Site Plan Application
Riverside South Golf Course Pro Shop
1010 Riverside Street

Portland Department of Public Services

February 3, 2012

Contents

Riverside South Golf Course Pro Shop
Site Plan Application

SECTION 1

COVER LETTER AND APPLICATION FORM

Michael Farmer
Feb. 3, 2012

Public Services Department
Michael J. Bobinsky, Director

February 6, 2012

Ms. Barbara Barhydt
Portland Planning Division
389 Congress Street
Portland, ME 04101

SUBJECT: 1010 Riverside Street – Riverside South Golf Course Pro Shop

Dear Ms. Barhydt:

On behalf of the Public Services Department, I am submitting a Level II Site Plan application for a City project. The objective of this project is to build a new Pro Shop building for the Riverside South Golf Course. This application includes a cover letter, application form, supporting written information, and eight 24-inch by 36-inch plan sheets. A hard copy of the application package and a CD with electronic files of the application materials are being submitted.

The Department of Public Services is proposing to build about 365 feet of new sidewalk along Riverside Street as part of this project. This sidewalk would traverse the frontage along the South Course parking area. The sidewalk location is shown on one of the full size plan sheets.

I have submitted a "capacity to serve" letter from PWD. I sent a letter to the Environmental group in the City Engineering Division to request a "sewer capacity" letter from City staff. I have not yet received a reply from Engineering regarding sewer capacity. Their response will be forwarded to your department as soon as I receive it.

Please contact me if you have any question about this application or if you need additional information.

Sincerely,
CITY OF PORTLAND
Michael Farmer
Michael Farmer
Project Engineer

Effective August 18, 2010

Level II – Preliminary and Final Site Plans Development Review Application Portland, Maine

Planning and Urban Development Department
Planning Division

Portland's Planning and Urban Development Department coordinates the development review process for site plan, subdivision and other applications under the City's Land Use Code. Attached is the application form for a Level II: Preliminary or Final Site Plan. Please note that Portland has delegated review from the State of Maine for reviews under the Site Location of Development Act, Chapter 500 Stormwater Permits, and Traffic Movement Permits. General information pertaining to the thresholds of review, public noticing procedures and the fee structure is contained in the Notice to Developer's Packet.

Level II: Site Plan Development includes:

- New structures with a total floor area of less than 10,000 sf except in Industrial Zones.
- New structures with a total floor area of less than 20,000 sf in Industrial Zones.
- Any new temporary or permanent parking area, paving of an unpaved surface parking area, or creation of other impervious surface area greater than 7,500 sf.
- Building addition(s) with a total floor area of less than 10,000 sf (cumulatively within a 3 year period) except in Industrial Zones.
- Building addition(s) with a total floor area of less than 20,000 sf in Industrial Zones.
- Park improvements: New structures or buildings with a total floor area of less than 10,000 sf, facilities encompassing an area of greater than 7,500 sf and less than 20,000 sf (excludes rehabilitation or replacement of existing facilities).
- New piers, docks, wharves, bridges, retaining walls, and other structures within the Shoreland Zone.
- Land disturbance between 1 and 3 acres (includes stripping, grading, grubbing, filling or excavation).
- A change in the use of a total floor area between 10,000 and 20,000 sf in any existing building (cumulatively within a 3 year period).
- Construction of a lodging house, bed and breakfast facility, emergency shelter or special needs independent living unit.
- Signage subject to approval pursuant to Section 14-526 (d) 8.a. (IV) of the Land Use Code.
- Any new major or minor auto service station with less than 10,000 sf of building area that is outside the B-2 or B-5 zones.
- The creation of day care or home babysitting facilities to serve more than 12 children in a residential zone (not permitted as a home occupation under section 14-410) in any principal structure that has not been used as a residence within the 5 years preceding the application.

The Land Use Code (including Article V), the Technical Manual, and the Design Manual are available on the City's web site at http://www.portlandmaine.gov/planning/default.asp or copies may be purchased at the Planning Division Office.

Planning Division
Fourth Floor, City Hall
389 Congress Street
(207) 874-8721 or 874-8719

Office Hours
Monday thru Friday
8:00 a.m. – 4:30 p.m.

PROJECT NAME: Riverside South Golf Course Pro Shop

PROPOSED DEVELOPMENT ADDRESS:

1010 Riverside Street, Portland Maine 04103

PROJECT DESCRIPTION:

This project entails building a new 550 square foot Pro Shop for the Riverside South Golf Course.

CHART/BLOCK/LOT: 360 A 1

PRELIMINARY PLAN _____ (date)
FINAL PLAN _____ (date)

CONTACT INFORMATION:

	Applicant's Contact for electronic plans Name: e-mail: work #:
Applicant – must be owner, Lessee or Buyer Name: Business Name, if applicable: Portland Dept. of Public Services Address: 55 Portland Street City/State : Portland, ME Zip Code: 04101	**Applicant Contact Information** Work # 874-8800 Home# Cell # Fax# 874-8852 e-mail:
Owner – (if different from Applicant) Name: Address: City/State : Zip Code:	**Owner Contact Information** Work # Home# Cell # Fax# e-mail:
Agent/ Representative Name: Michael Farmer Address: 55 Portland St. City/State : Portland, ME Zip Code: 04101	**Agent/Representative Contact information** Work # 874-8845 Cell # e-mail: mfarmer@portlandmaine.gov
Billing Information Same as Agent/ Representative Name: Address: City/State : Zip Code:	**Billing Information** Work # Cell # Fax# e-mail:

Engineer Michael Farmer with assistance from Woodard & Curran Name: Address: City/State : Zip Code:	**Engineer Contact Information** Work # 874-8845 Cell # Fax# 874-8852 e-mail:
Surveyor Name: William Scott Address: 55 Portland Street City/State : Portland, ME Zip Code: 04101	**Surveyor Contact Information** Work # 874-8825 Cell # Fax# 874-8852 e-mail:
Architect Name: Scott Simons Architects Address: 75 York St. City/State : Portland ME Zip Code: 04101	**Architect Contact Information** Work # Cell # Fax# e-mail:
Attorney Name: Address: City/State : Zip Code:	**Attorney Contact Information** Work # Cell # Fax# e-mail:

APPLICATION FEES:

Check all reviews that apply. (Payment may be made by Cash or Check payable to the City of Portland.)

Note: This is a City project. The Dept. of Public Services requests that the fee be waived.

Level II Development (check applicable reviews)	**Fees Paid** (office use)	**Other Reviews** (check applicable reviews)	**Fees Paid** (office use)
X Less than 10,000 sq. ft. ($400.00) ___ After-the-fact Review ($1,000.00 plus applicable application fee) _____ The City invoices separately for the following: • Notices ($.75 each) • Legal Ad (% of total Ad) • Planning Review ($40.00 hour) • Legal Review ($75.00 hour) Third party review is assessed separately.	___ ___	___ Traffic Movement ($1,000) ___ Stormwater Quality ($250) ___ Section 14-403 Review ($400 + $25/lot) # of Lots ___ x $25/lot = _____ ___ Other _____ ___ Change of Use ___ Flood Plain ___ Shoreland ___ Design Review ___ Housing Replacement ___ Historic Preservation	___ ___ ___
Plan Amendments (check applicable reviews)	**Fees Paid** (office use)		
___ Planning Staff Review ($250) ___ Planning Board Review ($500)	___ ___		

APPLICATION SUBMISSION

All site plans and written application materials must be uploaded to a website for review. At the time of application, instructions for uploading the plans will be provided to the applicant. One paper set of the plans, written materials and application fee must be submitted to the Planning Division Office to start the review process.

Application submissions shall include one (1) paper packet with folded plans containing the following materials:

Numbers below changed- can't seem to highlight

1. **One (1) full size site plans** that must be **folded.**
   One (1) set of all written materials or as follows, unless otherwise noted:
   a. Application form that is completed and signed.
   b. Cover letter stating the nature of the project.
   c. All Written Submittals (Sec. 14-525 2. (c), including evidence of right, title and interest.
2. A stamped standard boundary survey prepared by a registered land surveyor at a scale not less than one inch to 50 feet.
3. Plans and maps based upon the boundary survey and containing the information found in the attached sample plan checklist.
4. Copy of the checklist completed for the proposal listing the material contained in the submitted application.
5. One (1) set of plans reduced to 11 x 17.

Refer to the application checklist for a detailed list of submittal requirements.
Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), which includes the Subdivision Ordinance (Section 14-491) and the Site Plan Ordinance (Section 14-521). Portland's Land Use Code is on the City's web site: www.portlandmaine.gov Copies of the ordinances may be purchased through the Planning Division.

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

This application is for a Level II Site Plan review. It is not a permit to begin construction. An approved site plan, a Performance Guarantee, Inspection Fee, Building Permit, and associated fees will be required prior to construction. Other Federal, State or local permits may be required prior to construction, which are the responsibility of the applicant to obtain.

