharf shall be removed. Neither the existing gate and fence nor the proposed cooling component shall impede public access along the Harborwalk in this area. At all time prior to the removal of the gate and fence the gate shall remain open from dawn until dusk.

28. After the installation of silt curtains attached to a floating boom the proponent shall have the metallic debris removed from the harbor at the base of the seawall.

29. When any regrading of the parking lot or reconstruction of storm drains/catch basins surface drains on the project site, the proponent shall have a permanent plaque placed within one foot of the structure indicating that drainage flows directly into Boston Harbor.

The Commonwealth of Massachusetts

No. 5908

Whereas,

Union Wharf Condominium Trust

of -- Boston, -- in the County of -- Suffolk -- and Commonwealth aforesaid, has applied to the Department of Environmental Protection for license to -- construct and maintain a sea water cooling system ----------

and has submitted plans of the same; and whereas due notice of said application, ~~and of the time and place fixed for a hearing thereon,~~ has been given, as required by law, to the -- Mayor & City Council -- of the City of -- Boston. ----------

NOW, said Department, having heard all parties desiring to be heard, and having fully considered said application, hereby, subject to the approval of the Governor, authorizes and licenses the said ----------

Union Wharf Condominium Trust --, subject to the provisions of the ninety-first chapter of the General Laws, and of all laws which are or may be in force applicable thereto, to -- construct and maintain a sea water cooling system ----------

in and over the waters of -- Boston Harbor -- in the -- City -- of -- Boston -- and in accordance with the locations shown and details indicated on the accompanying DEP License Plan No. 5908, (5 sheets)

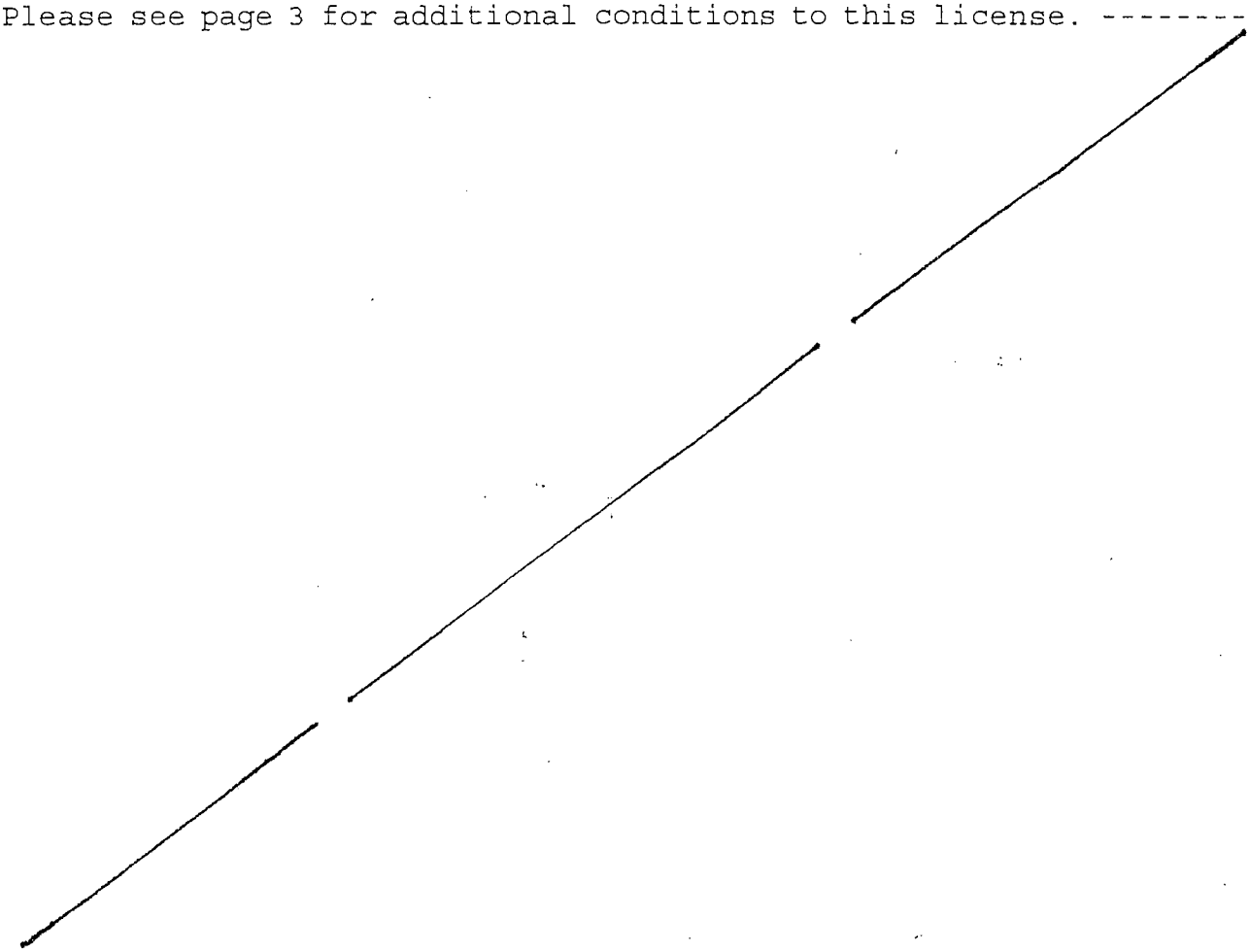
The structures hereby authorized shall be limited to the following use: to provide sea water for a residential cooling system. --------

This license will expire thirty (30) years from the date of the license issuance. By written request of the licensee for an amendment, the Department may grant a renewal for the term of years not to exceed that authorized in the original license. ----------

The Licensee shall allow the public to pass on foot along the entire waterfront of the site for any lawful purpose from dawn to dusk, at a minimum, which provides clear and unobstructed access to Commercial Avenue and the Harborwalk extension on Lincoln Wharf/San Marco and Burroughs Wharf properties through an open and unlocked gate. --------

The final resolution of the fence along the northern property line shall be addressed through the pending license application (no. W93-1978) which shall also include c.91 authorization for all structures and uses on the tidelands of the site unless the Licensee submits adequate documentation that previous c. 91 authorization has been granted. ----------

Please see page 3 for additional conditions to this license. ---------



Duplicate of said plan, number 5908 is on file in the office of said Department, and original of said plan accompanies this License, and is to be referred to as a part hereof.

STANDARD WATERWAYS LICENSE CONDITIONS

1. Acceptance of this Waterways License shall constitute an agreement by the Licensee to conform with all terms and conditions stated herein.

2. This License is granted upon the express condition that any and all other applicable authorizations necessitated due to the provisions hereof shall be secured by the Licensee prior to the commencement of any activity or use authorized pursuant to this License.

3. Any change in use or any substantial structural alteration of any structure or fill authorized herein shall require the issuance by the Department of a new Waterways License in accordance with the provisions and procedures established in Chapter 91 of the Massachusetts General Laws. Any unauthorized substantial change in use or unauthorized substantial structural alteration of any structure or fill authorized herein shall render this Waterways License void.

4. This Waterways License shall be revocable by the Department for noncompliance with the terms and conditions set forth herein. This license may be revoked after the Department has given written notice of the alleged noncompliance to the Licensee and those persons who have filed a written request for such notice with the Department and afforded them a reasonable opportunity to correct said noncompliance. Failure to correct said noncompliance after the issuance of a written notice by the Department shall render this Waterways License void and the Commonwealth may proceed to remove or cause removal of any structure or fill authorized herein at the expense of the Licensee, its successors and assigns as an unauthorized and unlawful structure and/or fill.

5. The structures and/or fill authorized herein shall be maintained in good repair and in accordance with the terms and conditions stated herein and the details indicated on the accompanying license plans.

6. Nothing in this Waterways License shall be construed as authorizing encroachment in, on or over property not owned or controlled by the Licensee, except with the written consent of the owner or owners thereof.

7. This Waterways License is granted subject to all applicable Federal, State, County, and Municipal laws, ordinances and regulations including but not limited to a valid final Order of Conditions issued pursuant to the Wetlands Protection Act, G.L. Chapter 131, s.40.

8. This Waterways License is granted upon the express condition that the use of the structures and/or fill authorized hereby shall be in strict conformance with all applicable requirements and authorizations of the DEP, Division of Water Pollution Control.

9. This License authorizes structure(s) and/or fill on:

_x_ Private Tidelands. In accordance with the public easement that exists by law on private tidelands, the licensee shall allow the public to use and to pass freely upon the area of the subject property lying between the high and low water marks, for the purposes of fishing, fowling, navigation, and the natural derivatives thereof.

_x_ Commonwealth Tidelands. The Licensee shall not restrict the public's right to use and to pass freely, for any lawful purpose, upon lands lying seaward of the low water mark. Said lands are held in trust by the Commonwealth for the benefit of the public.

___ a Great Pond of the Commonwealth. The Licensee shall not restrict the public's right to use and to pass freely upon lands lying seaward of the high water mark for any lawful purpose.

No restriction on the exercise of these public rights shall be imposed unless otherwise expressly provided in this license.

10. Unless otherwise expressly provided by this license, the licensee shall not limit the hours of availability of any areas of the subject property designated for public passage, nor place any gates, fences, or other structures on such areas in a manner that would impede or discourage the free flow of pedestrian movement thereon.

The amount of tide-water displaced by the work hereby authorized has been ascertained by said Department, and compensation thereof has been made by the said -- Union Wharf Condominium Trust -- by paying into the treasury of the Commonwealth -- two dollars and zero cents ($2.00) -- for each cubic yard so displaced, being the amount hereby assessed by said Department (0.0 cu.yds. = $0.00). ----------

Nothing in this License shall be so construed as to impair the legal rights of any person. ----------

This License shall be void unless the same and the accompanying plan are recorded within 60 days from the date hereof, in the Registry of Deeds for the County of Suffolk. ----------

IN WITNESS WHEREAS, said Department of Environmental Protection have hereunto set their hands this ninth day of August in the year nineteen hundred and ninety-six.

Director _____ Department of Environmental Protection

Program Chief _____

THE COMMONWEALTH OF MASSACHUSETTS

This license is approved in consideration of the payment into the treasury of the Commonwealth by the said -- Union Wharf Condominium Trust----------

of the further sum of -- zero dollars and zero cents ($0.00) ---------

the amount determined by the Governor as a just and equitable charge for rights and privileges hereby granted in the land of the Commonwealth.

BOSTON,

Approved by the Governor.

William F. Weld

Governor

United States Department of the Interior
Heritage Conservation and Recreation Service

National Register of Historic Places Inventory—Nomination Form

For HCRS use only
received
date entered

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic Union Wharf

and/or common Same

Post-it™ brand fax transmittal memo 7671 | # of pages ▸

To Susan Bernstein	From Aimee Taberner
Co.	Co. Mass. Hist. Comm.
Dept.	Phone #
Fax # 367-8947	Fax #

2. Location

street & number 295-353 Commercial Street ___ not for publication

city, town Boston n/a vicinity of congressional district

state Massachusetts code 025 county Suffolk code 025

3. Classification

Category	Ownership	Status	Present Use	
___ district	___ public	___ occupied	___ agriculture	___ museum
X building(s)	X private	___ unoccupied	X commercial	___ park
___ structure	___ both	X work in progress	___ educational	___ private residence
___ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	X yes: restricted	___ government	___ scientific
	___ being considered	___ yes: unrestricted	___ industrial	___ transportation
		___ no	___ military	___ other:

4. Owner of Property

name Union Wharf Development Associates

street & number 54 Lewis Wharf

city, town Boston ___ vicinity of state Massachusetts

5. Location of Legal Description

courthouse, registry of deeds, etc. Suffolk County Courthouse

street & number Pemberton Square

city, town Boston state Massachusetts

6. Representation in Existing Surveys

title Inventory of the Historic Assets of The Commonwealth has this property been determined elegible? ___ yes X no

date 1979 ___ federal X state ___ county ___ local

depository for survey records Massachusetts Historical Commission

city, town Boston state Massachusetts

7. Description

Condition		Check one	Check one
___ excellent	___ deteriorated	___ unaltered	_x_ original site
___ good	___ ruins	_x_ altered	___ moved date _____
_x_ fair	___ unexposed		

Describe the present and original (if known) physical appearance

Union Wharf, located on the Boston waterfront opposite the North End, is an irregularly shaped bulkhead extending west from the Inner Harbor some 590 feet to, and including the building at 295-353 Commercial Street. It comprises 114,267 square feet. Lincoln Wharf sits to the north, Sargent's Wharf to the south thus creating a series of finger-like projections into the Inner Harbor. The westernmost part of the Union Wharf bulkhead is a granite block pier dating from about 1795. Both the granite seawall and the area supported on pilings have been expanded greatly over the years.

Six buildings sit upon Union Wharf. Of these, the only historically important structure is a massive granite faced warehouse located at the northwest section of the property. Built in 1846-1847, this rectangular structure of dark, rough-faced granite (probably from Quincy) measures 92 feet wide by 290 feet long (9 bays wide by 27 bays deep). Its western gable end faces Commercial Street. The westernmost portion, which is 15 bays long, is five stories high with basement. The fifth level is a late nineteenth century brick addition which resembles a continuous flat roofed dormer at eaves level. This western portion of the warehouse is covered by an asphalt shingle roof which was originall slate. Brick party walls extend above the roofline.

The eastern portion of the warehouse is 12 bays long, rises only three stories, and has a flat tar and gravel roof without dormers. This portion was originally the same height as the other end of the bulding thereby creating a large, four story rectangle covered by a slate gable roof with small dormers. The missing story and gable roof at the eastern portion were removed c. 1945 following damage incurred during construction of the Summer Tunnel, and by a fire.

