320-A-2 2013-125

410 Riverside St.

Site Alteration - Gravel Storage Area

Copp Excavating

on spreadsheet

PROJECT NAME: Blake Industries Site Plan

PROPOSED DEVELOPMENT ADDRESS:

410 Riverside Street Portland

PROJECT DESCRIPTION:

Construction of Gravel Storage area for Pipe

CHART/BLOCK/LOT: 320-A-2, 321-A-5

CONTACT INFORMATION:

Applicant's Contact for electronic plans
Name: Daniel Colby
e-mail: Kempsoilsurvey@Yahoo.Com
work #: 207-882-9742, 207-631-1549

Applicant – must be owner, Lessee or Buyer Name: Michael Capp Business Name, if applicable: Capp Etc Address: 1099 Royals Bourgh City/State: Durham Me Zip Code: 04222	**Applicant Contact Information** Work # Home# Cell # Fax# e-mail:
Owner – (if different from Applicant) Name: Fred Cuda Address: 4 New Park Rd City/State: East Windsor, Conn. Zip Code: 06088	**Owner Contact Information** Work # 860-218-1001 Home# 4 Cell # 860-729-5004 Fax# e-mail: Fred.Cuda@BlakeEquip.Com
Agent/ Representative Name: Address: City/State : Zip Code:	**Agent/Representative Contact information** Work # Cell # e-mail:
Billing Information Name: Fred Cuda Address: 4 New Park Rd. City/State: East Windsor Conn. Zip Code: 06088	**Billing Information** Work # 860-218-1001 Cell # 860-729-5004 Fax# e-mail: Fred.Cuda@BlakeEquip.Com

CITY OF PORTLAND
DEPARTMENT OF PLANNING & URBAN DEVELOPMENT
389 Congress Street
Portland, Maine 04101

INVOICE FOR FEES

Application No:	2013-125	**Applicant:**	Copp Excavating Inc.
Project Name:	Gravel Storage Area	**Location:**	410 RIVERSIDE ST
CBL:	320 A002001	**Development Type:**	0
Invoice Date:	05/22/2013		

Previous Balance	-	Payment Received	+	Current Fees	-	Current Payment	=	Total Due	Payment Due Date
$0.00		$0.00		$200.00		$200.00		$0.00	On Receipt

Previous Balance **$0.00**

Fee Description	Qty	Fee/Deposit Charge
Level I Site Alteration	1	$200.00
		$200.00

Total Current Fees:	+	**$200.00**
Total Current Payments:	-	**$200.00**
Amount Due Now:		**$0.00**

CBL 320 A002001
Bill to:

Application No: 2013125
Invoice Date: 05/22/2013
Invoice No: 41154
Total Amt Due: $0.00
Payment Amount: $200.00

Make checks payable to the *City of Portland,* ATTN: Inspections, 3rd Floor, 389 Congress Street, Portland, ME 04101.

(ii) Level I: Site alteration plans shall only be subject to the following site plan standards, as applicable, as contained in section 14-526:

(a) Transportation standards
- 1. Impact on surrounding street systems, 2. Access and circulation, and 4 Parking.

(b) Environmental quality standards
- 1. Preservation of significant natural features, 2. Landscaping and landscape preservation, and 3. Water quality, stormwater management and erosion control.

(c) Public infrastructure and community safety standards.
- 1. Consistency with city master plans.

(d) Site design standards
- 5. Historic resources, 6. Exterior lightning, 8. Signage and wayfinding, and 9. Zoning related design standards.

Except as provided in article III, or to conditions imposed under section 14-526(e) only, or to those submission requirements set forth in section 14-527 as relate solely thereto.

- David Senus Shutesbury W. Shutesbury
- Doug Bercaw Mary Sen

Mike Cobb June 13, 2013

Fred Cuda Bldg
- Ford
- Blake Industry
- new septic system
- selling pipe & excavation
- ~~Post~~ Bldg - 4 different business

Daniel Colby - 24" pipe
- filter fabric & rip rap
- reclaim on top - not hot bituminous

5,000 sq - 50x100

Chris Cobb - 694-8178 - DEP - contact 822-6327

2" pitch each side -
- DSenus - filter runoff -
- pitch to 1 side -
- soil filter w/ under drain
22" -
DEP soil filter media
- BMP - manual -
- strip drain -
5' at beginning & then narrows -

Memorandum
Department of Planning and Urban Development
Planning Division

To: Phil DiPierro- Development Review Coordinator
Assessor's Office
Marge Schmuckal- Zoning Administrator
Rhonda Zazzara, Public Services
Bill Clark- Public Services

From: Shukria Wiar, Planner

Date: September 9, 2013
RE: Level I Site Alteration Review
CBL: 321 A005 001
App #: 2013-125
Project Address: 410 Riverside Street

The attached are the final approved plans for construction of a gravel area for pipe storage at 410 Riverside Street, approved August 2, 2013.

If you have any questions, please contact me.

Thanks.

STORMWATER DRAINAGE SYSTEM
MAINTENANCE AGREEMENT AND
RELEASE FROM LIABILITY

IN CONSIDERATION OF [site plan/subdivision] approval granted by the Planning Board of the City of Portland to a plan entitled Site Plan for Gravel Pipe Storage Area prepared for 410 Riverside Street Portland, ME by Colby and Associates (agents/engineers) dated July 29 , 2013 recorded in the Cumberland County Registry of Deeds in Plan Book ___, Page ___ (the "Plan") and pursuant to a condition thereof, McCuda, LLC having a mailing address of 4 New Park Road East Windsor, CT 06088, the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the "Owner"), as follows:

Maintenance Agreement

That it will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order the stormwater drainage system, as shown on said plan, including but not limited to the tree boxes, StormTech Isolator Row, piping, valves, etc. in strict compliance with the Maintenance of Facilities as described in Stormwater Management Plan in the plans dated July 29, 2013 and Chapter 32 of the Portland City Code. Owner of the subject premises further agrees to keep a Stormwater Maintenance Log that will be made available for inspection by the City of Portland upon reasonable notice and request.

This Agreement is for the benefit of the said City of Portland and all persons in lawful possession of the property; further, that the said City of Portland may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice as described in this Agreement, and a stated time to perform, that the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon the property in question to maintain, repair, or replace said stormwater drainage system, including but not limited to the specify devices and measures including, but not limited to, tree boxes, StormTech Isolator Row, piping, valves, etc. thereon in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall bind the undersigned only so long as it retains any interest in said premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear. The Owner agrees to provide a copy of this Agreement to any successor or assign and to forward to the City an Addendum signed by any

successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions.

For the purpose of this Agreement the real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and liened if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the Owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by this Agreement shall be complete on the date the notice is mailed to the owner of record as shown on the tax roles on file in the City Assessor's Office. If the property has more than one owner on said tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this Agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or liening it or create a cause of action against the City.

Dated at Hartford, Connecticut this 27 day of August, 2013.

By: Fred B. Cuda
Its: Manager

STATE OF CONNECTICUT
HARTFORD, ss.

Date: August 27, 2013

Personally appeared the above-named Fred B. Cuda, and acknowledged the foregoing instrument to be his/his free act and deed in his/her said capacity, and the free act and deed of said Manager.