Signature of Applicant:	**Date:**
Michael Farmer	

Project Engineer
Portland Dept. of Public Services

PROJECT DATA

The following information is required where applicable, in order complete the application

Total Site Area	9,932,000	sq. ft.
Proposed Total Disturbed Area of the Site	9,500	sq. ft.
(If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland)		
IMPERVIOUS SURFACE AREA At South Course Parking Area		
• Proposed Total Paved Area	30,826	sq. ft.
• Existing Total Impervious Area	38,434	sq. ft.
• Proposed Total Impervious Area	36,167	sq. ft.
• Proposed Impervious Net Change	decrease 2,267	sq. ft.
BUILDING AREA		
• Proposed Building Footprint	777	sq. ft.
• Proposed Building Footprint Net change	777	sq. ft.
• Existing Total Building Floor Area		sq. ft.
• Proposed Total Building Floor Area		sq. ft.
• Proposed Building Floor Area Net Change		sq. ft.
• New Building	yes	(yes or no)
ZONING		
• Existing	Recreation - Open Space	
• Proposed, if applicable		
LAND USE		
• Existing	Golf Course	
• Proposed	Golf Course	
RESIDENTIAL, IF APPLICABLE		
• Proposed Number of Affordable Housing Units		
• Proposed Number of Residential Units to be Demolished		
• Existing Number of Residential Units		
• Proposed Number of Residential Units		
• Subdivision, Proposed Number of Lots		
PARKING SPACES		
• Existing Number of Parking Spaces	68	
• Proposed Number of Parking Spaces	67	
• Number of Handicapped Parking Spaces	3	
• Proposed Total Parking Spaces	67	
BICYCLE PARKING SPACES		
• Existing Number of Bicycle Parking Spaces	Zero	
• Existing Number of Bicycle Parking Spaces	Zero	
• Proposed Number of Bicycle Parking Spaces	6	
• Total Bicycle Parking Spaces	6	
ESTIMATED COST OF PROJECT	#125,000.00	

General Submittal Requirements – Preliminary Plan (Optional)
Level II Site Plan
Preliminary Plan Phase Check list (if elected by applicant)

Applicant Checklist	Planner Checklist	Number of Copies	Written Submittal Requirements
☒	☐	1	Completed application form
☒	☐	1	Application fees
☒	☐	1	Written description of project
☒	☐	1	Evidence of right, title and interest.
☒	☐	1	Copies of required State and/or Federal permits.
☒	☐	1	Written assessment of proposed project's compliance with applicable zoning requirements.
☒	☐	1	Written description of existing and proposed easements or other burdens.
☒	☐	1	Written requests for waivers from individual site plan and/or technical standards, where applicable.
☒	☐	1	Traffic analysis (may be preliminary, in nature, during the preliminary plan phase).
☒	☐	1	Written summary of significant natural features located on the site.
☒	☐	1	Written summary of project's consistency with related city master plans.
Applicant Checklist	**Planner Checklist**	**Number of Copies**	**Site Plan Submittal Requirements**
☒	☐		Boundary Survey meeting the requirements of Section 13 of the City of Portland Technical Manual.
☒	☐	1	**Preliminary Site Plan Including the following: (**information provided may be preliminary in nature during preliminary plan phase):***
☒	☐		▪ *Existing and proposed structures with distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone).*
☒	☐		▪ *Location of adjacent streets and intersections and approximate location of structures on abutting properties.*
☒	☐		▪ *Proposed site access and circulation.*
☒	☐		▪ *Proposed grading and contours.*
☒	☐		▪ *Location and dimension of existing and proposed paved areas including all parking areas and vehicle, bicycle and pedestrian access ways.*
☒	☐		▪ *Preliminary landscape plan including existing vegetation to be preserved, proposed site landscaping and street trees.*
☒	☐		▪ *Existing and proposed utilities (preliminary layout).*
☒	☐		▪ *Preliminary infrastructure improvements (e.g. - curb and sidewalk improvements, roadway intersection modifications, utility connections, transit infrastructure, roadway improvements).*
☒	☐		▪ *Preliminary stormwater management and erosion control plan.*
☒	☐		▪ *Existing significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features listed in Section 14-526 (b) 1. of the Land Use Code).*
☒	☐		▪ *Proposed alterations to and protection measures for significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important*

		natural features listed in Section 14-526 (b)1. of the Land Use Code).
☒	☐	▪ *Existing and proposed easements or public or private rights of way.*

General Submittal Requirements – Final Plan (Required)
Level II Site Plan
Final Plan Phase Check list (including items listed above in General Requirements for Preliminary Plan, if applicant did not elect to submit for a preliminary plan review)

Applicant Checklist	Planner Checklist	Number of Copies	Written Submittal Requirement
☒	☐	1	Evidence of financial and technical capacity.
☒	☐	1	Evidence of utilities' capacity to serve the development.
☒	☐	1	Written summary of fire safety (referencing NFPA fire code and Section 3 of the City of Portland Technical Manual).
☒	☐	1	Construction management plan.
☐	☐	1	Traffic Plan (if development will (1) generate 100 or more PCE or (2) generate 25 or more PCE and is located on an arterial, within 1/2 mile of a high crash location, and/or within ¼ mile of an intersection identified in a previous traffic study as a failing intersection).
☐	☐	1	Stormwater management plan.
☒	☐	1	Written summary of solid waste generation and proposed management of solid waste.
☒	☐	1	Written assessment of conformity with applicable design standards.
☒	☐	1	Manufacturer's verification that HVAC and manufacturing equipment meets applicable state and federal emissions requirements.

		Final Plan Phase	
☒	☐	1	**Final Site Plan Including the following**
☒	☐	▪ *Existing and proposed structures on the site with distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone).*	
☒	☐	▪ *Location of adjacent streets and intersections and approximate location of structures on abutting properties.*	
☒	☐	▪ *Proposed site access and circulation.*	
☒	☐	▪ *Proposed grading and contours.*	
☒	☐	▪ *Location and dimension of existing and proposed paved areas including all parking areas and vehicle, bicycle and pedestrian access ways. Proposed curb lines must be shown.*	
☒	☐	▪ *Proposed loading and servicing areas, including applicable turning templates for delivery vehicles*	
☐	☐	▪ *Proposed snow storage areas or snow removal plan.*	
☒	☐	▪ *Proposed trash and recycling facilities.*	
☒	☐	▪ *Landscape plan including existing vegetation to be preserved, proposed site landscaping and street trees.*	
☒	☐	▪ *Existing and proposed utilities.*	
☒	☐	▪ *Location and details of proposed infrastructure improvements (e.g. - curb and sidewalk improvements, roadway intersection modifications, utility connections, public transit infrastructure, roadway improvements).*	
☐	☐	▪ *Proposed septic system, if not connecting to municipal sewer. (Portland Waste Water Application included in this application)*	
☒	☐	▪ *Proposed finish floor elevation (FFE).*	

☒	☐	▪ *Exterior building elevation(s) (showing all 4 sides).*
☒	☐	▪ *Proposed stormwater management and erosion controls.*
☒	☐	▪ *Exterior lighting plan, including street lighting improvements..*
☒	☐	▪ *Proposed signage.*
☒	☐	▪ *Identification of existing significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features listed in Section 14-526 (b)1. of the Land Use Code). Wetlands must be delineated.*
☒	☐	▪ *Proposed alterations to and protection measures for of existing significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features listed in Section 14-526 (b)1. of the Land Use Code).*
☐	☐	▪ *Total area and limits of proposed land disturbance.*
☐	☐	▪ *Soil type and location of test pits and borings.*
☐	☐	▪ *Details of proposed pier rehabilitation (Shoreland areas only).*
☒	☐	▪ *Existing and proposed easements or public or private rights of way.*

PORTLAND FIRE DEPARTMENT
SITE REVIEW
FIRE DEPARTMENT CHECKLIST

A separate drawing[s] shall be provided to the Portland Fire Department for all site plan reviews.

✓ 1. Name, address, telephone number of applicant.

✓ 2. Name address, telephone number of architect

✓ 3. Proposed uses of any structures [NFPA and IBC classification]

✓ 4. Square footage of all structures [total and per story]

✓ 5. Elevation of all structures

✓ 6. Proposed fire protection of all structures

- ***As of September 16, 2010 all new construction of one and two family homes are required to be sprinkled in compliance with NFPA 13D. This is required by City Code. (NFPA 101 2009 ed.)***

✓ 7. Hydrant locations

✓ 8. Water main[s] size and location

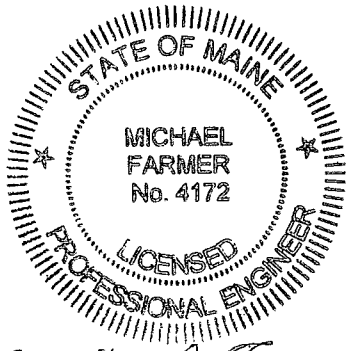
✓ 9. Access to all structures [min. 2 sides]

✓ 10. A code summary shall be included referencing NFPA 1 and all fire department. Technical standards.

