

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

2006-0100

Application I. D. Number

5/23/2006

Application Date

Single Family Home

Project Name/Description

Harris Joseph A

Applicant

32 Gertrude Ave, Portland, ME 04103

Applicant's Mailing Address

Tim Higgins

Consultant/Agent

Agent Ph: (207)838-5870

Agent Fax:

Applicant or Agent Daytime Telephone, Fax

32 - 32 Gertrude Ave, Portland, Maine

Address of Proposed Site

402 A007001

Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply):  New Building  Building Addition  Change Of Use  Residential  Office  Retail  
 Manufacturing  Warehouse/Distribution  Parking Lot  Other (specify) \_\_\_\_\_

Proposed Building square Feet or # of Units

Acreage of Site

Zoning

**Check Review Required:**

- |  |   |  |  |
|--|---|--|--|
| <input checked="" type="checkbox"/> Site Plan<br>(major/minor) | <input type="checkbox"/> Subdivision<br># of lots _____ | <input type="checkbox"/> PAD Review            | <input type="checkbox"/> 14-403 Streets Review   |
| <input type="checkbox"/> Flood Hazard                          | <input type="checkbox"/> Shoreland                      | <input type="checkbox"/> Historic Preservation | <input type="checkbox"/> DEP Local Certification |
| <input type="checkbox"/> Zoning Conditional<br>Use (ZBA/PB)    | <input type="checkbox"/> Zoning Variance                |  | <input type="checkbox"/> Other _____             |

Fees Paid: Site Plan \_\_\_\_\_ Subdivision \_\_\_\_\_ Engineer Review \_\_\_\_\_ Date \_\_\_\_\_

**DRC Approval Status:**

Reviewer Jay Reynolds

- Approved  Approved w/Conditions See Attached  Denied

Approval Date 6/9/2006 Approval Expiration 6/9/2007 Extension to \_\_\_\_\_  Additional Sheets Attached

Condition Compliance Jay Reynolds 6/9/2006  
signature date

Performance Guarantee  Required\*  Not Required

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

- |  |                |  |                 |
|--|----------------|--|-----------------|
| <input checked="" type="checkbox"/> Performance Guarantee Accepted     | _____          | _____  | _____           |
|  | date           | amount   | expiration date |
| <input checked="" type="checkbox"/> Inspection Fee Paid                | _____          | _____  |                 |
|  | date           | amount   |                 |
| <input checked="" type="checkbox"/> Building Permit Issue              | _____          |  |                 |
|  | date           |  |                 |
| <input checked="" type="checkbox"/> Performance Guarantee Reduced      | _____          | _____  | _____           |
|  | date           | remaining balance                                  | signature       |
| <input checked="" type="checkbox"/> Temporary Certificate of Occupancy | _____          | <input type="checkbox"/> Conditions (See Attached) | _____           |
|  | date           |  | expiration date |
| <input checked="" type="checkbox"/> Final Inspection                   | _____          | _____  |                 |
|  | date           | signature  |                 |
| <input checked="" type="checkbox"/> Certificate Of Occupancy           | _____          |  |                 |
|  | date           |  |                 |
| <input checked="" type="checkbox"/> Performance Guarantee Released     | _____          | _____  |                 |
|  | date           | signature  |                 |
| <input checked="" type="checkbox"/> Defect Guarantee Submitted         | _____          | _____  | _____           |
|  | submitted date | amount   | expiration date |
| <input checked="" type="checkbox"/> Defect Guarantee Released          | _____          | _____  |                 |
|  | date           | signature  |                 |

**CITY OF PORTLAND, MAINE  
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ADDENDUM**

2006-0100

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**32 - 32 Gertrude Ave, Portland, Maine**

Address of Proposed Site

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**Approval Conditions of DRC**

- 1 A COPY OF THE NEWLY RECORDED FALL BROOK SEWER EASEMENT SHALL BE DELIVERED TO THE CITY PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
- 2 Two (2) City of Portland approved species and size trees must be planted on your street frontage prior to issuance of a Certificate of Occupancy.
- 3 All damage to sidewalk, curb, street, or public utilities shall be repaired to City of Portland standards prior to issuance of a certificate of occupancy.
- 4 A sewer permit is required for your project. Please contact Carol Merritt at 874-8300, ext . 8822. The Wastewater and Drainage section of Public Works must be notified five (5) working days prior to sewer connection to schedule an inspector for your site.
- 5 A street opening permit(s) is required for your site. Please contact Carol Merritt ay 874-8300, ext. 8822. (Only excavators licensed by the City of Portland are eligible.)
- 6 The Development Review Coordinator reserves the right to require additional lot grading or other drainage improvements as necessary due to field conditions.
- 7 GRANITE CURBING REMOVED FOR THE DRIVEWAY SHALL BE DELIVERED TO THE CITY'S PUBLIC WORKS FACILITY ON OUTER CONGRESS STREET.
- 8 All Site work (final grading, landscaping, loam and seed) must be completed prior to issuance of a certificate of occupancy.

Conditions Section:

Add New Condition  
From Default List

Add New Condition

Delete Condition

Close

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# CITY OF PORTLAND



## Department of Public Works

### Engineering Section

55 Portland Street

Portland, ME 04101

☎ (207) 874-8839

fax (207) 874-8852

**Fax Transmittal Cover Page**

**Date: June 8, 2006**

**Send to: Jay Reynolds**

**Company/Organization: Code Enforcement**

**Fax Number: 756-8258**

**Pages sent (including this cover): 2**

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From: Camille C. Alden, P.L.S., Senior Surveyor

Telephone: 874-8839

Internet Address: [calden@portlandmaine.gov](mailto:calden@portlandmaine.gov)

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Message :

Jay, it's a very rough sketch, but it is better than nothing.

A handwritten signature in cursive script, appearing to read 'Camille', is located in the bottom right corner of the page.

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Proposed Building square Feet or # of Units

Acreeage of Site

Zoning

**Check Review Required:**

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

Fees Paid: Site Pla \_\_\_\_\_ Subdivision \_\_\_\_\_ Engineer Review \_\_\_\_\_ Date \_\_\_\_\_

**DRC Approval Status:**

Reviewer \_\_\_\_\_

- Approved  Approved w/Conditions See Attached  Denied
- Approval Date \_\_\_\_\_ Approval Expiration \_\_\_\_\_ Extension to \_\_\_\_\_  Additional Sheets Attached
- Condition Compliance \_\_\_\_\_ signature \_\_\_\_\_ date \_\_\_\_\_

**Performance Guarantee**  Required\*  Not Required

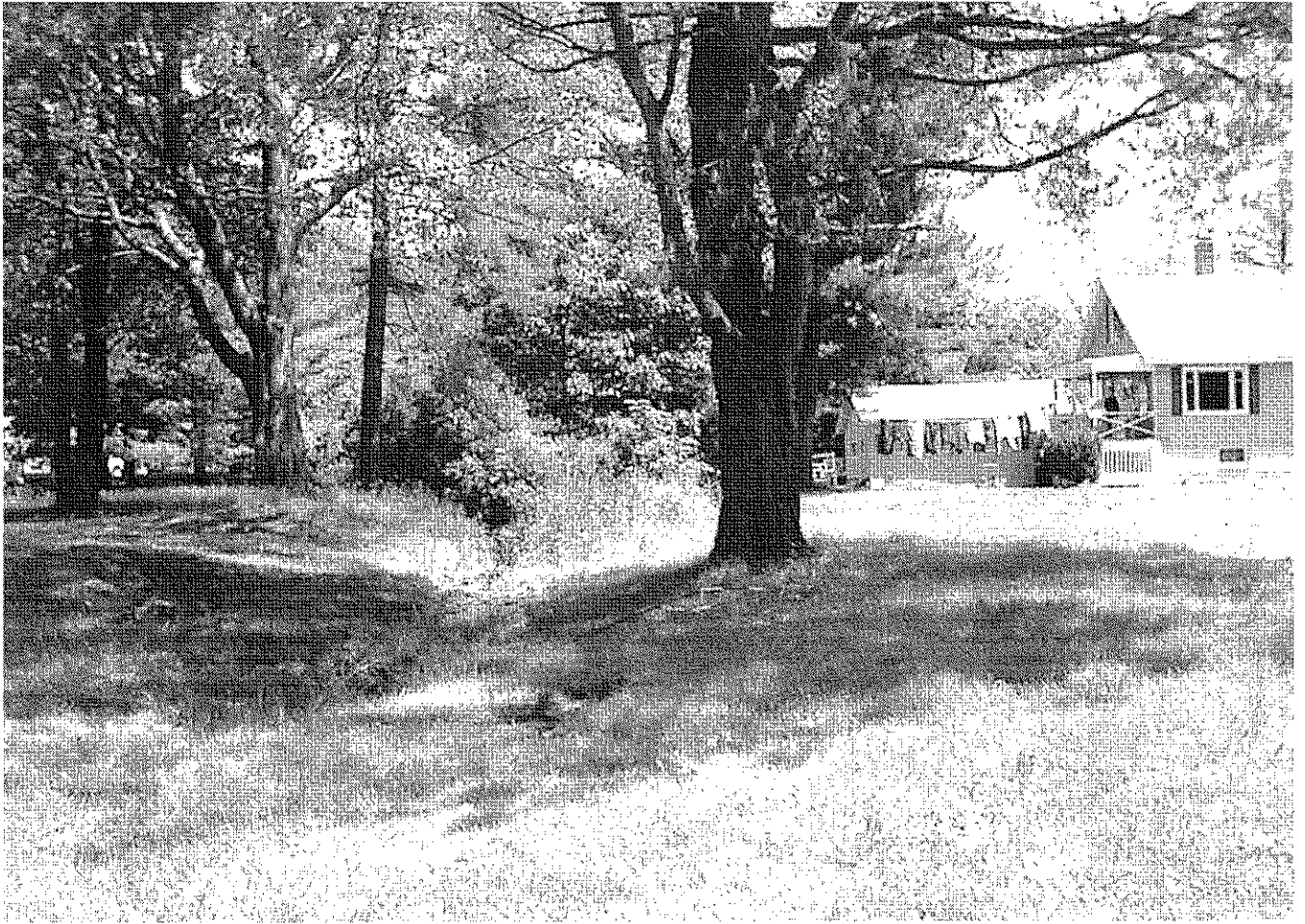
\* No building permit may be issued until a performance guarantee has been submitted as indicated below

<input type="checkbox"/> Performance Guarantee Accepted	_____	_____	_____
	date	amount	expiration date
<input type="checkbox"/> Inspection Fee Paid	_____	_____	
	date	amount	
<input type="checkbox"/> Building Permit Issue	_____		
	date		
<input type="checkbox"/> Performance Guarantee Reduced	_____	_____	_____
	date	remaining balance	signature
<input type="checkbox"/> Temporary Certificate of Occupancy	_____	<input type="checkbox"/> Conditions (See Attached)	_____
	date		expiration date
<input type="checkbox"/> Final Inspection	_____	_____	
	date	signature	
<input type="checkbox"/> Certificate Of Occupancy	_____		
	date		
<input type="checkbox"/> Performance Guarantee Released	_____	_____	
	date	signature	
<input type="checkbox"/> Defect Guarantee Submitted	_____	_____	_____
	submitted date	amount	expiration date
<input type="checkbox"/> Defect Guarantee Released	_____	_____	
	date	signature	

*14-403?  
assessment? 2nd block  
show church assessment  
neighborhood?  
site visit, what's proposed in road?  
Zoning off - Prop. Lines  
Desk conflicts w/ assessment system?  
any wetlands?  
Stream Prot. Zone?*

*CAVILL  
FAX  
874-8852*

*Get copy of church assessment*



**NORTH DEERING ALLIANCE CHURCH**

1301 Washington Ave.  
Portland, ME 04103  
(207) 797-2561

Robert Greenlaw, PLS  
Back Bay Boundary, Inc  
643 Forest Ave.  
Portland, ME 04101

RE: Joseph Harris property, Gertrude Avenue, Portland, Maine

Dear Mr Greenlaw

24" corrugated plastic pipe in or near the existing ditch that is currently in place on our easement

I feel confident that Mr. Harris' proposal would be beneficial to both parties and therefore give permission for this plan to move forward

Sincerely,



Paul E. Oulton  
Head Trustee



# PORTLAND MAINE

*Strengthening a Remarkable City, Building a Community for Life • [www.portlandmaine.gov](http://www.portlandmaine.gov)*

*Lee Urban- Director of Planning and Development  
Marge Schmuckal, Zoning Administrator*

January 12, 2006

Joseph Harris  
32 Gertrude Avenue  
Portland, ME 04103

RE: 28-36 Gertrude Avenue – 402-A-007, 20, 21 – R-3 Residential Zone -  
Determination Letter

Dear Mr. Harris,

I am in receipt of your request for a determination of a lot split from one lot to two lots. I have reviewed and relied upon the plan submitted and drawn by Back Bay Boundary, Inc. with a revision dated of 12-05-2005 and labeled job #2005015-P.

I have determined that both lots, the lot with the existing single family and detached garage and the newly created vacant lot, meet the minimum requirements of the R-3 residential zone.

Please note that my review is for zoning only. This determination for the propose lot split is not permission to begin building. This is not a pre-approval for a building permit. A site plan review and a building permit are required with subsequent reviews and approvals prior to construction.

If you have any questions regarding this matter, please do not hesitate to contact me.

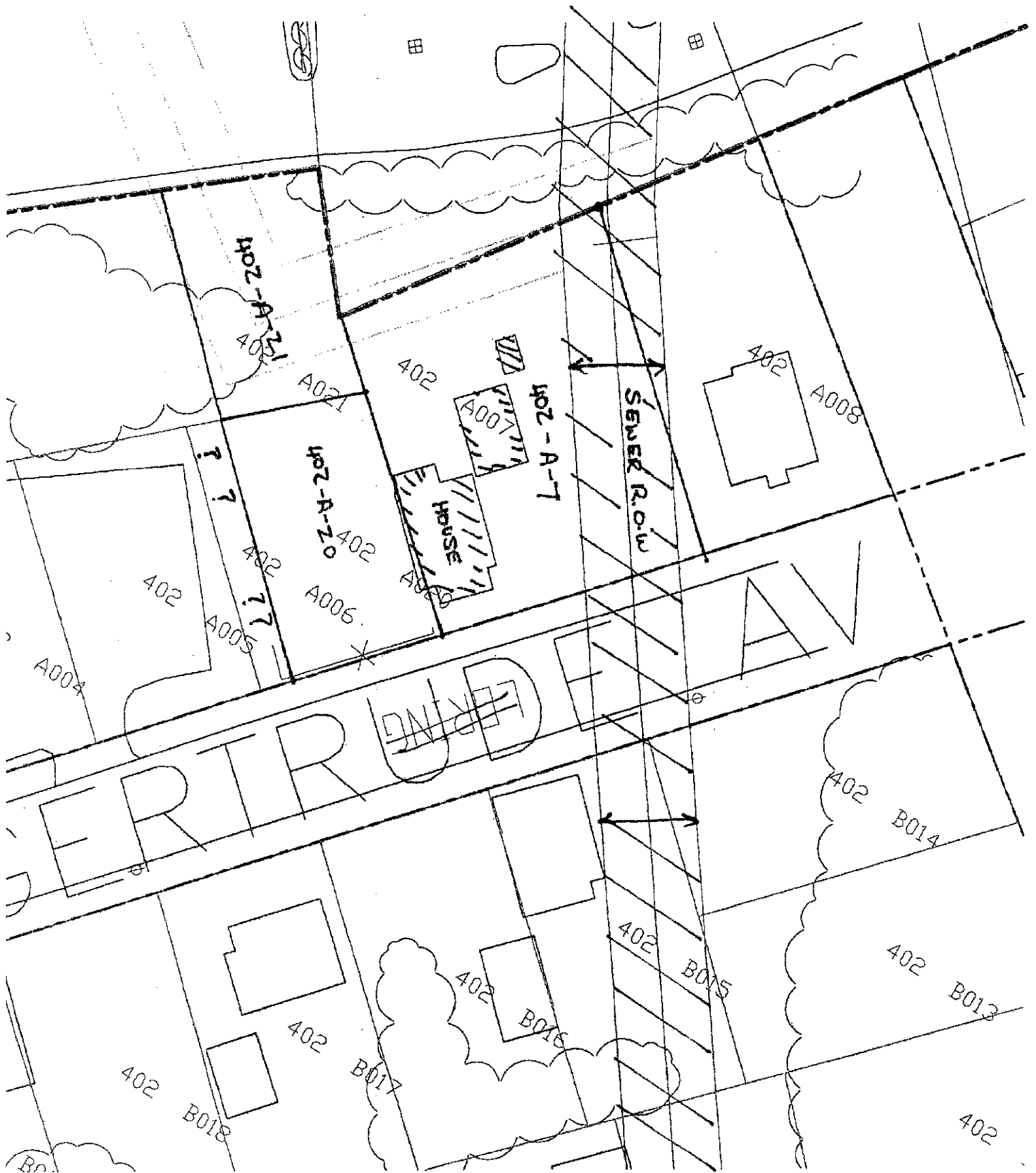
Very truly yours,

Marge Schmuckal  
Zoning Administrator

CC: file







**From:** Camille Alden  
**To:** Penny Littell  
**Date:** Wednesday, September 09, 2009 9:51:10 AM  
**Subject:** 32 Gertrude Ave - Greenlaw Lot Split Drainage Issue