Before me,

Theresa G Roy
Notary Public/~~Attorney at Law~~

Print name: Theresa G Roy

THERESA G. ROY
NOTARY PUBLIC
MY COMMISSION EXPIRES SEP. 30, 2013

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

MEMORANDUM

TO: Shukria Wiar, Planner
FROM: Lauren Swett, P.E.
DATE: June 27, 2013
RE: Gravel Storage Area, Level I Site Plan Application – 410 Riverside Street

Woodard & Curran has reviewed the revised plans for the Level I Site Plan Application for the proposed gravel storage area at 410 Riverside Street in Portland, Maine. The project includes the construction of a gravel pad and associated site improvements. The project will result in an increase of 5,160 SF of new impervious area. The Applicant met with representatives from the City of Portland and Woodard & Curran on June 13, 2013 to discuss the project.

Documents Provided By Applicant

Site Plan for Gravel Pipe Storage Area and Grassed Underdrained Soil Filter BMP Detail, dated May 7, 2013, revised June 18, 2013, prepared by Colby and Associates on behalf of The Blake Group.

Comments

1) A Level I Site Plan Submission is required to include proposed stormwater management controls and a soil erosion control plan in conformance with the Basic, General, and Flooding standards outlined in Section 5 of the City of Portland Technical Manual.

   a) Basic Standards: The plan includes notation regarding silt fence to address erosion and sediment control requirements in general accordance with MaineDEP Chapter 500. The Applicant should provide a detail for the proposed silt fence. The Applicant should also provide information regarding proposed permanent stabilization outside of the gravel pad area.

   b) General Standards: The project will result in an increase in impervious area of approximately 5,160 square feet, which will require treatment in accordance with the General Standards. To meet the General Standard, the Applicant has proposed to install a grassed underdrained soil filter. We have the following comments with regards to the proposed soil filter:
      i) The detail for the soil filter indicates that the side slopes within the filter swale will be vertical. Vertical side slopes, as shown would be difficult to construct and maintain. Typical internal side slopes are 3:1.
      ii) The geotextile separation fabric should be nonwoven.
      iii) No invert has been provided for the 6" outlet pipe. The detail indicates that the average underdrain invert elevation within the soil filter is 93.75'. This invert is lower than the existing grade at the proposed underdrain outlet location, indicating that the outlet area may need additional grading, which may result in additional wetland impact.
      iv) It is noted that the DEP has two options for the pipe bedding beneath the soil filter bed. The Applicant has shown Option 2 which consists of a gravel transition layer over a stone layer. Option 1 may be easier to construct, as it consists of only one layer of coarse gravel equal to Maine DOT 703.22, backfill for Underdrain Type B. For the proposed 6" underdrain pipe, this layer would be 14", including 4" below and 4" above the pipe. Note that this option would raise the underdrain pipe by 6", helping to address comment b) iii) above.
      v) It is our understanding that the proposed gravel pad will have a cross slope of 2% across the site, starting at an elevation of 98.5' at the north east side of the site. This would indicate that 100 feet away, at the southwest corner of the site, the elevation will be 96.5'. This elevation is the same as the elevation proposed for the soil filter bed, and lower than the exterior berm elevation of 98'. With this proposed grading, the stormwater would flood back over the gravel

pad. The grading should be modified such that a swale is provided at the soil filter. This could be achieved by lowering the soil filter and/or by changing the cross slope and elevation of the proposed gravel pad. To prevent backup of stormwater into the gravel pad, the edge of the gravel pad should be higher than the elevation of the outer berm.

vi) The Applicant has proposed a gate valve at the 6" outlet pipe. A detail indicating the size of the gate valve should be provided.

c) Flooding Standard: The project will result in an increase in impervious area of approximately 5,160 square feet. This is a relatively small area that will not result in a significant increase in flow. The Applicant is proposing to direct all stormwater from the new impervious area to an underdrained soil filter which will provide some detention, meeting the intent of the Flooding Standard.

2) The Applicant should provide a stormwater inspection and maintenance plan developed in accordance with and in reference to MaineDEP Chapter 500 guidelines and Chapter 32 of the City of Portland Code of Ordinances. It is noted that the proposed underdrained soil filter will contain a gate valve, requiring regular inspection and maintenance to prevent clogging of the valve.

3) The Applicant should provide invert elevations for the proposed 24" diameter culvert, showing that adequate cover can be achieved over the pipe.

Section 7.1
Grassed Underdrained Soil Filter BMP
December 2012
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Grassed Underdrained Soil Filter BMP
December 2012

7.1.1 Description

Vegetated underdrained soil filters control stormwater quality by capturing and retaining runoff and passing it through a filter bed comprised of a specific soil media. Soil filters having a mixture of silty sand and organic matter achieve the highest removal rates as they can remove a wide range of pollutants from stormwater, including suspended sediment, phosphorus, nitrogen, metals, hydrocarbons and some dissolved pollutants. Once through the soil media, the runoff is collected in a perforated underdrain pipe and discharged downstream. The filter structure provides for the slow release of smaller storm events, minimizing stream channel erosion, and cooling the discharge. Vegetated soil filters are usually located in close proximity to the origin of the stormwater runoff and should be scattered throughout a residential area or along the downhill edge of smaller parking areas.

Underdrained soil filters provide quantity control and channel protection as the underdrain releases the discharge of runoff, which protects streams from channel erosion associated with more frequent increased flow volumes. The slow discharge also cools the runoff, reducing thermal impacts to receiving streams. If flood control is required, detention within the structure or in parallel to must be provided.

Underdrained soil filter structures must detain a runoff volume equal to the sum of 1.0 inch times the subcatchment's impervious area plus

0.4 inch times the subcatchment's landscaped developed area. This surface area of a grass filter bed should represent no less than the sum of 5% of the impervious area and 2% of the landscaped area draining into it, with other upgradient areas directed away from the basin. When used to meet the phosphorus allocation in lake watersheds, the sizing of the underdrain filter structures needs to be adjusted in accordance with Volume II of this BMP manual.

The peak storage depth of the channel protection volume within a grassed filter structure may not exceed 18 inches and should be designed to drain dry within 24 to 48 hours.

Storage and detention for flooding conditions and to meet the 2, 10 and 25-year peak flow

control is allowed within the structure and over the channel protection volume provided that it will drain within 12 hours.

The underdrained soil filters must be planted with plant species that are tolerant of draught conditions with frequent inundation. Full vegetation must be achieved within the first year following construction.

7.1.2 Site Suitability Criteria
Drainage Area: The size of the underdrained soil filter and storage capacity over the filter is based on the size and land use within the area draining to the structure.

Depth to Groundwater: In most instances, the bottom of the underdrained soil filter should be above the seasonal high groundwater table.

Test Pits: One test pit shall be excavated in the area of the filter bed to identify the depth to groundwater and bedrock.

Bedrock: If bedrock is close to the surface an impermeable liner may be required to prevent rapid injection and contamination of the groundwater within fractures in the bedrock. If

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the basin does not have one foot of soil overburden between bedrock and the bottom of the underdrain layer, the basin must be lined with an impermeable geomembrane (not with clay).

Permeable Soils: In soil group A and, in some cases, soil group B, an underdrained filter basin should be designed as an infiltration basin provided that the design and siting criteria from Appendix D of Chapter 500 (Stormwater Management Rules) can be met. Otherwise, a low permeability liner (not clay) must be used.

7.1.3 General Design Criteria
The following design criteria apply to all underdrained soil filters.

Treatment Volume: An underdrained soil filter must detain and filter a runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped developed area. Other upgradient areas should be directed away from the filter basin.