The architectural detail is the same on all elevations of both portions of the building. On the first (ground) floor, large windows are framed by rough-faced granite post and lintel architraves. The area between openings is infilled with courses of two foot high granite blocks. The upper floor windows have smoothly finished granite post and lintel enframements. The lintel stone of each unit is ornamented with a smoothly finished peaked pediment standing in relief from an otherwise rough-surface. Nearly all windows and door openings retain the iron pintels that once carried iron shutters, but not the original sashes on door.

Smoothly finished granite is also used decoratively in the quoins at the four corners of the building, and for the cornice. The latter consists of two courses of granite slabs; the lower course set on edge to create a wide fascia, the upper course laid flat to create a thin, projecting portion of the warehouse, running across the gable and facing Commercia Street. It is broken off where it abuts the missing story of the eastern portion. Smooth faced granite enlivens the western gable in the form of large letters spelling out "Union Wharf".

Inside the warehouse, brick bearing walls and partitions are exposed. The westernmost portion contains four bays; the easternmost, three. At the attic level, the partition wal are pierced by lunettes; at lower levels, by wide doorways. Flooring consists of heavy wooden planks resting on joists approximately 4 by 12 inches in size. The latter are carr on beams 11½ x 13" in size, which in turn are supported by large iron or shouldered wooden posts. A layer of concrete has been poured over all of the floors.

FHR-8-300A
(11/78)

UNITED STATES DEPARTMENT OF THE INTERIOR
HERITAGE CONSERVATION AND RECREATION SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

FOR NPS USE ONLY
RECEIVED
DATE ENTERED

CONTINUATION SHEET Description ITEM NUMBER 7 PAGE

Changes to the original structure, in additon to the removal of the fourth floor of the eastern portion, have included the addition of fifth floor dormers on the western section and replacement of the slate roof altogether with asphalt shingles. The presen owners of the building have added shed roof dormers on the flat roof of the fifth floor to create a sixth floor living area as well as new sash, iron balconies, and doors. Also, mechanical systems equipment is visable at several points on the roof.

The other five buildings on the wharf, a two-story tin clad shed at the southwest corner of the property and four rows of townhouses built in 1978 along the northeast and southeast waterfront boundaries, are not historic and are not here considered.

Item Number 9 Bibliographical References con't.

Mass. : Harvard University Press, 1946.

Lamb, George: A Series of Plans of Boston...December 25, 1630-December 25, 1645. 1903 (map)

Perkins, Charles: A Plan of Boston Proper 1795-1895. 1895 (map)

Suffolk County Registry of Deeds: Records and Atlases

Whitehill, Walter Muir: Boston: A Topographical History. Cambridge, Mass.: The Belknap Press of Harvard University Press, 1968.

Winsor, Justin (Ed.); The Memorial History of Boston, Including Suffolk County, Massachusetts, 1730-1880. Boston: James R. Osgood and Compant, 1881.

8. Significance

Period	Areas of Significance—Check and justify below			
___ prehistoric	___ archeology-prehistoric	___ community planning	___ landscape architecture	___ religion
___ 1400–1499	___ archeology-historic	___ conservation	___ law	___ science
___ 1500–1599	___ agriculture	___ economics	___ literature	___ sculpture
___ 1600–1699	_x_ architecture	___ education	___ military	___ social/ humanitarian
___ 1700–1799	___ art	___ engineering	___ music	
_x_ 1800–1899	_x_ commerce	___ exploration/settlement	___ philosophy	___ theater
___ 1900–	___ communications	___ industry	___ politics/government	_x_ transportation
		___ invention		___ other (specify)

Specific dates 1795, 1846-47 **Builder/Architect** unknown

Statement of Significance (in one paragraph)

Union Wharf possesses integrity of location, design, setting, materials and workmanship. As one of the few remaining waterfront warehouses, it distinctively illustrates the granite constructuion which characterized Boston's mid-nineteenth century commercial/ warehouse structures. Further, it is representative of the major role which the Port of Boston played in nineteenth century shipping.

Boston, which began to develop as a port shortly after its settlement in 1639, was a small, hilly peninsula at the time. However..."from the early years of the settlement merchant owners of waterfront property were constantly building wharves into the harbor, and thus began the inexorable encroachment of land upon water that has marked the history of Boston." The area where Union Wharf is now located was gradually wharfed out as trade prospered to create more space. By the early eighteenth century, there were "upwar of forty wharves, more than one dozen shipyards and six rope walks". During the eighteen and nineteenth centuries small holdings were gradually consolidated, and shipwrights were forced to relocate in areas like East Boston as mercantile activities became increasingly profitable.

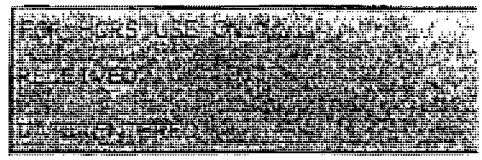
While a portion of the Union Wharf bulkhead was constructed in the late eighteenth century it did not assume its present form, or achieve any real significance, until 1845 when it was sold to John L Gardner, a merchant then operating out of India Wharf. He expanded the wharf to the north to create a larger building site and erected the granite warehouse whi is the major structure occupying the wharf today. It was described in the real estate tra actions at the time as "92 feet on Commercial Street by 300 feet on Union Wharf, ample streets on all four sides, good slated roof, iron window shutters and iron doors, exterior walls 16 inches thick granite." (In actual construction the granite was a four inch facing over brick bearing walls). Gardner sold the wharf and warehouse to the Union Wharf Company in 1847, but appears to have retained the principal interest.

Union Wharf was first leased to the United States government as a bonded warehouse and enjoyed the general prosperity of Boston's waterfront. However, it was affected along with its neighbors by the gradual shift in maritime supremacy from Boston to New York which occurred in the late nineteenth century. This shift changed Boston from an active mercant port to a center for steamship lines and railroad ferry terminals. In 1900 Union Wharf was sold to the Metropolitan Steamship Company which already owned India Wharf, and operated steamers between Boston and Maine. To accommodate the large steamers, Metropolitan also purchased the adjacent Ballard's Wharf which it demolished to create a large docking area between Union Wharf and Sargent's Wharf to the south. The Metropolitan Steamship Company went through a number of reorganizations. In 1910, it "sold" Union Wharf to the Metropolitan Steamship Company of Maine for one dollar. The next year, the latter was "so to the Maine Steamship Company again for one dollar. The next year, the Wharf passed to t Eastern Steamship Company, which had rented one of the buildings on Union Wharf since befo 1908. Stability seems to have been acheived, because the property was not sold again unti

NPS FORM 10-900-a
(11/78)

UNITED STATES DEPARTMENT OF THE INTERIOR
HERITAGE CONSERVATION AND RECREATION SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM



CONTINUATION SHEET Significance ITEM NUMBER 8 PAGE

1945. By that time, however, it had sustained some damage. The Sumner Tunnel had been cut beneath its northwest corner in the 1930's, and a fire in the 1940's made it necessary to remove the top story of the three easternmost bays of the warehouse. In 1945, the wharf was sold to Robert P. Gable and Frank Leeder, and eventually it became part of the Gorin-Leeder-Cable family trusts. The warehouse was used by the J.L. Kelso Company for storing woolen goods and footware until the property was sold to the present owners in 1977 for conversion to housing.

9. Major Bibliographical References

Bonner, John. The Town of Boston in New England. 1722 (map)
Bryan, John. Boston's Granite Architecture c. 1810-1860. Boston University Doctural Distertation, 1972. unpublished.
Kilham, Walter H. Boston After Bulfinch, An Account of its Architecture 1800-1900. Cambridge

10. Geographical Data

Acreage of nominated property 2.61 acres
Quadrangle name Boston South Quadrangle scale 1:24000

UMT References

	Zone	Easting	Northing		Zone	Easting	Northing
A	19	331130	4692180	B			
C				D			
E				F			
G				H			

Verbal boundary description and justification

Please refer to the attached map of the City of Boston; the boundaries are deliniated in red. The nomination is confined to the 1795 wharf.

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
state	code	county	code

11. Form Prepared By

name/title Candace Jenkins, National Register Coordinator
Sharon Ofenstein, Consultant
Judy McDonough, BLC

organization Massachusetts Historical Commission date October 1979

street & number 294 Washington Street telephone (617)727-8470

city or town Boston state Massachusetts

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national X state ___ local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the Heritage Conservation and Recreation Service.

State Historic Preservation Officer signature Valerie L. Woolworth 10/26/79

title Executive Director, Massachusetts Historical Commission date

For HCRS use only
I hereby certify that this property is included in the National Register

date

Keeper of the National Register

Attest: date

Chief of Registration

9. Major Bibliographical References

Bonner, John. The Town of Boston in New England. 1722 (map)
Bryan, John. Boston's Granite Architecture c. 1810-1860. Boston University Doctural Distertation, 1972. unpublished.
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I hereby certify that this property is included in the National Register

date

Keeper of the National Register

Attest: date

Chief of Registration

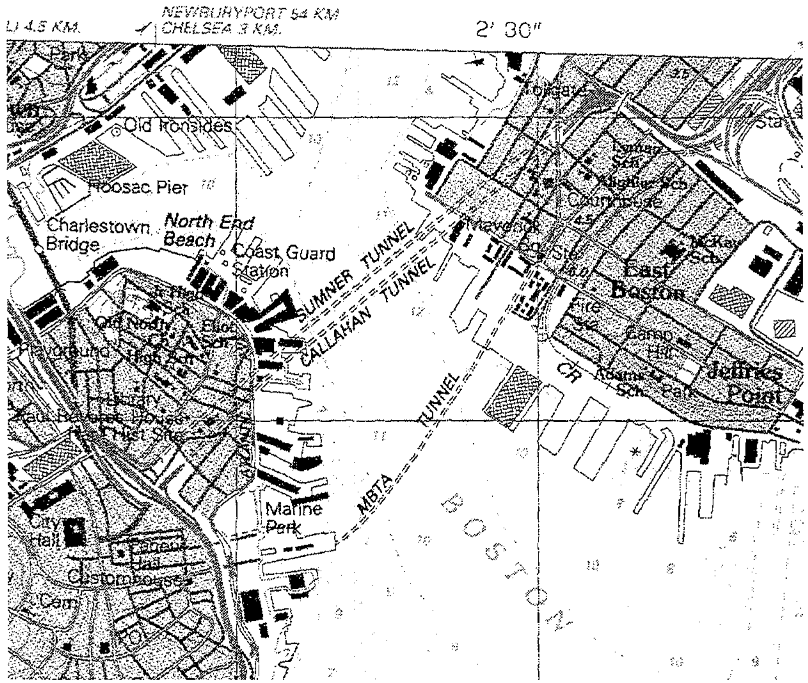
Index by State and City

National Register Information System 08/27/2009 15:06:23

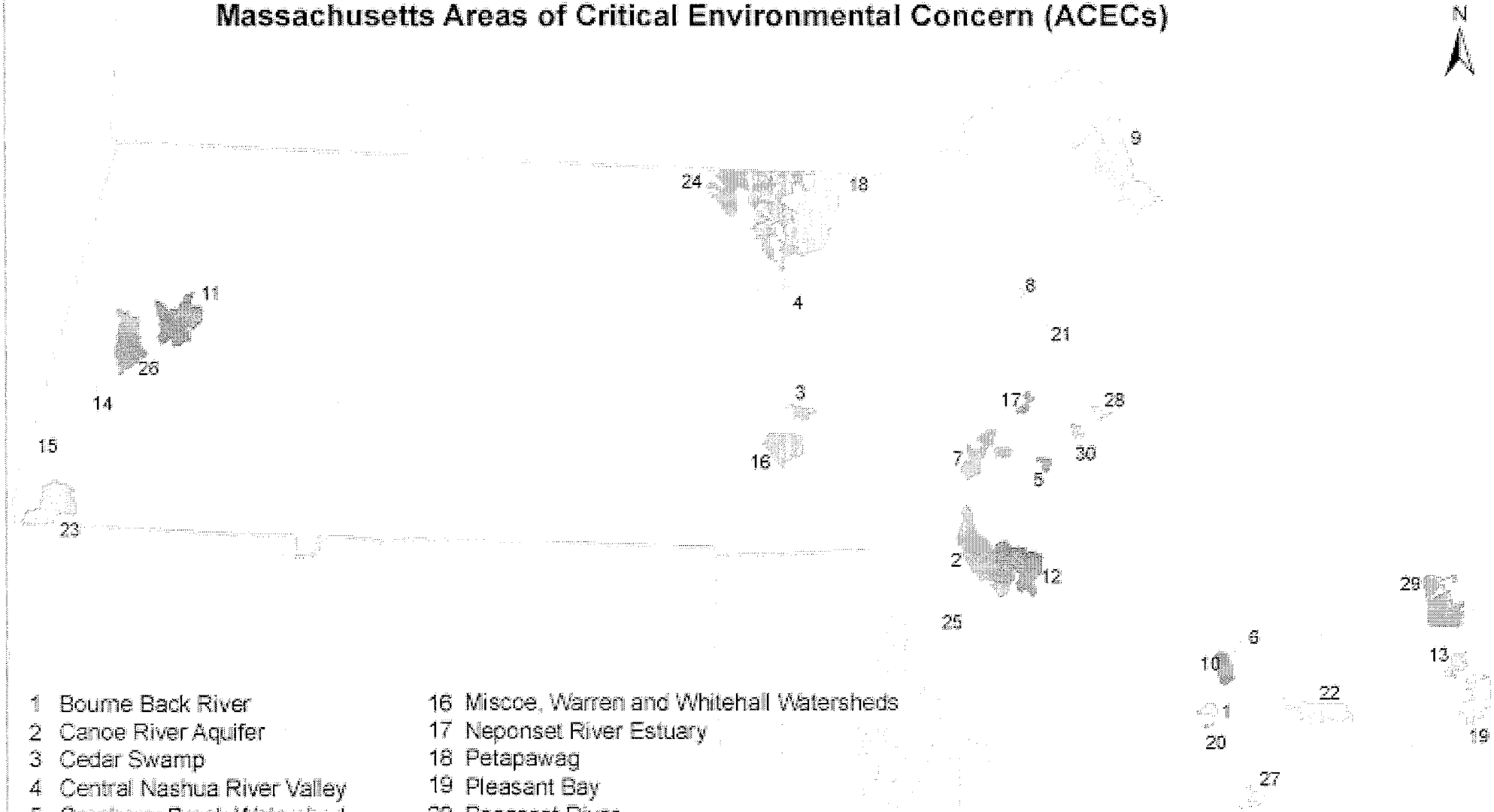
No filter Include filter in navigation

Row	STATE	COUNTY	RESOURCE NAME	ADDRESS	CITY	LISTED	MULTIPLE
231	MA	Suffolk	**Tremont Street Subway**	Beneath Tremont, Boylston, and Washington Sts.	Boston	1966-10-15	
232	MA	Suffolk	**Trinity Church**	Copley Sq.	Boston	1970-07-01	
233	MA	Suffolk	**Trinity Neighborhood House**	406 Meridian St.	Boston	1992-04-14	
234	MA	Suffolk	**Trinity Rectory**	Clarendon and Newbury Sts.	Boston	1972-02-23	
235	MA	Suffolk	**Truman Parkway--Metropolitan Park System of Greater Boston**	Truman Parkway	Boston	2005-01-05	Metropolitan Park System of Greater Boston MPS
236	MA	Suffolk	**U.S.S. CONSTITUTION**	Boston Naval Shipyard	Boston	1966-10-15	
237	MA	Suffolk	**Union Oyster House**	41-43 Union Street	Boston	2003-05-27	
238	MA	Suffolk	**Union Wharf**	295-353 Commercial St.	Boston	1980-06-22	
239	MA	Suffolk	**United Shoe Machinery Corporation Building**	138-164 Federal St.	Boston	1980-08-19	
240	MA	Suffolk	**Upham's Corner Market**	600 Columbia Rd.	Boston	1990-10-11	