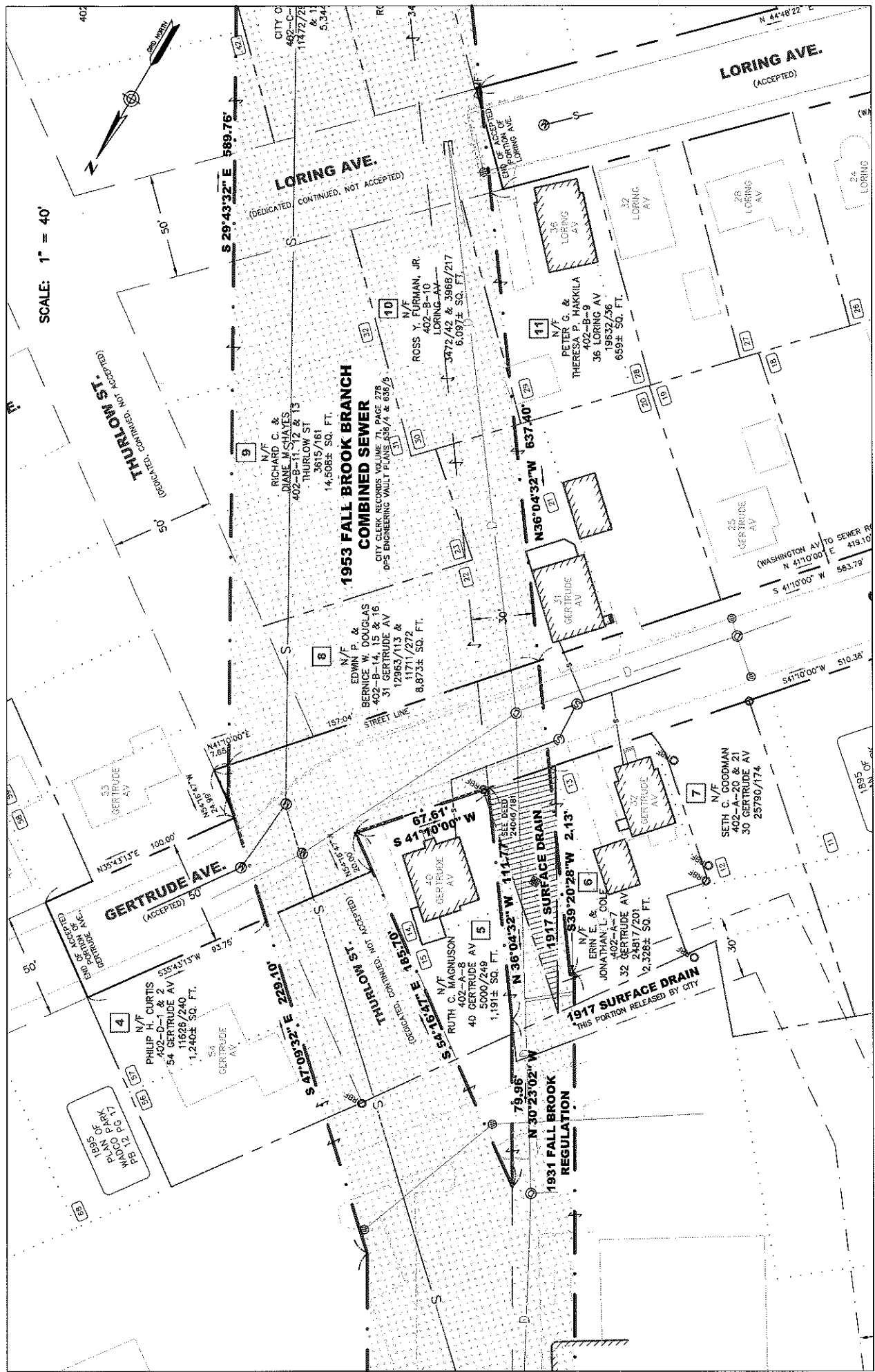
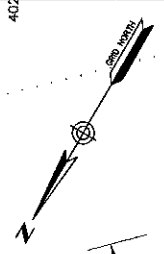
**Penny,** Per our informal conversation this morning in the reception area at Public Services: I've pasted some of the past emails that help to explain the situation. Please see attached plans as they are necessary to understanding the problem. My question is this - **Is there anything that planning can do retroactively to remedy this situation?** **Barbara,** this email is in response to the voice mail message I left yesterday. From: Camille Alden To: Norman Twaddel Date: 9/1/2009 10:52:59 AM Subject: RE: Drainage Issue at 32 Gertrude Jonathan Cole John (Emerson), If you look at the City's plan that I gave you last week (also attached herein), you can see that the inlet pipe (double golden line) is at the southwesterly edge of the City's r/w. Anything southwest of that inlet pipe is outside the City's r/w. As you've witnessed, and as Cole has confirmed, the inlet pipe is taking all the water that runs into it. The pipe is not plugged. As mentioned before, and as you have noticed out in the field, all the water from the church and all the water from the "new" house lot drains over 32 Gertrude (Cole's Lot) towards the inlet pipe that is within the City's r/w. I've attached Bob Greenlaw's site plan (w/a few color changes made by myself to clarify the issue) to illustrate the following points. This is his proposed site plan and may or may not match what is actually on the ground. \*\*\*The Church has an easement over the "new" lot up to the dark blue dashed line, but not beyond it.\*\*\*The Cole's deed states that the Church has a drainage easement over their lot, but that easement only extends from the Church and up to the blue line.\*\*\*As you can see, the proposed drainage over the "new" lot extends onto Cole's property. (I do not know if the drainage was actually constructed per design.)\*\*\*The proposed contour lines are in "boxes". It is obvious that minimal contour changes were made as part of the lot split.\*\*\*My deed research indicates that the "new" lot does not have a drainage easement over Cole's property. This drainage easement should have been created at the time of the lot split, unfortunately, it was not.\*\*\*Please note that Mr. Greenlaw's City r/w line does not in any way agree with the location of the r/w line shown on my plan. If the inlet pipe is working fine and the drainage swale within the City's r/w is running water smoothly to the inlet pipe, then it's not clear to me how this can be a City issue. Again, this appears to be a private issue. I'd be happy to discuss this with you in person if you'd like. It is sometimes easier with plans in hand. Camille Camille C. Alden, PLS

Senior Surveyor  
City of Portland  
Department of Public Services  
55 Portland Street  
Portland, Maine 04101  
ph: 207-874-8839  
fax: 207-874-8852

email:calden@portlandmaine.gov >>> "Norman Twaddel" <ntwaddel@pwd.org> 08/31 3:06 PM >>> I spoke with Mr. Cole again and asked further about his drainage issue. I told him that John and Jim visited the site last Monday after the Sunday rain storm and did not see any drainage issues. He told me that the first flush after a rain storm does go down the drain but enough water stays that the area never fully dries up and it remains wet and mucky all year long. The neighbor next door at 30 Gertude installed a drain along the back of his property when the new house was built, but nobody has regraded or improved the surface ditch between the new drain and the inlet into the City storm drain. I told him I would ask John Emerson to call him so he could further explain the issue and they could then determine whether it was a City or private issue with the church. John, he can be reached at 2333401. He was satisfied with Camille's staking of the two lines and now understands the situation there.

**CC:** Barbara Barhydt; ntwaddel@pwd.org

SCALE: 1" = 40'



**THURLOW ST.**  
(DEDICATED, CONTINUED, NOT ACCEPTED)

**LORING AVE.**  
(DEDICATED, CONTINUED, NOT ACCEPTED)

**LORING AVE.**  
(ACCEPTED)

**GERTRUDE AVE.**  
(ACCEPTED)

**1953 FALL BROOK BRANCH  
COMBINED SEWER**  
CITY CLERK RECORDS VOLUME 71, PAGE 278  
O'S ENGINEERING W/LLY PLANS 336/4 & 685/3

**1917 SURFACE DRAIN**  
THIS PORTION RELEASED BY CITY

**1931 FALL BROOK  
REGULATION**

1953 PLAN OF  
REVISION  
NO. 17  
BY  
C. G. COOKMAN  
P. B. BE

N/F  
PHILIP H. CURTIS  
402-D-1 & 2  
54 GERTRUDE AV  
11628/240  
1,240± SQ. FT.

RICHARD C. &  
DIANE M. HAYES  
402-B-11, 12 & 13  
THURLOW ST  
3815/181  
14,508± SQ. FT.

N/F  
EDWIN P. &  
BERNICE W. DOUGLAS  
402-B-14, 15 & 16  
31 GERTRUDE AV  
12963/713 &  
11711/272  
8,873± SQ. FT.

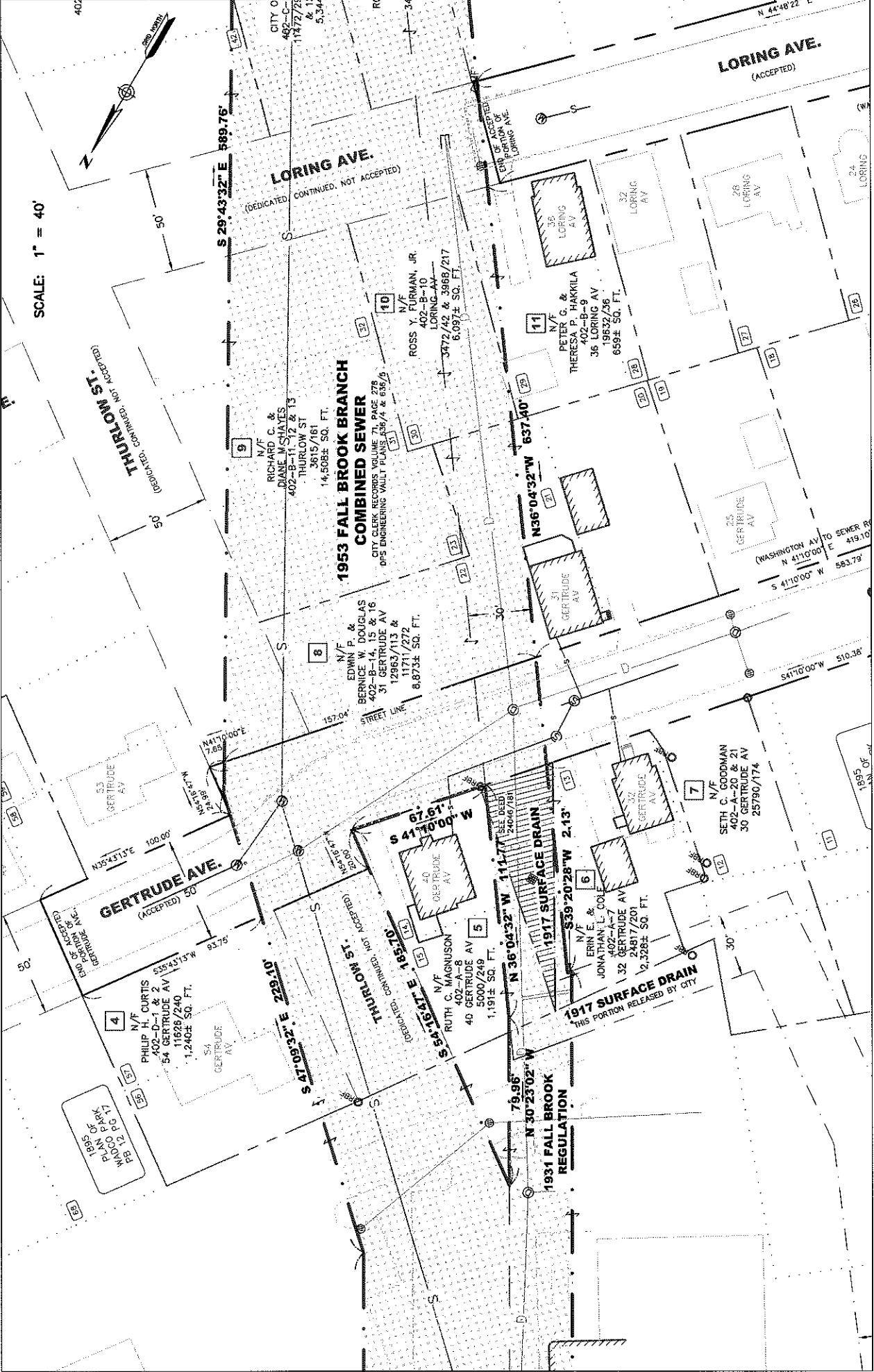
N/F  
RUTH C. JACOBSON  
402-A-8  
40 GERTRUDE AV  
5000/249  
1,191± SQ. FT.

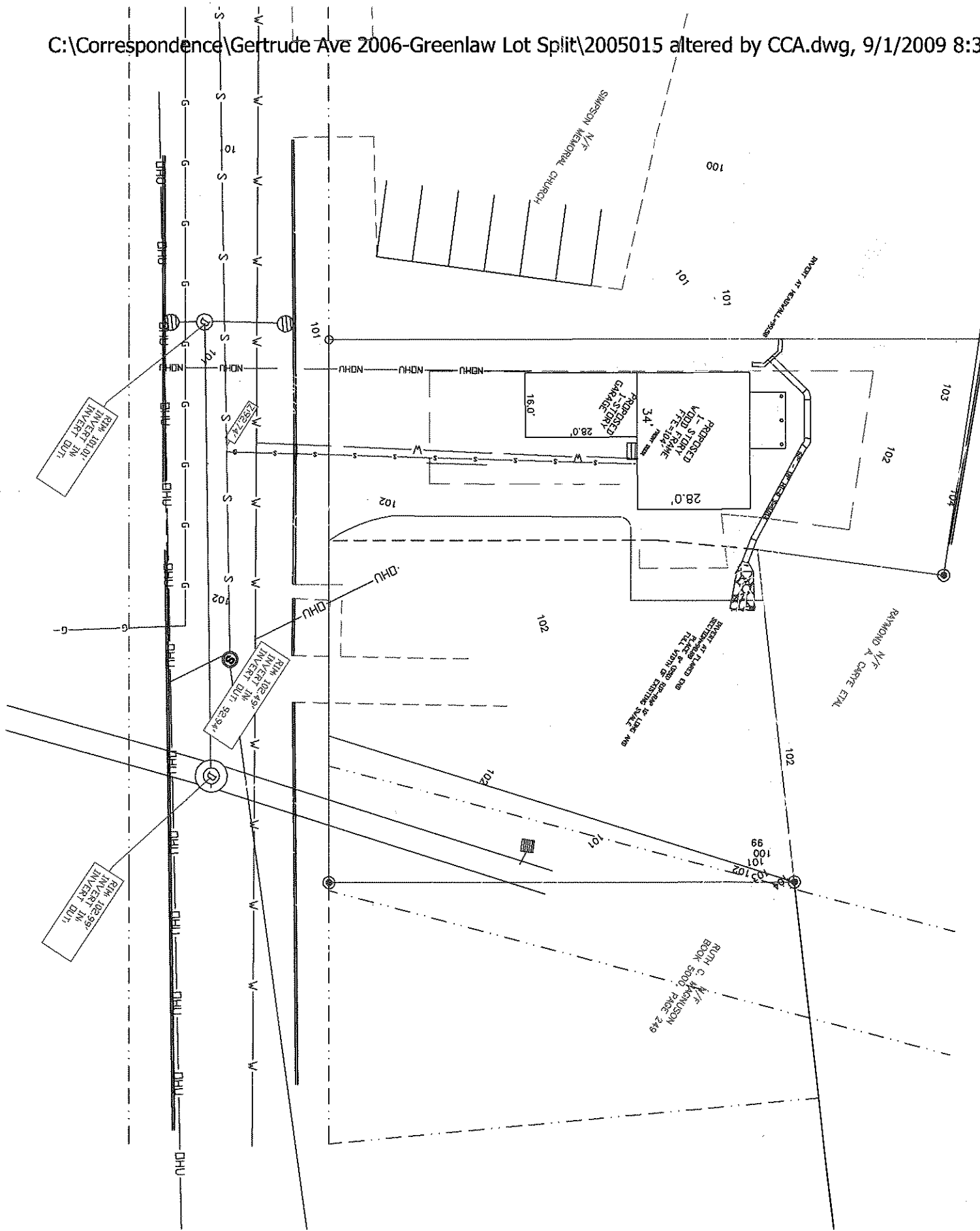
N/F &  
JONATHAN L. COLE  
402-A-7  
32 GERTRUDE AV  
2481/201  
2,328± SQ. FT.