Filter Area: The area of the filter (surface

area of the filter) must be no less than the sum of 5% of the impervious area and 2% of the landscaped area draining to the filter.

Basin Size: The size of a filter bed should not exceed 3000 sq. ft in basin bottom area or have more than 2.5 acres of subwatershed draining to the structure. Larger sizes are difficult to construct and maintain.

Construction Components: Underdrained filters are constructed in excavated holes that are at least three feet deep and consist of, from bottom up:

- A geotextile fabric between natural soils and constructed media. An impermeable membrane may be required if groundwater contamination is a concern.
- A 12 to 14 inch base of coarse clean stone or coarse gravel in which a 4 to 6 inch perforated underdrain pipe system is bedded.
- A gravel transition layer, if necessary.
- 18-inch layers of uncompacted soil filter media.
- A surface cover of grass and mulch.
- Depression for surface stormwater storage

Impoundment Depth: The peak water quality storage depth may not exceed 18 inches over a grass filter that must drain dry in no less than 24 and no more than 48 hours. Storage over the treatment volume may be provided to control peak flows from the 2, 10 and 25 year storms and meet the flooding standards but must drain within 12 hours.

Outlet: The channel protection volume must be discharged solely through an underdrained vegetated soil filter bed with a network of underdrain pipe having a single outlet with a diameter no greater than eight inches. A manually adjustable valve may be installed to control the outflow rate from the underdrain pipe to obtain the required 24 to 48 hour release time.

Underdrain Outlet: Each underdrain system must discharge to an area capable of withstanding concentrated flows and saturated

conditions without eroding.

Sediment Pretreatment: Pretreatment devices such as grassed swales, grass or meadow filter strips and sediment traps shall be provided to minimize the discharge of sediment to the underdrained soil filter. Pretreatment structures shall be sized to hold an annual sediment loading calculated using a sand application rate of 50 cubic feet per acre per year for sanding of roadways, parking areas and access drives within the subcatchment area.

Access: Where needed, a maintenance access shall be planned for and maintained that is at least 10 feet wide with a maximum slope of 15% and a maximum cross slope of 3%. This access should never cross the emergency spillway, unless the spillway has been designed for that purpose. An easement for long-term access may be needed.

Volume III: BMPs technical Design Manual Chapter 7.1, Filtration BMP- Grassed Underdrained Soil Filter BMP -
revised December 2012

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7.1.3 Specific Design Criteria
Underdrain Pipe: Proper layout of the pipe underdrain system is necessary to effectively drain the entire filter area. There must be at least one line of underdrain pipe for every eight feet of filter area's width. The slope of the installed underdrain pipe must be positive. The underdrain piping should be 4" to 6" slotted, rigid schedule 40 PVC or SDR35. Structure joints shall be sealed so that they are watertight. Underdrain pipes must be placed no further than 15 feet apart.

Pipe Bedding and Transition Zone: The 4 to 6 inch diameter perforated underdrain pipe(s) must be bedded in 12 to 14 inches of underdrain material with at least 4 inches of material beneath the pipe and 4 inches above. Two options for pipe bedding are provided below; however Option 1 is preferred:

OPTION 1 - Drainage Layer: The underdrain material consists of well graded, clean, coarse gravel meeting the MEDOT specification 703.22 Underdrain Type B for Underdrain Backfill (see Table 7.1). The material must contain less than 5% fines passing the #200 sieve. No transition zone is necessary since the drainage pipe is bedded in less pervious gravel and this design is acceptable for areas where the head or depth to seasonal high groundwater is close to the bottom of the drainage layer.

OPTION 2 - Drainage Layer with

Transition None: The underdrain bedding material must consist of 12 inches of crushed stone meeting the MEDOT specification

703.22 Underdrain Type C for Underdrain Backfill Material (see Table 7.1). As a transition zone, a 6 inch layer of well graded, clean, coarse gravel meeting the MEDOT specification 703.22 Underdrain Type B for Underdrain Backfill Material (see Table 7.1) is needed above the crushed stone bedding. The amount of fines passing the #200 sieve in the gravel should be preferably less than 5%.
Soil Filter Bed: The soil filter must be at least 18 inches deep on top of the gravel underdrain pipe bedding and must extend across the

bottom of the entire filter area. This soil mixture shall be a uniform mix, free of stones, stumps, roots, or other similar objects larger than two inches. No other materials or substances that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations can be mixed within the filter.

Filter Bed: Two options are provided for the treatment portion of the basin.

OPTION 1- Soil Filter Media: Soil media must consist of a silty sand soil or soil mixture combined with 20% to 25% by volume (no less than 10% by dry weight) of a moderately fine shredded bark or wood fiber mulch.

TABLE 7.1 Maine DOT
Specifications for Underdrains
(MEDOT #703.22)
Sieve Size % by Weight
UNDERDRAIN - TYPE B
1" 90-100
½" 75-100
#4 50-100
#20 15-80
#50 0-15
#200 0-5
UNDERDRAIN - TYPE C
1" 100
¾" 90-100
3/8" 0-75
#4 0-25
#10 0-5

Other organic sources must be approved by the department; however an agricultural source is not acceptable for the organic component of the media.

The resulting mixture must have no less than 8% passing the 200 sieve and shall have a clay content of less than 2%. The system must be designed to drain the surface storage volume in no less than 24 hours and no more than 48

hours.

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TABLE 7.2 Maine DOT
Specifications for Aggregate
(MEDOT #703.01)
Sieve Size % by Weight
3/8" 100
#4 95-100
#8 80-100
#16 50-85
#30 25-60
#60 10-30
#100 2-10
#200 0-5

As an example, the mixture may contain by volume the following:

.
50% of sand (MEDOT #703.01 contains

insufficient fine for the media)

.
20% of loamy topsoil

.
30 % of composted woody fibers and fine

shredded bark, superhumus or

equivalent(adjusted for mineral soil

content)

OPTION 2 - Layered System with Topsoil

Because of its coarseness, a filter media mixed from different sources may lack nutrients, may be unable to retain moisture, and maybe be devoid of micro-organisms (such as fungus, bacteria and nematodes) which are found in a natural soil and which benefit the germination and establishment of vegetation. Natural soils will contain these important organisms and provide superior filtration. Option 2 provides for a layered system that takes advantage of the characteristics of natural soils. The different layers from the bottom up are:
Optional hay layer: A layer of hay can be placed to separate the drainage layer from the treatment layer above to prevent subsidence or plugging of the sand/gravel/stone layer and/or pipe.
Filter Layer: A 12 inches layer of loamy coarse sand which is loosely installed should meet the grain size specifications of Table 7.3.
Topsoil: The surface of the basin should be covered with 6 inches of non-clayey, loamy topsoil such as USDA sandy loam topsoil with 5-8% humified organic matter and meeting the

specifications provided in Table 7.4. Topsoil from the development may be appropriate but

should be tested for organic content and clay content (hydrometer test). The soil must be screened, loose, friable, and shall be free from admixtures of subsoil, refuse, stones (greater than 2 inches in diameter), clogs, root and other undesirable foreign matter. The topsoil should be gently mixed within the filter layer to provide continuity for deep root penetration. The teeth of a backhoe, a hand rake, a shovel or rototilling 2-3 inches may be used as a way to create a loosened transition.