Some structures may require Fire flows using annex H of NFPA 1

SECTION 2

PROJECT NARRATIVE



Michael Farmer
Feb. 3, 2012

Project Narrative
Riverside South Golf Course Pro Shop Site Plan Application

Written Description of Project

The objective of this project is to build a new Pro Shop for the Riverside South Golf Course. The new Pro Shop will include a lounge area, a sales counter, two restrooms, and a utility room. The enclosed building area will be about 547 square feet (sf). The Pro Shop will also have a covered entry porch on one side of the building. The "footprint" area of the foundation, including the covered porch, will be about 777 sf.

The new Pro Shop will be built in an existing paved parking area, such that the post-construction impervious surface area will be less than the pre-construction impervious surface area.

The existing South Course Pro Shop is a log cabin type structure. The City intends to continue using this building until the new Pro Shop is completed and in use. At that point, the existing Pro Shop could be demolished or renovated to serve another purpose.

Evidence of Right, Title and Interest

The project site is located on property owned by the City of Portland, as described in a deed from Hamlin Sand & Gravel Co., Inc. to the City and recorded in the Cumberland County Registry of Deed in Book 2901 and on Page 527. A copy of this deed is included with this application in Section 3.

Copies of Required State and Federal Permits

The Department of Public Services believes that no federal or state environmental permits are required for this project. This is related to the fact that this project would result in a net decrease in impervious ground cover.

It is noted that a Maine DEP Stormwater permit (L-23245-NJ-A-N) was issued to Maine Youth Golf Foundation in January, 2007 for a 7-acre practice golf course and a 2,000 square foot (SF) club house building, both of which were planned to be built on the City's Riverside Golf Course Property. The stormwater permit does not regulate the entire Riverside Golf Course property; the scope of the permit is limited to the 7-acre practice course and the proposed club house. The 7 acre practice course and its associated stormwater management system were constructed. However, the proposed 2,000 SF clubhouse and its stormwater management system have not been built. In all likelihood the 2,000 SF clubhouse envisioned in 2007 will never be built.

Written Assessment of Zoning

The project site is in a *Recreation and Open Space* (ROS) zone. Golf courses and accessory structures with less than 2,500 square feet (sf) of floor area are permitted uses in this zone (Sec. 14-154).

The space and bulk requirements for this zone are as follows (Sec. 14-157).

- Min. front yard: 25'
- Min. rear yard: 25'
- Min. side yard 12'
- Min. lot size: 2 Acres
- Max. building height: 35'
- Max. lot coverage ratio, sports complexes: 75%
- Max. lot coverage ratio, uses other than sports complexes: 25%
- Max. floor area ratio: 50%

The actual, proposed space and bulk measurements for this project are as follows. Setback and building height dimensions listed below are for the proposed building only. The lot coverage ratio and floor area ratio are estimated for the 228 (plus or minus) acre golf course property as a whole, including the proposed building.

- Front yard proposed: 25'
- Rear yard proposed: Greater than 100'
- Side yard, SW side, proposed: 57'
- Lot size, existing golf course: ~ 228 Acres
- Building height proposed, peak of roof: 20'
  Building height proposed, peak of cupola: 23'
- Lot coverage ratio: 3.0%
- Floor area to lot area ratio: 0.24%

Although parts of the Riverside South Golf Course and the Riverside North Golf Course are in a Flood Hazard zone and a Shoreland Zone, the proposed building site is in excess of 600 feet away from the Presumscot River Shoreland zone and in excess of 850 feet away from the flood hazard zone. The proposed finish floor elevation is approximately 34 feet above the 100 year flood elevation on the Presumscot River.

Written Description of Existing and Proposed Easements and Other Burdens

An existing gas main runs along the southwesterly boundary of the project site and across City property. An easement is believed to exist for this gas main location; however, Unitil staff and City staff have been unable to find a written easement document. The proposed project will not affect access to, or operation of, this gas main.

The proposed water service for the new building is shown on the Site Plan. Portland Water District (PWD) has indicated they would require an easement from the City to gain PWD's

approval of the proposed water service. The easement would give PWD rights to enter on City property to access and operate one or two water line valves (one valve at the beginning of the water service and possibly another valve nearby on the existing water pipe). Golf Course management staff members have agreed in principle to grant PWD such an easement. PWD staff and City staff are working together to develop the easement document.

Written Requests for Waivers From Individual Site Plan or Technical Standards, where Applicable

Section 14-526(a)4.b.(i)(b) of the City Code indicates that 2 bike parking spaces are required for every 10 vehicle parking spaces. For a parking area with 67 vehicle spaces, as proposed, the number of required bike parking spaces would be 13 or 14. We are proposing to provide a bike rack that would accommodate up to 6 bikes (based on manufacture's recommendation). We are seeking a waiver to reduce the number of required bike parking spaces to 6. City staff believes such a waiver is justified because we are not sure there is much demand for bike parking at the golf course. It is thought that most golf course users will arrive by car or light truck, both of which seem better suited than a bike for transporting a golfer and a set of golf clubs to the course.

Whereas the proposed new Pro Shop building would replace an existing Pro Shop building, it is thought that this project would not generate a significant increase in motor vehicle traffic. For this reason, the applicant requests a waiver of any requirements to perform a detailed traffic plan and study of existing and future traffic movements to and from the Riverside South Golf Course.

As indicated on the Site Plan application form, the project would result in a net decrease of impervious area of about 2,300 square feet. Given this decrease, it is believed that the project is exempt from stormwater regulation under Maine DEP Chapter 500 and the City's Technical Manual. For this reason, the applicant requests a waiver of any requirements to submit a formal stormwater management plan for the project. Aside from this request, there is a brief discussion about stormwater management and erosion control in a subsequent parts of this project narrative.

Traffic Analysis and Parking Analysis

The proposed Pro Shop would be built in the existing parking area at the Riverside South Golf Course. This parking area has 2 existing, two-way driveways connecting to Riverside Street. No changes are proposed to the existing driveways and their curb cuts.

The posted speed limit in the vicinity of the project site on Riverside Street is 35 MPH. The vehicle site distances for both driveways along Riverside Street are in excess of 305 feet.

Golf Course management personnel indicate that the existing parking lot has enough parking to satisfy normal customer demand. The peak demand period for parking typically occurs when the South Course hosts league play, which generally occurs from 3:00 to 5:00 p.m. on Thursdays during the summer. It is not uncommon for the parking lot to fill at these times. Although the existing parking area has no pavement markings to define individual parking spaces, the number

of existing parking spaces is estimated to be 68. This is based on an assumed width of 10 feet per space.

It was stated previously that the proposed project would be built in the existing parking area. The new Pro Shop and the surrounding grassed area would occupy space that is currently available for parking. The Department of Public Services believes that the remaining parking area can be used more efficiently by marking and delineating each parking space. The Department believes that such pavement markings would minimize the loss of available parking, Thus, a proposed *Parking Area Pavement Marking Plan* was prepared as part of the Site Plan Application. This plan indicates that the paved parking area can be marked to provide 67 parking spaces. This would represent a net loss of only one parking space compared to the estimated capacity of 68 spaces under current conditions.

Section 14-526(a)4.b.(i)(b) of the City Code indicates that 2 bike parking spaces are required for every 10 vehicle parking spaces. For a parking area with 67 vehicle spaces, as proposed, the number of required bike parking spaces would be 13 or 14. We are proposing to provide a bike rack that would accommodate up to 6 bikes (based on manufacture's recommendation). We are seeking a waiver to reduce the number of required bike parking spaces to 6. Public Services staff believes such a waiver is justified because we are not sure there is much demand for bike parking at the golf course. It is thought that most golf course users will arrive by car or light truck, both of which seem better suited than a bike for transporting a golfer and a set of golf clubs to the course.

Whereas the proposed new Pro Shop building would replace an existing Pro Shop building, it is thought that this project would not generate a significant increase in motor vehicle traffic. For this reason, the applicant requests a waiver of any requirements to perform a detailed traffic study of existing traffic movements to and from the Riverside South Golf Course.

Written Analysis of Significant Natural Features Located on the Site

The City's Riverside Golf Course property has about 10,000 feet of frontage along the Presumscot River. The river and its associated wetlands are unique natural features in the greater Portland area. The riparian land along the River that is now part of the golf course has obviously been altered, and it is not in a "wild" or undeveloped state. Nonetheless, this area still provides benefits including flood plain water storage, open space, and wildlife habitat.

Dole Brook crosses the Riverside North Golf Course and drains into the Presumscot River. Dole Brook is classified as an urban impaired stream.

The proposed South Course Pro Shop building will not adversely impact the natural resources described above. It is also noted that there are no wetlands on the proposed Pro Shop Site Plan and no alterations to any wetlands are proposed as part of this project.