N/F  
SETH C. GOODMAN  
402-A-20 & 21  
30 GERTRUDE AV  
25790/174

N/F  
THERESA P. HARKELA  
402-B-9  
36 LORING AV  
19632/236  
689± SQ. FT.

N/F  
ROSS Y. FURMAN, JR.  
402-B-10  
LORING AV  
3472/42 & 3968/217  
6,097± SQ. FT.





CC: Barbara Barhydt, Development Review Services Manager  
Jeanie Bourke, Inspection Services Manager  
File: Urban Insight

At this time, I recommend issuing a permanent Certificate of Occupancy.

Site work complete

After visiting the site, I have the following comments:

---

TO: Inspections Department

FROM: Phillip DiPietro, Development Review Coordinator

DATE: September 28, 2007

RE: C. of O. for #32 Gertrude Ave.  
(Id#2006-0100) (CBL 402 A 007001)

**From:** Camille Alden  
**To:** Barbara Barhydt  
**Date:** Thursday, September 10, 2009 1:06:02 PM  
**Subject:** Re: 32 Gertrude Ave - Greenlaw Lot Split Drainage Issue

Thanks, Barbara and Danielle. I was aware of the history since I had researched this parcel back to the early 1900's. You've addressed my question and I have no additional questions. However, I would like to add that if a lot split is part of a site plan and **if Lot 1 is discharging stormwater (via a proposed pipe) onto Lot 2, then part of the approval process should be an easement over Lot 2 for the benefit of Lot 1.** That did not happen in this case and that is part of the existing problem. The owner of Lot 2 is now burdened w/stormwater discharge from Lot 1. It seems to me that the owner of Lot 1 has no legal right to discharge that water. Perhaps this type of issue could be addressed in future site plans of lot splits. Camille

>>> Barbara Barhydt 09/09 2:44 PM >>>  
Hi:

Danielle and I have looked at what you sent over and looked at the file we have on this single family application. It appears that the new lot was split from a lot that included an existing single family home and it appears that it was all under one ownership at that time. A drainage easement was not required as part of the review at that time. The City plans shows a 1917 Surface Drain along the rear property line, but it is noted as being released by the City.

Jay reviewed the plan and Phil signed off on the certificate of occupancy. I am not aware of issues regarding the site not being built according to plan.

It appears that this is a private dispute. I defer to Penny in case she knows of some other approach to this matter.

Thank you.

Barbara

>>> Camille Alden Wednesday, September 09, 2009 9:51 AM >>>

**Penny**, Per our informal conversation this morning in the reception area at Public Services: I've pasted some of the past emails that help to explain the situation. Please see attached plans as they are necessary to understanding the problem. My question is this - **Is there anything that planning can do retroactively to remedy this situation?** **Barbara**, this email is in response to the voice mail message I left yesterday. From: Camille Alden To: Norman Twaddel Date: 9/1/2009 10:52:59 AM Subject: RE: Drainage Issue at 32 Gertrude Jonathan Cole John (Emerson), If you look at the City's plan that I gave you last week (also attached herein), you can see that the inlet pipe (double golden line) is at the southwesterly edge of the City's r/w. Anything southwest of that inlet pipe is outside the City's r/w. As you've witnessed, and as Cole has confirmed, the inlet pipe is taking all the water that runs into it. The pipe is not plugged. As mentioned before, and as you have noticed out in the field, all the water from the church and all the water from the "new" house lot drains over 32 Gertrude (Cole's Lot) towards the inlet pipe that is within the City's r/w. I've attached Bob Greenlaw's site plan (w/a few color changes made by myself to clarify the issue) to illustrate the following points. This is his proposed site plan and may or may not match what is actually on the ground. \*\*\*The Church has an easement over the "new" lot up to the dark blue dashed line, but not beyond it.\*\*\*The Cole's deed states that the Church has a drainage easement over their lot, but that easement only extends from the Church and up to the blue line.\*\*\*As you can see, the proposed drainage over the "new" lot extends onto Cole's property. (I do not know if the drainage was actually constructed per design.)\*\*\*The proposed contour lines are in "boxes". It is obvious that minimal contour changes were made as part of the lot split.\*\*\*My deed research indicates that the "new" lot does not have a drainage easement over Cole's property. This drainage easement should have been created at the time of the lot split, unfortunately, it was not.\*\*\*Please note that Mr. Greenlaw's City r/w line does not in any way agree with the location of the r/w line shown on my plan. If the inlet pipe is

working fine and the drainage swale within the City's r/w is running water smoothly to the inlet pipe, then it's not clear to me how this can be a City issue. Again, this appears to be a private issue. I'd be happy to discuss this with you in person if you'd like. It is sometimes easier with plans in hand. Camille Camille C.

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CC: Danielle West -Chuhta; Penny Littell



5

**From:** Camille Alden  
**To:** Barbara Barhydt  
**Date:** Tuesday, August 25, 2009 11:06:52 AM  
**Subject:** Fwd: Drainage Issue at 32 Gertrude

Barbara,

This email is in regards to a Lot Split that Robert Greenlaw submitted to planning 3-4 years ago on 32 Gertrude Avenue for Tim Higgins. There have been multiple issues with the plan and the deeds from both a survey perspective and from an easement perspective and possibly from an engineering/drainage perspective. I can outline the problems in detail, but, before I do so, I thought I would check with you first to see if the data is needed. Give me a call when you return from vacation so that we can discuss the project.

Camille C. Alden, PLS  
Senior Surveyor  
City of Portland  
Department of Public Services  
55 Portland Street  
Portland, Maine 04101  
ph: 207-874-8839  
fax: 207-874-8852  
email:calden@portlandmaine.gov

>>> Camille Alden 08/25 9:53 AM >>>

Norm,

This is a follow up to our phone conversation yesterday afternoon.

Jim McCann and John Emerson from the City's Waste Water Group visited the site yesterday morning (Monday), less than 24 hours after Sunday nights heavy rain storm (3-4 inches). They did not witness any "drainage issues". The drainage ditch which runs along the rear property line did not have any standing water in it. My initial concern was that the inlet pipe within the City's right of way was plugged, but that does not seem to be the case.

I was out on site yesterday afternoon from 1:30 to 3:15 and I also noticed that all water had drained out of the ditch. The soil was damp, but, there was no standing water. So, it appears that all the water is draining as planned. If there is a drainage problem, it was not evident yesterday.

I briefly looked through the existing and proposed site plans for the 2005-2006 Lot Split of the original parcel (32 Gertrude was split into 2 lots - 30 and 32 Gertrude). The site plan shows a proposed drainage pipe that runs from the church's property line, along the rear of the new building at 30 Gertrude to 32 Gertrude. Perhaps this is where the purported "drainage issue" is originating from? If that is the case, it is a private issue and not a City issue.

My deed research indicates that the Church has a drainage easement over a poorly defined area of 30 Gertrude Ave. and **perhaps** over a 3-4 foot strip southwesterly of the house on 32 Gertrude Avenue. I say "perhaps" because the Church's deed states "The grantor (church) herein reserves the right to maintain on the premises herein conveyed a natural drain as it **now exists** to carry away surface water from other land of grantor and to enter on said premises for said purposes." The deed is from 1949. The church is conveying in fee a 50 strip of subdivision Lot 12 and the parcel to the rear of Lot 12, but retaining a surface drain over the same. Because the deed is from 1949, it is difficult to discern the exact location of the "natural drain as it now exists". Once again, however, this is a private property issue and not a City issue.

One last note, the City had a 1917 "surface drain" along the rear property lines of 30 and 32 Gertrude, but the City released its rights in the majority of the drainage way in 1971 via a Council Order. The only

portion that was "retained" is the portion we are now trying to obtain a corrective easement over.

Those are the facts as I understand them. Please give me a call if you need any clarification.

Camille C. Alden, PLS  
Senior Surveyor  
City of Portland  
Department of Public Services  
55 Portland Street  
Portland, Maine 04101  
ph: 207-874-8839  
fax: 207-874-8852  
email: calden@portlandmaine.gov

# BACK BAY BOUNDARY, INC.

## Transmittal

BS/SAK

Send to: CITY OF PORTLAND	From: BOB GREENLAW
Attention: JAY REYNOLDS	Date: 06-12-2006
Office Location: CONGRESS ST.	Project Name: GERTRUDE AVE
Fax Number:	Project Location:

- Urgent
- Reply ASAP
- Please comment
- Please Review
- For your Information

Total pages, including cover:

### Comments:

PLEASE FIND THE FOLLOWING:

- 1-COPY OF RECORDED EASEMENT TO THE C.O.P
- 1-COPY OF RECEIPT SHOWING BOOK & PAGE OF ABOVE
- 1-COPY OF LETTER FROM THE NORTH DEERING CHURCH
- 1-COPY OF THE DEED GRANTING AN EASEMENT TO CHURCH
- 1-COPY OF A DEED DESCRIPTION OF THE NEWLY CREATED LOT ON GERTRUDE AVE

Bob GREENLAW

## DRAINAGE EASEMENT DEED

**KNOW ALL PERSONS BY THESE PRESENTS**, that Joseph A. Harris, with an address at 157 Virginia Street, Portland, Maine, 04103, for consideration paid, receipt whereof is hereby acknowledged, grant to the City of Portland, a body politic and corporate located in Cumberland County, State of Maine, with warranty covenants, an easement described as follows:

The right perpetually to enter at any and all times upon a portion of the property situated on 32 Gertrude Avenue, Portland, in said County of Cumberland and State of Maine, said property being described in Schedule A, attached hereto and incorporated herein by reference.

The above described parcel contains 2118.1 Square feet of area.

Meaning and intending to convey an easement over a portion of the property conveyed to this Grantor by deed of Marie A. Aceto, also known as Marie Bella Aceto to Joseph A. Harris by a Limited Warranty Deed dated February 23, 2005 and recorded on March 10, 2005 in the Cumberland County Registry of Deeds in Deed Book 22401, Page 023.

Said easement for the sole purpose of and conveying the right to perpetually maintain through, under and across said property conduits or pipelines with all necessary fixtures and appurtenances for conveying stormwater and to lay, relay, repair, maintain, clean and remove said stormwater pipe or pipes upon or under said strips, with all necessary fixtures and appurtenances, together with the right at all times to make connections with said conduits or pipelines to land adjoining said drainage easement by means of pipes or other services; to trim, cut down and remove trees, bushes, and other vegetation of all kinds, to remove debris and deposits of any kind and to alter and regrade the contours of said drainage easement to such extent as in the sole judgment of the Grantee is necessary or appropriate for any of the above purposes; and to enter upon said drainage easement at any and all times for any of the foregoing purposes, reserving to the Grantor and her heirs and assigns the use and enjoyment of said strips and for such purposes only as will in no way interfere temporarily or otherwise with the perpetual use thereof by the Grantee, its successors and assigns for the purpose above mentioned, provided that no building or any kind of permanent structure, including, but not limited to, walls and fences, shall be erected on said strip by the Grantor, her successors or assigns; and that the Grantor, her heirs and assigns shall not remove earth from said drainage easement without the written permission of the Grantee, its successors and assigns.

RECORDED  
C. C. R. D

BOOK 24046/181

06/08/2006 @ 2:46 PM

#### Schedule A (Easement Description)

Beginning at a 5/8-inch capped rebar set at the southeasterly property corner of the herein described land now or formerly of Joseph A. Harris ("grantor") as described in deed recorded in the Cumberland County Registry of Deeds in Deed Book 22401, Page 23, said rebar being found on the northeasterly side of Gertrude Avenue approximately 445.35 feet northeasterly from its intersection with the easterly side line of Washington Avenue;

Thence, by and along the easterly sideline of Gertrude Avenue, South 56°-47'-00" West, a distance of 36.50 feet;

Thence, through the land of the aforementioned grantor, North 15°-49'-06" West, a distance of 121.62 feet to a capped rebar set at the land now or formerly of Raymond A. Carye Et Al, as described in various deeds recorded in the aforementioned Registry in Deed Books and Pages 3168/395, 3169/264, 3196/628, 3170/877, 3216/670, 3582/12, 7582/316, 8011/14, and 8107/217 and the land now or formerly of Ruth C. Magnuson as described in a deed recorded in the aforementioned Registry in Deed Book 5000, Page 249;

Thence, by and along the land of Ruth C. Magnuson, South 33°-16'-56" East, a distance of 116.06 feet to the Point of Beginning.

Said easement covering an area of 2118.1 Square feet.

Also subject to a drainage agreement conveyed to the City of Portland, to be recorded herewith.

Capped rebars set are 5/8-inch steel rods or rebars capped with an orange plastic cap inscribed with "Greenlaw PLS 2303 774-2855"

All bearings are based upon a magnetic North hand held compass observation on the above described premises during the month of February 2005.

The above described portion of the premises described above is based upon a Boundary Survey and plan thereof entitled "Proposed Lot Split for a Proposed New Dwelling 32 Gertrude Avenue Portland, Maine" dated December 05, 2005, prepared for Joseph A. Harris by Back Bay Boundary, Inc. 643 Forest Avenue Portland, Maine. Said plan unrecorded at the time of this description.

IN WITNESS WHEREOF, Joseph A. Harris has hereunto set his hand and seal  
on this 8th day of June, 2006.

Joseph Harris  
Joseph A. Harris

STATE OF MAINE  
CUMBERLAND, ss.

June 8, 2006.

Personally appeared the above-named Joseph A. Harris, and acknowledged the  
foregoing instrument to be his free and act deed.

Before me,

Darcy Toothaker  
Notary Public

DARCY TOOTHAKER  
MAINE NOTARY PUBLIC  
COMMISSION EXPIRES  
JANUARY 27, 2009

LAW OFFICE OF  
TERRY N. SNOW, P.A.

FACSIMILE TRANSMITTAL SHEET

TO: Bob Greenlaw FROM: Terry N. Snow, Esq. Darcy  
COMPANY: Back Bay Boundary DATE: 6-9-06  
FAX NUMBER: 774-2855 TOTAL NO. OF PAGES INCLUDING COVER: 4

Document Description	Number	Volm	Page	Recording Amount
MISC	35165	24046	181	\$20.00
1-HARRIS, JOSEPH A 2-PORTLAND CITY OF 02:46:26p				
Collected Amounts				\$20.00

SENDER'S TELEPHONE NUMBER:  
(207) 829-6363  
SENDER'S FAX NUMBER:  
(207) 829-4481

MENT  PLEASE REPLY  PLEASE RECYCLE

Payment Type	Check Number	Amount
CHECK	104	\$20.00
		\$20.00

Via Facsimile & us mail

Total Received : \$20.00  
Less Total Recordings: \$20.00  
Change Due : \$ .00

Thank You  
JOHN B O'BRIEN - Register of Deeds  
By - Mary Haupt

Receipt# Date Time  
0309130 06/08/2006 02:46p

IF YOU HAVE ANY PROBLEMS WITH THIS FAX TRANSMISSION, PLEASE CALL THIS OFFICE.

CONFIDENTIALITY NOTICE

This facsimile transmission is intended only for the use of the individual or entity to which it is addressed, and may contain information that is privileged, confidential, or exempt from disclosure by law. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution or the taking of any action in reliance on the contents of this information is strictly prohibited. If you have received this transmission in error, please immediately notify us by telephone to arrange for the return of the documents.

**NORTH DEERING ALLIANCE CHURCH**

1301 Washington Ave.  
Portland, ME 04103  
(207) 797-2561

Robert Greenlaw, PLS  
Back Bay Boundary, Inc  
643 Forest Ave.  
Portland, ME 04101

RE: Joseph Harris property, Gertrude Avenue, Portland, Maine

Dear Mr. Greenlaw

-----  
24" corrugated plastic pipe in or near the existing ditch that is currently in place on our easement.