TABLE 7.3
Specifications for Loamy Coarse Sand
Sieve # % Passing by Weight
10 85-100
20 70-100
60 15-40
200 8-15
200 clay size <2.0

TABLE 7.4
Specifications for Sandy Loam to Fine Sandy Loam
Sieve # % Passing by Weight
4 75-95
10 60-90
40 35-85
200 20-70
200 clay size < 2.0

Clay Content: Use of soils with more than 2 % clay content could cause failure of the system and care should be taken, especially in areas where the predominant soil contains marine clay, that the sand and topsoil used in the mixture have very little or no clay content.

Filter Permeability: The filter must be permeable enough to insure drainage within 48 hours maximum, yet have sufficient fines to insure filtration of fine particles and removal of dissolved pollutants. The design may either rely on the soil permeability, if known, to provide the slow release of the water treatment volume over a minimum of 24 hours, or may insure this rate by installing a constrictive orifice or valve on the underdrain outlet. In

determining the permeability of the media, the percent fines of the mixture and the level of compaction should be considered. Generally, the soil media should be only lightly

compacted between 90 and 92% standard proctor (ASTM D698) and shall have a permeability of 2.4 in/hr to 4 in/hr.

Gradation testing: Gradation tests, including hydrometer testing for clay content, and permeability testing of the soil filter material, shall be performed by a qualified soil testing laboratory and submitted to the project engineer for review before placement and compaction.

Geotextile Fabric: A geotextile fabric with suitable characteristics may be placed between the sides of the filter layer and adjacent soil. The fabric will prevent the surrounding soil from migrating into and clogging the filter and clogging the outlet. Overlap seams must be a minimum of 12 inches. Do not wrap fabric over the top of the pipe bedding as it will cause clogging and will prevent flows out of the filter. The geotextile fabric shall be Mirafi 170n or equivalent.

Rock Forebay: A rock forebay is recommended to reduce flow velocity into the basin. It shall remain clear of sediment until the upgradient tributary area is fully vegetated

Vegetation: The soil filter surface must be planted with a grass species that is tolerant of frequent inundation and well drained soils. Upon seeding, the soil filter shall be mulched with hay or an erosion control blanket but must not be fertilized. An appropriate seed mixture should contain the following or be an approved equivalent conservation type mixture:

Creeping red fescue 20 lbs/acre

Tall fescue 20 lbs/acre

Birdsfoot trefoil 8 lbs/acre

Total 48 lbs/acre

7.1.4 Construction Criteria
Basin excavation: The area of the basin may be excavated in preparation of the installation of the underdrain and can be used for a sediment trap from the site during construction. After excavation of the basin, the outlet structure and piping system must be installed at the appropriate elevation and protected with a sediment barrier. If the basin is to be used as a sediment trap, the sides of the embankments must be mulched and maintained to prevent erosion.

Compaction of soil filter: Filter soil media and underdrain bedding material must be compacted to between 90 and 92% standard

proctor. The bed should be installed in at least 2 lifts of 9 inches to prevent pockets of loose media.

Outlet Discharge Outflow of the filter basin underdrain can be controlled by a constrictive orifice or a valve (2" plastic ball valve, type 346, with a ball valve handle extension, type 615, with a three-piece valve box installed over the valve). Upon completion of the installation of the soil filter media and the establishment of 90% of grass cover over the filter media, the contractor shall flood the vegetated basin to the design elevation with clean water and adjust the outflow to obtain a 24 hour to 32 hour release time.

Construction Sequence: Erosion and sedimentation from unstable subcatchments is the most common reason for filter failure. Not heeding the construction sequencing criteria is likely to result in the need to replace the soil filter. The soil filter media and vegetation must not be installed until the area that drains to the filter has been permanently stabilized with pavement or other structure, 90% vegetation cover, or other permanent stabilization. Otherwise, the runoff from the contributing drainage area must be diverted around the filter until stabilization is completed unless the Department has determined, on a case-by-case basis, that sufficient measures are being taken to prevent erosion of material from the unstable catchment area and deposition on the filter.

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revised December 2012

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Remedial Loam Cover: If vegetation is not established within the first year, the contractor may install a 2-3 inch layer of sandy loam topsoil (with less than 2% clay as tested via hydrometer test) on the surface of the grass filter and reseed/mulch.

Construction Oversight: Inspection of the filter basin shall be provided for each phase of construction by the design engineer with required reporting to the DEP. At a minimum, inspections will occur:

- After preliminary construction of the filter grades and once the underdrain pipes are installed but not backfilled;
- After the drainage layer is constructed and prior to the installation of the filter media;
- After the filter media has been installed

and seeded;

.
After one year to inspect health of the vegetation and make corrections; and

.
All material used for the construction of the filter basin will be approved by the design engineer after tests by a certified laboratory show that they are passing DEP specifications.

Testing and Submittals: The contractor shall identify the location of the source of each component of the filter media. All results of field and laboratory testing shall be submitted to the project engineer for confirmation. The contractor shall:

.
Submit samples of each type of material to

be blended for the mixed filter media and samples of the underdrain bedding material. Samples must be a composite of three different locations (grabs) from the stockpile or pit face. Sample size required will be determined by the testing laboratory.

.
Perform a sieve analysis conforming to ASTM C136 (Standard test method for sieve analysis of fine and coarse aggregates; 1996a) on each type of the sample material. The resulting soil filter media mixture MUST have 8% to 12% by weight passing the #200 sieve, a clay content of less than 2% (determined hydrometer grain size analysis) and have 10% dry weight of organic matter.

.
Perform a permeability test on the soil filter media mixture conforming to ASTM D2434 with the mixture compacted to 9092% of maximum dry density based on ASTM D698.

7.1.5 Maintenance Criteria
During the first year, the basin will be inspected semi-annually and following major storm events.
Debris and sediment buildup shall be removed from the forebay and basin as needed.
Mowing of a grassed basin can occur semiannually to a height no less than 6 inches.
Any bare area or erosion rills shall be repaired with new filter media or sandy loam then seeded and mulched.
Maintaining good grass cover will minimize clogging with fine sediments and if ponding exceeds 48 hours, the top of the filter bed must be rototilled to reestablish the soil's filtration

capacity.

Maintenance Agreement: A legal entity should be established with responsibility for inspecting and maintaining any underdrained filter. The legal agreement establishing the entity should list specific maintenance responsibilities (including timetables) and provide for the funding to cover long-term inspection and maintenance.

Soil Filter Inspection: The soil filter should be inspected after every major storm in the first year to be sure it is functioning properly. Thereafter, the filter should be inspected at least once every six months to ensure that it is draining within 48 hours following a one inch storm or greater. And that following a storms that fill the system to overflow, it drains in no less than 36 to 6o hours. If the system drains too fast, an orifice may need to be added on the underdrain outlet or, if already present, may need to be modified.

Soil Filter Replacement: The top several inches of the filter shall be replaced with fresh material when water ponds on the surface of the bed for more than 72 hours. The removed

♀
sediments should be disposed of in an acceptable manner.

Sediment Removal: Sediment and plant debris should be removed from the pretreatment structure at least annually.

Mowing: If mowing is desired, only handheld string trimmers or push-mowers are allowed on the filter (no tractor) and the grass bed should be mowed no more than 2 times per growing season to maintain grass heights of no less than 6 inches.

Fertilization: Fertilization of the under-drained filter area should be avoided unless absolutely necessary to establish vegetation.