Written Summary of Project's Consistency with Related City Master Plans

Riverside Golf Course is briefly mentioned in *Portland's Comprehensive Plan* (2002) and *The Portland Shoreway Access Plan* (1987). Both reports support the concept of developing a trail along the Presumscot River. The trail would presumably have a winter route along the edge of the river for cross country skiing and, in the interest of protecting hikers, a "summer" route that would take travelers away from the areas along the river where they could be hit by flying golf balls.

The proposed project is consistent with development of a trail along the Presumscot River. Thus, the proposed project is consistent with *Portland's Comprehensive Plan* (2002) and *The Portland Shoreway Access Plan* (1987).

Stormwater Management and Erosion Control

The proposed Pro Shop would be built in part of the existing paved parking area at the Riverside South Golf Course. This parking area drains away from Riverside Street and into a natural gully that channels stormwater runoff across the golf course and into the Presumscot River. The proposed project will not alter this existing drainage pattern.

As indicated on the Site Plan application form, the project would result in a net decrease of impervious area of about 2,300 square feet. Given this decrease, it is believed that the project is exempt from stormwater regulation under Maine DEP Chapter 500 and the City's Technical Manual.

Implementation and maintenance of effective erosion control would be an ongoing responsibility for the construction contractor. The most prominent erosion control device would be a sediment barrier (silt fence or Erosion Control Mix berm) that would be installed along the edge of the parking area down-gradient from the construction site. The erosion control requirements for the project are shown on plan sheets C004 and C002, prepared by Woodard & Curran consulting engineers.

Under the heading *Copies of Required State and Federal Permits*, above, there is a brief discussion about an existing DEP Stormwater Permit that covers an area of the golf course near the proposed Pro Shop.

Evidence of Financial and Technical Capacity

The Portland City Council approved $150,000 for this project as part of its 2010 Capital Improvement Program. The funds are available for the project in Account C10P01. Public Services staff believes these funds will be sufficient to cover the cost of the project.

The Department of Public Services has hired licensed design professionals from the private sector and utilized licensed professionals on City staff to participate in preparing the design and the Site Plan application for this project. The following design professionals, all licensed by the appropriate boards under The Maine Office of Professional and Occupational Regulation, have participated in this project.

- Denise Cameron, Professional Engineer, Woodard & Curran (civil engineering design)
- Scott R. Simons, Licensed Architect, Scott Simons Associates
- Kurt Magnusson, Professional Engineer, Mechanical Systems Engineers (mechanical engineering and plumbing design)
- Timothy Matthews, Professional Engineer, Woodard & Curran (electrical engineering design)
- William Scott, Professional Land Surveyor, City of Portland
- Michael Farmer, Professional Engineer, City of Portland (Site Plan application, pavement marking layout and Riverside St. sidewalk layout)

The City intends to hire a contractor to construct this project through a competitive bid process. Two features of this selection process help to assure that the contractor is qualified to successfully complete the project. The City requires the contractor to provide a performance bond and a labor and materials payment bond for the full value of the contract. Since bond underwriters are risk averse, such bonding requirements go a long way toward assuring that a contractor hired by the City has a record of successfully completing similar projects. The bid specifications also state that the City may reject a bid from a contractor if the City finds that the contractor is not properly qualified.

City staff will be responsible for overseeing this project to assure it is successfully built. Construction contract administration and construction inspection work would be performed by City staff or consulting professionals from the private sector. In either case, this work would be performed by individuals with experience in similar projects.

Evidence of Utilities Capacity to Serve the Development

A letter was sent to Portland Water District requesting that they review the project and respond whether or not PWD has the capacity to provide water service for the project. A letter was also sent to the City of Portland Engineering Division requesting that they review the project and determine if the sewer system has the capacity to handle the sanitary wastewater from the project. Copies of these letters of request are included with this application in Section 4. The responses will be provided when they become available.

Written Summary of Fire Safety

Refer to Section 5.

Written Summary of Solid Waste Generation and Proposed Management of Solid Waste

Golf Course staff plan to handle solid waste from the proposed Pro Shop in the same manner they have handled the solid waste generated at the existing Pro Shop for the past several years. Under current practice, a janitor visits the South Course Pro Shop regularly (typically 3 or more times per week) to clean and collect solid waste from the trash receptacles in the building. The solid waste generation rate has typically been on the order of five 30-gallon bags per week, or

less. Solid waste from the South Course is transported by the janitor to the North Course club house area and deposited in the trash containers at that location. Solid waste is collected from the North Course weekly by the City solid waste collection crew assigned to this area of Portland.

No exterior trash receptacles or dumpsters are proposed as part of this project.

Written Assessment of Conformity with Applicable Design Standards

The Department of Public Services intends the new Pro Shop to be built in conformance with the applicable building and plumbing codes.

The proposed parking area pavement markings would conform to the City Technical Standards regarding sizes of individual parking spaces and the number of allowed compact spaces. The parking area layout would include 3 parking spaces reserved for handicapped individuals. The number of accessible parking spaces and their configuration would conform to ADA design guidelines. As indicated above, the project would not meet the requirement in the City Code for the number of bike parking spaces. A waiver is being requested with respect to the number of required bike parking spaces. In any case, the proposed bike rack installation would be consistent with the bike rack standards in the City Technical Standards.

The proposed sidewalk construction along Riverside Street would conform to the City Sidewalk Materials Policy and the construction details in the Technical Standards for a bituminous sidewalk.

Manufacturer's Verification that HVAC and Manufacturing Equipment Meets Applicable State and Federal Emissions Requirements

The proposed Pro Shop is designed to use an electric powered heat pump system for heating and cooling and an electric powered hot water heater. The heat pump and the water heater would not use any liquid or gaseos fuel at the site, and they will produce no air emissions at the site.

Snow Storage Areas

It is generally not necessary to be overly concerned with snow plowing and snow storage in conjunction with golf course operations in Portland because golf is not played when snow accumulates on the ground. Nonetheless, Riverside Golf Course serves the community during the winter as a place for cross country skiing, snow shoeing, walking, dog exercising, snow sliding, and ice skating. The Riverside South Course parking area is routinely plowed during the winter to facilitate winter use of the golf course property. There is ample room for snow storage around the edges of this parking area. Storage of snow on part of the paved parking area is also a viable option because parking demand at the South Course is relatively light during the winter, compared to "golf season." For the reasons cited above, it is thought that snow storage is not a problem at the Riverside South Course and a formal snow storage plan, with designated snow storage areas, is not needed.

Exterior Lighting

The existing street lighting in Riverside Street in the vicinity of the project site consists of one cobra head fixture about 195 feet southwest of the proposed building (at the intersection of Evergreen Drive) and one cobra head fixture about 325 feet northeast of the proposed building. Both fixtures are mounted on existing overhead utility poles in the Riverside Street right of way. No new street lights are proposed as part of this project.

The Site Plan shows an existing utility pole directly in front of the proposed building and very close to the existing street right of way line. An existing flood light is mounted about 20 feet above ground on this pole. This light is directed away from Riverside Street and toward the existing Pro Shop building. Upon completion of the new Pro Shop, this flood light should be adjusted to shine directly toward the new Pro Shop. Doing so would help illuminate the area around the building and its entrance, in a manner consistent with section 3.1.1 of the City Technical Standards.

Aside from the flood light mentioned above, the Proposed Pro Shop design includes four exterior porch lights and one exterior light mounted on the rear wall of the building. The porch lights would be recessed into the porch ceiling and direct their light downward onto the porch floor. The rear wall light would be a full cutoff and fully shielded luminaire that directs its light downward. The proposed exterior lighting on the new Pro Shop should generate minimal light spillover onto abutting properties.

Signage

There is an existing roadside sign marking the location of the club house and parking area at the Riverside North Golf Course. However, there is no existing roadside signage to mark the parking area and Pro Shop for the Riverside South Golf Course. No new signage is proposed as part of this project.

Soils Information

Two soils types are mapped near the proposed building site. They are Windsor loamy sand (WmB) and Scantic silt loam (Sn). For reference, a partial copy of a medium intensity soil survey map showing the project site and the relevant soils descriptions are included in Section 6. The map and soils descriptions were taken from the 1974 *Soil Survey of Cumberland County, Maine*, published by the U. S. Department of Agriculture.

No soils borings have been drilled and no test pits have been excavated to date for this project.