I feel confident that Mr. Harris' proposal would be beneficial to both parties and therefore give permission for this plan to move forward

Sincerely,



Paul E. Oulton  
Head Trustee



# Know all Men by these Presents, That

133

Simpson Memorial Church of The Christian and Missionary Alliance, a Corporation organized and existing under the laws of the State of Maine and located at Portland, the County of Cumberland and State of Maine,

in consideration of one dollar and other valuable considerations, paid by Edmund Gaudette and Laura M. Gaudette, both of Portland, in the County of Cumberland and State of Maine,

jointly and severally, do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said

Edmund Gaudette and Laura M. Gaudette, as joint tenants and not as tenants in common, to them and their assigns and to the survivor of them, and the heirs and assigns of the survivor forever, a certain lot or parcel of land situated on the northerly side of Gertrude Avenue, in the City of Portland, County of Cumberland, State of Maine, being bounded and described as follows:

Beginning on said Northerly side of Gertrude Avenue at a point distant three hundred ten and forty-eight hundredths (310.48) feet from the intersection of the northerly side of Gertrude Avenue and Easterly side of Washington Avenue; thence northerly at right angles to said Gertrude Avenue a distance of one hundred sixty and nineteen hundredths (160.19) feet to land conveyed by M. Joseph Twomey and Ella Stanton Twomey to L. Marguerite Heald by deed dated June 16, 1942, and recorded in Cumberland County Registry of Deeds, in Book 1677, Page 420; thence by land of said Heald on a course of N 67° 04' E a distance of fifty-nine and forty-six hundredths (59.46) feet to an iron marking the Southeasterly corner of said Heald land; thence on a course of S 23° 47' E a distance of forty-four and sixty-one hundredths (44.61) feet to the Northwesterly corner of lot No. 13, as shown on a plan of Wadco Park, recorded in said Registry of Deeds in Plan Book 12, Page 17; thence Southerly by the Westerly side of said lot 13, a distance of twenty-seven (27) feet to an angle as shown on said plan; thence southerly by the said Westerly side of Lot 13, a distance of eighty (80) feet, more or less, to the Northerly side of Gertrude Avenue; thence Westerly by the Northerly side of said Gertrude Avenue fifty (50) feet to the point of beginning.

Said above mentioned courses are magnetic and of the date of 1942. Being a portion of the land conveyed by M. Joseph Twomey and Ella Stanton Twomey to the grantor herein by deed dated September 27, 1948, and recorded in said Registry of Deeds, in Book 1930, Page 350.

The grantor herein reserves the right to maintain on the premises herein conveyed a natural drain as it now exists to carry away surface water from other land of grantor and to enter on said premises for said purpose.

Us Hue and to Walk the foregranted and bargained premises, with all the privileges and appurtenances thereof, to the said Edmund Gaudette and Laura M. Gaudette joint tenants as aforesaid, their heirs and assigns and the survivor of them and the heirs and assigns of said survivor, to the said Corporation does hereby covenant with the said Grantees as joint tenants aforesaid their assigns and the heirs and assigns of said survivor that it is lawfully seized in fee of the premises; that they are free of all incumbrances;

U.S.I.R.  
\$ .55  
J.E.B.  
7/15/49

that it has a good right to sell and convey the same to the said Grantees to hold as aforesaid; and that it and its successors heirs, shall and will warrant and defend the same to the said Grantees, as joint tenants aforesaid, their assigns and the heirs and assigns of said survivor heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, the said Simpson Memorial Church of The Christian and Missionary Alliance has caused this instrument to be sealed with a wafer, which it adopts as its corporate seal and signed in its corporate name by J. Erland Bump, its Treasurer thereunto duly authorized,

hand--and--seal this 15th day of July in the year of our lord--one thousand nine hundred and forty-nine.

Signed, Sealed and Delivered in presence of  
Florence E. Tarr  
SIMPSON MEMORIAL CHURCH OF THE CHRISTIAN AND MISSIONARY ALLIANCE Seal  
By J. Erland Bump, its Treasurer duly authorized

State of Maine, CUMBERLAND, ss. July 15, A.D. 1949 Personally appeared the above named J. Erland Bump, Treasurer of said Grantor Corporation as aforesaid

and acknowledged the foregoing instrument to be his free act and deed, in his said capacity and the free act and deed of said corporation.  
Before me, George H. Hinckley, Justice of the Peace.

Received August 3, 1949, at 1 o'clock 10 m. P. M., and recorded according to the original.

New Lot  
Exhibit A

A certain portion of a lot or parcel of land with any buildings or improvements thereon, situated on the northerly side of Gertrude Avenue, in the City of Portland, County of Cumberland and State of Maine, being more particularly described as follows:

Commencing at a 5/8-inch capped rebar set at the southeasterly property corner of the herein described land now or formerly of Joseph A. Harris ("grantor") as described in deed recorded in the Cumberland County Registry of Deeds in Deed Book 22401, Page 23, said rebar being found on the northeasterly side of Gertrude Avenue approximately 445.35 feet northeasterly from its intersection with the easterly side line of Washington Avenue;

Thence, by and along the easterly sideline of Gertrude Avenue and the land of the herein grantor, South  $56^{\circ}-47'-00''$  West, a distance of 85.00 feet to the beginning of curve to the right said point of curvature being the Point of Beginning;

Thence, through the land of the herein grantor by and along a curve having a radius of 17.05 feet, an arc distance of 37.61;

Thence, North  $32^{\circ}-55'-56''$  West, a distance of 56.66 feet to another curve to the right;

Thence, by and along the curve having a radius of 3.00 feet, an arc distance of 4.71 feet;

Thence, North  $56^{\circ}-57'-09''$  East, a distance of 17.78 feet;

Thence, North  $33^{\circ}-16'-56''$  West, a distance of 32.87 feet to the land now or formerly of Raymond A. Carye Et Al as described in various deeds recorded in the aforementioned Registry in Deed Books and Pages 3168/395, 3169/264, 3196/628, 3170/877, 3216/670, 3582/12, 7582/316, 8011/14, and 8107/217;

Thence, by and along the land of Raymond A. Carye Et Al, South  $50^{\circ}-23'-08''$  West, a distance of 12.67 feet to a 1-inch iron pipe found set flush with the ground to land now or formerly of Carye;

Thence, by and along the land of Raymond A. Carye Et Al, North  $25^{\circ}-26'-52''$  West, a distance of 46.76 feet to a capped rebar set at land now or formerly of said Carye;

This page contains a detailed description of the Parcel ID you selected. Press the **New Search** button at the bottom of the screen to submit a new query.

### Current Owner Information

Card Number	1 of 1
Parcel ID	402 A001001
Location	1301 WASHINGTON AVE
Land Use	RELIGIOUS
Owner Address	SIMPSON MEMORIAL CHURCH 1301 WASHINGTON AVE PORTLAND ME 04103
Book/Page	
Legal	402-A-1 TO 6 WASHINGTON AVE 1301 29187 SF

### Current Assessed Valuation For Fiscal Year 2006

Land	Building	Total
\$62,160	\$518,280	\$580,440

### Estimated Assessed Valuation For Fiscal Year 2007\*

Land	Building	Total
\$59,200	\$493,600	\$552,800

\* Value subject to change based upon review of property status as of 4/1/06.  
The tax rate will be determined by City Council in May 2006.

### Building Information

Bldg #	Year Built	# Units	Bldg Sq. Ft.	Identical Units
1	1970	1	11168	1

Total Acres	Total Buildings	Sq. Ft.	Structure Type	Building Name
0.67	1	11168	RELIGIOUS	

### Exterior/Interior Information

Section	Levels	Size	Use
1	B1/B1	5164	SOCIAL/FRAT HALL
1	01/01	5164	RELIGIOUS INSTITUTION
1	M1/M1	840	SUPPORT AREA

Height	Walls	Heating	A/C
8		HOT AIR	NONE
13	FRAME	HOT AIR	NONE
9		NONE	NONE
		NONE	NONE
		NONE	NONE
		NONE	NONE
		NONE	NONE
		NONE	NONE

### Building Other Features

Line	Structure Type	Identical Units
2	CANOPY - ROOF/SLAB	1

**City of Portland  
Department of Planning and Development  
Planning Division**

389 Congress Street, 4<sup>th</sup> Floor  
Portland ME 04101  
(207)874-8721 or (207)874-8719  
Fax: (207)756-8258



**FAX**

---

To: Camille Alden

Company: \_\_\_\_\_

Fax #: 874-8852

Date: \_\_\_\_\_

From: Jay Reynolds

You should receive 5 page(s) including this cover sheet.

---

Comments: Merry X-mas!

GENERAL NOTES:

1. RECORD OWNER OF PARCEL: JOSEPH A. HARI IN BOOK 22401, PAGE 023.
2. BEARINGS ARE BASED UPON A MAGNETIC NORTH SITE ON FEBRUARY 15, 2005.
3. AREA OF ORIGINAL PARCEL: 17763.3 SQUARE
4. REFERENCE IS MADE TO THE FOLLOWING PLAN a. THE NORTHPORT BUSINESS PARK AMENDED PROPERTY IN PORTLAND MAINE MADE FOR NOV 1986 MADE BY H. I. & E.C. JORDAN - SURVEY b. CITY OF PORTLAND STREET LINE SHEET OF PORTLAND ENGINEERING DEPT. c. PLAN OF WADCO PARK WASHINGTON AVE. POI WESCOTT, RECORDED OCT. 21, 1911 PLAN BOOK d. PARKING LOT EXPANSION DRAINAGE & LAYOUT BY DUFRESNE-HENRY INC. DATED REVISED DATE DEPT. e. CITY OF PORTLAND, MAINE DEPARTMENT OF P RECONSTRUCTION DATED AUG. 14, 1988. PROVIDI f. CITY OF PORTLAND ASSESSORS PLAN #402. L A.
5. NO CHANGE TO THE EXISTING TOPOGRAPHY IS LANDSCAPING.
6. NO OTHER EASEMENTS WERE DISCOVERED EXC EASEMENTS FOR THE SIMPSON MEMORIAL CHURCH

ZONING:  
 THE SUBJECT PARCEL FALLS V  
 SETBACKS:  
 FRONT YARD: 25 FEET.  
 REAR YARD: 25 FEET.  
 SIDE YARD: 8 FEET UP TO  
 MINIMUM FRONTAGE - 50 FEET  
 MINIMUM LOT WIDTH - 65 FEET

FLOOD NOTE: BY G  
 OF THE FLOOD INSL  
 -7C, WHICH BEARS  
 SPECIAL FLOOD HA

18" CONCRETE  
 CULVERT  
 INVERT = 98.2'

GENERAL DIRECTION  
 AS OBSERVED

N/F  
 RUTH C. MAGNUSON  
 BOOK 5000, PAGE 249

N/F  
 RAYMOND A. CARYE ETAL

WOOD GUARDRAIL

FALLBROOK SEWER RIGHT-OF-WAY  
 72-INCH REINFORCED CONCRETE PIPE-SURUM DRAIN

9392.3 SQ. FT.  
 0.22 ACRES

INVERT AT FLARED END  
 SECTION=98.88  
 PLACE 8' (OSD) RIP-RAP 10' LONG AND  
 FULL WIDTH OF EXISTING SWALE

NEW EASEMENT  
 2118.1 SQ. FT.

PROPOSED  
 1-1/2 STORY  
 WOOD FRAME  
 FFE=104'

GARAGE

PROPOSED  
 1-STORY  
 GARAGE

EXISTING #32  
 GERTRUDE AVE  
 ONE STORY  
 CIRCA. 1940

FALLBROOK SEWER  
 EASEMENT

RIM: 102.49'  
 INVERT IN:  
 INVERT OUT: 92.94'

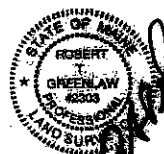
1"PF (FLUSH)

INSTALL  
 TIPDOWN  
 CURB

2:92.74'

GRANITE  
 CURB

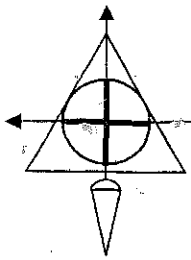
GERTRUDE AVE



SURVEYOR  
 I HEREBY CERTIFY FOR PROFESSION APRIL 01, 2011  
 a) NO WRITING  
 b) NO NEW DATA

ROBERT J. GREENLAW  
 PRESIDENT B.J.





**BACK BAY BOUNDARY, INC.**  
LAND SURVEYING

**Drainage Report**  
Including Hydrologic and Hydraulic Calculations

Prepare for 32 Gertrude Avenue – a Proposed Subdivision



Kevin J. McKee, P.E.  
Maine Registration #10223

November 2, 2005

(207) 774-2855

643 Forest Avenue Portland, Maine 04101  
Email [~Backbayboundary@cs.com](mailto:~Backbayboundary@cs.com)

Fax (207) 347-4346

[www.Backbayboundary.com](http://www.Backbayboundary.com)

## **PROJECT DESCRIPTION:**

The subject property is a 0.408 acre (17,763 s.f.) parcel of land located on the north side of Gertrude Street in Portland, Maine. The parcel has one existing wood-frame single-family house located on the right, or eastern side of the property. The land is generally level with a slight slope to a drainage swale that carries flow from the western abutting property easterly across the subject property to an existing municipal storm sewer located within an easement along the eastern border of the property.

It is intended that the subject property be subdivided into two separate parcels. One which shall serve the existing dwelling shall be 0.22 acres (9,424 s.f.). The second parcel will be created to serve a proposed single family home and it shall be 0.19 acres (8,340). In order to create a usable building lot it will be necessary to replace the open swale with a piped culvert. The purpose of this drainage report is to confirm the adequacy of the proposed culvert pipe.

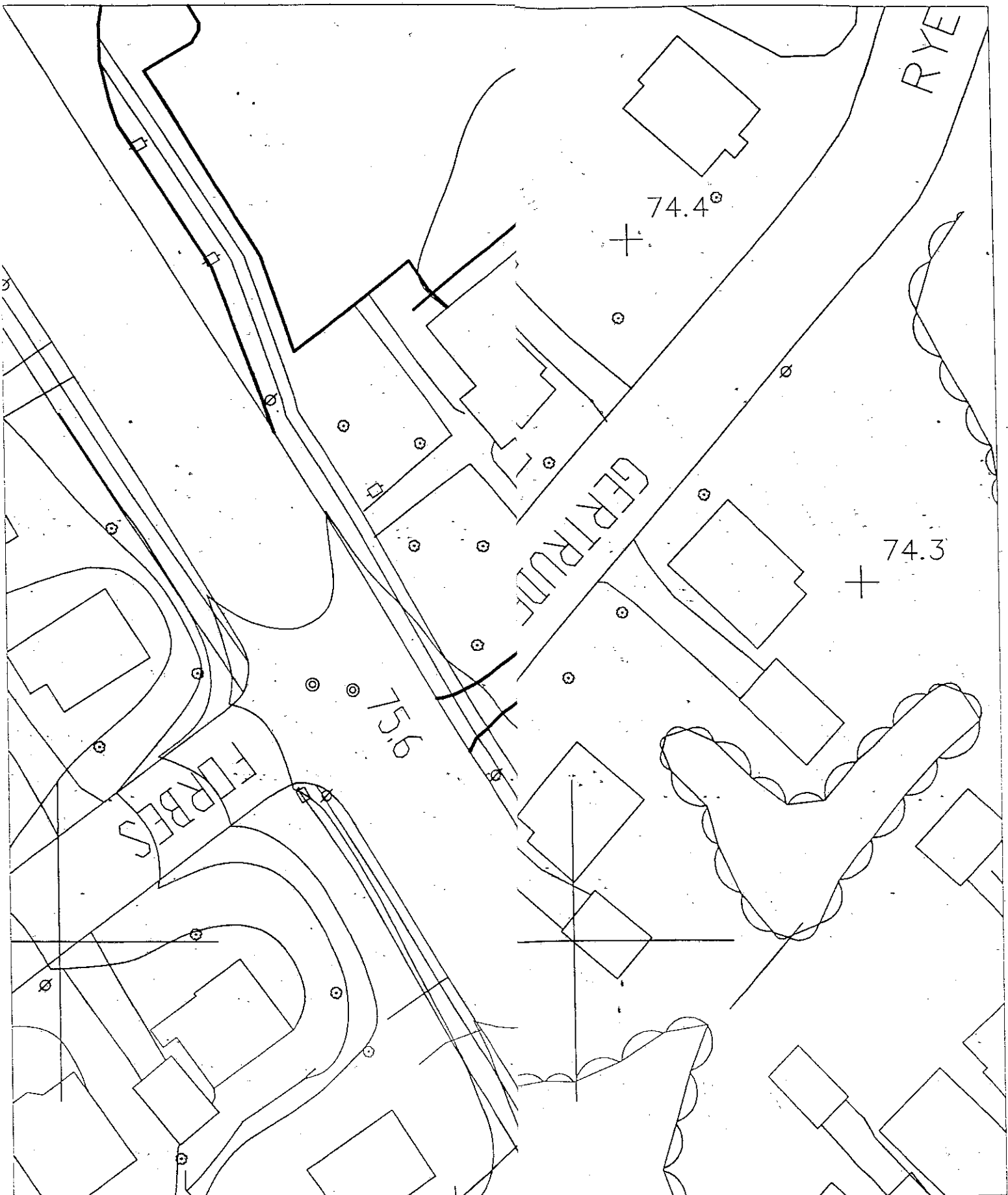
### **Design Methodology:**

This report uses a proprietary software program called HydroCAD 7.0. This program uses the Soil Conservation Service (SCS) TR-20 Unit Hydrograph Method.