Harvesting and Weeding: Harvesting and pruning of excessive growth will need to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary. Add new mulch only as necessary for bioretention cell

Volume III: BMPs technical Design Manual Chapter 7.1, Filtration BMP- Grassed Underdrained Soil Filter BMP -
revised December 2012

w-Plan 1

City of Portland
Development Review Application
Planning Division Transmittal Form

Application Number: 2013-125 **Application Date:** 05/21/2013

CBL: 320 A002001 **Application Type:** 0

Project Name: Gravel Storage Area

Address: 410 RIVERSIDE ST

Project Description: Construction of gravel storage area for pipe

Zoning: IM

Other Required Reviews:

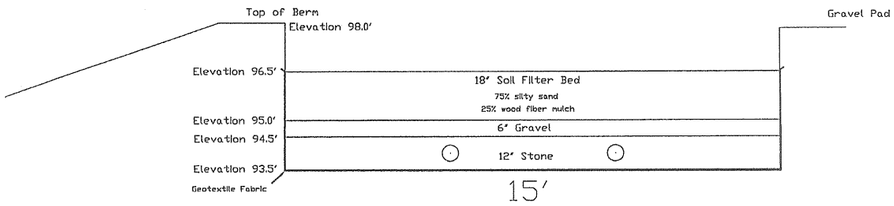
- ☐ Traffic Movement
- ☐ Storm Water
- ☐ Subdivision
  # Lots _____
- ☐ Site Location
  # Unit _____
- ☐ 14-403 Streets
  # Units _____
- ☐ Flood Plain
- ☐ Shoreland
- ☐ Design Review
- ☐ Housing Replacement
- ☐ Historic Preservation
- ☐ Other:

Distribution List:

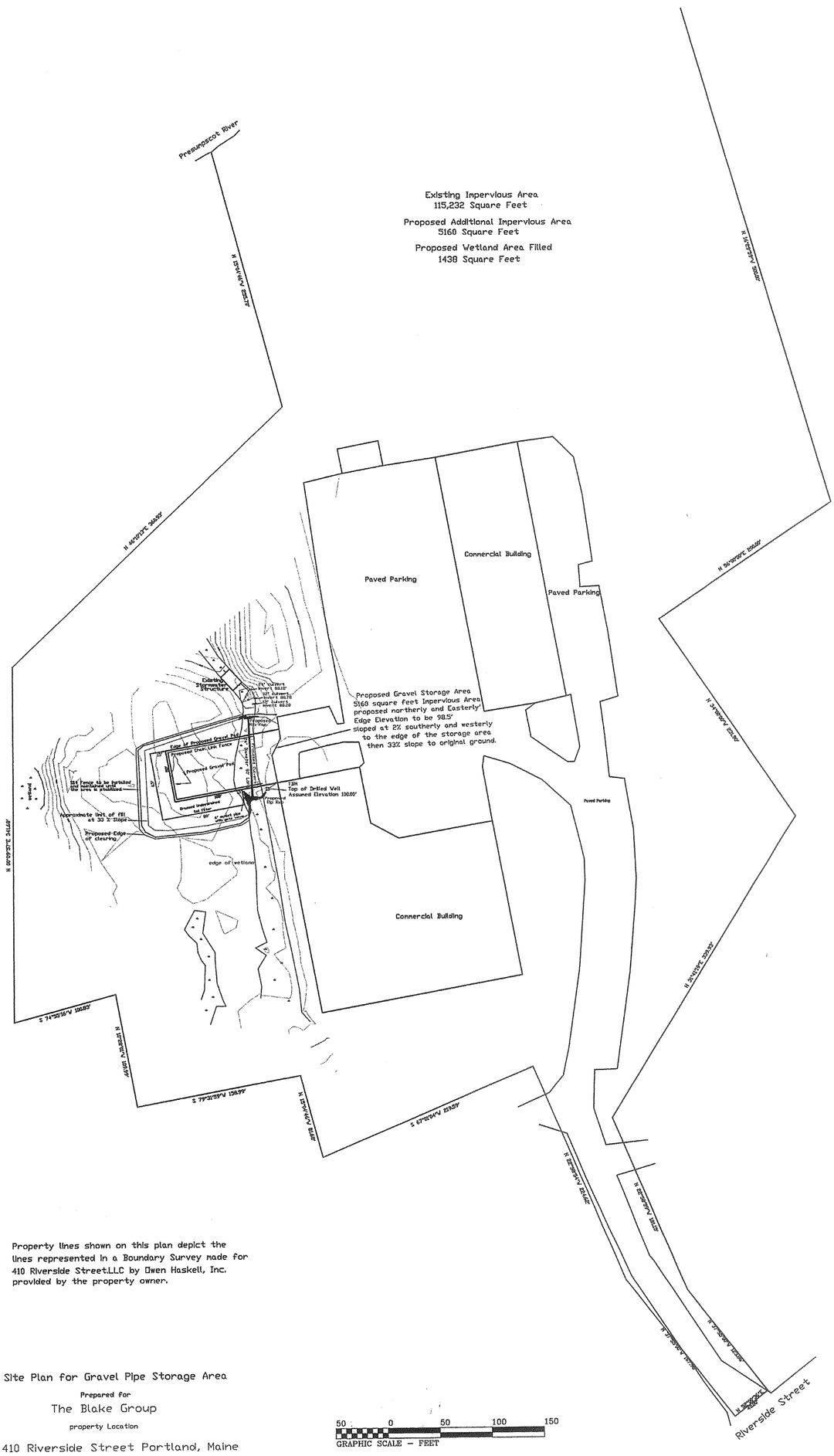
	Planner			**Parking**	John Peverada
	Zoning	Marge Schmuckal		**Design Review**	Alex Jaegerman
	Traffic Engineer	Tom Errico		**Corporation Counsel**	Danielle West-Chuhta
	Civil Engineer	David Senus		**Sanitary Sewer**	John Emerson
	Fire Department	Chris Pirone		**Inspections**	Tammy Munson
	City Arborist	Jeff Tarling		**Historic Preservation**	Deb Andrews
	Engineering	David Margolis-Pineo		**DRC Coordinator**	Phil DiPierro
				Outside Agency	

Comments needed by Wednesday, May 29, 2013

Grassed Underdrained Soil Filter BMP detail



Section A - A
Scale 1" = 2'



Property lines shown on this plan depict the lines represented in a Boundary Survey made for 410 Riverside Street LLC by Owen Haskell, Inc. provided by the property owner.