SECTION 3

DEED SHOWING RIGHT, TITLE and INTEREST

527

Know All Men by These Presents,

That Hamlin Sand & Gravel Co., Inc., a corporation organized and existing under the laws of the State of Maine and having a place of business in Portland in the County of Cumberland and State of Maine

Hamlin Sand & Gravel Co Inc

in consideration of One Dollar ($1.00) and other good and valuable considerations

to

paid by the City of Portland, a body politic and corporate, located in the County of Cumberland and State of Maine

Portland City of

the receipt whereof it do/es hereby acknowledge, do/es hereby give, grant, bargain, sell and convey unto the said City of Portland, its successors

War

heirs and assigns forever, a certain lot or parcel of land situated on the northwesterly side of Riverside Street in said Portland, bounded and described as follows:

Beginning at a spike in a maple tree in the northwesterly side line of Riverside Street, said spike being distant 400.00 feet along the said northwesterly side line of Riverside Street from the westerly side line of a twenty (20) foot right-of-way of the Central Maine Power Company, said spike being also distant 521.81 feet along the said northwesterly side line of Riverside Street from the fourth angle in Riverside Street northeasterly from Forest Avenue; thence northwesterly and making an included angle of 83°21-1/2' through the north with the northeasterly direction of the northwesterly side line of Riverside Street a distance of 1000.00 feet to an iron pipe; thence southwesterly and making an included angle of 105°55' through the south with the southeasterly direction of the last described line a distance of 904.75 feet to an iron pipe; thence southwesterly and making an included angle of 138°58' through the southeast with the northeasterly direction of the last described course a distance of 1077.50 feet to an elm tree standing on the bank of the Presumpscot River; thence northwesterly, northerly and northeasterly along the Presumpscot River to an intersection with the westerly side line of the twenty (20) foot right-of-way of the Central Maine Power Company; thence southeasterly and southerly along the said westerly side line of said right-of-way to an intersection with the northwesterly side line of Riverside Street; thence southwesterly along said side line of Riverside Street four hundred feet (400) to the point of beginning.

Meaning and intending to convey and hereby conveying a portion of the premises conveyed by Carl H. Varney to Philip E. Hamlin by warranty deed, dated March 15, 1957 and recorded in the Cumberland County Registry of Deeds in Book 2363, Page 484, which premises were conveyed by the said Philip E. Hamlin to Hamlin Sand & Gravel Co., Inc. by warranty deed, dated March 1, 1962, recorded in said Registry of Deeds in Book 2661, Page 23.

Grantor also agrees for itself, its successors and assigns that it and they will conduct any and all excavations on its remaining land located on the northwesterly side of Riverside Street and abutting the above-described premises in such manner as to provide on said remaining land a ten-foot level strip and a 1-1/2 to 1 slope between such excavation operations and said above-described premises.

528

To have and to hold the aforegranted and bargained premises with all the privileges and appurtenances thereof, to the said City of Portland, its successors and assigns, to its and their use and behoof forever.

And Grantor do covenant with the said Grantee, its successors and assigns, that it is lawfully seized in fee of the premises, that they are free of all incumbrances;

that it does have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that it and its successors and assigns shall and will Warrant and Defend the same to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, the said Hamlin Sand & Gravel Co., Inc. has caused this instrument to be signed and sealed in its corporate name by Philip E. Hamlin, its President, thereunto duly authorized,

and

wife

this 16th day of June in the year of our Lord one thousand nine hundred and sixty-five.

Signed, Sealed and Delivered in presence of

Hamlin Sand & Gravel Co., Inc.

By Philip E. Hamlin
President

CRAVEN CO., Inc. 1961

State of Maine. Cumberland ss. June 16 1965.

Personally appeared the above named Philip E. Hamlin, President, Hamlin Sand & Gravel Co., Inc. and acknowledged the foregoing instrument to be his free act and deed, and the free act and deed of said Hamlin Sand & Gravel Co., Inc.

Before me,

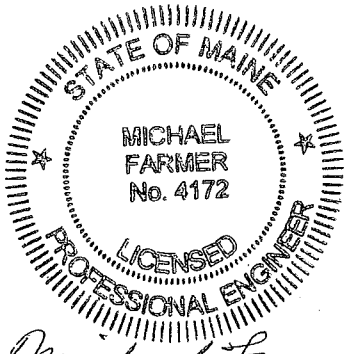
Justice of the Peace

JUN 16 1965
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 9 H 33 M AM, and recorded in
BOOK 2901 PAGE 527

Register

SECTION 4

EVIDENCE of UTILITIES' CAPACITY to SERVE the DEVELOPMENT



Michael Farmer
Feb. 3, 2012

PORTLAND MAINE
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Public Services Department
Michael J. Bobinsky, Director

January 31, 2012

Mr. Frank J. Brancely, Senior Engineering Technician
Department of Public Services
55 Portland Street
Portland, ME 04101

SUBJECT: Wastewater Capacity Application – 1010 Riverside Street, Riverside South Golf Course Pro Shop

Dear Mr. Brancely:

I am submitting, herewith, an application for a "wastewater capacity letter" for a proposed new Pro Shop for the Riverside South Golf Course. The new building would replace the existing (log cabin style) Pro Shop building, which would be taken out of service. The existing building is not connected to the City sewer system. My understanding is that the rest rooms in the existing Pro Shop were originally served by an on-site wastewater system, the on-site wastewater system failed, and the restrooms were closed.

The new Pro Shop would have an interior floor area of about 547 square feet. The building would have 2 restrooms, a sales area with a sink and a small "kitchenette," a utility room with a mop sink and a lounge area. The Pro Shop is typically open seven days per week for 6 months each year. It it is closed over the winter season.

The projected average daily wastewater flow for the Pro Shop is 250 gallons per day (GPD) and the projected peak daily flow is 450 GPD gallons per day. These estimates are based, in part, on water consumption records for the South Portland Municipal Golf Course. The South Portland Municipal Course is thought to be similar to the Riverside South Course in that both are 9-hole courses, both have similar restroom facilities, and the Pro Shops at both courses would have very limited retail sales and food sales. The average daily wastewater flow during the 6-month golf season in 2011 at South Portland Municipal was 123 GPD. With the thought that the Riverside South Course may be busier than the South Portland Course, the sanitary wastewater flow for the new Pro Shop is projected to be 200 GPD for the restrooms plus 50 GPD for the kitchen area and utility room, for a total

of 250 GPD. The peak day flow is (somewhat arbitrarily) estimated to be 400 GPD for the restrooms plus 50 GPD for the kitchen area and utility room, for a total of 450 GPD. For reference, the water consumption records for the South Portland Municipal Golf Course for 2011 are attached to this letter.

Sincerely,
CITY OF PORTLAND

Michael Farmer

Michael Farmer
Project Engineer

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Department of Public Services,
55 Portland Street,
Portland, Maine 04101-2991

Date: Jan. 30, 2012

Mr. Frank J. Brancely,
Senior Engineering Technician,
Phone #: (207) 874-8832,
Fax #: (207) 874-8852,
E-mail:fjb@portlandmaine.gov

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 1010 Riverside Street
(Regarding addressing, please contact Leslie Kaynor, either at 756-8346, or at LMK@portlandmaine.gov)
Chart Block Lot Number: 360-A-1

Proposed Use: Pro shop - Riverside South Golf Course
Previous Use: Same as above
Existing Sanitary Flows: Zero GPD
Existing Process Flows: Zero GPD
Description and location of City sewer, at proposed building sewer lateral connection:
Existing sewer manhole in Riverside St. at Evergreen Drive
Clearly, indicate the proposed connection, on the submitted plans.

Site Category:
- Commercial ___
- Industrial *(complete part 4 below)* ___
- Governmental X
- Residential ___
- Other *(specify)* ___

2. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: Average 250 GPD GPD
Peaking Factor/ Peak Times: PEAK DAY : 450 GPD
Specify the source of design guidelines: *(i.e._"Handbook of Subsurface Wastewater Disposal in Maine," "Plumbers and Pipe Fitters Calculation Manual," __ Portland Water District Records, X Other (specify)*

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

3. Please, Submit Contact Information.

Owner/Developer Name: Portland Dept. of Public Services
Owner/Developer Address: 55 Portland St. Portland, Maine
Phone: 874-8845 Fax: 874-8852 E-mail: mfarmer@portlandmaine.gov
Engineering Consultant Name: Contact: Michael Farmer
Engineering Consultant Address: 55 Portland Street Portland ME 04106
Phone: ___ Fax: ___ E-mail: ___
City Planner's Name: ___ Phone: ___

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

4. Please, Submit Industrial Process Wastewater Flow Calculations

Estimated Industrial Process Wastewater Flows Generated: Zero GPD
Do you currently hold Federal or State discharge permits? Yes ___ No ___
Is the process wastewater termed categorical under CFR 40? Yes ___ No ___
OSHA Standard Industrial Code (SIC): *(http://www.osha.gov/oshstats/sicser.html)*
Peaking Factor/Peak Process Times:

CITY OF PORTLAND, MAINE
Department of Public Services
Engineering Division
55 Portland Street, Portland, Maine 04101
(207) 874-8846 Fax (207) 874-8852

Strengthening A Remarkable City - Building A Community For Life

Project: _____
Sheet No.: _____ Of _____
Calculated By: MF Date 1-30-2012
Checked By _____ Date _____
Scale: _____

Water Use records from Portland Water District for South Portland Municipal Golf Course

Meter Read Date	Metered Consumption (100 cubic feet)
Jan. 2011	0
Feb. 2011	1
May 2011	1
Apr 2011	1
May 2011	4
June 2011	5
July 2011	6
Aug. 2011	6
Sep. 2011	5
Oct. 2011	4
Nov. 2011	2
Dec. 2011	1

Actual Water Use for peak 6-month period (April through October read dates) =

$$\frac{30 \times 100\ cf}{182\ days} \times \frac{7.48\ gal}{cf} = 123\ \frac{gallons\ per}{day}$$

Portland Water District
FROM SEBAGO LAKE TO CASCO BAY

December 12, 2011

City of Portland
55 Portland Street
Portland, ME 04101

Attn: Gene Pierotti
Re: Riverside Golf Course, Portland
Ability to Serve with PWD Water

Dear Mr. Pierotti:

The Portland Water District has received your request for an Ability to Serve determination for the noted site submitted on November 2, 2011. Based on the information provided, we can confirm that the District will be able to serve the proposed project as further described in this letter.