Page 24


NEWBURYPORT 54 KM
CHELSEA 3 KM.
2' 30"
Old Ironsides
Hoosac Pier
Charlestown
Bridge
North End
Beach
Coast Guard
Station
SUMNER TUNNEL
CALLAHAN TUNNEL
MBTA
TUNNEL
Marine
Park
City
Hall
Customhouse
Maverick
Courthouse
East
Boston
Jeffries
Point
BOSTON
CR

Massachusetts Areas of Critical Environmental Concern (ACECs)



1 Bourne Back River
2 Canoe River Aquifer
3 Cedar Swamp
4 Central Nashua River Valley
5 Cranberry Brook Watershed
6 Ellisville Harbor
7 Fowl Meadow and Ponkapoag Bog
8 Golden Hills
9 Great Marsh
10 Herring River Watershed
11 Hinsdale Flats Watershed
12 Hockomock Swamp
13 Inner Cape Cod Bay
14 Kampoosa Bog Drainage Basin
15 Karner Brook Watershed
16 Miscoe, Warren and Whitehall Watersheds
17 Neponset River Estuary
18 Petapawag
19 Pleasant Bay
20 Pocasset River
21 Rumney Marshes
22 Sandy Neck Barrier Beach System
23 Schenob Brook Drainage Basin
24 Squannassit
25 Three Mile River Watershed
26 Upper Housatonic River
27 Waquoit Bay
28 Weir River
29 Wellfleet Harbor
30 Weymouth Back River

MASSACHUSETTS AREAS OF CRITICAL ENVIRONMENTAL CONCERN
June 2009

Total Approximate Acreage: 268,000 acres
Approximate acreage and designation date follow ACEC names below.

Bourne Back River
(1,850 acres, 1989) Bourne

Canoe River Aquifer and Associated Areas (17,200 acres, 1991) Easton, Foxborough, Mansfield, Norton, Sharon, and Taunton

Cedar Swamp
(1,650 acres, 1975) Hopkinton and Westborough

Central Nashua River Valley
(12,900 acres, 1996) Bolton, Harvard, Lancaster, and Leominster

Cranberry Brook Watershed
(1,050 acres, 1983) Braintree and Holbrook

Ellisville Harbor
(600 acres, 1980) Plymouth

Fowl Meadow and Ponkapoag Bog
(8,350 acres, 1992) Boston, Canton, Dedham, Milton, Norwood, Randolph, Sharon, and Westwood

Golden Hills
(500 acres, 1987) Melrose, Saugus, and Wakefield

Great Marsh (originally designated as Parker River/Essex Bay)
(25,500 acres, 1979) Essex, Gloucester, Ipswich, Newbury, and Rowley

Herring River Watershed
(4,450 acres, 1991) Bourne and Plymouth

Hinsdale Flats Watershed
(14,500 acres, 1992) Dalton, Hinsdale, Peru, and Washington

Hockomock Swamp
(16,950 acres, 1990) Bridgewater, Easton, Norton, Raynham, Taunton, and West Bridgewater

Inner Cape Cod Bay
(2,600 acres, 1985) Brewster, Eastham, and Orleans

Kampoosa Bog Drainage Basin
(1,350 acres, 1995) Lee and Stockbridge

Karner Brook Watershed
(7,000 acres, 1992) Egremont and Mount Washington

Miscoe, Warren, and Whitehall Watersheds
(8,700 acres, 2000) Grafton, Hopkinton, and Upton

Neponset River Estuary
(1,300 acres, 1995) Boston, Milton, and Quincy

Petapawag
(25,680 acres, 2002) Ayer, Dunstable, Groton, Pepperell, and Tyngsborough

Pleasant Bay
(9,240 acres, 1987) Brewster, Chatham, Harwich, and Orleans

Pocasset River
(160 acres, 1980) Bourne

Rumney Marshes
(2,800 acres, 1988) Boston, Lynn, Revere, Saugus, and Winthrop

Sandy Neck Barrier Beach System
(9,130 acres, 1978) Barnstable and Sandwich

Schenob Brook Drainage Basin
(13,750 acres, 1990) Mount Washington and Sheffield

Squannassit
(37,420 acres, 2002) Ashby, Ayer, Groton, Harvard, Lancaster, Lunenburg, Pepperell, Shirley, and Townsend

Three Mile River Watershed
(14,280 acres, 2008) Dighton, Norton, Taunton

Upper Housatonic River
(12,280 acres, 2009) Lee, Lenox, Pittsfield, Washington

Waquoit Bay
(2,580 acres, 1979) Falmouth and Mashpee

Weir River
(950 acres, 1986) Cohasset, Hingham, and Hull

Wellfleet Harbor
(12,480 acres, 1989) Eastham, Truro, and Wellfleet

Weymouth Back River
(800 acres, 1982) Hingham and Weymouth

ACEC acreages above are based on MassGIS calculations and may differ from numbers originally presented in designation documents and other ACEC publications due to improvements in accuracy of GIS data and boundary clarifications. Listed acreages have been rounded to the nearest 50 or 10 depending on whether boundary clarification has occurred. For more information please see, http://www.mass.gov/dcr/stewardship/acec/aboutMaps.htm.

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Barnstable	Piping Plover	Threatened	Coastal Beaches	All Towns
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Chatham
	Sandplain gerardia	Endangered	Open areas with sandy soils.	Sandwich and Falmouth.
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Bourne (north of the Cape Cod Canal)
Berkshire	Bog Turtle	Threatened	Wetlands	Egremont and Sheffield
Bristol	Piping Plover	Threatened	Coastal Beaches	Fairhaven, Dartmouth, Westport
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Fairhaven, New Bedford, Dartmouth, Westport
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Taunton
Dukes	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Piping Plover	Threatened	Coastal Beaches	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Aquinnah and Chilmark
	Sandplain gerardia	Endangered	Open areas with sandy soils.	West Tisbury
Essex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Gloucester, Essex and Manchester
	Piping Plover	Threatened	Coastal Beaches	Gloucester, Essex, Ipswich, Rowley, Revere, Newbury, Newburyport and Salisbury
Franklin	Northeastern bulrush	Endangered	Wetlands	Montague
	Dwarf wedgemussel	Endangered	Mill River	Whately
Hampshire	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Hadley
	Puritan tiger beetle	Threatened	Sandy beaches along the Connecticut River	Northampton and Hadley
	Dwarf wedgemussel	Endangered	Rivers and Streams.	Hadley, Hatfield, Amherst and Northampton
Hampden	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Southwick
Middlesex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Groton
Nantucket	Piping Plover	Threatened	Coastal Beaches	Nantucket
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Nantucket
	American burying beetle	Endangered	Upland grassy meadows	Nantucket
Plymouth	Piping Plover	Threatened	Coastal Beaches	Scituate, Marshfield, Duxbury, Plymouth, Wareham and Mattapoisett
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Kingston, Middleborough, Carver, Plymouth, Bourne, Wareham, Halifax, and Pembroke
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Plymouth, Marion, Wareham, and Mattapoisett.
Suffolk	Piping Plover	Threatened	Coastal Beaches	Winthrop
Worcester	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Leominster

-Eastern cougar and gray wolf are considered extirpated in Massachusetts.
-Endangered gray wolves are not known to be present in Massachusetts, but dispersing individuals from source populations in Canada may occur statewide.
-Critical habitat for the Northern Red-bellied Cooter is present in Plymouth County.

Revised 06/22/2009

Massachussetts

Common Name	Scientific Name	Status	Distribution
FISHES:			
Sturgeon, shortnose*	Northeastern bulrush	E	Atlantic coastal water and rivers (Conn. R.)
REPTILES:			
Turtle, bog	Clemmys muhlenbergii	T	Berkshire County
Turtle, green*	Chelonia mydas	T	Oceanic straggler in s England
Turtle, hawksbill*	Eretmochelys imbricata	E	Oceanic straggler in s England
Turtle, leatherback*	Dermochelys coriacea	E	Oceanic summer resid
Turtle, loggerhead*	Caretta caretta	T	Oceanic summer resid
Turtle, Atlantic ridley*	Lepidochelys kempii	E	Oceanic summer resid
Turtle, Northern red-bellied couter (Plymouth redbelly)	Chrysemys rubriventris bangsi	E	Plymouth & Dukes C
BIRDS:			
Plover, piping		T	Atlantic coast, nesting
Tern, roseate	Charadrius melodus Sterna dougallii dougallii	E	Atlantic coast/islands,
MAMMALS:			
Bat, Indiana		E	Berkshire County/hist
Whale, blue*	Myotis sodalis	E	Oceanic
Whale, finback*	Balaenoptera musculus	E	Oceanic
Whale, humpback*	Balaenoptera physalus	E	Oceanic
Whale, right*	Megaptera novaeangliae	E	Oceanic
Whale, sei*	Eubalaena spp. (all species)	E	Oceanic
Whale, sperm*	Balaenoptera borealis Physeter catodon	E	Oceanic
MOLLUSKS:			
Wedgemussel, dwarf	Alasmidonta heterodon	E	Hampshire, Franklin (
INSECTS:			
Beetle, Puritan tiger		T	Hampshire County
Beetle, Northeastern beach	Cicindela puritana	T	Dukes & Bristol Cour
Beetle, American burying	Cicindela dorsalis dorsalis Nicrophorus americanus	E	Penikese & Nantucket reintroduced populatic
PLANTS:			
Small whorled pogonia	Isotria medeoloides	T	Hampshire, Essex, Ha Worcester, Middlesex
Sandplain gerardia		E	Barnstable & Dukes C
Northeastern bulrush	Agalinus acuta Scirpus ancistrochaetus	E	Franklin County

Species Reports

Environmental Conservation Online System

Species listed in Massachusetts based on published population data

Notes:

- This report shows the species listed in this state according to the Federal Register listing description.
- This list does not include experimental populations and similarity of appearance listings.
- This list includes species or populations under the sole jurisdiction of the National Marine Fisheries Service.
- Click on the highlighted scientific names below to view a Species Profile for each listing.