Site Plan for Gravel Pipe Storage Area

Prepared for

The Blake Group

property Location

410 Riverside Street Portland, Maine

Scale 1"= 50' Date: May 7, 2013

Revised June 18, 2013

Prepared by Colby and Associates

Daniel P. Colby PLS 2101

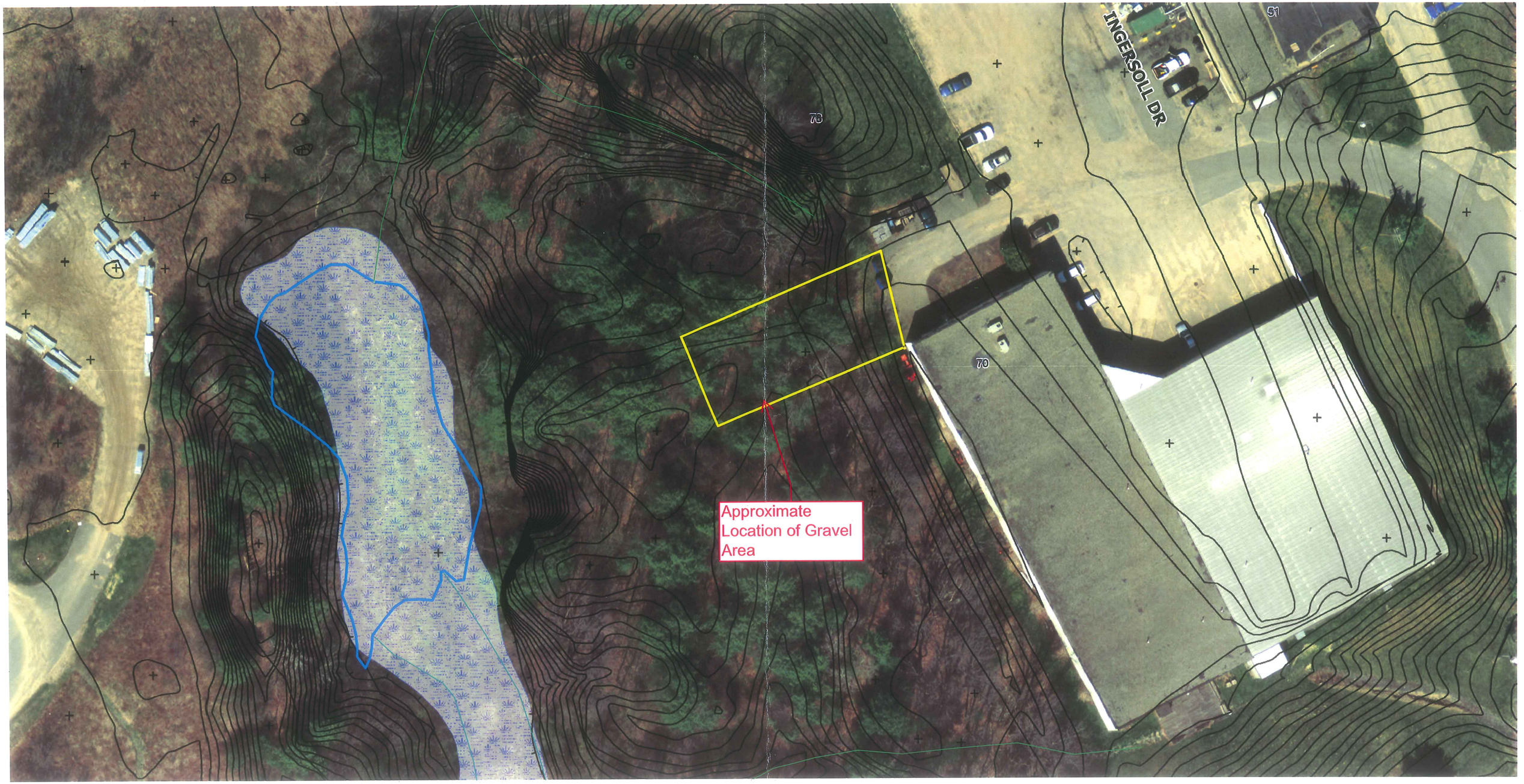
313 Bradford Road Wiscasset, Maine 04578