The SCS unit hydrograph procedure (also known as the TR-20 runoff method) generates a runoff hydrograph by the following basic steps: (For brevity, this is a simplified description.)

- 1) A rainfall distribution is selected which indicates how the storm depth will be distributed over time. This is usually a standardized distribution, such as the SCS Type II storm, and often has a standardized duration of 24 hours.
- 2) The design storm depth is determined from rainfall maps, based on the return period being modeled. Combined with the rainfall distribution, this specifies the cumulative rainfall depth at all times during the storm.
- 3) Based on the Time-of-Concentration, the storm is divided into "bursts" of equal duration. For each burst, the SCS runoff equation and the average Curve Number are used to determine the portion of that burst that will appear as runoff.
- 4) A Unit Hydrograph, in conjunction with the Time-of-Concentration, is used to determine how the runoff from a single burst is distributed over time. The result is a complete runoff hydrograph for a single burst.
- 5) Individual hydrographs are added together for all bursts in the storm, yielding the complete runoff hydrograph for the storm.





**WATERSHED MAP**

**Conclusion:**

As the attached calculations demonstrate an 18" HDPE (high density polyethylene) pipe with a headwall will have the capacity to pass the 25-year storm of event of 4.49 cfs. For the purposes of analysis the inlet to the headwall has been modeled as a pond outlet. The invert of the pipe at the headwall is proposed to be at elevation 99.58. A maximum water surface upstream of the headwall may be expected to be at elevation 100.61. This represents a depth of slightly more than 1 foot above the invert and is below the elevation of the top of the swale that extends westerly onto the abutting property.

Installation of this culvert will not result in any deleterious effects to the proposed property or to abutting properties.

### AREAS CONTRIBUTING FLOW TO PROPOSED CULVERT

BUILDINGS: 2,244 S.F.  
              960 S.F.  
              660 S.F.  
              3,864 S.F.

PARKING AREA: 19,656 S.F.

LAWN AREA : 15,880 S.F.

TOTAL AREA : 39,400 S.F.

TOTAL IMP.  
3,864 S.F.  
19,656 S.F.  
23,520 S.F.

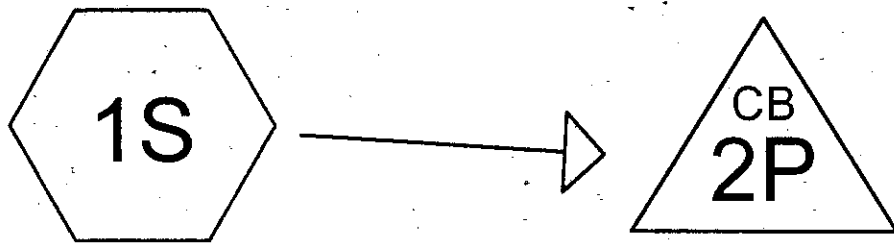
### Soils -

Cumberland County Soil Survey - USDA  
Sheet No 76 - SOIL TYPE BuB  
Buxton Silt Loam - 3 to 8% slope  
Hydrologic Soil Group B

### Discharge Treatment:

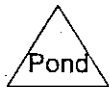
Provide a minimum of 10' length of rip-rap apron or over all disturbed areas downstream of pipe discharge (whichever is greater).

Rip-rap shall have a  $D_{50} = 8"$  and a minimum depth of 1.5 feet.



Flow to Culvert

Inlet to culvert



**32 Getrude Avenue**

Type III 24-hr Rainfall=5.80"

Prepared by HydroCAD SAMPLER 1-800-927-7246 www.hydrocad.net

Page 2

HydroCAD® 7.00 s/n 000000 © 1986-2003 Applied Microcomputer Systems

11/1/2005

Time span=5.00-20.00 hrs, dt=0.01 hrs, 1501 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Flow to Culvert**

Runoff Area=39,400 sf Runoff Depth=3.67"

Flow Length=230' Tc=3.5 min CN=83 Runoff=4.49 cfs 0.277 af

**Pond 2P: Inlet to culvert**

Peak Elev=100.61' Inflow=4.49 cfs 0.277 af

18.0" x 50.0' Culvert Outflow=4.49 cfs 0.277 af

**Total Runoff Area = 0.904 ac Runoff Volume = 0.277 af Average Runoff Depth = 3.67"**

**Subcatchment 1S: Flow to Culvert**

Runoff = 4.49 cfs @ 12.05 hrs, Volume= 0.277 af, Depth= 3.67"

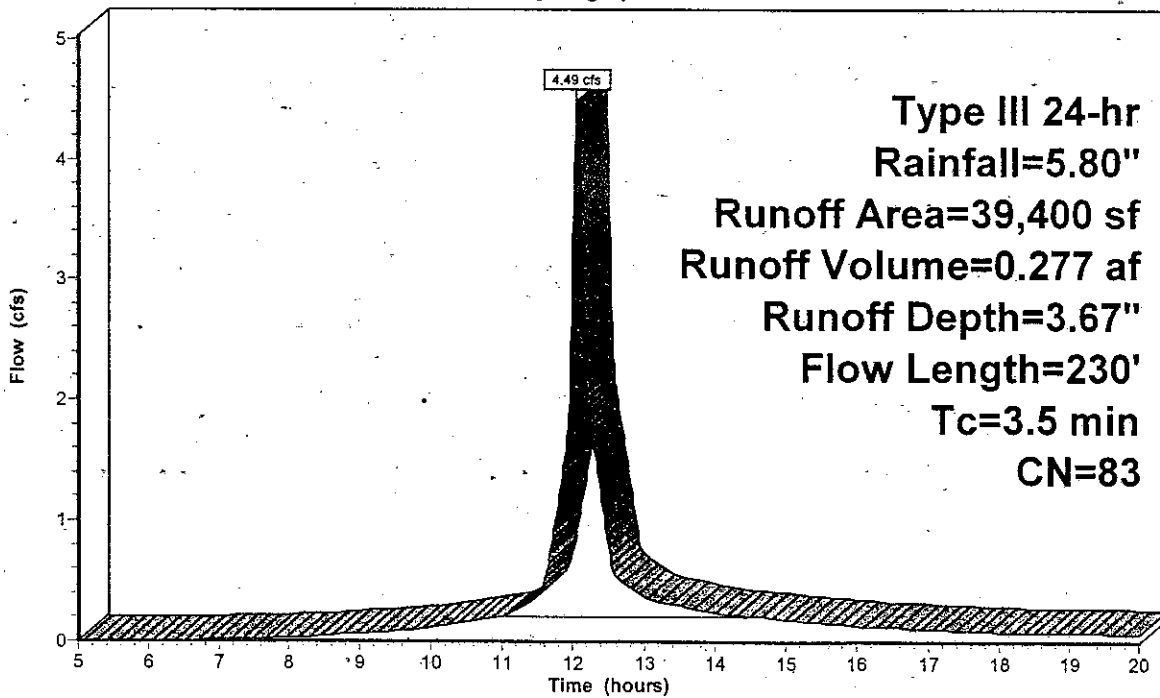
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs  
 Type III 24-hr Rainfall=5.80"

Area (sf)	CN	Description
23,520	98	Paved parking & roofs
15,880	61	>75% Grass cover, Good, HSG B
39,400	83	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	230	0.0100	1.1		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.50"

**Subcatchment 1S: Flow to Culvert**

Hydrograph



**Conclusion:**

As the attached calculations demonstrate an 18" HDPE (high density polyethylene) pipe with a headwall will have the capacity to pass the 25-year storm of event of 4.49 cfs. For the purposes of analysis the inlet to the headwall has been modeled as a pond outlet. The invert of the pipe at the headwall is proposed to be at elevation 99.58. A maximum water surface upstream of the headwall may be expected to be at elevation 100.61. This represents a depth of slightly more than 1 foot above the invert and is below the elevation of the top of the swale that extends westerly onto the abutting property.

Installation of this culvert will not result in any deleterious effects to the proposed property or to abutting properties.



Designation: D 7082 – 04

## Standard Specification for Polyethylene Stay In Place Form System for End Walls for Drainage Pipe<sup>1</sup>

This standard is issued under the fixed designation D 7082; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This specification addresses the requirements for polyethylene stay in place forms for end walls or head walls for use with standard storm drainage systems.

1.2 The wall form system consists of a base wall form, a cap, an optional riser to adjust the height of the wall above the pipe, and an optional adaptor to adjust the pipe opening to accommodate smaller pipe sizes.

1.3 The form system is manufactured using the rotational molding process and is available in different colors.

1.4 The values stated in SI units are to be regarded as the standard, the inch-pounds in brackets are given for information only.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.*

NOTE 1—There is no similar or equivalent ISO standard.

### 2. Referenced Documents

#### 2.1 ASTM Standards:<sup>2</sup>

- D 638 Test Method for Tensile Properties of Plastics
- D 648 Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position
- D 790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- D 883 Terminology Relating to Plastics
- D 1238 Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer
- D 1505 Test Method for Density of Plastics by the Density-Gradient Technique
- D 1600 Terminology for Abbreviated Terms Relating to Plastics

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.20 on Plastic Products. Current edition approved November 1, 2004. Published November 2004.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

D 1693 Test Method for Environmental Stress-Cracking of Ethylene Plastics

D 4883 Test Method for Density of Polyethylene by the Ultrasound Technique

D 5033 Guide for Development of ASTM Standards Relating to Recycling and Use of Recycled Plastics

### 3. Terminology

3.1 *Definitions*—Definitions used in this specification are in accordance with definitions in Terminology D 883 and abbreviations in accordance with Terminology D 1600 unless otherwise indicated.

3.1.1 *end wall*—a wall installed at the outlet of a storm drainage pipe.

3.1.2 *head wall*—a wall installed at the inlet of a storm drainage pipe.

### 4. Ordering Information

- 4.1 Number and color of base wall forms,
- 4.2 Number and color of riser forms,
- 4.3 Number and color of caps, and
- 4.4 Number, color and size of adaptors.

### 5. Materials and Manufacture

5.1 The material used shall be a polyethylene meeting the criteria in Table 1.

5.2 Only virgin materials (Guide D 5033) shall be used.

5.3 This product shall be manufactured using a rotational molding process.

### 6. Requirements

#### 6.1 Wall System Description:

6.1.1 Base wall form is hollow with opening at the top to accept fill material and designed to accept either cap or riser section. Base wall has opening in the center for pipe and adaptors as needed. Pipe is secured to base wall form with galvanized screws. (See Fig. 1.)

6.1.2 Riser form is hollow with opening at top to accept fill material and cap section. Multiple risers can be installed on base wall. (See Fig. 2.)

6.1.3 Cap fits on top of base wall or riser and is secured with galvanized screws. (See Fig. 1.)



TABLE 1 Material Specifications

Resin Properties	ASTM Method	Value	Units
Density (Range)	D 1505 / D 4883	0.9335 - 0.9395	g/cc
Melt Index (Range)	D 1238 Cond. 190°C, 2.16 kg	3.5 - 7.5	g/10 min
Environmental Stress Crack Resistance (ESCR), F <sub>50</sub>	D 1683, Cond. A		
	100 % Igepal	275	Hr
	10 % Igepal	55	Hr
Flexural Modulus (Minimum)	D 790 at 1 % secant Procedure B	600 [87]	Mpa [kpsi]
Tensile Strength at Yield (Minimum)	D 638, Type IV specimen	17.2 [2500]	Mpa [psi]
Tensile Break Elongation (Minimum)	50.8 mm/min @ 3.12 mm thick [2 in./min @ 1/8 in. thick]	420	%
Deflection Temperature (Minimum)	D 648		
	@ 0.455 MPa [66 psi]	50	°C
	@ 1.82 MPa [264 psi]	35	°C

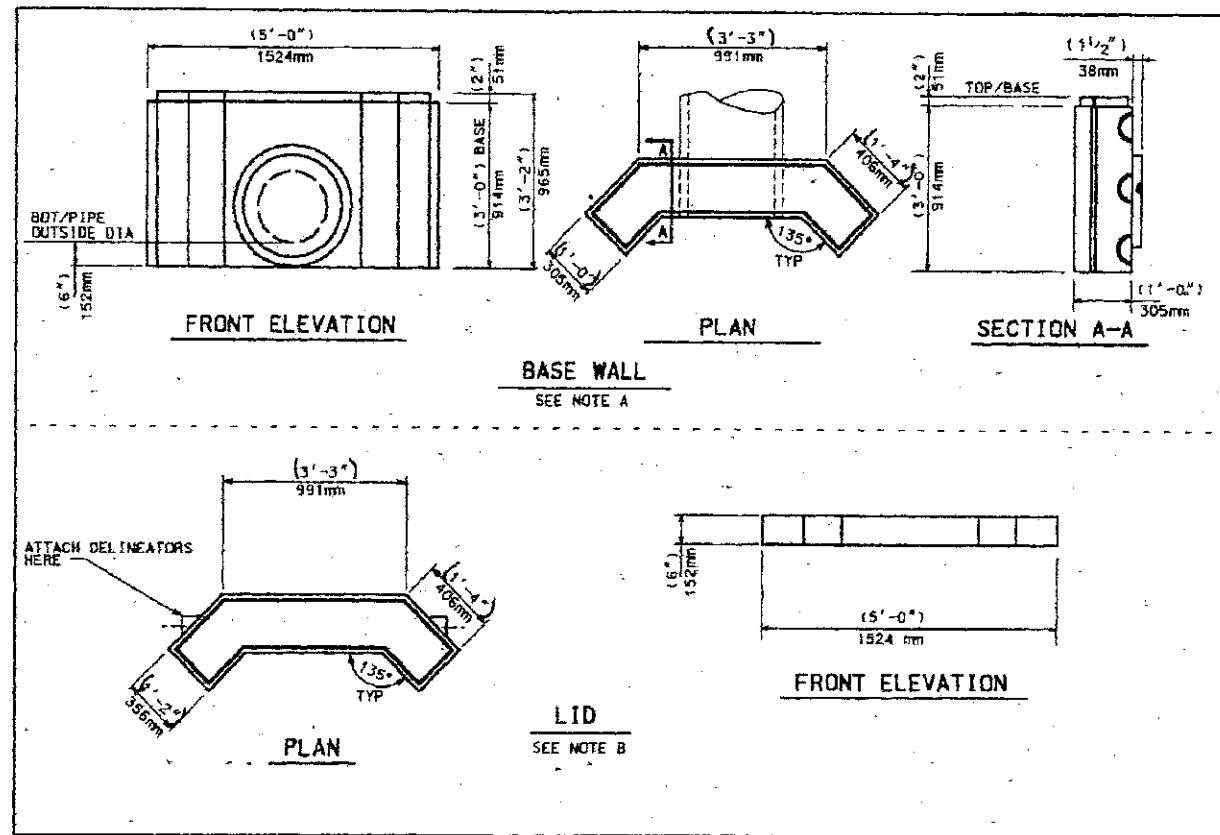


FIG. 1 Base Wall and Lid

6.1.4 Adaptor section is used to adjust the size of the pipe opening as needed. Adaptor is secured to base wall form with galvanized screws and pipe is secured to adaptor with galvanized screws. (See Fig. 2.)

6.2 Workmanship, Finish, and Appearance:

6.2.1 Workmanship of the form system components shall be such that the quality is agreeable between the producer and the end user.

6.2.2 The surface of the form system components shall be finished to mimic a split stone face, with the appearance of mortar joints and with the vertical joints offset on alternating courses.