Listed species (based on published population data) -- 27 listings

Animals -- 22 listings

Status	Species/Listing Name
E	Beetle, American burying (***Nicrophorus americanus***)
E	Butterfly, Karner blue (***Lycaeides melissa samuelis***)
E	Curlew, Eskimo (***Numenius borealis***)
T	Plover, piping except Great Lakes watershed (***Charadrius melodus***)
E	Plymouth Red-Bellied Turtle (***Pseudemys rubriventris bangsi***)
E	Puma (=cougar), eastern (***Puma (=Felis) concolor couguar***)
E	Sea turtle, hawksbill (***Eretmochelys imbricata***)
E	Sea turtle, Kemp's ridley (***Lepidochelys kempii***)
E	Sea turtle, leatherback (***Dermochelys coriacea***
T	Sea turtle, loggerhead (***Caretta caretta***)
E	Sturgeon, shortnose (***Acipenser brevirostrum***)
E	Tern, roseate northeast U.S. nesting pop. (***Sterna dougallii dougallii***)
T	Tiger beetle, northeastern beach (***Cicindela dorsalis dorsalis***)
T	Tiger beetle, Puritan (***Cicindela puritana***)
T	Turtle, bog (=Muhlenberg) northern (***Clemmys muhlenbergii***)
E	Wedgemussel, dwarf (***Alasmidonta heterodon***)
E	Whale, blue (***Balaenoptera musculus***)
E	Whale, finback (***Balaenoptera physalus***)
E	Whale, humpback (***Megaptera novaeangliae***)
E	Whale, right (***Balaena glacialis (incl. australis)***)

E	Whale, Sei (***Balaenoptera borealis***)
E	Wolf, gray Lower 48 States, except where delisted and where EXPN. Mexico. (***Canis lupus***)

Plants -- 5 listings

Status	Species/Listing Name
T	Amaranth, seabeach (***Amaranthus pumilus***)
E	Bulrush, Northeastern (***Scirpus ancistrochaetus***)
E	Chaffseed, American (***Schwalbea americana***)
E	Gerardia, sandplain (***Agalinis acuta***)
T	Pogonia, small whorled (***Isotria medeoloides***)

Last updated: August 27, 2009

ECOS Home | **Contact Us**

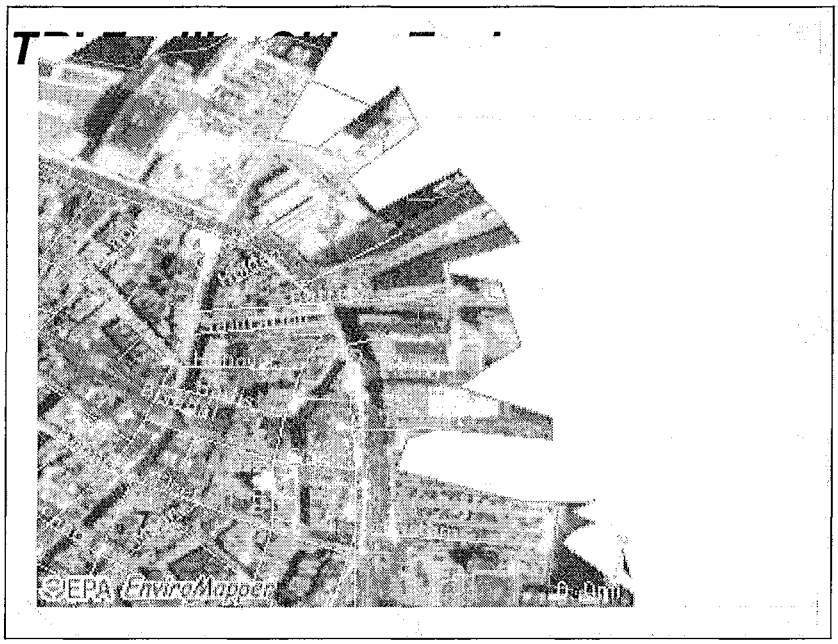
Towns with ACECs within their Boundaries — June 2009

TOWN	ACEC
Ashby	Squannassit
Ayer	Petapawag
	Squannassit
Barnstable	Sandy Neck Barrier Beach System
Bolton	Central Nashua River Valley
Boston	Rumney Marshes
	Fowl Meadow and Ponkapoag Bog
	Neponset River Estuary
Bourne	Pocasset River
	Bourne Back River
	Herring River Watershed
Braintree	Cranberry Brook Watershed
Brewster	Pleasant Bay
	Inner Cape Cod Bay
Bridgewater	Hockomock Swamp
Canton	Fowl Meadow and Ponkapoag Bog
Chatham	Pleasant Bay
Cohasset	Weir River
Dalton	Hinsdale Flats Watershed
Dedham	Fowl Meadow and Ponkapoag Bog
Dighton	Three Mile River Watershed
Dunstable	Petapawag
Eastham	Inner Cape Cod Bay
	Wellfleet Harbor
Easton	Canoe River Aquifer
	Hockomock Swamp
Egremont	Karner Brook Watershed
Essex	Great Marsh
Falmouth	Waquoit Bay
Foxborough	Canoe River Aquifer
Gloucester	Great Marsh
Grafton	Miscoe-Warren-Whitehall Watersheds
Groton	Petapawag
	Squannassit
Harvard	Central Nashua River Valley
	Squannassit
Harwich	Pleasant Bay
Hingham	Weir River
	Weymouth Back River
Hinsdale	Hinsdale Flats Watershed
Holbrook	Cranberry Brook Watershed
Hopkinton	Miscoe-Warren-Whitehall Watersheds
	Cedar Swamp
Hull	Weir River
Ipswich	Great Marsh
Lancaster	Central Nashua River Valley
	Squannassit
Lee	Kampoosa Bog Drainage Basin
	Upper Housatonic River
Lenox	Upper Housatonic River
Leominster	Central Nashua River Valley
Lunenburg	Squannassit
Lynn	Rumney Marshes
Mansfield	Canoe River Aquifer
Mashpee	Waquoit Bay
Melrose	Golden Hills
Milton	Fowl Meadow and Ponkapoag Bog
	Neponset River Estuary
Mt. Washington	Karner Brook Watershed
	Schenob Brook
Newbury	Great Marsh
Norton	Hockomock Swamp
	Canoe River Aquifer
	Three Mile River Watershed
Norwood	Fowl Meadow and Ponkapoag Bog
Orleans	Inner Cape Cod Bay
	Pleasant Bay
Pepperell	Petapawag
	Squannassit
Peru	Hinsdale Flats Watershed
Pittsfield	Upper Housatonic River
Plymouth	Herring River Watershed
	Ellisville Harbor
Quincy	Neponset River Estuary
Randolph	Fowl Meadow and Ponkapoag Bog
Raynham	Hockomock Swamp
Revere	Rumney Marshes
Rowley	Great Marsh
Sandwich	Sandy Neck Barrier Beach System
Saugus	Rumney Marshes
	Golden Hills
Sharon	Canoe River Aquifer
	Fowl Meadow and Ponkapoag Bog
Sheffield	Schenob Brook
Shirley	Squannassit
Stockbridge	Kampoosa Bog Drainage Basin
Taunton	Hockomock Swamp
	Canoe River Aquifer
	Three Mile River Watershed
Truro	Wellfleet Harbor
Townsend	Squannassit
Tyngsborough	Petapawag
Upton	Miscoe-Warren-Whitehall Watersheds
Wakefield	Golden Hills
Washington	Hinsdale Flats Watershed
	Upper Housatonic River
Wellfleet	Wellfleet Harbor
W Bridgewater	Hockomock Swamp
Westborough	Cedar Swamp
Westwood	Fowl Meadow and Ponkapoag Bog
Weymouth	Weymouth Back River
Winthrop	Rumney Marshes

U.S. ENVIRONMENTAL PROTECTION AGENCY

Toxics Release Inventory (TRI) Program

Browse TRI Topics
Get TRI Data
Reporting Materials
TRI Chemicals
TRI PBT Chemicals
Laws, Regulations and Executive Order
Guidance Documents
State TRI Programs
International TRI



Find Another Location

Zoom In

Zoom Out

Latitude: 42°21'59"

Longitude: -71°03'03"

LEGEND

- Toxic releases
- Cities
- Railroads
- Streets
- Major roads
- Local streets
- Water bodies
- Streams
- States
- Counties

Map | Map over Photo | Photo | Locator Map

Your goal: Get the center of you facility's production area centered in the map/photo window at the maximum zoom level. This will allow you to get the most precise coordinates.
Zoom-in/out: Select Zoom In, Zoom Out Bar on the right side.
Recenter: When you are not at the maximum zoom-in level, click on the map/photo to center.
Move map/photo: Click the arrow controls around the map/photo window to move in the direction you choose (North, South, East or West or NW, NE, SW, SE).
Mark location: Once you are at the maximum zoom-in level, click the center of the facility production area on the **photo**. This will mark the coordinates in the Latitude and Longitude fields.

MAD Code Information

Attachment C
Union Wharf General NPDES Permit Application (MAG250977), May 2010

Response to Notice of Deficiency

Union Wharf General NPDES Permit Application (MAG250977)

Boston,
Massachusetts

Prepared for **Union Wharf Condominium Trust**
Boston, Massachusetts

Prepared by  *Vanasse Hangen Brustlin, Inc.*
Watertown, Massachusetts

May 28, 2010

Ref: 11251.00

Ms. Austine Frawley
Office of Ecosystem Protection (CIP)
US Environmental Protection Agency
NCCW GP Processing
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: Union Wharf Condominium Trust
343Commercial Street
Boston, Massachusetts

Dear Ms. Frawley,

On behalf of the Union Wharf Condominium Trust (the Trust), Vanasse Hangen Brustlin, Inc., has prepared a response to the Notice of Deficiency issued on April 14, 2010. The attached report addresses the items identified as deficient in the September 10, 2009 Supplemental Notice of Intent submitted on behalf of the Trust for authorization of the Union Wharf non-contact cooling water (NCCW) system under the NPDES General Permit.

The attached report clarifies Union Wharf's existing pumping regime and addresses the Part 4, CWA Section 316(b) requirements though:

- Documentation of implementation of Best Technology Available (BTA) requirements,
- Characterization of the marine habitat in the vicinity of the intake and discharge location,
- Assessment of entrainment by the cooling system, and
- Quantification of the cooling water intake structure's through-screen velocity

If you have any questions regarding the information included in the attached report, please contact me or Susan A. Bernstein at 781-290-5858 or by email at Susan@sabernlaw.com.

Very truly yours,

VANASSE HANGEN BRUSTLIN, INC.

Kristin A. Kent

Environmental Scientist

Cc: Kathleen Keohane, Massachusetts Department of Environmental Protection Division of Watershed Management
Board of Trustees, Union Wharf Condominium Trust c/o William Donovan
Dan Flaherty, Manager, Union Wharf Condominium Trust
Susan A. Bernstein, Attorney at Law

Response to Notice of Deficiency

Union Wharf General NPDES Permit Application (MAG250977)

Boston,
Massachusetts

Prepared for **Union Wharf Condominium Trust**
343 Commercial Street
Boston, Massachusetts 02109
617 742 1647

Prepared by VHB *Vanasse Hangen Brustlin, Inc.*
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May 2010

Contents

1 Introduction

On behalf of the Union Wharf Condominium Trust (Union Wharf), Vanasse Hangen Brustlin, Inc. (VHB) has conducted a technical and regulatory assessment of the Union Wharf non-contact cooling water (NCCW) system in Boston, Massachusetts. The cooling water system has been in operation since 1996 under the provisions of a National Pollutant Discharge Elimination System (NPDES) General Permit, pursuant to Section 316b of the Clean Water Act. An application was filed in April 1996, in conjunction with construction of the system, but was apparently never acted upon by the US Environmental Protection Agency (EPA). Recently EPA noted the system was operating without appropriate authorization and requested submission of a Notice of Intent. Union Wharf filed a Notice of Intent in September 2009, and EPA subsequently on issued a Notice of Deficiency (March 18, 2010), citing several issues to be addressed.

The Union Wharf Condominium is a residential and commercial complex located in the North End of Boston, Massachusetts (Figure 1). The existing granite block and wood frame commercial buildings on Union Wharf were redeveloped in 1978 and currently support 71 residential units and 18 commercial units. The solid fill wharf is supported by vertical granite block seawalls and includes a small floating dock marina for residents on the south side of the wharf.

The facility was occupied in 1978 and initially used a cooling tower design in conjunction with the heat exchange and chiller system to regulate building temperatures. The original cooling tower was constructed next to the adjacent former MBTA power plant in the late 1970s, when the power plant was vacant. Subsequent development of the former power plant resulted in numerous noise complaints and noise citations from the City of Boston. This prompted Union Wharf to convert the cooling system to a non-contact sea water cooling system. Construction of the NCCW system was undertaken in 1996. At that time, an application was filed with the EPA General National Pollutant Discharge Elimination System (NPDES) Permit, pursuant to Section 316b of the Clean Water Act along with other permit applications. The NCCW system is utilized seasonally, between May and November, in conjunction with the facility's cooling needs.

Pursuant to the EPA's request for additional information, VHB conducted a marine habitat assessment in the vicinity of the site, an entrainment study of the facility and

performed a series of engineering calculations. In their March 18, 2010 letter, the EPA requested the following site-specific information:

- Clarification as to whether the discharge flow is 1,100 gallons per minute (GPM) or 1,100 gallons per day. If the discharge flow is 1,100 GPM (1.58 million gallons per day), how Union Wharf will comply with the NCCW General Permit discharge limit of less than 1.0 million gallons per day (MGD).

- Demonstrate to EPA how Union Wharf will comply with the General Permit's Part 4, CWA Section 316(b) Requirements for the Design and Operation of Cooling Water Intake Structures.

The following report clarifies Union Wharf's existing pumping regime and addresses the Part 4, CWA Section 316(b) requirements through:

- documentation of implementation of Best Technology Available (BTA) requirements,
- characterization of the marine habitat in the vicinity of the intake and discharge location,
- assessment of entrainment by the cooling system, and
- quantification of the cooling water intake structure's through-screen velocity.

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Non Contact Cooling Water System Operations

Union Wharf Condominium Trust operates a NCCW system for cooling water used to help regulate building temperatures. The system is only used during warmer weather to facilitate air conditioning of the facility.

NCCW/CWIS Design

The Union Wharf Condominium NCCW system is an open loop design consisting of an intake structure, pump, heat exchanger loop and discharge pipe, using 6-inch diameter PVC pipe. The pumps and heat exchanger are in a concrete vault located near the edge of the seawall, at the end of the northern wharf. The intake and discharge pipes are attached to the seawall at the northeast corner of the northern wharf (Figures 1 and 2). The intake structure is a 36-inch section of 6-inch PVC pipe perforated with 866 holes ranging in size from 3/16-inch to 7/16-inch in diameter (Figure 3). The intake is affixed vertically to the Union Wharf seawall, with the intake set below extreme low water. There are two intakes and pumps for duplication that alternate operation; both pumps never operate together. Typically the pumps are cycled on a weekly basis to balance wear and tear on the equipment and increase system reliability. The use of two alternating pumps also allows for maintenance on one pump without interrupting system operation. The single discharge pipe is approximately 25 feet south of the intake pipes and has a 90 degree elbow to direct the discharged flow away from the system intakes to reduce "short circuiting".

System Pumping Rate

The existing system pumps operate in an on or off mode and are generally operating from May until October. The system does not currently have the capacity for variable speed pumping. Therefore, once the system is on, the pump operates at full speed only. The maximum pumping rate of each pump is 1,100 GPM or 1.58 MGD. However, the variable head created by the tidal cycle varies the effective pumping rate so the maximum achievable daily pumping rate is only 1.2 MGD. Although the

system is capable of pumping at a maximum daily rate of 1.2 MGD, the NCCW system has been calibrated not to exceed an average of 980,000 GPD.