Please note that this letter does not constitute approval of this project from the District. Please review this letter for any special conditions specified by the District and to determine the appropriate next steps to take to move your project through the submittal and approval process.

Existing Site Service

According to District records, the project site does currently have existing water service. A 6-inch diameter ductile iron seasonal water service line, located as shown on the attached water service card, provides water service to this site. Please refer to the "Conditions of Service" section of this letter for requirements related to the use of this service.

Water System Characteristics

According to District records, there is a 12-inch diameter ductile iron water main on the southeast side of Riverside Street and a public fire hydrant located 200 feet from the site.

The current data from the nearest hydrant with flow test information is as follows:

Hydrant Location:	Riverside Street 780' northeast of Evergreen Drive
Hydrant Number:	POD-HYD01269
Last Tested:	04/11/2003
Static Pressure:	82 PSI
Residual Pressure:	78 PSI
Flow:	1,500 GPM

Public Fire Protection

You have indicated that this project will not include the installation of new public hydrants to be accepted into the District water system. The decision to require new hydrants and to determine

225 DOUGLASS STREET P.O. BOX 3553 PORTLAND, MAINE 04104-3553
PHONE: 207.774.5961 FAX: 207.761.8307 WEB: WWW.PWD.ORG

their locations is solely that of the local fire department. It is your responsibility to contact the Portland Fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs

The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of the proposed Riverside South Golf Course Pavilion. Based on the high water pressure in this area, we recommend that you consider the installation of pressure reducing devices that comply with state plumbing codes.

Private Fire Protection Water Needs

You have not indicated whether this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service. Should fire protection service be required, please share these results with your sprinkler system designer so that they can design the fire protection systems to best fit the noted conditions. If the data is out of date or insufficient for their needs, please contact us to request a hydrant flow test and we will work with you to get more complete data.

Conditions of Service

Per our discussion on November 2, 2011; the existing irrigation line may be tapped within the right-of-way with a branch to feed a new service line. The new service will need a curb stop valve within the right of way as indicated on the attached sketch. We will also need a new gate valve on the irrigation service within the right of way - or - an easement allowing the District to access and operate the valve on private property. Once a contractor has been selected and the project is ready to go to construction, please contact PWD's MEANS Division to arrange for an appointment to fill out a service application.

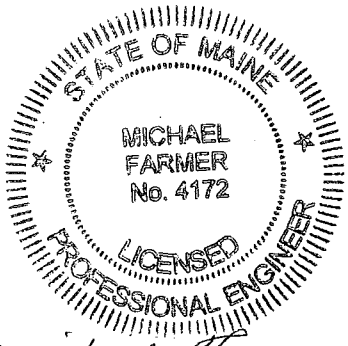
If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District

Rico Spugnardi, P.E.
Business Development Engineer

SECTION 5

SITE REVIEW SUBMITTAL for PORTLAND FIRE DEPARTMENT



Michael Farmer

Feb. 3, 2012

SITE REVIEW SUBMITTAL
For
PORTLAND FIRE DEPARTMENT

Project: Riverside South Golf Course Pro Shop, 1010 Riverside Street

Applicant: Portland Department of Public Services
55 Portland Street
Portland, ME 04103
Contact: Michael Farmer, Engineering Division, 874-8845

Architect: Scott Simons Architects
75 York Street
Portland, ME 04021
(If contact is necessary, please contact Michael Farmer, listed above)

Proposed Uses of Proposed Building:

The building will be used for collection of golf course fees; selling basic golf accessories, drinks, and hot dogs; customer and employee bathrooms; and a customer lounge. These uses are thought to fall under the *Business Group B* use category in the IBC 2009 and the *Business* occupancy classification in NFPA 1, 2009.

Square Footage of Proposed Structure:

Building footprint and floor area, including porch, is 777 square feet, all of which is at ground level.

Elevation of Proposed Structure:

Proposed finish floor elevation is 68.5 feet above City datum, which is approximately equal to NGVD 1929.

Proposed Fire Protection for Proposed Structure:

Interior walls will be sheathed with 5/8" gypsum wall board. The building would not be equipped with a sprinkler system.

Hydrant Locations:

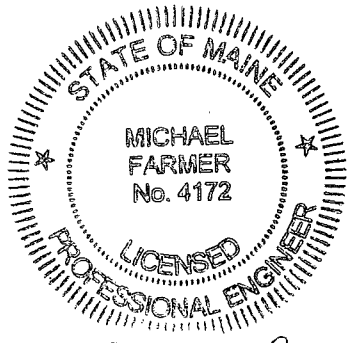
The closest hydrant is about 360 feet from the proposed structure. This hydrant is on Riverside Street southwest of the building site, on the opposite side of the street from the proposed building.

Water Main Size and Location

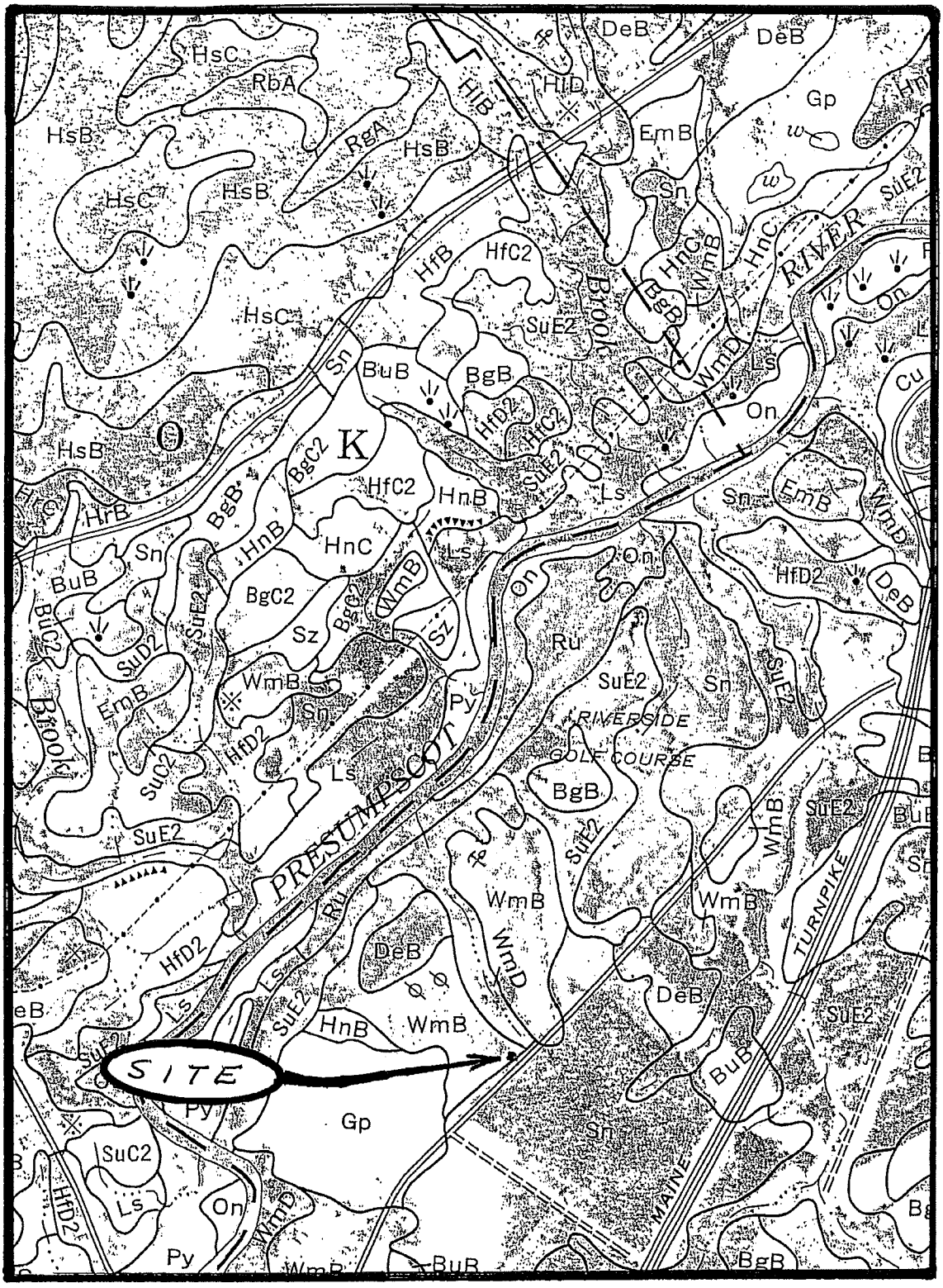
Records indicate there is a 12-inch water main in Riverside Street, which was installed in 1998.