6.2.3 Physical properties of finished form system components.

6.2.3.1 Dimensions—See Figs. 1 and 2.

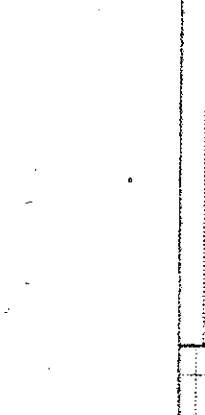
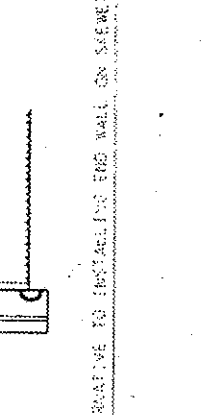
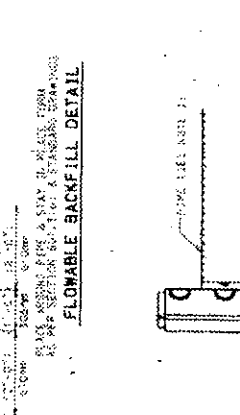
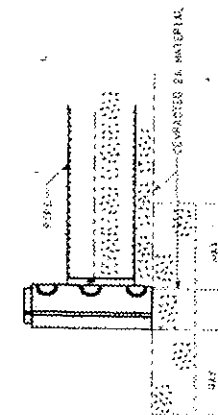
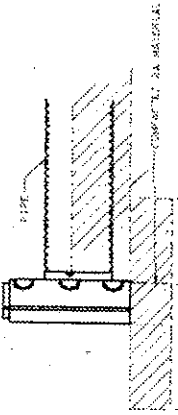
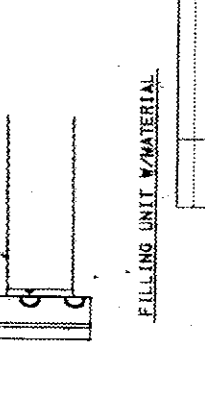
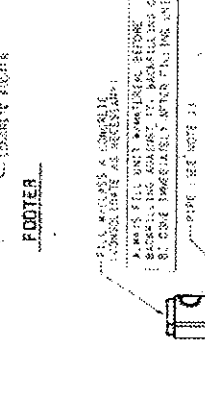
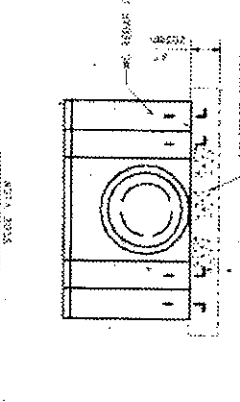
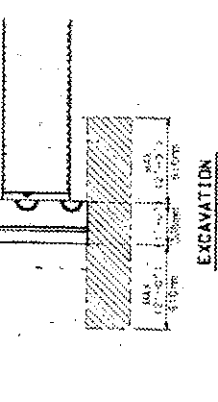
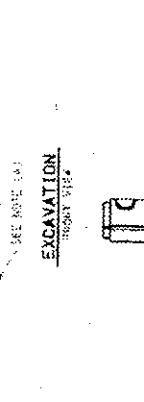
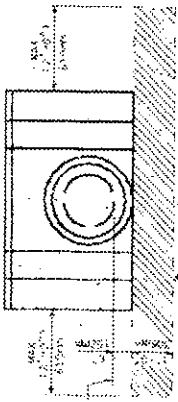
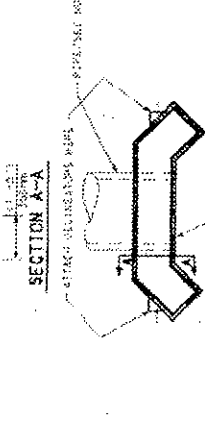
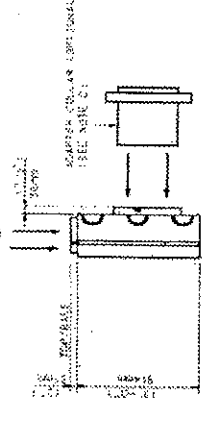
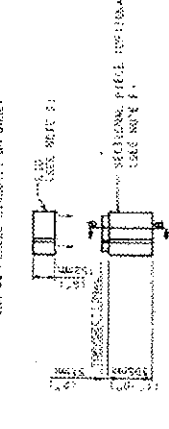
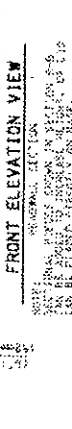
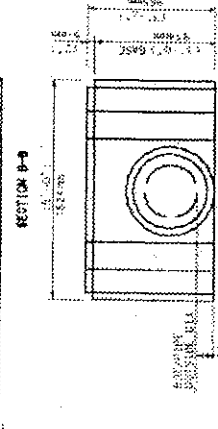
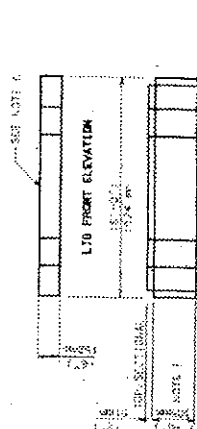
7. Test Methods

7.1 Physical Properties:

7.1.1 Dimensions shall be measured to the nearest 2 mm with the exception of the material thickness, which is measured as noted on Fig. 2, Note E.

**HARTMAN SYSTEM  
ALTERNATIVE TO TYPE O-W END WALL**

DESCRIPTION: THIS WAS THE CONSTRUCTION OF HEADWALLS AND ENDWALLS FOR PUL BARRIERS, BEING BUILT IN PLACE FROM MATCHUP TO IN PLACE FROM  
 - CORE PRECAST SECTION ONLY  
 - WHERE MATERIAL  
 - CLASS A READY CONCRETE (CLASS) TO  
 - QUALIFIED SHOP  
 CONTRACTOR SEE NOTES



**NOTES**

SECTION TO BE APPROVED BY...  
 SECTION 101.1 & 101.2  
 SECTION 101.3 & 101.4  
 SECTION 101.5 & 101.6  
 SECTION 101.7 & 101.8  
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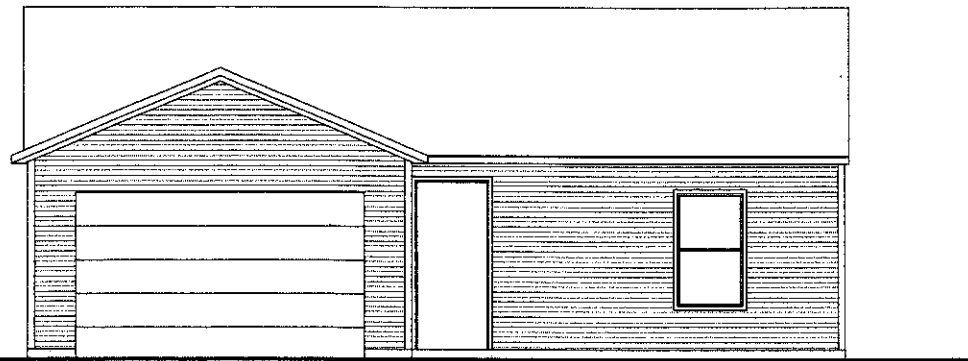
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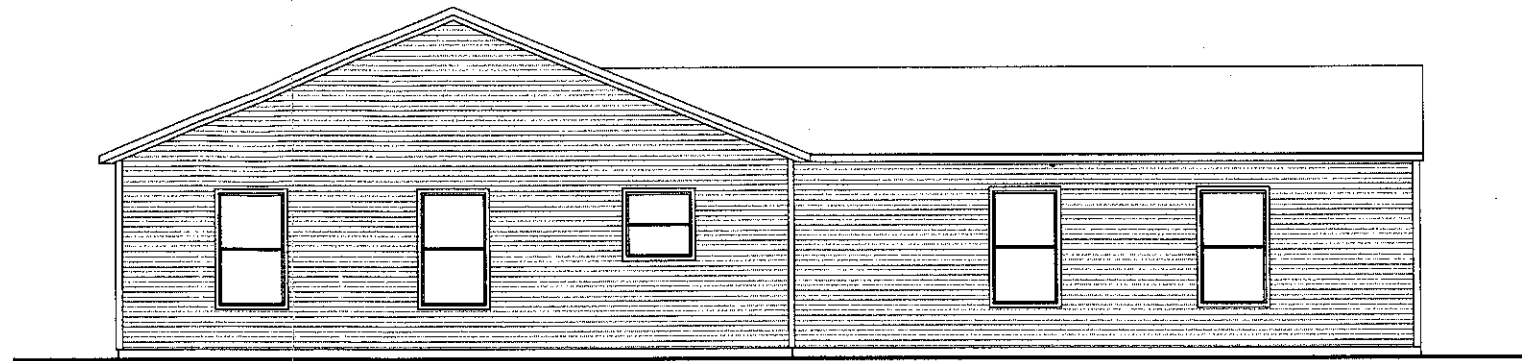
HARTMAN EW SYSTEM FOR END WALLS		SCALE:	DATE:	DATE:	DATE:
SHEET 1 OF 1		DATE:	DATE:	DATE:	DATE:
DRAWING NO.		DATE:	DATE:	DATE:	DATE:

CUSTOMER: HARTMAN EW INC.  
 PROJECT: HARTMAN EW SYSTEM PRODUCT APPROVAL  
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 DRAWN BY: [Name]  
 CHECKED BY: [Name]  
 DATE: [Date]

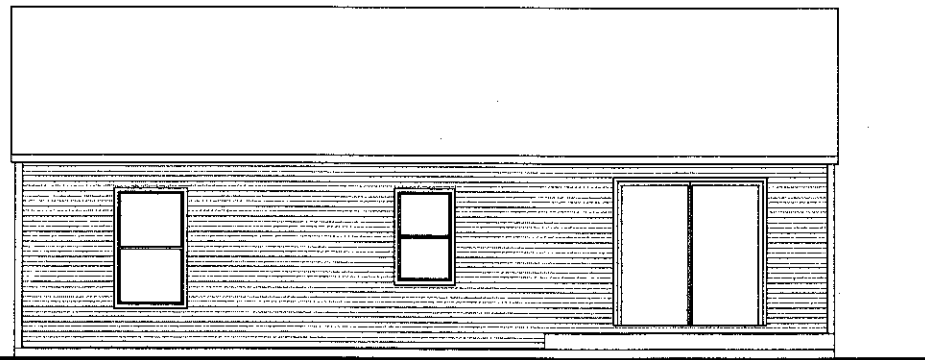
FILLING UNIT W/MATERIAL



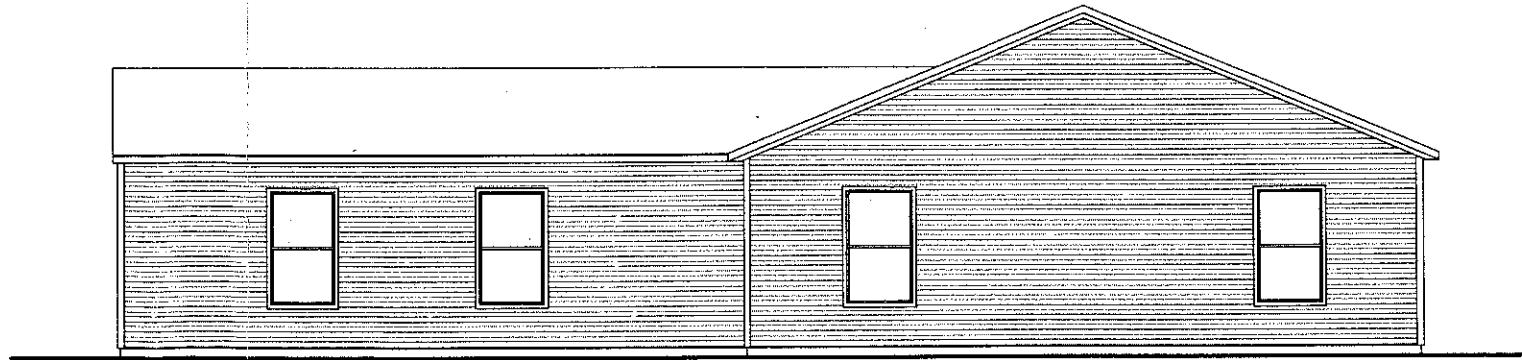
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2 Right Elevation  
1/4" = 1'-0"



3 Rear Elevation  
1/4" = 1'-0"



4 Left Elevation  
1/4" = 1'-0"

RESIDENCE FOR  
**TIM HIGGINS**  
 PORTLAND, MAINE  
*cell#* 8385870

REVS:
CODE: 2003
TOWN: PORTLAND
DATE: 22 MAY 06
SCALE: AS NOTED
DRAWN: JJO
TITLE: ELEVATIONS

THIS IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY.  
 CONSTRUCTION OF THIS PROJECT IS THE RESPONSIBILITY OF THE CONTRACTOR.  
 THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR COMPLIANCE WITH ALL APPLICABLE CODES AND REGULATIONS.

**GENERAL NOTES:**

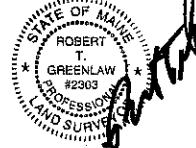
1. RECORD OWNER OF PARCEL: JOSEPH A. HARRIS AS RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 22401, PAGE 023.
2. BEARINGS ARE BASED UPON A MAGNETIC NORTH OBSERVATION TAKEN WITH A HAND HELD COMPASS ON THIS SITE ON FEBRUARY 15, 2005.
3. AREA OF ORIGINAL PARCEL: 17763.3 SQUARE FEET. SEE INDIVIDUAL LOTS FOR SEPERATE SQUARE FOOTAGES.
4. REFERENCE IS MADE TO THE FOLLOWING PLANS:
  - a. THE NORTHPORT BUSINESS PARK AMENDED RECORDING PLAT DATED 03-31-1987 ALSO SHOWN AS PLAN OF PROPERTY IN PORTLAND MAINE MADE FOR NORTHPORT REALTY TRUST LAND TITLE SURVEY DATED NOVEMBER 4TH, 1986 MADE BY H. I. & E.C. JORDAN - SURVEYORS UNRECORDED AT THIS TIME.
  - b. CITY OF PORTLAND STREET LINE SHEET OF GERTRUDE AVE. DATED 11-22-1937 PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPT.
  - c. PLAN OF WADCO PARK WASHINGTON AVE. PORTLAND MAINE SURVEYED AUG. 1905 PROPERTY OF DERRAH & WESCOTT. RECORDED OCT. 21, 1911 PLAN BOOK 12, PAGE 17 IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS.
  - d. PARKING LOT EXPANSION DRAINAGE & LAYOUT PLAN PORTLAND, MAINE NORTH PORT BUSINESS PARK CREATED BY DUFRESNE-HENRY INC. DATED REVISED DATED 06-30-1987 PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPT.
  - e. CITY OF PORTLAND, MAINE DEPARTMENT OF PARKS AND PUBLIC WORKS GERTRUDE AVENUE STORM DRAIN AND RECONSTRUCTION DATED AUG. 14, 1986. PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPT.
  - f. CITY OF PORTLAND ASSESSORS PLAN #402. LOT SHOWN ON SAID PLAN AS LOTS 7,20 & 21 AS PART OF BLOCK A.
5. NO CHANGE TO THE EXISTING TOPOGRAPHY IS PLANNED WITH THE EXCEPTION OF THE DITCH AND FINAL LANDSCAPING.
6. NO OTHER EASEMENTS WERE DISCOVERED EXCEPT THOSE SHOWN ON THIS PLAN, NAMELY THE STORMWATER EASEMENTS FOR THE SIMPSON MEMORIAL CHURCH AND THE CITY OF PORTLAND.