Although the pump rate or speed of the pumps cannot be reduced, valves downstream of the pumps can be adjusted to alter the flow rate. These valves have been adjusted to reduce the volume of water that is pumped through the system. The valves have been affixed to set the pumping rate to an average of 680 GPM or 980,000 GPD, putting the system daily pumping rate below the General Permit threshold. The heat exchange system will continue to function efficiently over the long term at this reduced flow rate.

System Intake Velocity

As noted above, the intake structure is a linear 3-foot section of 6-inch PVC pipe suspended vertically adjacent to the Union Wharf sea wall. The pipe section is perforated with 866 holes varying in size from 3/16 to 7/16 inches in diameter. The surface area of the openings is 0.60 square feet and at an average flow rate of 680 GPM, the velocity of flow at the intake structure is 2.53 feet per second (FPS) (Appendix A). This intake velocity exceeds the maximum 0.5 FPS allowable under the NPDES General Permit. Modifications to the intake structures will be necessary to reduce the velocity of flow at the surface of the intake structure.

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General Best Technology Available Requirements

Pursuant to EPA's Notice of Deficiency, Union Wharf must demonstrate compliance with the Part 4, Clean Water Act (CWA) Section 316(b) Requirements for the Design and Operation of Cooling Water Intake Structures. Specifically, Part 4.3 CWA Section 316(b) addresses BTA Requirements to Minimize the Adverse Environmental Effects of a CWIS through the implementation of six General BTA Requirements (Part 4.3(a) CWA 316(b)).

Regulatory Compliance Assessment

Part 4.3(a) of the General Permit requires compliance with or implementation of the General BTA Requirements, as follows:

1. *Cease or reduce the intake of cooling water whenever withdrawal of source water is not necessary.*

   Under existing conditions, the NCCW system only operates between May and November, in conjunction with the facility's cooling needs. By utilizing the system seasonally, a reduction of pumping on the order of 177 million gallons of sea water per year is achieved (as compared to year round pumping).

   Additional source water pumping minimization could be achieved through the installation of variable speed drives (VSD) on the two pumps on the sea water side of the heat exchanger. The VSD would control the amount of sea water flow through the heat exchanger based on the load in the building rather than the existing constant flow system.

2. *Return all observed live fish impinged on or in the CWIS to the source water to the extent practicable in a manner that maximizes their chance of survival.*

   The existing system does not experience measurable fish impingement. The configuration and design of the CWIS is such that it excludes fish from the

NCCW system. The CWIS consists of duplicate 36-inch sections of 6-inch PVC pipe perforated with 866 holes ranging in size from 3/16-inch to 7/16-inch in diameter. Only one intake pipe and pump operate at any one time. The intakes are submerged and appear to be adequately screened to preclude fish impingement. No fouling of the intake structure from impinged fish has been experience by the facility in the past.

3. *Ensure that no chlorinated water is sprayed on impinged fish or invertebrates if sprayed water is used to remove impinged fish or invertebrates from the CWIS.*

   The existing NCCW system is a closed system with no water spray or traveling screens. As such, sprayed water is not used to remove impinged fish or invertebrates from the CWIS.

4. *Conduct and document a program tailored to the facility's CWIS to regularly monitor for impinged fish and impinged invertebrates and retain the results of this monitoring on-site for inspection by or submission to EPA for at least five calendar years from the date of the monitoring event.*

   Under existing conditions, the CWIS is not known to impinge fish or invertebrates. Union Wharf conducts an annual inspection of the CWIS to ensure that it is free of debris and functioning properly. Union Wharf has not observed impinged fish or invertebrates during these inspections. As such, Union Wharf will continue to conduct annual inspections of the CWIS; however an impingement monitoring program is not appropriate for the Union Wharf NCCW system.

5. *If the permittee observes four (4) or more fish on the CWIS during any one of the following activities or situations, this would qualify as an unusual impingement event, warranting notification as described below…*

   Fish impingement is not known to occur at the Union Wharf CWIS. However, should Union Wharf discover fish impingement during annual inspection of the CWIS, EPA will be notified accordingly.

6. *Maintain a physical screening or exclusion technology with a maximum CWIS through-screen velocity of 0.5 feet per second (fps) or implement alternative steps or comparable effectiveness at minimizing entrainment and impingement mortality of adult and juvenile fish in the CWIS.*

   Under existing conditions, the CWIS consists of a 36-inch section of 6-inch PVC pipe perforated with 866 holes ranging in size from 3/16-inch to 7/16-inch in diameter. There are two intake and pump systems that operate one at a time, providing duplication for reliability. The current CWIS configuration and pumping rate allows for a through-screen velocity of 2.53 FPS.

In order to reduce the through-screen velocity of the existing system, an intake screen retrofit is proposed (Figure 4). A semi-circular 48-inch by 18-inch screen cover would be installed over each of the existing CWIS. The screen would be constructed of a stainless steel mesh with an openness area of approximately 60% and will achieve 0.27 FPS velocity at the CWIS screen surface. The new screened intakes will adequately meet the 0.5 FPS flow velocity at the intake threshold.

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Facility-Specific Best Technology Available Requirements

In addition to the requirements of Part 4.3(a) of the General Permit, Facility-Specific BTA Requirements must be evaluated under Part 4.3(b). The following section includes the regulatory compliance assessment, the marine habitat assessment, results of an impingement study and entrainment sampling, and assessment of technology.

Regulatory Compliance Assessment

In compliance with the Section 4.3(b) requirement for implementation of facility-specific BTAs, a combination of BTAs were examined for the Union Wharf system, including changes to the current CWIS, design modification measures, and operational measures. After a comprehensive examination of suitable BTAs, including those components suggested in Attachment C of the NCCW General Permit, a preferred combination of facility-specific BTAs was selected.

BTA appropriateness was evaluated based on the habitat characterization, impingement and entrainment studies, engineering calculations, existing system configuration, physical location of the system and cost. Based on the aforementioned factors, appropriate BTAs for the Union Wharf NCCW system include a combination of design measures and operational measures. Specifically, the most feasible facility-specific BTAs are the installation of variable speed drives and intake pipe screen covers.

Marine Habitat Assessment

As part of the Facility-Specific BTA requirements, an assessment of the habitat and aquatic life of the source water body is required. This section presents the results of the marine habitat assessment studies conducted in the vicinity of the CWIS at the Union Wharf Condominium in May 2010.

Marine Habitat

As shown in Figure 1, the non-contact cooling water intake and discharge are located on the west side of the Boston Inner Harbor. Boston Harbor is a busy marine port that has been highly modified historically to facilitate maritime shipping, fishing and other commercial operations. Numerous solid fill and pile supported wharfs extend into the harbor, leaving no natural shoreline. In the vicinity of the site the shoreline is predominately characterized as vertical granite block seawalls. A small intertidal beach area is within the study area that was once covered by a wharf, as evidenced by the remaining deteriorated pile field (Figure 5). Exposed beach area at low tide is approximately 60 feet wide at its greatest width and completely submerged at high tide.

According to records maintained by the National Oceanic and Atmospheric Administration (NOAA), Inner Boston Harbor is a mesotidal embayment (spring tidal range of 11.07 feet). Tidal currents in the inner harbor are generally weak and variable, but can range from 0.2 to 0.6 feet per second[1].

Immediately offshore of the intake/discharge site, Boston Harbor has been historically dredged and used as a boat basin and marina. A marina continues to operate north of the project site, adjacent to another condominium complex (Figure 6). Water depth off the seawall increases quickly to 20 feet within 40 feet of the wall.

The marine habitat at the site was characterized through a review of relevant data and observations/measurements made during low tidal conditions. The results of these efforts, including a description of intertidal and subtidal environments, are presented below. The extent of these environments is shown on Figure 1.

Intertidal Zone

The intertidal zone includes the tidal range between low tide and high tide and includes the vertical granite block seawalls (Figure 2) and the beach area (Figure 5) on the north side of Union Wharf (near the intake and discharge pipes).

The intertidal zone at Union Wharf is relatively sheltered within the inner Boston Harbor and along the western shoreline where numerous solid fill piers surrounded by granite block walls extend into the harbor. Energy from storm generated waves and tidal currents within the inner harbor and along the irregular man-made shoreline are diminished, providing a relatively stable environment. However, the area is exposed to smaller waves from storms and waves from passing boat wakes. The intertidal zone at the granite seawalls provides solid support and habitat for sessile and attached marine organisms including barnacles (*Balanus* sp.), blue

[1] NOAA 2010 Tidal Current Predictions. NOAA Tides and Currents - http://tidesandcurrents.noaa.gov/currents10/tab2ac2.html#11

mussels (*Mytilus edulis*) and periwinkle snails (*Littorina littorea*). Algae colonizing the intertidal zone include rockweeds (*Fucus vesiculosus* and *Ascophyllum nodusum*), Irish moss (*Chondrus crispus*) and green algae (*Ulva* sp).

Adjacent to the project site is a small beach area. The beach is protected behind the Union Wharf extension. The beach area is characterized by large granite blocks, cobbles and stones in the upper half and scattered rocks, coarse gravel and coarse sand in the lower portion. The presence of coarse sand indicates the beach receives enough wave action to carry off fine sands and silts, leaving the coarse grain size sands and gravels. Throughout the beach area are standing deteriorated piles that formerly supported a timber wharf. The piles are not connected and many are severely deteriorated. The rocks and piles in the beach area support a community of dense barnacles, mussels and periwinkles along with rockweed and Irish moss. In addition, numerous Pacific grapsid shore crabs (*Hemigrapsus sanguineus*) were noted under rocks and in crevices on the beach area and a single starfish (*Asterias forbesii*) was observed within the shoreline rocks. A qualitative sample of the sand and gravel from the lower beach area was collected and sieved through a one millimeter stainless steel sieve to concentrate any invertebrates. No small crustaceans such as amphipods, shrimp or isopods were observed. Numerous annelids were collected including many Oligochaetes, a single Capitellidae polycheate and a single small (1.8 cm) soft shell clam (*Mya arenaria*).

The intertidal area appeared to be healthy and but supported a poor diversity of invertebrates. The coarse sands indicate a higher energy environment which may have contributed to the low invertebrate diversity. Numerous species of red, green and brown algae were observed within the intertidal zone and the adjacent subtidal waters.

Subtidal Zone

The subtidal Boston Harbor habitat extends to the seawall at the CWIS location (Figure 6) and supports deep water and a portion of the deteriorated pile field. Approximately 40 feet off the granite seawall from the CWIS intake and discharge, water depths are approximately 20 feet deep. A petite ponar grab was used to collect a sample of the bottom (benthic) sediments. Benthic sediments consist of fine grained sands and silts with a one centimeter layer of brown oxidized sediments over black anoxic sediments. Numerous mussel shell fragments were embedded in the sediments and one of the two grabs recovered a single large blue mussel. The sediments collected off Union Wharf appear to be typical of inner harbor areas where fine grained sediments settle in the deep portions of the embayment and usually become anoxic beneath a thin oxidized layer.

The collected grab samples were sieved in a one millimeter stainless steel sieve to remove the fine grained sediments. The collected material was examined under a binocular microscope to separate and identify the macroinvertebrates collected in the

grab samples. Table 1 lists the species and relative dominance of each species collected off the CWIS.

Table 1: Union Wharf Benthic Invertebrates

Species Type	Scientific Name	Common Name	Relative Dominance
Round Worm	Nematoda	Nematoda	Dominant
Annelida	Oligochaeta	None	Dominant
Annelida	*Harmothoe imbricata*	Scale worm	Common
Annelida	*Streblospio benedicti*	Spionid worm	Present
Annelida	*Polydora caeca*	Spionid worn	Present
Annelida	*Exogone* sp.	Syllid worm	Scarce
Annelida	*Eteone lactea*	Phyllodocid worm	Scarce
Annelida	*Armandia agilis*	Opheliid worm	Scarce
Gastropoda	*Crepidula fornicata*	Slipper shell	Scarce
Gastropoda	*Nassarius trivittatus*	NE dog whelk	Present
Bivalvia	*Mytilus edulis*	Blue mussel	Scarce
Bivalvia	*Yoldia sapotilla*	Short yoldia	Scarce
Decopoda	*Pagurus longicarpus*	Hermit crab	Scarce
Amphipoda	*Ampelisca abdita*	None	Scarce

Source: Vanasse Hangen Brustlin, Inc.

The results of the subtidal survey indicate typical inner harbor fine grained marine sediments that are anoxic below a thin oxidized layer. The invertebrates found in the sediment are typical for these habitats but the low number individuals and species diversity indicates a stressed environment, likely resulting from runoff pollutants. A chemical analysis of the sediments was not conducted for this analysis.

Impingement Study Results

An impingement study for the Union Wharf CWIS could not be conducted because of the intake design. The perforated pipe intake is suspended off the Union Wharf seawall and does not use traveling screens, sprays or other mechanical methods to remove fish or debris. On an annual basis, a diver cleans the CWIS intakes and adjacent seawall of algae and encrusting invertebrates that may interfere with the operation of the intake. If needed, the intake pipes can be detached from the seawall and removed from the water for maintenance, although this is rarely needed.

Although no study of fish and invertebrate impingement was conducted, the system operator is unaware of any impingement issues that may currently occur with the CWIS. Blockage of the intake structure would reduce the incurrent flow and cause cavitation of the pumps. Cavitation has not been a problem with the system except on one event when a plastic bag floating in the harbor became intermittently trapped on the intakes and reduced flows.

Entrainment Study Results

A single entrainment collection was conducted on May 18, 2010. Collection consisted of connecting a 3-inch hose to the existing NCCW system piping, after the pump and before the heat exchanger, and discharged the water to a 0.336 mm plankton net suspended vertically within a 55 gallon plastic barrel. The 3-inch hose drew off some of the pumped water from the NCCW system and the rate of flow through the 3-inch hose was calculated to provide 165 GPM, requiring 2 hours and 40 minutes to filter 100 cubic meters (26,417 gallons) of seawater. The plankton net was suspended in the water filled 55 gallon plastic barrel to reduce the physical damage to the biological sample as it was collected. A 1-1/2 inch discharge at the bottom of the barrel released some of the inflow water; excess water was allowed to overflow the barrel and return to Boston Harbor.