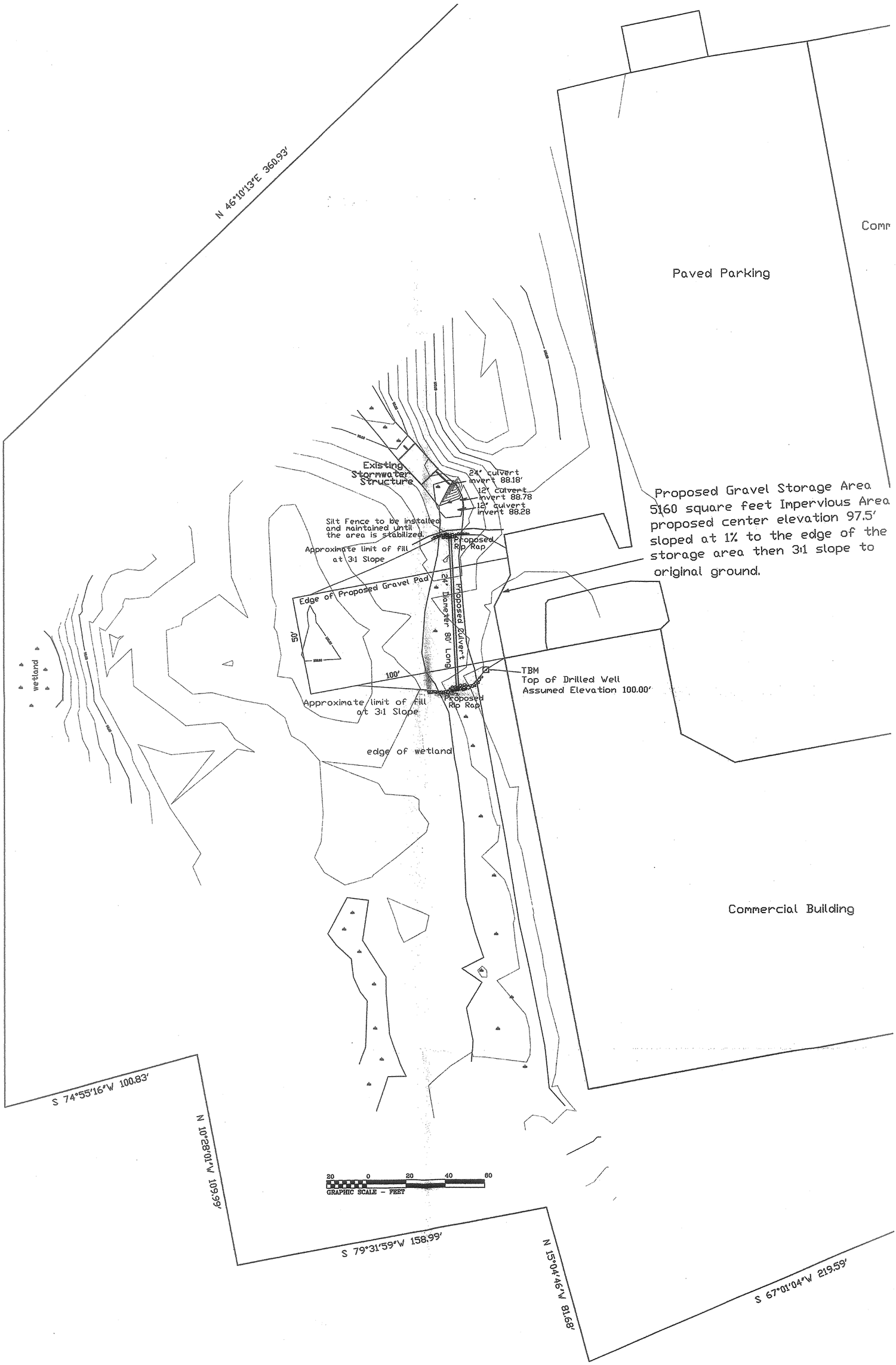
50 0 50 100 150

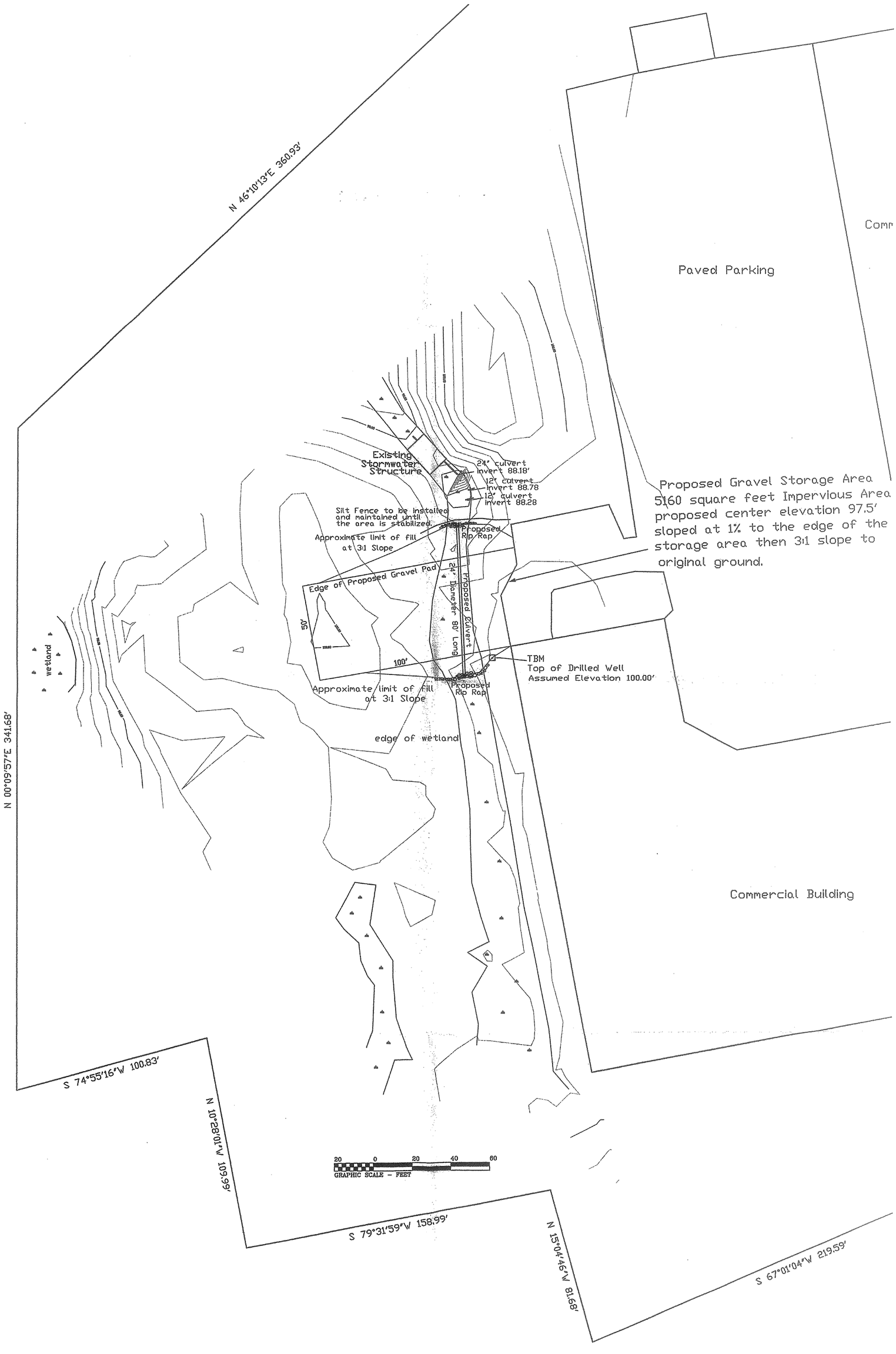
GRAPHIC SCALE – FEET

To the best of my knowledge and belief, the procedures used in this survey conform with the Board of Licensure for Professional Land Surveyors Standards.