**ZONING:**  
 THE SUBJECT PARCEL FALLS WITHIN THE CITY'S R-3 RESIDENTIAL ZONE.  
**SETBACKS:**  
 FRONT YARD: 25 FEET.  
 REAR YARD: 25 FEET.  
 SIDE YARD: 8 FEET UP TO 1 1/2 STORIES.  
 MINIMUM FRONTAGE- 50 FEET  
 MINIMUM LOT WIDTH - 65 FEET

**FLOOD NOTE:** BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP, COMMUNITY-PANEL NO. 230051 -7C, WHICH BEARS AN EFFECTIVE DATE OF 12/08/01 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

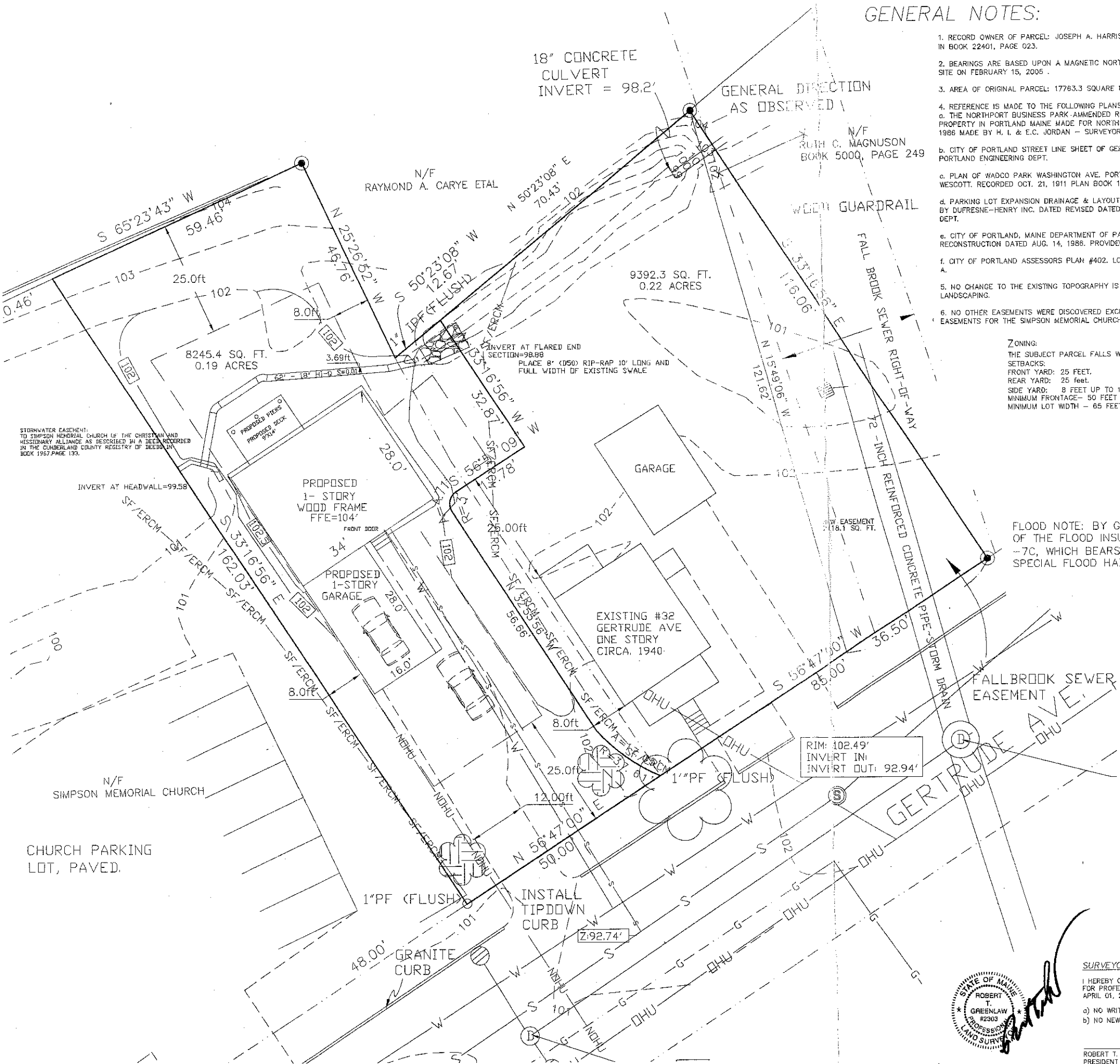
- LEGEND**
- 6" x 6" Granite monument found with drill hole.
  - 5/8" Solid pin, no cap found
  - △ Survey Instrument Point
  - Abutter Line
  - Property Line
  - Street Line
  - (50.00') Distance from reference plan or deed.
  - N/F Now Or Formerly
  - A.G. Above Grade
  - B.G. Below Grade
  - Overhead Utility
  - Utility Pole
  - Edge of traveled way
  - Utility Pole
  - 98— Contour Line
  - 98— Proposed Contour Line
  - NOHU— New Overhead Utilities
  - SF/ERCM Silt Fence or Erosion Control Mix
  - ⊕ 2-1/2" Min. Diameter Tree to Be Planted

**SURVEYORS STATEMENT:**  
 I HEREBY CERTIFY THAT THIS SURVEY CONFORMS TO THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS' STANDARDS OF PRACTICE AS ADOPTED APRIL 01, 2001 WITH THE FOLLOWING EXCEPTIONS:  
 a) NO WRITTEN REPORT  
 b) NO NEW DESCRIPTION



ROBERT T. GREENLAW P.L.S.  
 PRESIDENT BACK BAY BOUNDARY, INC.

DATE: 05-08-2006



REVISION 06-08-2006: RELOCATED CULVERT TO REAR OF PROPOSED LOT.  
 REVISION: 12-05-2005- RECONFIGURED LOTS

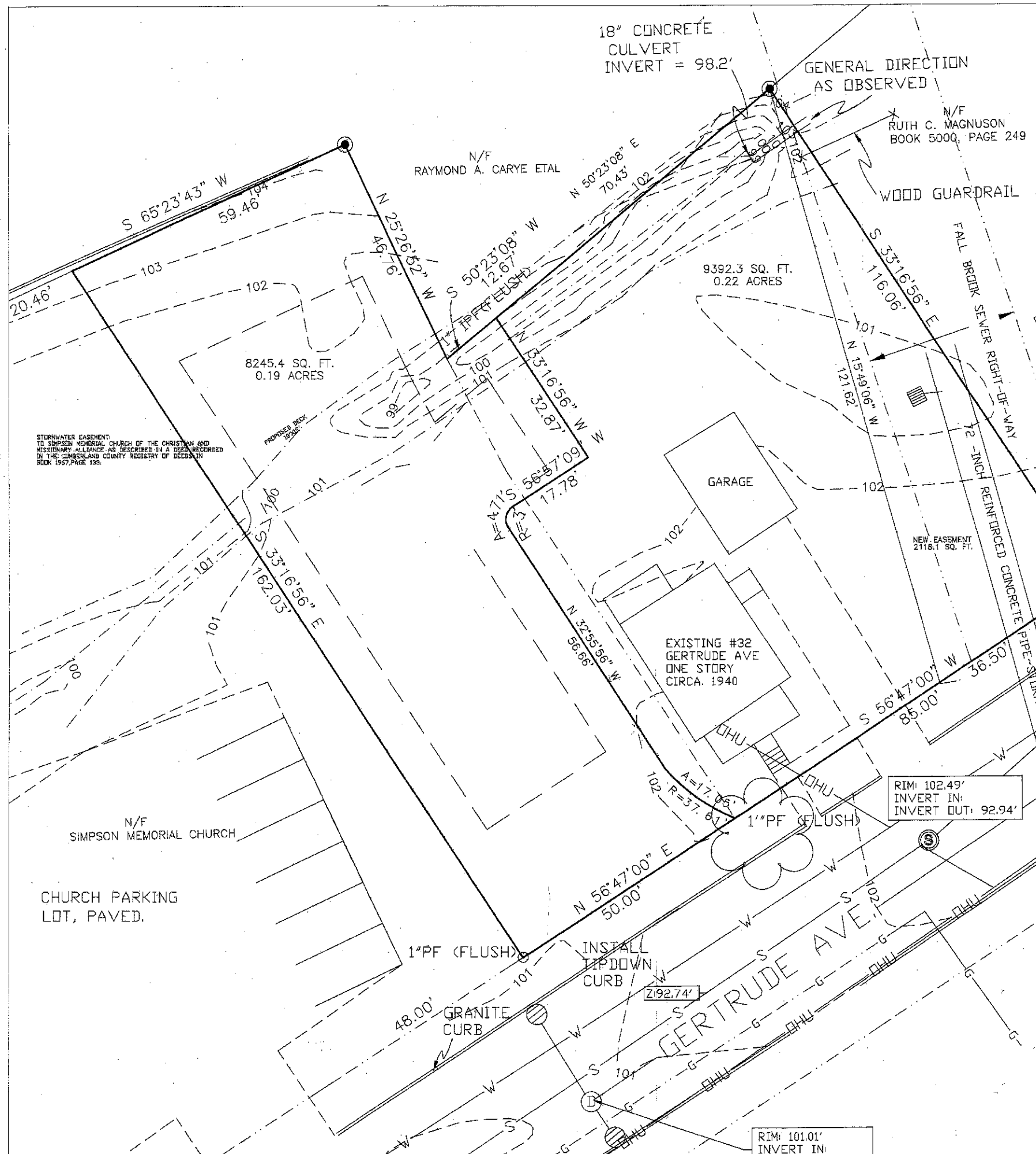
**PROPOSED LOT SPLIT**  
 FOR A PROPOSED NEW DWELLING  
 32 GERTRUDE AVE. PORTLAND, MAINE

FOR:  
**TIM HIGGINS**  
 32 GERTRUDE AVE. PORTLAND, MAINE

DRAWN BY: RTG  
 CHECKED BY: KCC  
 SCALE: 1"=10'  
 DATE OF SURVEY: 02-15-2005  
 JOB NUMBER: 2005015-P  
 SHEET: 1 of 1.

PREPARED BY:  
**BACK BAY BOUNDARY, INC.**  
 LAND SURVEYING  
 643 FOREST AVE  
 PORTLAND, MAINE  
 207-774-2855 FAX 207-347-4346

DRAWER: 2005 NO: 15



**GENERAL NOTES:**

- RECORD OWNER OF PARCEL: JOSEPH A. HARRIS AS RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 22401, PAGE 023.
- BEARINGS ARE BASED UPON A MAGNETIC NORTH OBSERVATION TAKEN WITH A HAND HELD COMPASS ON THIS SITE ON FEBRUARY 15, 2005.
- AREA OF ORIGINAL PARCEL: 17763.3 SQUARE FEET. SEE INDIVIDUAL LOTS FOR SEPERATE SQUARE FOOTAGES.
- REFERENCE IS MADE TO THE FOLLOWING PLANS:
  - THE NORTHPORT BUSINESS PARK AMMENDED RECORDING PLAT DATED 03-31-1987 ALSO SHOWN AS PLAN OF PROPERTY IN PORTLAND MAINE MADE FOR NORTHPORT REALTY TRUST LAND TITLE SURVEY DATED NOVEMBER 4TH, 1986 MADE BY H. I. & E.C. JORDAN - SURVEYORS UNRECORDED AT THIS TIME.
  - CITY OF PORTLAND STREET LINE SHEET OF GERTRUDE AVE. DATED 11-22-1937 PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPT.
  - PLAN OF WADCO PARK WASHINGTON AVE. PORTLAND MAINE SURVEYED AUG. 1905 PROPERTY OF DERRAH & WESCOTT. RECORDED OCT. 21, 1911 PLAN BOOK 12, PAGE 17 IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS.
  - PARKING LOT EXPANSION DRAINAGE & LAYOUT PLAN PORTLAND, MAINE NORTH PORT BUSINESS PARK CREATED BY DUFRESNE-HENRY INC. DATED REVISED DATED 08-30-1987 PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPT.
  - CITY OF PORTLAND, MAINE DEPARTMENT OF PARKS AND PUBLIC WORKS GERTRUDE AVENUE STORM DRAIN AND RECONSTRUCTION DATED AUG. 14, 1986. PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPT.
  - CITY OF PORTLAND ASSESSORS PLAN #402. LOT SHOWN ON SAID PLAN AS LOTS 7,20 & 21 AS PART OF BLOCK A.
- NO CHANGE TO THE EXISTING TOPOGRAPHY IS PLANNED WITH THE EXCEPTION OF THE DITCH AND FINAL LANDSCAPING.
- NO OTHER EASEMENTS WERE DISCOVERED EXCEPT THOSE SHOWN ON THIS PLAN, NAMELY THE STORMWATER EASEMENTS FOR THE SIMPSON MEMORIAL CHURCH AND THE CITY OF PORTLAND.

**ZONING:**  
 THE SUBJECT PARCEL FALLS WITHIN THE CITY'S R-3 RESIDENTIAL ZONE.  
**SETBACKS:**  
 FRONT YARD: 25 FEET.  
 REAR YARD: 25 FEET.  
 SIDE YARD: 8 FEET UP TO 1 1/2 STORIES.  
 MINIMUM FRONTAGE - 50 FEET  
 MINIMUM LOT WIDTH - 65 FEET

**FLOOD NOTE:** BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP, COMMUNITY-PANEL NO. 230051 -7C, WHICH BEARS AN EFFECTIVE DATE OF 12/08/01 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

**LEGEND**

- 6" x 6" Granite monument found with drill hole.
- 5/8" Solid pin, no cap found
- △ Survey Instrument Point
- Abutter Line
- Property Line
- Street Line
- (50.00') Distance from reference plan or deed.
- N/F Now Or Formerly
- A.G. Above Grade
- B.G. Below Grade
- u — Overhead Utility
- ⊕ Utility Pole
- Edge of traveled way
- ⊙ Utility Pole
- 98 — Contour Line



**SURVEYORS STATEMENT:**

I HEREBY CERTIFY THAT THIS SURVEY CONFORMS TO THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS' STANDARDS OF PRACTICE AS ADOPTED APRIL 01, 2001 WITH THE FOLLOWING EXCEPTIONS:

- a) NO WRITTEN REPORT
- b) NO NEW DESCRIPTION

DATE: 12-05-2005

ROBERT T. GREENLAW P.L.S.  
 PRESIDENT BACK BAY BOUNDARY, INC.



REVISION: 12-05-2005 - RECONFIGURED LOTS

**EXISTING CONDITIONS**  
 FOR A PROPOSED NEW DWELLING  
 32 GERTRUDE AVE. PORTLAND, MAINE

838-5870

TIM HIGGINS

32 GERTRUDE AVE. PORTLAND, MAINE

FOR:

DRAWN BY: RTG	CHECKED BY: KCC	SCALE: 1"=10'	DATE OF SURVEY: 02-15-2005
JOB NUMBER: 2005015-P		SHEET: 1 of 1.	

PREPARED BY:  
**BACK BAY BOUNDARY, INC.**  
 LAND SURVEYING  
 643 FOREST AVE  
 PORTLAND, MAINE  
 207-774-2855 FAX 207-347-4346

DRAWER: 2005 NO: 15

**GENERAL NOTES:**

1. RECORD OWNER OF PARCEL: JOSEPH A. HARRIS AS RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 22401, PAGE 023.
2. BEARINGS ARE BASED UPON A MAGNETIC NORTH OBSERVATION TAKEN WITH A HAND HELD COMPASS ON THIS SITE ON FEBRUARY 15, 2005.
3. AREA OF ORIGINAL PARCEL: 17763.3 SQUARE FEET. SEE INDIVIDUAL LOTS FOR SEPERATE SQUARE FOOTAGES.
4. REFERENCE IS MADE TO THE FOLLOWING PLANS:
  - a. THE NORTHPORT BUSINESS PARK AMENDED RECORDING PLAT DATED 03-31-1987 ALSO SHOWN AS PLAN OF PROPERTY IN PORTLAND MAINE MADE FOR NORTHPORT REALTY TRUST LAND TITLE SURVEY DATED NOVEMBER 4TH, 1986 MADE BY H. I. & E.C. JORDAN - SURVEYORS UNRECORDED AT THIS TIME.
  - b. CITY OF PORTLAND STREET LINE SHEET OF GERTRUDE AVE. DATED 11-22-1937 PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPT.
  - c. PLAN OF WADCO PARK WASHINGTON AVE. PORTLAND MAINE SURVEYED AUG. 1905 PROPERTY OF DERRAH & WESCOTT. RECORDED OCT. 21, 1911 PLAN BOOK 12, PAGE 17 IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS.
  - d. PARKING LOT EXPANSION DRAINAGE & LAYOUT PLAN PORTLAND, MAINE NORTH PORT BUSINESS PARK CREATED BY DUFRESNE-HENRY INC. DATED REVISED DATED 08-30-1987 PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPT.
  - e. CITY OF PORTLAND, MAINE DEPARTMENT OF PARKS AND PUBLIC WORKS GERTRUDE AVENUE STORM DRAIN AND RECONSTRUCTION DATED AUG. 14, 1986. PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPT.
  - f. CITY OF PORTLAND ASSESSORS PLAN #402. LOT SHOWN ON SAID PLAN AS LOTS 7,20 & 21 AS PART OF BLOCK A.
5. NO CHANGE TO THE EXISTING TOPOGRAPHY IS PLANNED WITH THE EXCEPTION OF THE DITCH AND FINAL LANDSCAPING.
6. NO OTHER EASEMENTS WERE DISCOVERED EXCEPT THOSE SHOWN ON THIS PLAN, NAMELY THE STORMWATER EASEMENTS FOR THE SIMPSON MEMORIAL CHURCH AND THE CITY OF PORTLAND.