The collected sample from the plankton net was placed in a 16 oz. glass jar and preserved with 10 percent buffered formalin. The preserved sample was delivered to Normandeau Associates in Falmouth, Massachusetts for analysis. Using a Massachusetts Department of Environmental Protection (DEP) ichthyoplankton entrainment analysis protocol, fish egg and fish larval stages observed within the collected plankton sample were identified and counted. The results of the analysis are provided in Table 2.

Table 2: Union Wharf Ichythyoplankton Sample

Taxa	Common Name	Life Stage	Count*	Total Length (mm)
Enchelyopus-Urophycis-Peprilus	rockling-hake-butterfish	Egg	10	
Enchelyopus cimbrius	fourbeard rockling	Egg	2	
Labrid-Limanda	tautog-cunner-yellowtail	Egg	23	
Labridae	tautog-cunner	Egg	1	
Paralichthys-Scophthalmus	fourspot flounder-windowpane	Egg	4	
Pseudopleuronectes americanus	winter flounder	Stg 2	1	3.6
damaged		Larvae	1	

*per 100 cubic meters of seawater (26,417 gallons)
Source: Normandeau Associates, Inc., May 2010

Technology Assessment

VHB evaluated the feasibility of the BTA components suggested in Attachment C of the NCCW General Permit. A determination of feasibility for each of the components was based on the habitat characterization, impingement and entrainment studies, engineering calculations, system configuration, physical location of the system and cost. The following BTA components were considered, per the suggestions contained in Attachment C of the NCCW General Permit.

- *Use of a closed-cycle cooling system or withdrawing cooling water at a rate commensurate with a closed-cycle cooling system.*

  A dry closed-cycle cooling system utilizes radiation and convection as the means to emit heat from the steam cycle. This type of system requires significant solar-influenced surface area for construction, which is not available on a space limited, downtown Boston wharf.

  A wet closed-cycle cooling system relies on a combination of heat rejection and sensible heat transfer as the mechanism for cooling. Due to the heavily developed urban residential environment surrounding Union Wharf, construction of a mechanical or natural draft cooling tower is not considered a feasible alternative to the continued operation of the existing NCCW system.

  Prior to construction of the NCCW system in 1996, Union Wharf operated a cooling tower on the north side of the building, immediately adjoining the old (and at the time vacant) MBTA power plant located between Union and Battery Wharves. The former MBTA power plant building was later converted to residential use. The City of Boston subsequently received numerous complaints from residents regarding excess noise stemming from operation of the cooling tower. The existing NCCW system was constructed in response to repeated noise citations issued by the City of Boston.

- *Operation of variable speed pumps to minimize the amount of cooling water withdrawn, to the extent practical.*

  Under existing conditions, the NCCW systems functions in an on/off capacity, thereby pumping a consistent quantity of water regardless of the Wharf's cooling needs. Installation of variable speed drives (VSD) would allow Union Wharf to tailor the system's pumping rate, resulting in an overall decrease of cooling water withdrawal. Additionally, VSDs will result in an energy savings for Union Wharf.

- *Use of alternative sources of cooling water to the maximum extent practical.*

  In light of the physical location of Union Wharf and surrounding land use, utilizing an alternative source of cooling water is not a practicable BTA for the Union Wharf NCCW facility.

- *Steps to minimize intake velocity.*

  The system intake velocity can be minimized through the installation of a CWIS screen cover, as outlined in Figure 4. The existing CWIS intake velocity is 2.53 FPS. Installation of a semi-circular stainless steel mesh screen with a

60 percent openness area will reduce the flow velocity at the screen surface to 0.27 FPS. Installation of the screen cover would significantly minimize the intake velocity, thereby lessening the likelihood of system impingement and entrainment.

- *Steps to minimize cooling water*

  Under existing conditions, Union Wharf's NCCW system is not in operation between November and May. Operating the system for only six months of the year, provides a significant minimization of cooling water needs.

  When the system is operating, cooling water pumping will be minimized through the installation of VSDs. VSDs allow Union Wharf to better tailor their water usage to best suit facility's cooling needs.

- *Use of rotating screens and automatic fish return system or similar system to increase the likelihood that fish impinged upon intake structures will be returned to the source water with minimal stress.*

  The Union Wharf NCCW system is an open system in which the incoming seawater is piped into an adjacent below ground vault and heat exchanger system, and then quickly returned to the harbor. The existing system configuration does not have a physical location where it would be appropriate to incorporate a rotating screen system.

  Further, fish impingement is not known to occur in conjunction with operation of Union Wharf's NCCW system. The existing graduated perforation intake structure configuration has not caused fish impingement as fouling of the CWIS has not occurred since construction of the facility in 1996.

- *Locate the CWIS in, or relocate the CWIS to, an area where impingement and/or entrainment will be minimized.*

  Based on an entrainment study, inspection of the CWIS and information provided by facility staff, the existing CWIS location appears to be resulting in minimal organism entrainment and no fish impingement (refer to previous sections). Therefore, relocating the CWIS would not be a productive BTA for the Union Wharf system.

- *Use of low pressure spray (30 psi or less) rather than high pressure spray to remove impinged organisms from screens.*

  The Union Wharf NCCW system is an open system in which the incoming seawater is piped into an adjacent below ground vault and heat exchanger system, and then quickly returned to the harbor. The existing system

configuration uses a submerged pipe intake and does not have a physical location where it would be appropriate to incorporate a low pressure spray.

Further, fish impingement is not known to occur in conjunction with operation of Union Wharf's NCCW system. The existing graduated perforation intake structure configuration has not caused fish impingement as fouling of the CWIS has not occurred since construction of the facility in 1996.

- *Maintenance of CWIS bottom sills or dredging to minimize the influence of the intake velocity on impingement and/or entrainment of benthic or near benthic organisms.*

  Under existing conditions, the intake pipes are affixed to the adjacent Union Wharf seawall and are not in contact with the harbor floor. This configuration prevents the intake of bottom sediment as well as minimizes the influence of the system intake velocity on benthic and near benthic organisms. Additionally, the installation of the intake screen cover will further minimize intake velocity and the potential impact the system might have on benthic and near benthic organisms in the vicinity of the CWIS.

- *Maintenance of fine screen mesh or fish exclusion devices such as louvers or other modification of the CWIS to reduce mortality, impingement and/or entrainment.*

  The existing CWIS results in minimal entrainment and no fish impingement. In addition, the installation of intake pipe screen covers will significantly reduce the system intake velocity, further minimizing the likelihood of fish impingement.

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Summary of Assessment Findings and Recommendations

Review of the existing NCCW system demonstrates that it is a relatively small open loop system that does not offer many opportunities for modification. The existing CWIS, pump, heat exchanger and discharge operate efficiently but could be improved with several changes. Some modifications are needed to meet the requirements of the General Permit, while other modifications will improve the system performance and energy efficiency.

The existing system is in compliance with the General Permit daily discharge limit requirement and system modifications can be made to meet the Facility-Specific BTA General Permit requirement. In compliance with the General Permit requirements, the maximum daily pumping rate must be maintained below 1.0 MGD. Although the system can operate at an effective maximum of 1.2 MGD, system valving has been set at 680 GPM or 980,000 GPD. This setting will be permanently maintained to ensure the system does not exceed 1.0 million gallons on a daily basis. Adding VSD will help to make the system operate more efficiently by coupling the pumping rate to the cooling demand. VSD will reduce daily water use since pumping rates will be reduced during off peak hours such as in the evening. Use of VSD is not needed to keep the system below 1.0 million GPD since the system valves have been set to control the intake rate, but will help to lower water use and make the system function more efficiently for water and energy use. The last modification considered for the Union Wharf NCCW was to reduce the intake flow velocity of the CWIS in the source water body (Boston Harbor). Several designs were considered, including a larger perforated pipe intake, a longer perforated pipe intake, and a screen cover to extend the inlet threshold from the existing structure. The most efficient, cost effective and minimally sized device was determined to be a screen cover.

As required by the General Permit, a review and characterization of the marine environment of the NCCW system source waters was conducted. Review of the source water habitat was accomplished by a visit to the intake and discharge vicinity during low tide on May 18, 2010 to investigate the marine communities of the intertidal beach and granite seawalls, taking grab samples of the subtidal sediments immediately offshore and conducting entrainment sampling of the cooling water.

The findings of the investigation determined the area is typical of an inner harbor intertidal and subtidal community. The area exhibited the low numbers of individuals and low diversity of species that would be expected where exposed to moderate wave energy and habitat disturbances. Fish impingement could not be assessed because of the CWIS design, but is not anticipated to be an issue since the intake is a perforated pipe mounted on the seawall and submerged in the water. The water intake does not channel fish or other marine organisms into an intake chamber where escape is difficult. Entrainment sampling demonstrated some fish eggs and larvae are being drawn into the NCCW system, but does not appear to be occurring in significant numbers. Once the NCCW system is retrofitted with VSD, the volume of intake water should be reduced and the fish egg and larvae entrainment will be reduced.

Recommendations

The following recommendations should be enacted immediately to comply with the provisions of the General Permit.

1. Maintain the pumping flow rate at an average of 680 GPM or 980,000 GPD.
2. Proceed with modification to the CWIS, including fabrication and installation of the screen cover to reduce the intake flow rate to 0.5 FPS or less at the intake threshold.
3. Installation of VSD technology should be considered to further reduce pumping rates and make the NCCW system more efficient.

Figures

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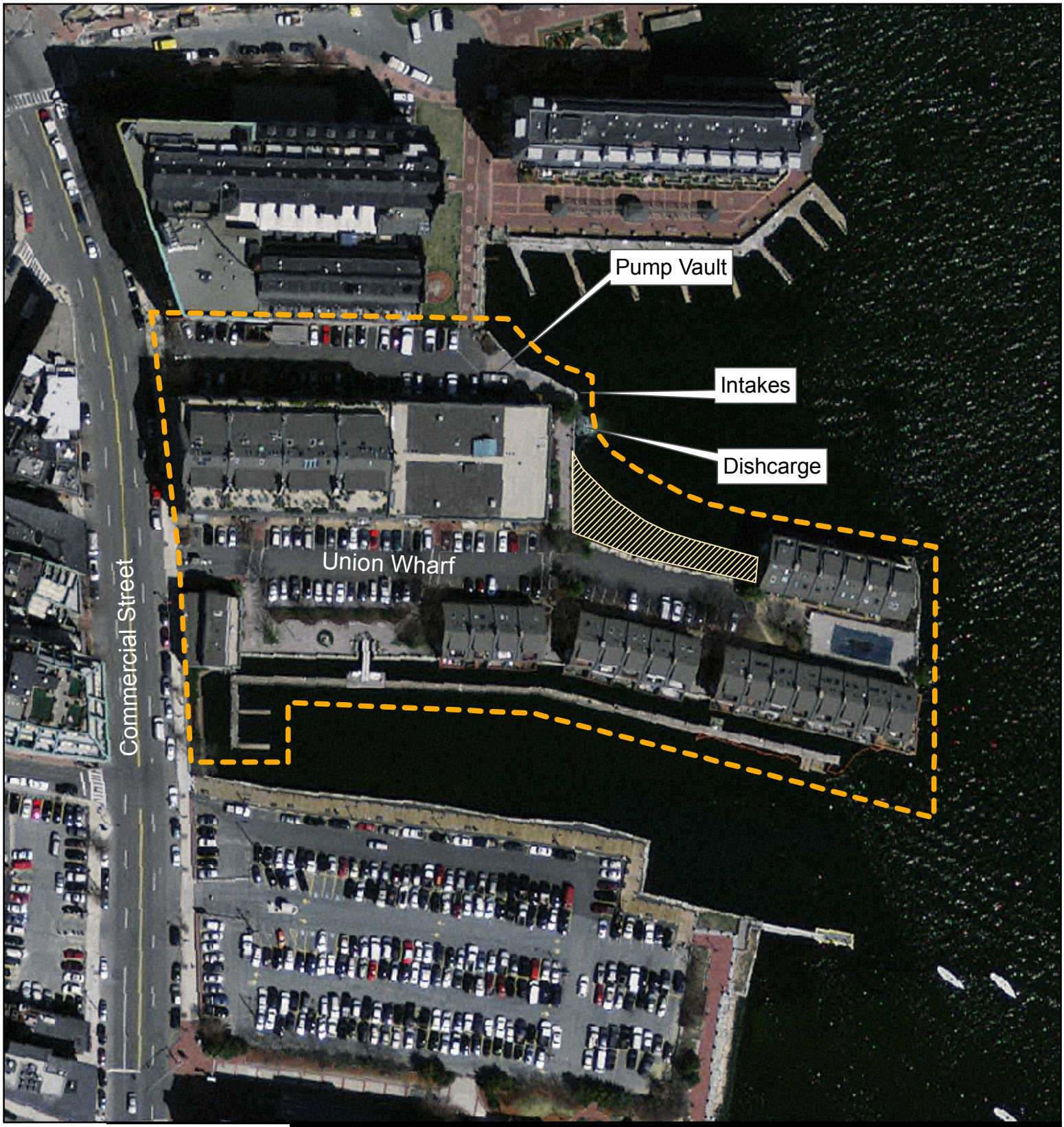


Source: Mass GIS 2008

N

0 100 200 Feet

Vanasse Hangen Brustlin, Inc.