SECTION 6

SOILS MAP and SOILS DESCRIPTIONS



Michael Farmer
Feb. 3, 2012



MEDIUM INTENSITY SOILS MAP

Scale: 1" = 1,000'

C1g—12 to 24 inches, dark-gray (10YR 4/1) silt loam; common, medium, faint, yellowish-brown (10YR 5/6) mottles; weak, fine, granular structure; friable when moist; many roots; very strongly acid; abrupt, smooth boundary.

C2g—24 to 60 inches, gray (5Y 6/1) silt loam; weak, moderate, granular structure; friable when moist; a few roots; medium acid.

The A1 horizon ranges from silt loam to very fine sandy loam. In the Cg horizons hue ranges from 10YR to 5Y, value ranges from 3 to 6, and chroma is 0 or 1. The Cg horizon ranges from silt loam to very fine sandy loam, but lenses of loamy fine sand, loamy very fine sand, or sandy loam as much as 2 inches thick occur in places. The content of gravel in the Cg horizons generally ranges from 0 to 3 percent. In places the gravel occurs in strata 1 to 2 inches thick.

Associated with Saco soils in the landscape are Limerick, Ondawa, Podunk, and Rumney soils. Saco soils are similar to these soils, but Ondawa soils are well drained, Podunk soils are moderately well drained, and Rumney and Limerick soils are poorly drained.

Saugatuck Series

The Saugatuck series consists of deep, somewhat poorly drained to poorly drained, nearly level, coarse-textured soils. These soils formed in glacial outwash deposits on old delta areas in the southern and eastern parts of the county.

A representative profile of a Saugatuck soil in a wooded area has a black organic mat, 1 inch thick, over a surface layer of gray loamy sand 6 inches thick. The upper 7 inches of the subsoil is very dusky-red, strongly cemented sand that has dark reddish-brown mottles. The lower 17 inches of the subsoil is dark reddish-brown, weakly cemented, massive sand that has yellowish-red mottles. The substratum, at a depth of 30 inches, is brown, loose sand.

A water table is at a depth of 1 foot in spring and during periods of heavy precipitation. Depth to bedrock is 5 feet or more.

Most areas of Saugatuck soils are wooded. Vegetation is dominantly white spruce, balsam fir, gray birch, speckled alder, and white pine trees, and fern and blueberry bushes.

Representative profile of Saugatuck loamy sand, along Payne Road at the entrance of Scarboro Downs Racetrack in Scarborough Township:

O2—1 inch to 0, black (10YR 2/1) organic mat of decomposed leaves and twigs.

A2—0 to 6 inches, gray (10YR 5/1) loamy sand; single grain; loose when moist; many roots; very strongly acid; abrupt, smooth boundary.

B21ldrm—6 to 13 inches, very dusky-red (2.5YR 2/2) sand; common, medium, distinct, dark reddish-brown (5YR 3/2) mottles; strongly cemented; massive, parting to moderate, thick, platy structure; a few roots between plates; very strongly acid; abrupt, wavy boundary.

B22irm—13 to 30 inches, dark reddish-brown (5YR 3/3) sand; many, medium, faint, yellowish-red (5YR 5/6) mottles; weakly cemented; massive, parting to moderate, thick, platy structure; a few roots between plates; strongly acid; abrupt, wavy boundary.

C—30 to 60 inches, brown (7.5YR 5/4) sand; single grain; loose; 10 percent gravel; strongly acid.

The solum ranges from 20 to 40 inches in thickness. The A2 horizon ranges from loamy sand to sand or to loamy fine sand. In the B2 horizons hue is 2.5YR or 5YR, value ranges from 2 to 6, and chroma ranges from 2 to 4. The B2 and C horizons range from medium sand to loamy sand. Cementation in the B2 horizons ranges from weak to strong. In the C horizon hue is 7.5YR or 10YR, value ranges from 4 to 7, and chroma is 3 or 4.

Associated with Saugatuck soils in the landscape are Au Gres, Deerfield, Scarboro, Sebago, Swanton, Whately, and Windsor soils. Saugatuck soils are similar to these soils, but Windsor soils are excessively drained, Deerfield soils are moderately well drained, and Scarboro soils are very poorly drained. Saugatuck soils have an ortstein layer that is lacking in Au Gres, Swanton, and Whately soils. Sebago soils formed in organic deposits, and the poorly drained Swanton and the very poorly drained Whately soils formed in glaciofluvial deposits over a substratum of marine or lacustrine silt and clay.

Saugatuck loamy sand ((Sd).—This is the only Saugatuck soil mapped in the survey area. It is on old delta areas. Included in mapping are small areas of Scarboro soils. Also included are a few areas that have a clay layer, at a depth of 24 to 40 inches, below the cemented subsoil.

Permeability is moderately rapid to slow in this soil, and runoff is slow. Available water capacity is low, but, because of a high water table, internal drainage is poor, and this soil generally is wet during most of the growing season.

If Saugatuck loamy sand is artificially drained, it can be used for hay and pasture. Locating suitable drainage outlets is a concern of management. If undrained, this soil is suited to limited pasture. This soil can also be used as woodland. White pine is suitable for planting, but seedling mortality is severe, and equipment limitations are severe because of wetness. Also, the windthrow hazard is severe because the roots of most plants are restricted to the zone above a high water table. Limitations are severe or very severe on this soil for all community and recreational uses, principally because of a high water table. Capability unit Vw–5; woodland group 4w1; wildlife group 3.

Scantic Series

The Scantic series consists of deep, nearly level, poorly drained, medium-textured soils that are underlain by fine-textured material. These soils formed in marine and lacustrine sediment. They are in old marine estuaries in the eastern and central parts of the county and in depressions around a few inland lakes.

A representative profile of a Scantic soil in a cultivated area has a surface layer of dark grayish-brown silt loam 8 inches thick that is underlain by 5 inches of olive-gray, friable heavy silt loam that has light olive-brown mottles. The upper 7 inches of the subsoil is olive-gray, firm heavy silt loam that has light olive-brown mottles, and the next 8 inches is olive-gray, firm heavy silty clay loam that has yellowish-brown mottles. The lower 4 inches of the subsoil is olive-gray, firm silty clay that has a few olive mottles. The substratum, at a depth of 32 inches, is olive-gray, firm clay that has a few dark-gray mottles.

A water table is at a depth of 1 foot during most of the year, and depth to bedrock is 5 feet or more.

A few areas of Scantic soils are farmed, but many areas are wooded. Common species are speckled alder, white pine, and black willow.

Representative profile of Scantic silt loam, on a big flat on the east side of Beech Ridge Road, 0.5 mile south of intersection with Holmes Road in Scarborough Township:

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) silt loam; moderate, fine, granular structure; friable when moist; many roots; strongly acid; abrupt, wavy boundary.

A2g—8 to 18 inches, olive-gray (5Y 5/2) heavy silt loam; a few, fine, distinct, light olive-brown (2.5Y 5/6) mottles; moderate, fine and medium, granular structure; friable when moist; common roots; strongly acid; clear, irregular boundary.

B21g—18 to 20 inches, olive-gray (5Y 5/2) heavy silt loam; common, fine, distinct, light olive-brown (2.5Y 5/4) mottles; moderate, medium, blocky structure; firm when moist; a few roots; patchy pressure faces on peds; medium acid; abrupt, smooth boundary.

B22g—20 to 28 inches, olive-gray (5Y 4/2) heavy silty clay loam; common, fine, distinct, yellowish-brown (10YR 5/6) mottles; moderate, coarse, prismatic structure, parting to moderate, medium, blocky structure; firm when moist; medium acid; gradual, wavy boundary.

IIB3g—28 to 32 inches, olive-gray (5Y 4/2) silty clay; a few, fine, distinct, olive (5Y 5/6) mottles; moderate, medium, platy structure; firm when moist; patchy pressure faces on peds; prominent black stains on ped faces; slightly acid; gradual, wavy boundary.

IIC—32 to 60 inches, olive-gray (5Y 4/2) clay; a few, coarse, faint, dark-gray (5Y 4/1) mottles on faces of platy peds; weak, thick, platy structure; firm when moist; slightly acid.