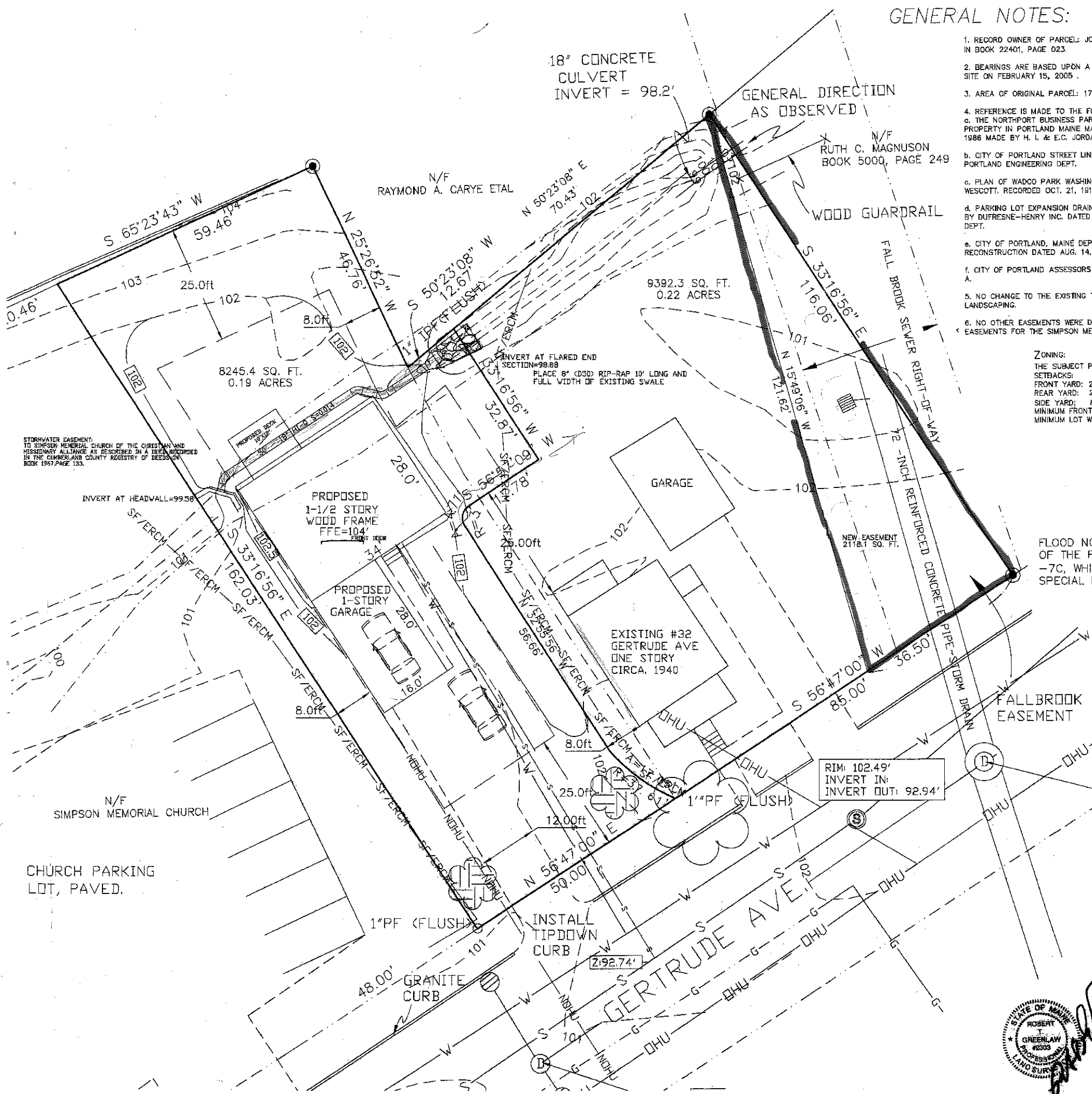
**ZONING:**  
 THE SUBJECT PARCEL FALLS WITHIN THE CITY'S R-3 RESIDENTIAL ZONE.  
**SETBACKS:**  
 FRONT YARD: 25 FEET.  
 REAR YARD: 25 FEET.  
 SIDE YARD: 8 FEET UP TO 1 1/2 STORIES.  
 MINIMUM FRONTAGE- 50 FEET  
 MINIMUM LOT WIDTH - 85 FEET

**FLOOD NOTE:** BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP, COMMUNITY-PANEL NO. 230051 -7C, WHICH BEARS AN EFFECTIVE DATE OF 12/08/01 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

- LEGEND**
- 6" x 6" Granite monument found with drill hole.
  - 5/8" Solid pin, no cap found
  - △ Survey Instrument Point
  - Abutter Line
  - Property Line
  - Street Line
  - (50.00') Distance from reference plan or deed.
  - N/F Now Or Formerly
  - A.G. Above Grade
  - B.G. Below Grade
  - u — Overhead Utility
  - ⊕ Utility Pole
  - Edge of traveled way
  - ⊙ Utility Pole
  - 98 — Contour Line
  - 98 — Proposed Contour Line
  - NOHU — New Overhead Utilities
  - SF/ERCM Silt Fence or Erosion Control Mix
  - ⊕ 2-1/2" Min. Diameter Tree to Be Planted

**SURVEYORS STATEMENT:**  
 I HEREBY CERTIFY THAT THIS SURVEY CONFORMS TO THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS' STANDARDS OF PRACTICE AS ADOPTED APRIL 01, 2001 WITH THE FOLLOWING EXCEPTIONS:  
 a) NO WRITTEN REPORT  
 b) NO NEW DESCRIPTION  
 DATE: 05-12-2006

ROBERT T. GREENLAW P.L.S.  
 PRESIDENT BACK BAY BOUNDARY, INC.



REVISION: 12-05-2005 - RECONFIGURED LOTS

**PROPOSED LOT SPLIT**  
 FOR A PROPOSED NEW DWELLING  
 32 GERTRUDE AVE. PORTLAND, MAINE  
 FOR: **TIM HIGGINS**  
 32 GERTRUDE AVE. PORTLAND, MAINE

DRAWN BY: RTG	DATE OF SURVEY: 02-15-2005
CHECKED BY: KCC	JOB NUMBER: 2005015-P
SCALE: 1"=10'	SHEET: 1 of 1.

PREPARED BY:  
**BACK BAY BOUNDARY, INC.**  
 LAND SURVEYING  
 643 FOREST AVE  
 PORTLAND, MAINE  
 207-774-2855 FAX 207-347-4346

DRAWER: 2005 NO: 15

# TRENCH INSTALLATION DETAIL

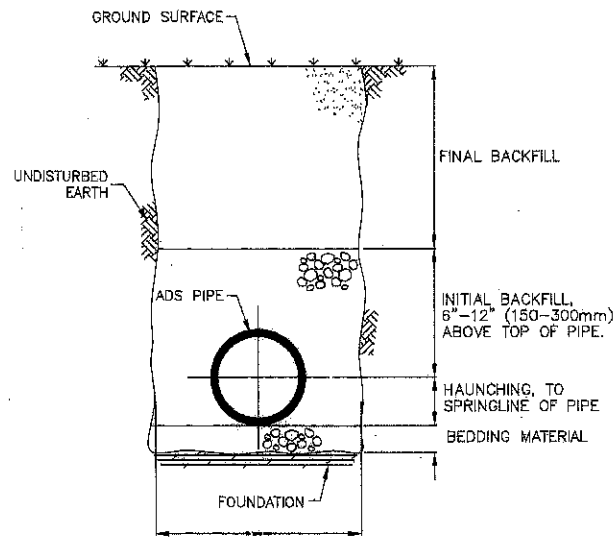
**NOTES:**

- FOUNDATION:** WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF CLASS I OR II MATERIAL AS DEFINED IN ASTM D2321, "STANDARD PRACTICE FOR INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS," LATEST EDITION. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A WOVEN GEOTEXTILE FABRIC.
- BEDDING:** SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100-600mm) CORRUGATED POLYETHYLENE PIPE (CPEP); 6" (150mm) FOR 30"-80" (750-1500mm) CPEP.
- HAUNCHING AND INITIAL BACKFILL:** SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
- UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM TRENCH WIDTHS SHALL BE AS FOLLOWS:**

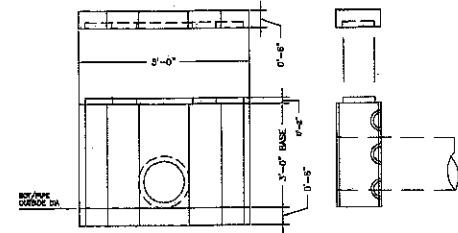
NOMINAL Ø in. (mm)	MIN. RECOMMENDED TRENCH WIDTH in. (mm)
4 (100)	21 (530)
6 (150)	23 (580)
8 (200)	25 (630)
10 (250)	28 (710)
12 (300)	31 (790)
15 (375)	34 (860)
18 (450)	39 (990)
24 (600)	48 (1220)
30 (750)	66 (1680)
36 (900)	78 (1980)
42 (1050)	83 (2110)
48 (1200)	89 (2260)
60 (1500)	102 (2590)
- MINIMUM COVER:** MINIMUM RECOMMENDED DEPTHS OF COVER FOR VARIOUS LIVE LOADING CONDITIONS ARE SUMMARIZED IN THE FOLLOWING TABLE. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TAKEN FROM THE TOP OF PIPE TO THE GROUND SURFACE.

SURFACE LIVE LOADING CONDITION	MINIMUM RECOMMENDED COVER, in. (mm)	
H25 (FLEXIBLE PAVEMENT)	12 (300)	24 (600) FOR 80" (1500) PIPE*
H25 (RIGID PAVEMENT)	12 (300)	24 (600) FOR 80" (1500) PIPE
E80 RAILWAY	24 (600)	
HEAVY CONSTRUCTION	48 (1200)	

\* TOP OF PIPE TO BOTTOM OF BITUMINOUS PAVEMENT SECTION

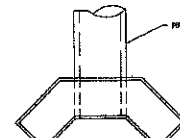


TYPICAL TRENCH CROSS-SECTION (N.T.S.)

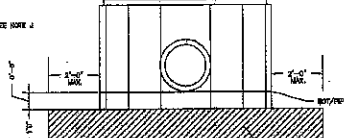


FRONT ELEVATION VIEW

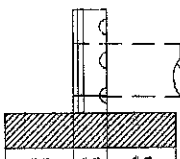
SECTION A-A



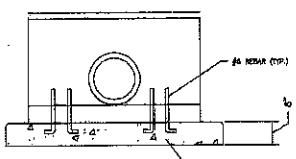
PLAN VIEW OF LID



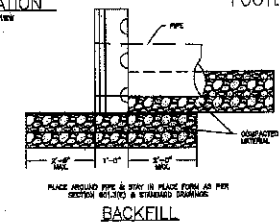
EXCAVATION FROM VIEW



EXCAVATION SIDE VIEW

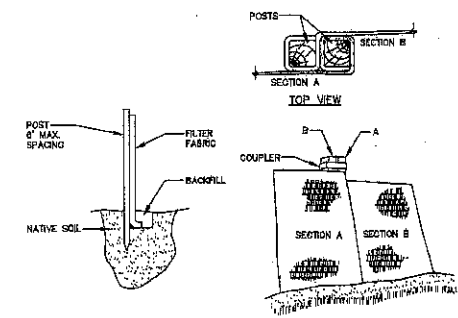


FOOTER



BACKFILL

**HARTMANEW SYSTEM**  
ALTERNATIVE TO TYPE O-W END WALL (N.T.S.)

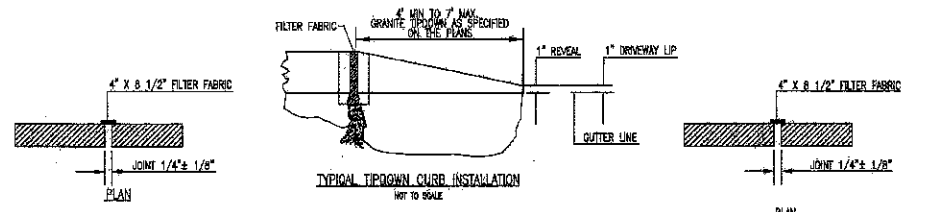


- INSTALLATION:**
- EXCAVATE A 6" x 6" TRENCH ALONG THE LINE OF PLACEMENT FOR THE FILTER BARRIER.
  - UNROLL A SECTION AT A TIME AND POSITION THE POSTS AGAINST THE BACK (DOWNSTREAM) WALL OF THE TRENCH.
  - DRIVE POSTS INTO THE GROUND UNTIL APPROXIMATELY 2" OF FABRIC IS LYING ON THE TRENCH BOTTOM. JOIN SECTIONS AS SHOWN ABOVE.
  - LAY THE TOE-IN FLAP OF FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH. BACKFILL THE TRENCH AND TAMP THE SOIL. TOE-IN CAN ALSO BE ACCOMPLISHED BY LAYING THE FABRIC FLAP ON UNDISTURBED GROUND AND PILING AND TAMPING FILL AT THE BASE, BUT MUST BE ACCOMPANIED BY AN INTERFLOW DITCH.
  - BARRIER SHALL BE WRAPI SALT FENCE OR APPROVED EQUAL.

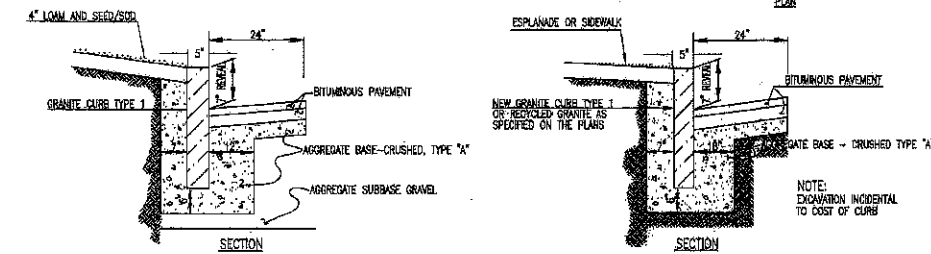
FILTER BARRIER (NOT TO SCALE)

**NOTES**

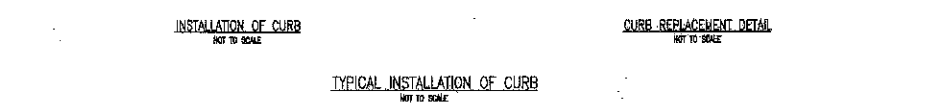
- CONSTRUCTION - IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF SECTION 601.3 & AS FOLLOWS:
- EXCAVATION. EXCAVATE AS REQ'D FOR GENERAL PIPE INSTALLATION AS PER SECTION 601.3(B). AT THE LOCATION OF ENDWALL EXCAVATE AN ADDITIONAL 1' DEPTH BELOW THE STAY IN PLACE FORM. NOTE THE BOTTOM OF THE FORM IS A MINIMUM OF 6" BELOW THE OUTSIDE DIA. OF THE PIPE CULVERT. EXCAVATE MAXIMUM OF 2' WIDTH IN EACH DIRECTION AROUND THE STAY IN PLACE FORM.
  - FOOTER. POUR CONCRETE FOOTER OR APRON TO SET THE END WALL ON. IF SCOURING IS A CONCERN, RIP-RAP STONE MAY BE PLACED IN THE DITCH BELOW THE ENDWALL. THE PIPE MAY ALSO BE EXTENDED OUT A FOOT OR TWO FROM THE FACE OF THE HEADWALL.
  - PIPE SIZE ADJUSTMENT. (OPTIONAL)
  - END WALL POSITIONING. POSITION THE END WALL ON THE END OF THE PIPE. ADJUST AS NECESSARY. PLACE 3 GALVANIZED SCREWS THROUGH THE SPACES PROVIDED & INTO THE PIPE. USE A SCREW TYPE COMPATIBLE WITH THE TYPE OF PIPE BEING INSTALLED. PRE-DRILL SCREW HOLES IN PIPE WHERE NECESSARY. NOTE: END WALL MUST BE SET & ADJUSTED PRIOR TO FILLING.
  - PLACEMENT OF CONCRETE. PLACE CLASS A CONCRETE INTO THE STAY IN PLACE FORMS. CONSOLIDATE AS NECESSARY.
  - HEIGHT ADJUSTMENT SECTION. (N/A)
  - CAP PLACEMENT. PLACE CAP & ATTACH WITH 4 GALVANIZED SCREWS AT EACH CORNER.
  - BACKFILL. PLACE #20 SUBBASE BACKFILL AROUND PIP & STAY IN PLACE FORM AS PER SECTION 601.3(E) AND STANDARD DRAWINGS.
  - REFLECTIVE TAPE/DELINEATORS (OPTIONAL)
  - TO SECURE THE HARTMAN ENDWALL PARALLEL TO THE PIPE INSTEAD OF AT A SKEW PARALLEL TO THE ROAD. EXTEND THE PIPE ONLY ENOUGH SO THAT ANY PART OF THE ENDWALL IS NOT BURIED UNDER NORMAL TOE OF SLOPE.
- NOTE: WORKS BEST WITH HDPE PIPE BUT CAN BE USED WITH CMP OR RCP PIPE.



TYPICAL TIPDOWN CURB INSTALLATION (NOT TO SCALE)

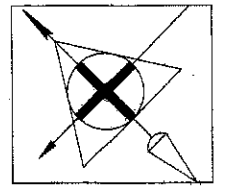


CURB REPLACEMENT DETAIL (NOT TO SCALE)



INSTALLATION OF CURB (NOT TO SCALE)

TYPICAL INSTALLATION OF CURB (NOT TO SCALE)



BACK BAY BOUNDARY, INC.  
LAND SURVEYING  
643 FOREST AVENUE  
PORTLAND, ME 04101  
207.774.2855  
fax: 207.347.4346  
Backbayboundary.com

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Tim Higgin's  
32 Gertrude Avenue  
Portland, ME

JOB: 2005015

ISSUE DATE	
PRELIM	11-22-05
FINAL	-
SCALE	1" = 10'
C.D.'s	-
REVISION 1	-
PRINT	-

STATE OF MAINE  
ROBERT T. GREENLAW  
#2305  
PROFESSIONAL LAND SURVEYOR