Union Wharf NCCW System
243 Commercial Street
Boston, Massachusetts
Approximate Site Boundary
Beach

Figure 1
May 2010

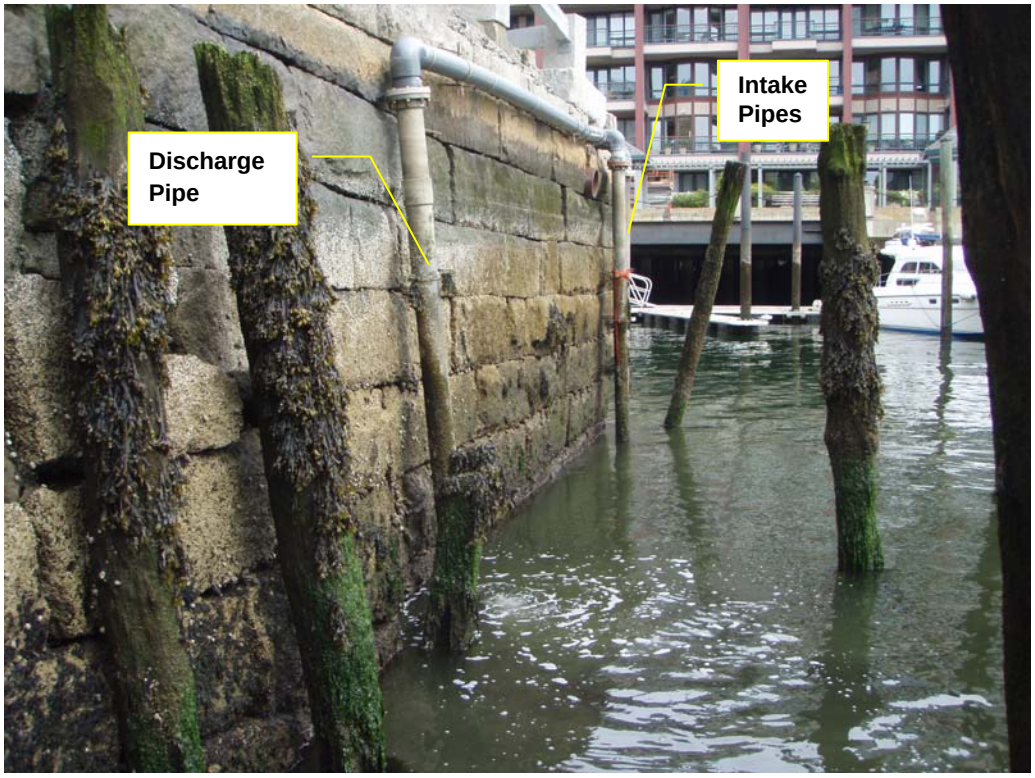
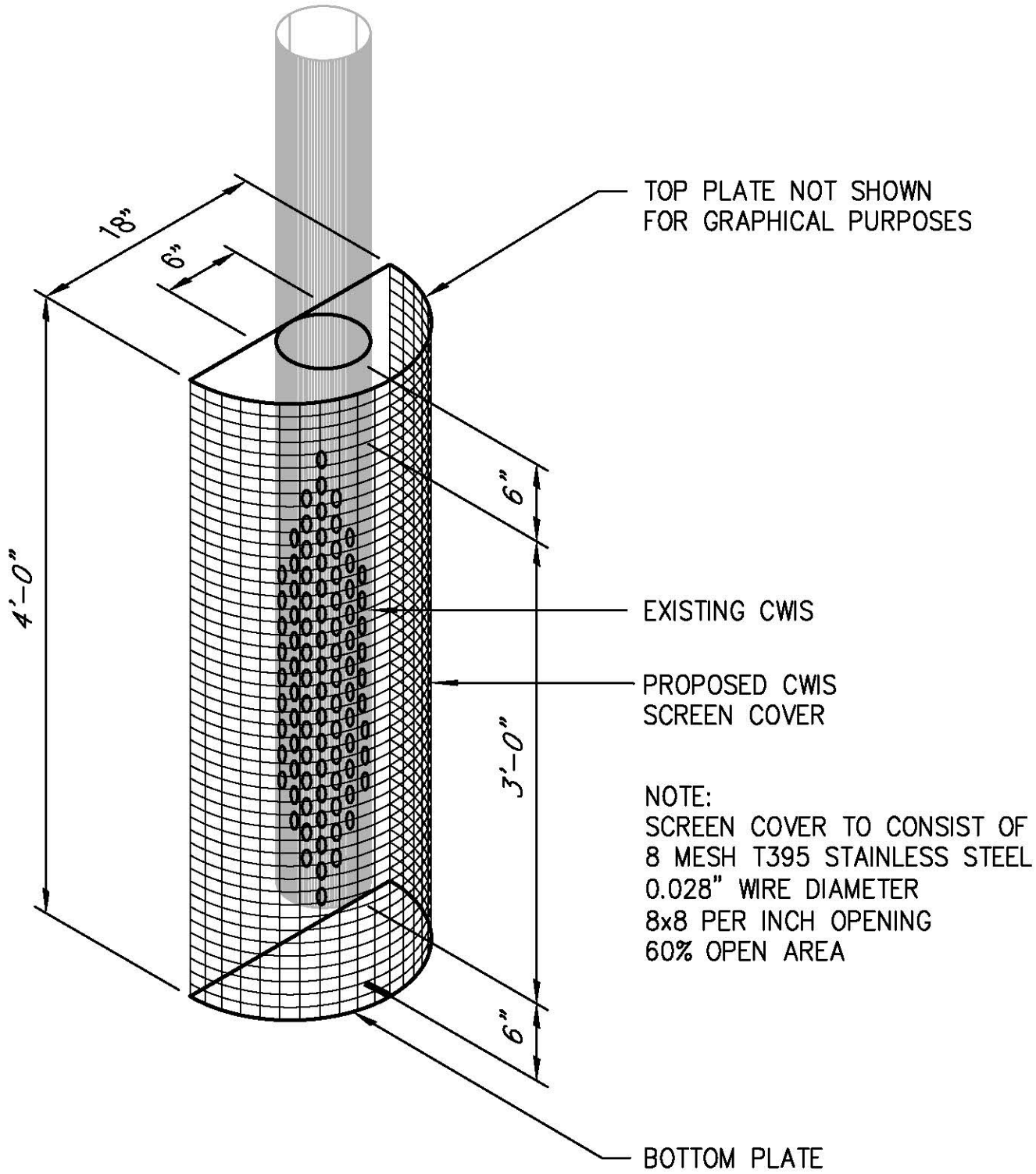


Figure 2: Intake and Discharge Pipes on Union Wharf Seawall


Figure 3: Existing CWIS



Vanasse Hangen Brustlin, Inc.

Union Wharf Condominium Trust CWIS — Figure 4
Intake Screen Modification Schematic — 5/26/2010

Not to Scale

Figure 5 – Beach Area and Pile Field

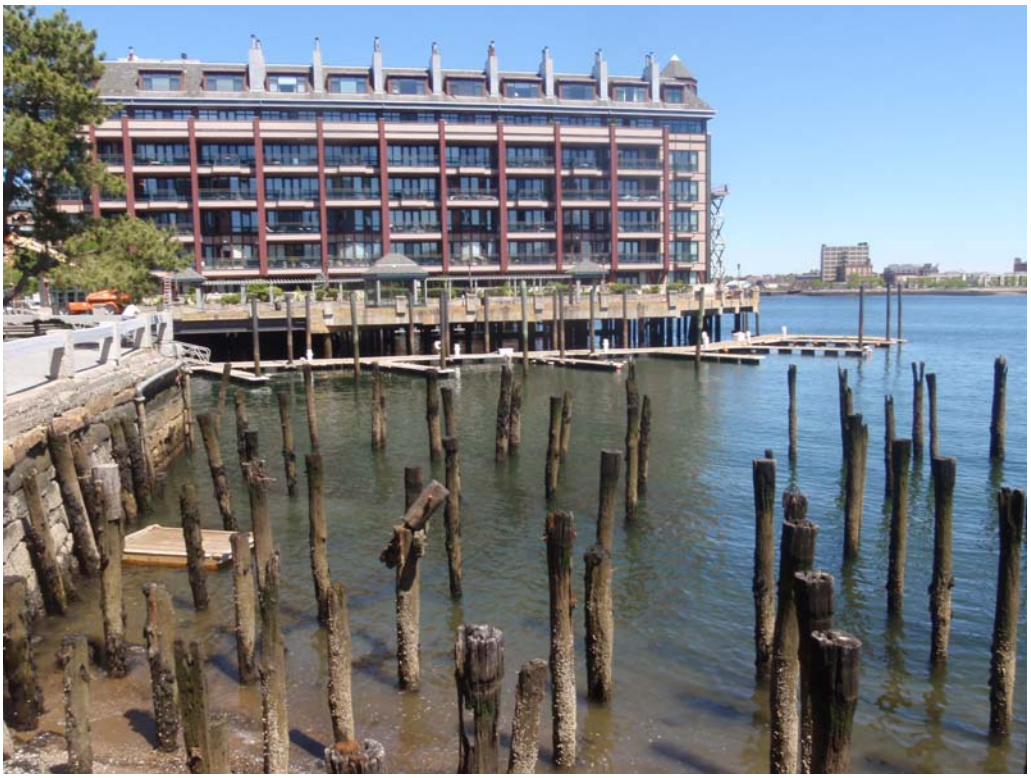


Figure 6 – Subtidal Environment off CWIS

Appendix A
Engineering Calculations

Transportation
Land Development
Environmental
Services

Vanasse Hangen Brustlin, Inc.

101 Walnut Street
P. O. Box 9151
Watertown, MA 02471-9151
617 924 1770
FAX 617 924 2286

Memorandum

To: Kristin Kent

Date: May 25, 2010

Project No.: 11251.00

From: Marla Keene

Re: Union Wharf Condominium Trust
Through Screen Velocity Calculations

This memorandum documents the calculations made to evaluate the through screen velocity of the Cooling Water Intake Structure for the Union Wharf Condominium development located at 343 Commercial Street in Boston, Massachusetts in compliance with General BTA Requirements contained in the General Permit for Non Contact Cooling Water. Velocity calculations, existing system photographs, and proposed retrofit supporting materials are attached.

The cooling water intake structure consists of two identical 6-inch perforated PVC pipes. The pipes are fastened to the seawall via support brackets and are located approximately three feet below mean low water. Each pipe is connected to a redundant seawater intake pump. The pumps are never run simultaneously.

Condominium staff determined the number and size of perforations in each intake pipe in support of this velocity calculation. The total area of the perforations is 86.3 square inches, or 0.60 square feet.

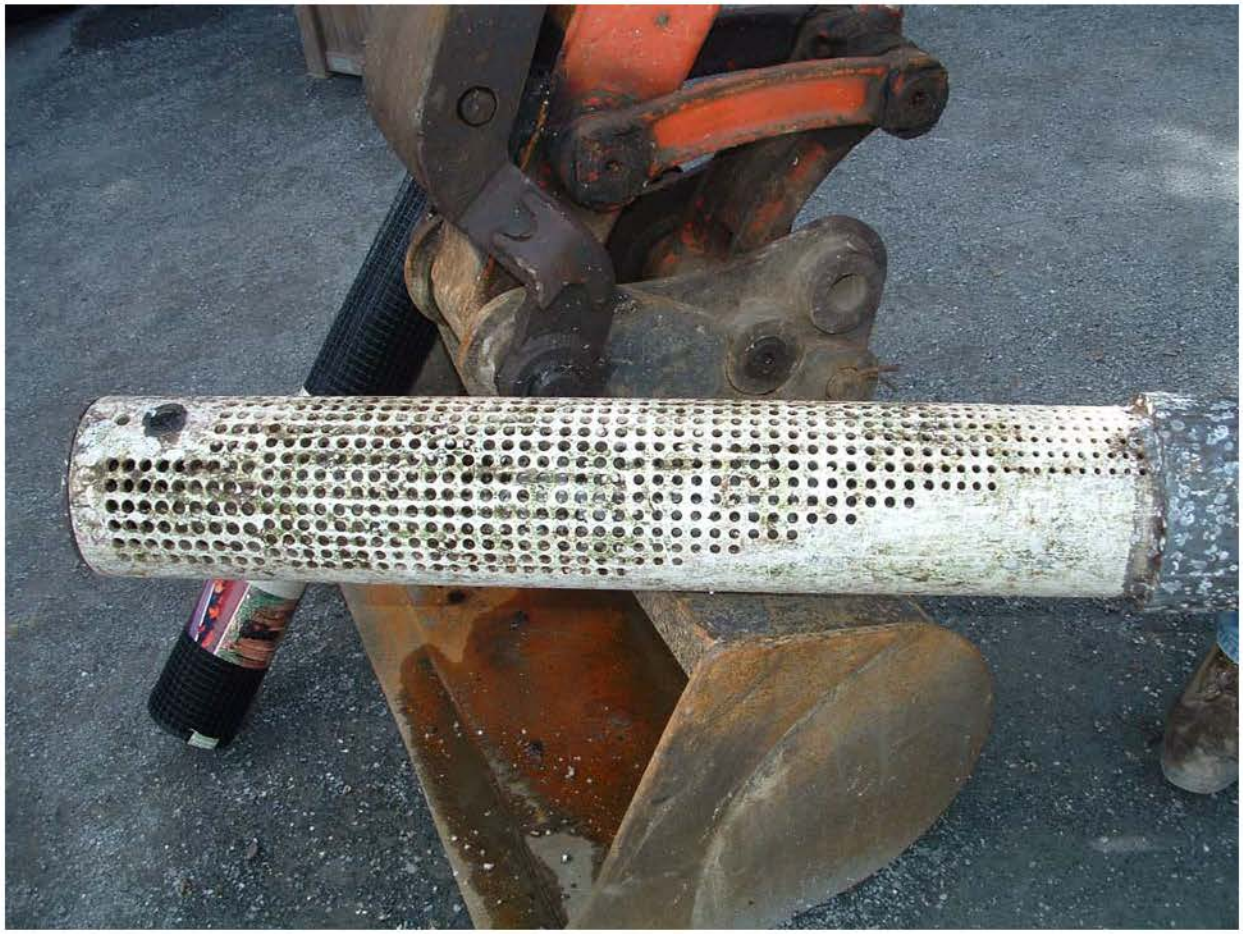
The current pumping rate of the cooling water system is 680 gallons per minute, or 1.515 cubic feet per second.