INGERSOLL DR
RIVERSIDE ST
GROVE ST
57
53
51
73
70
97
101
460
480
473
457
445
420
400
427
423
419


INGERSOLL DR
51
70
70
Approximate
Location of Gravel
Area


N 46°10'13"E 360.93'
N 00°09'57"E 341.68'
S 74°55'16"W 100.83'
N 10°28'01"W 109.39'
S 79°31'59"W 158.99'
N 15°04'46"W 81.68'
S 67°01'04"W 219.59'
Paved Parking
Commercial Building
Proposed Gravel Storage Area
5160 square feet Impervious Area
proposed center elevation 97.5'
sloped at 1% to the edge of the
storage area then 3:1 slope to
original ground.
Existing Stormwater Structure
24" culvert
invert 88.18'
12" culvert
invert 88.78
12" culvert
invert 88.28
Silt Fence to be installed and maintained until the area is stabilized.
Approximate limit of fill at 3:1 Slope
Proposed Rip Rap
Edge of Proposed Gravel Pad
24" Diameter 80' Long Proposed Culvert
50'
100'
TBM
Top of Drilled Well
Assumed Elevation 100.00'
Approximate limit of fill at 3:1 Slope
Proposed Rip Rap
edge of wetland
wetland
20 0 20 40 60
GRAPHIC SCALE - FEET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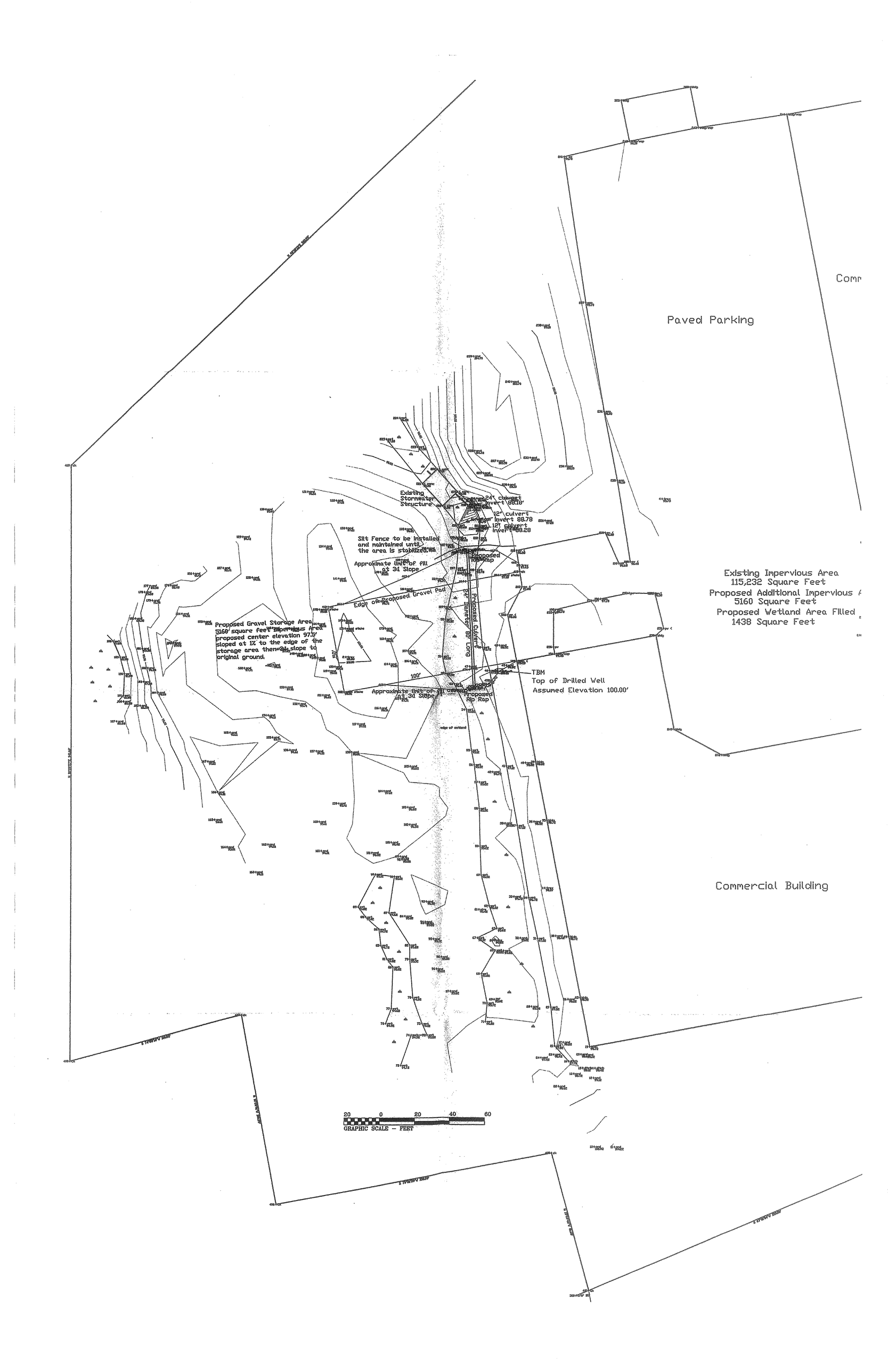
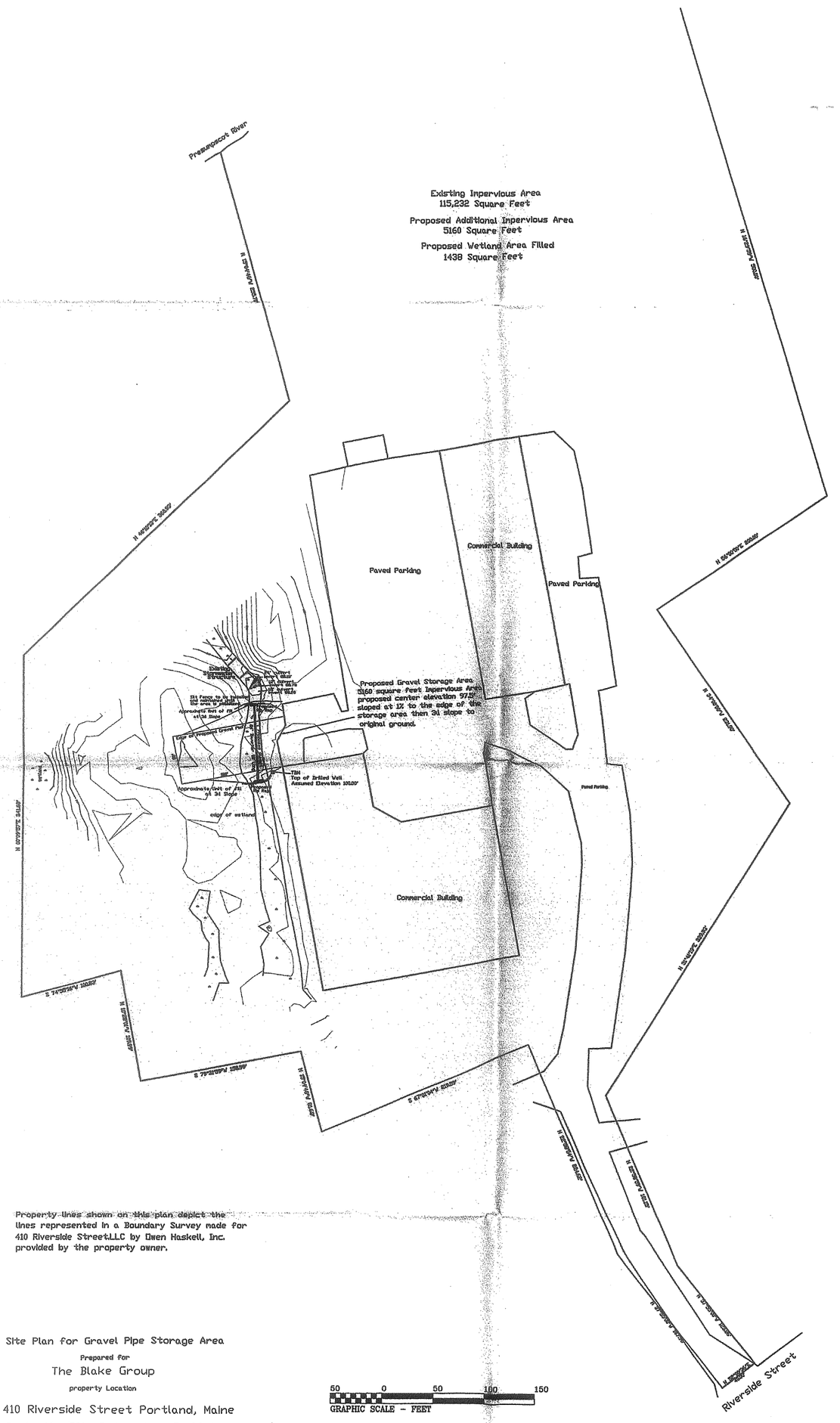
Paved Parking
Commercial Building
Proposed Gravel Storage Area
5160 square feet Impervious Area
proposed center elevation 97.5'
sloped at 1% to the edge of the
storage area then 3:1 slope to
original ground.
Existing Stormwater Structure
24" culvert
invert 88.18'
12" culvert
invert 88.78
12" culvert
invert 88.28
Silt Fence to be installed
and maintained until
the area is stabilized.
Proposed Rip Rap
Approximate limit of fill
at 3:1 Slope
Edge of Proposed Gravel Pad
24" Diameter 80' Long Proposed Culvert
50'
100'
TBM
Top of Drilled Well
Assumed Elevation 100.00'
Approximate limit of Fill
at 3:1 Slope
Proposed Rip Rap
edge of wetland
wetland
20 0 20 40 60
GRAPHIC SCALE - FEET


Paved Parking
Commercial Building
Existing Stormwater Structure
24" culvert Invert 88.18'
12" culvert Invert 88.78
12" culvert Invert 88.28
Silt Fence to be installed and maintained until the area is stabilized.
Approximate limit of fill at 3:1 Slope
Proposed Rip Rap
Edge of Proposed Gravel Pad
24" Diameter 80' Long Proposed Culvert
Proposed Gravel Storage Area 5160' square feet impervious Area proposed center elevation 97.5' sloped at 1% to the edge of the storage area then 3:1 slope to original ground.
100'
TBM
Top of Drilled Well
Assumed Elevation 100.00'
Existing Impervious Area
115,232 Square Feet
Proposed Additional Impervious A
5160 Square Feet
Proposed Wetland Area Filled
1438 Square Feet
20 0 20 40 60
GRAPHIC SCALE – FEET



Property lines shown on this plan depict the lines represented in a Boundary Survey made for 410 Riverside Street,LLC by Owen Haskell, Inc. provided by the property owner.

Site Plan for Gravel Pipe Storage Area

Prepared for

The Blake Group

property Location

410 Riverside Street Portland, Maine

Scale 1"= 50' Date: May 7, 2013

Prepared by Colby and Associates

Daniel P. Colby PLS 2101

313 Bradford Road Wiscasset, Maine 04578

To the best of my knowledge and belief, the procedures used in this survey conform with the Board of Licensure for Professional Land Surveyors Standards.

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