The intake velocity is therefore 1.515 cfs/0.60 sf = 2.53 fps.

In order to reduce the intake velocity to the required 0.5 fps, the open area of the intake pipe would need to be increased to 3.03 square feet, a five-fold increase. There are a number of ways the Condominium Trust can achieve this increase.

VHB proposes retrofitting a larger screen over the existing intake pipe. This screen should consist of stainless steel mesh with an open area of approximately 60%, requiring a minimum of 5.05 sf of open screen area. A schematic drawing is attached which would provide 5.65 sf of screen. Also attached is a sample Product Data Sheet. All materials should be evaluated for applicability in marine conditions before use. Under the proposed configuration, the intake velocity at the retrofit screen would be reduced to 0.27 fps, in compliance with the General BTA Requirements.

Figure 1
Union Wharf Condominium Trust Intake Pipe
Photograph and Field Notes



60 - 3/16" HOLES
32 - 1/4" "
214 - 5/16" "
~~120 - 7/16" HOLES~~
400 - 3/8 HOLES
120 - 7/16" HOLES
40 - 3/8" HOLES BOTTOM.
37" LONG. X 6" DIA.

VHB

Velocity Calculations

Project Name: **Union Wharf** **Proj. No.:** **11251.00**

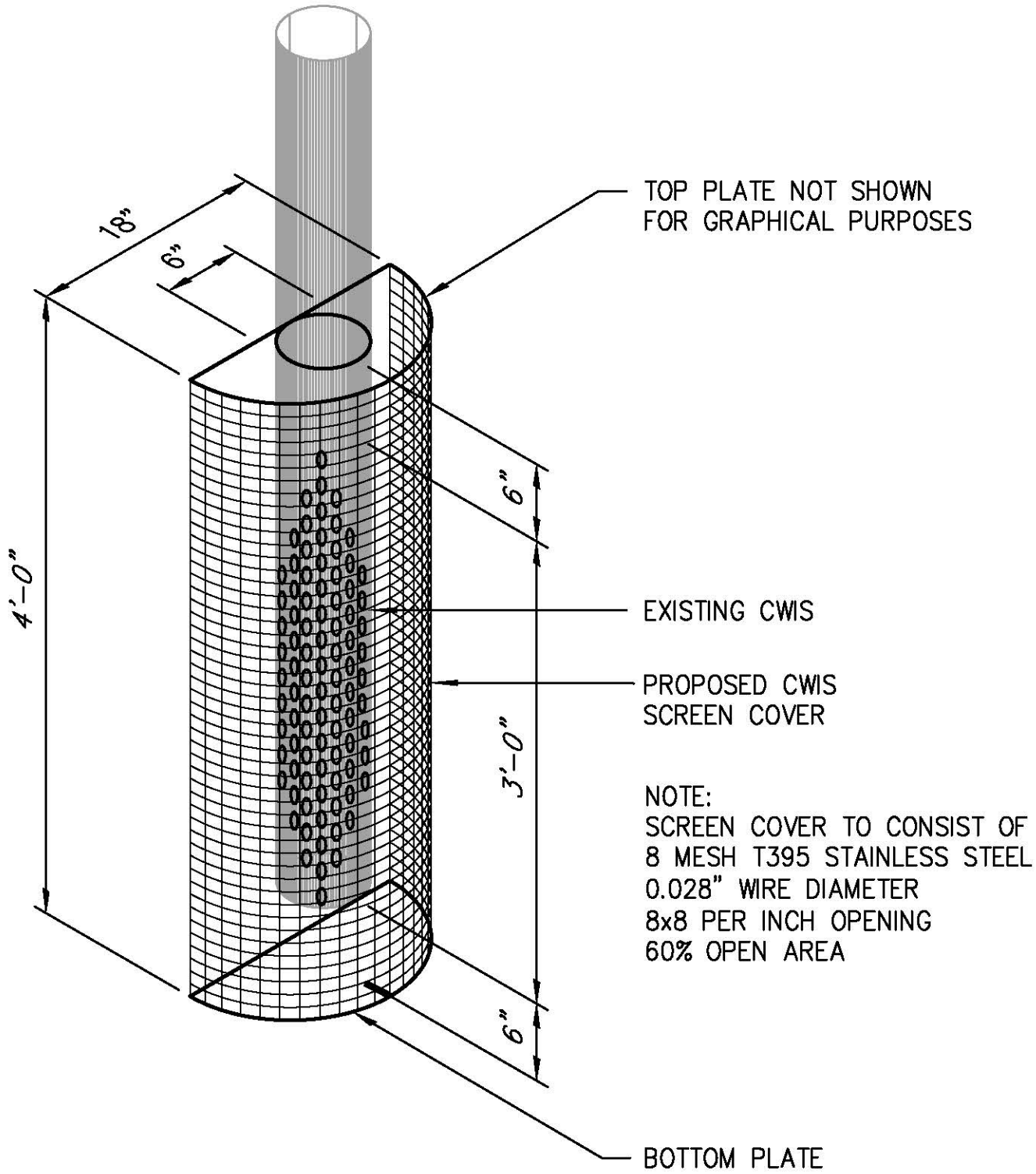
Project Location: **Boston, MA** **Date:** **5/24/2010**

Calculated by: **MK**

Count	Hole Dia (in)	Hole Area (sq in)	Total Area (sq in)
60	0.1875	0.0276	1.657
32	0.25	0.0491	1.571
214	0.3125	0.0767	16.414
400	0.375	0.1104	44.179
120	0.4375	0.1503	18.040
40	0.375	0.1104	4.418

Total Area (sq in)	**86.277**
Total Area (sq ft)	0.5991
Q (gpm)	680
Q (cf/s)	1.515
Existing V (ft/s)	**2.529**
Required V (ft/s)	0.5
Required Q given A (gpm)	134
Required A given Q (sf)	**3.03**

Surface area of 48"Lx18"Φ Semi-Circular Pipe (sf)	9.425
60% Open Area (sf)	5.655
Q (cf/s)	1.515
Velocity (ft/s)	0.268



Vanasse Hangen Brustlin, Inc.

Union Wharf Condominium Trust CWIS Intake Screen Modification Schematic

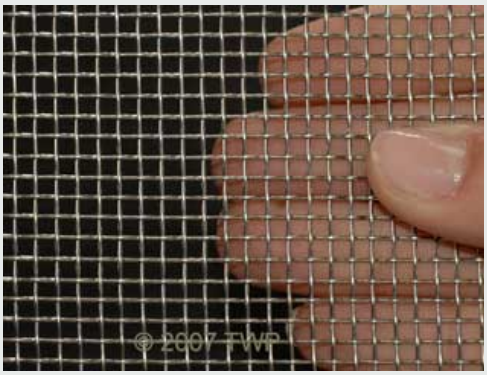
Figure 2
5/26/2010

Not to Scale

TWP Inc 2831 Tenth St.
Berkeley, CA 94710 USA
phone 510-548-4434
800-227-1570
fax 510-548-3073
website www.twpinc.com

PRODUCT DATA SHEET

8 Mesh T304 Stainless .028" Wire Dia. 36 Inch Wide



Name:	8 Mesh T304 Stainless .028" Wire Dia. 36 Inch Wide
Part Number:	008X008S0280W36T
Material:	Stainless Steel

Mesh:	8 x 8 per Inch (per 2.54 cm)
Opening Size:	0.0970 Inch 2.46 mm 2464 microns
Overall Thickness:	0.056 Inch 1.4224 mm
Full Roll Length:	100 feet 30.49 meters
Weave Type:	PSW
Common Name:	8 Mesh Woven Stainless .028
Purchasing Units of Measure:	Full rolls or by the square foot.

Wire Diameter: **Wire Diameter:**	0.0280 Inch 0.7112 mm
Open Area Percentage:	60 %
Weight per Square Foot: **Weight per Sq. Meter:**	0.42 pounds 2.05 Kg.
Standard Widths:	36" or 48" Inches
Finish (Coating):	Mill finish
Link to Product Page:	Click Here

Typical Uses:

Comments:

Attachment D
USFWS IPaC Preliminary Determination Letter

U.S. Fish and Wildlife Service

Trust Resources List

This resource list is to be used for planning purposes only — it is not an official species list.

Endangered Species Act species list information for your project is available online and listed below for the following FWS Field Offices:

New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 3301
(603) 223-2541
http://www.fws.gov/newengland

Project Name:

Union Wharf

U.S. Fish and Wildlife Service

Trust Resources List

Project Location Map:

Project Counties:

Suffolk, MA

Geographic coordinates (Open Geospatial Consortium Well-Known Text, NAD83):

MULTIPOLYGON (((-71.0509932 42.3648517, -71.051093 42.3658192, -71.0496204 42.3658145, -71.0496312 42.3656682, -71.0495132 42.3655176, -71.0485583 42.3654225, -71.0485792 42.3647566, -71.0502749 42.3649627, -71.050586 42.3649706, -71.0506075 42.3648521, -71.0509932 42.3648517)))

Project Type:

** Other **

U.S. Fish and Wildlife Service

Trust Resources List

Endangered Species Act Species List (USFWS Endangered Species Program).

There are a total of 2 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fishes may appear on the species list because a project could cause downstream effects on the species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section below for critical habitat that lies within your project area. Please contact the designated FWS office if you have questions.

Species that should be considered in an effects analysis for your project:

Birds	Status		Has Critical Habitat	Contact
Red Knot (*Calidris canutus rufa*) Population:	Threatened	species info		New England Ecological Services Field Office
Roseate tern (*Sterna dougallii dougallii*) Population: northeast U.S. nesting pop.	Endangered	species info		New England Ecological Services Field Office

Critical habitats within your project area:

There are no critical habitats within your project area.

FWS National Wildlife Refuges (USFWS National Wildlife Refuges Program).

There are no refuges found within the vicinity of your project.

FWS Migratory Birds (USFWS Migratory Bird Program).

The protection of birds is regulated by the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. For more information regarding these Acts see: http://www.fws.gov/migratorybirds/RegulationsandPolicies.html.

All project proponents are responsible for complying with the appropriate regulations protecting birds when planning and developing a project. To meet these conservation obligations, proponents should identify potential

or existing project-related impacts to migratory birds and their habitat and develop and implement conservation measures that avoid, minimize, or compensate for these impacts. The Service's Birds of Conservation Concern (2008) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

For information about Birds of Conservation Concern, go to: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Management/BCC.html.

To search and view summaries of year-round bird occurrence data within your project area, go to the Avian Knowledge Network Histogram Tool links in the Bird Conservation Tools section at: http://www.fws.gov/migratorybirds/CCMB2.htm.

For information about conservation measures that help avoid or minimize impacts to birds, please visit: http://www.fws.gov/migratorybirds/CCMB2.htm.

Migratory birds of concern that may be affected by your project:
There are **19** birds on your Migratory birds of concern list. The underlying data layers used to generate the migratory bird list of concern will continue to be updated regularly as new and better information is obtained. User feedback is one method of identifying any needed improvements. Therefore, users are encouraged to submit comments about any questions regarding species ranges (e.g., a bird on the USFWS BCC list you know does not occur in the specified location appears on the list, or a BCC species that you know does occur there is not appearing on the list). Comments should be sent to the ECOS Help Desk.

Species Name	Bird of Conservation Concern (BCC)	Species Profile	Seasonal Occurrence in Project Area
American Oystercatcher (*Haematopus palliatus*)	Yes	species info	Breeding
American bittern (*Botaurus lentiginosus*)	Yes	species info	Breeding
Bald eagle (*Haliaeetus leucocephalus*)	Yes	species info	Year-round
Black-billed Cuckoo (*Coccyzus erythropthalmus*)	Yes	species info	Breeding
Blue-winged Warbler (*Vermivora pinus*)	Yes	species info	Breeding

Trust Resources List

Canada Warbler (*Wilsonia canadensis*)	Yes	species info	Breeding
Hudsonian Godwit (*Limosa haemastica*)	Yes	species info	Migrating
Least Bittern (*Ixobrychus exilis*)	Yes	species info	Breeding
Peregrine Falcon (*Falco peregrinus*)	Yes	species info	Breeding
Pied-billed Grebe (*Podilymbus podiceps*)	Yes	species info	Breeding
Prairie Warbler (*Dendroica discolor*)	Yes	species info	Breeding
Purple Sandpiper (*Calidris maritima*)	Yes	species info	Wintering
Saltmarsh Sparrow (*Ammodramus caudacutus*)	Yes	species info	Breeding
Seaside Sparrow (*Ammodramus maritimus*)	Yes	species info	Breeding
Short-eared Owl (*Asio flammeus*)	Yes	species info	Wintering
Snowy Egret (*Egretta thula*)	Yes	species info	Breeding
Upland Sandpiper (*Bartramia longicauda*)	Yes	species info	Breeding
Wood Thrush (*Hylocichla mustelina*)	Yes	species info	Breeding
Worm eating Warbler (*Helmitheros vermivorum*)	Yes	species info	Breeding

NWI Wetlands (USFWS National Wetlands Inventory).

The U.S. Fish and Wildlife Service is the principal Federal agency that provides information on the extent and status of wetlands in the U.S., via the National Wetlands Inventory Program (NWI). In addition to impacts to wetlands within your immediate project area, wetlands outside of your project area may need to be considered in any evaluation of project impacts, due to the hydrologic nature of wetlands (for example, project activities may affect local hydrology within, and outside of, your immediate project area). It may be helpful to refer to

the USFWS National Wetland Inventory website. The designated FWS office can also assist you. Impacts to wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes. Project Proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

Data Limitations, Exclusions and Precautions

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery and/or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Exclusions - Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Precautions - Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC is unable to display wetland information at this time.