The solum ranges from 25 to 40 inches in thickness. Reaction in the Ap, A1, A2g, and B21g horizons ranges from strongly acid to medium acid. In the Ap horizon hue ranges from 10YR to 5Y, value is 4 or 5, and chroma is 1 or 2. In uncultivated areas an A1 horizon ranges from 2 to 5 inches in thickness. This horizon is very dark gray (10YR 3/1) or very dark grayish brown (10YR 3/2), and its texture is similar to that of the Ap horizon. The A2g horizon ranges from loam to silt loam. The C horizon ranges from silty clay loam to clay. Mottling is less evident or is lacking in this horizon.

Associated with Scantic soils in the landscape are Biddeford, Buxton, Elmwood, Melrose, and Suffield soils. Scantic soils are similar to these soils, but Suffield soils are well drained, Buxton soils are moderately well drained to somewhat poorly drained, and Biddeford soils are very poorly drained. Also, the well-drained Melrose soils and the moderately well drained Elmwood soils are fine sandy loam over silty clay.

Scantic silt loam (Sn).—This is the only Scantic soil mapped in the county. It is in old marine estuaries and in depressions around a few inland lakes. Included in mapping are small areas of Buxton, Biddeford, and Swanton soils. Also included are small areas of soils that have a few stratified sandy layers in the subsoil and the substratum and small areas of soils around inland lakes that have stones on the surface.

This soil is wet thoughout the year. Permeability is moderate in the upper part of the horizon and slow to very slow in the lower part. Runoff is slow. Available water capacity is high.

If this Scantic soil is artifically drained, it can be used for hay and pasture. Locating suitable drainage outlets is a concern of management. If undrained, this soil is suited to limited pasture. For woodland use, white spruce, white cedar, and white pine are suited, but seedling mortality is severe, and equipment limitations are severe because of wetness. Also, the windthrow hazard is severe because the roots of most plants are restricted to the zone above a high water table. Limitations are severe or very severe for most community and recreational uses, principally because of a high water table. This soil is well suited to use as habitat for wetland wildlife. Capability unit IVw–7; woodland group 5w1; wildlife group 3.

460–687—74——3

Scarboro Series

The Scarboro series consists of deep, nearly level, very poorly drained, moderately coarse textured to coarse textured soils. These soils formed in glacial outwash. They are in old delta areas in the central and eastern parts of the county.

A representative profile of a Scarboro soil has a black organic mat, 2 inches thick, over a surface layer of black sandy loam 2 inches thick. This is underlain by 3 inches of gray, very friable sandy loam. The upper 15 inches of the substratum is light olive-gray, loose sand that has light olive-brown and gray mottles. The lower 40 inches of the substratum is light brownish-gray, loose sand that has strong-brown and olive-gray mottles.

The water table is at a depth of 1 foot during most of the year. The depth to bedrock is 5 feet or more.

Most areas of Scarboro soils are in woods and grasses. Common species are white spruce, spruce, balsam fir, and speckled alder, as well as marshgrass and other wetland vegetation.

Representative profile of Scarboro sandy loam, 2 miles east of State Route 113 on the north side of Richville Road in Standish Township:

O2—2 inches to 0, black organic material.

A1—0 to 2 inches, black (5YR 2/1) sandy loam; weak, fine, granular structure; friable when moist; many roots; strongly acid; abrupt, smooth boundary.

A2g—2 to 5 inches, gray (5Y 6/1) sandy loam; weak, fine, granular structure; very friable when moist; many roots; strongly acid; abrupt, smooth boundary.

C1g—5 to 20 inches, light olive-gray (5Y 6/2) sand; many, coarse, distinct, light olive-brown (2.5Y 5/6) and gray (10YR 6/1) mottles; single grain; loose when moist; many roots; very strongly acid; gradual, smooth boundary.

C2g—20 to 60 inches, light brownish-gray (2.5Y 6/2) sand; many, coarse, distinct, strong-brown (7.5YR 5/6) and olive-gray (5Y 5/2) mottles; single grain; loose when moist; 10 percent gravel; strongly acid.

Reaction ranges from strongly acid to very strongly acid throughout the profile. The A1 horizon ranges from sandy loam to fine sandy loam, and the A2 horizon ranges from sandy loam to sand. In the C horizons hue ranges from 10YR to 5Y, value ranges from 4 to 6, and chroma is 2 or less. The C horizon ranges from loamy sand to sand.

Associated with Scarboro soils in the landscape are Au Gres, Deerfield, Saugatuck, and Windsor soils. Scarboro soils are similar to these soils, but Windsor soils are excessively drained, Deerfield soils are moderately well drained, and Au Gres soils are somewhat poorly drained. Scarboro soils lack the cemented ortstein layer that is present in Saugatuck soils.

Scarboro sandy loam (So).—This is the only Scarboro soil mapped in the county. It is in depressions in old delta areas. Included in mapping are small areas of soil that have a clay substratum. Also included are small areas of Walpole, Deerfield, and Au Gres soils.

This Scarboro soil is wet throughout the year. Permeability is rapid to very rapid, but internal drainage is affected by a high water table. Runoff is slow.

If drainage is provided, Scarboro sandy loam can be used for hay and pasture. Locating suitable drainage outlets is a concern of management. Trees that commonly grow in the areas are not suitable for planting, because seedling mortality is severe. In addition, equipment limitations are severe because of wetness, and the windthrow hazard is severe because the roots of most plants are restricted to the zone above a water table. This soil is well

group, not suited to growing trees for commercial purposes; wildlife group 4.

Whitman Series

The Whitman series consists of deep, nearly level, very poorly drained, moderately coarse textured and medium textured soils. These soils formed in firm stony glacial till. They are in depressional areas on uplands in the northern and western parts of the county.

A representative profile of a Whitman soil in an uncultivated area has a black organic mat, 4 inches thick, over a surface layer of very dark brown fine sandy loam 6 inches thick. The upper 12 inches of the substratum consists of grayish-brown to light olive-gray, friable sandy loam that has brown, grayish-brown, and light reddish-brown mottles. Below is 42 inches of olive-gray and gray, very firm fine sandy loam to sandy loam that has dark-brown mottles. This very firm substratum is a fragipan.

A water table is at a depth of 1 foot most of the year. Depth to bedrock is 5 feet or more. Common species are eastern hemlock, balsam fir, speckled alder, American elm, and white spruce.

Representative profile of Whitman fine sandy loam, 100 feet south of State Route 117, 1 mile west of Crooked River in Harrison Township:

O2—4 inches to 0, black (5YR 2/1) decomposed organic material; many roots; abrupt, wavy boundary.

A1—0 to 6 inches, very dark brown (10YR 2/2) fine sandy loam; weak, fine, granular structure; friable when moist; many roots; medium acid; abrupt, wavy boundary.

C1g—6 to 10 inches, grayish-brown (10YR 5/2) sandy loam; many, coarse, distinct, brown (7.5YR 5/2) and grayish-brown (2.5Y 5/2) mottles; weak, fine, granular structure; friable when moist; many roots; 5 percent coarse fragments; medium acid; clear, wavy boundary.

C2g—10 to 18 inches, light olive-gray (5Y 6/2) sandy loam; many coarse, prominent, light reddish-brown (2.5YR 6/4) mottles; medium, fine, granular structure; friable when moist; many roots; 10 percent coarse fragments; medium acid; abrupt, smooth boundary.

C3x—18 to 30 inches, olive-gray (5Y 5/2) gravelly fine sandy loam; many, fine, prominent, dark-brown (7.5YR 3/2) mottles; moderate, thick, platy structure; very firm when moist; 20 percent coarse fragments; medium acid; gradual, smooth boundary.

C4x—30 to 60 inches, gray (5Y 6/1) gravelly sandy loam; a few, fine, prominent, dark-brown (7.5YR 4/4) mottles; weak, thick, platy structure; very firm when moist; 20 percent coarse fragments; medium acid.

Fragipan is at a depth of 10 to 25 inches. The content of coarse fragments ranges from 5 to 35 percent throughout the profile. Reaction ranges from medium acid to neutral in the solum and in the substratum.

The A1 horizon, as well as its gravelly analogs, ranges from fine sandy loam to silt loam. In the Cx horizons hue is 2.5Y or 5Y, value ranges from 4 to 6, and chroma is 0, 1, or 2. The Cg and Cx horizons, as well as their gravelly analogs, range from sandy loam to loam.

Associated with Whitman soils in the landscape are the Canaan, Hollis, Paxton, Peru, Ridgebury, Sebago, and Woodbridge soils. Whitman soils are similar to these soils, but Hollis and Canaan soils are shallow. In addition, Peru and Woodbridge soils are moderately well drained, Ridgebury soils are poorly drained, and Paxton soils are well drained. Sebago soils formed in organic deposits.

Whitman fine sandy loam (Wh).—This is the only Whitman soil mapped in the county. It is in upland depressional areas. Included in mapping are small areas of Ridgebury and Sebago soils. Also included are small areas of soils that have many stones, 1 foot in diameter, on the surface.

This Whitman soil is wet throughout the year. Runoff is very slow. Permeability is moderate to moderately rapid above the fragipan and moderately slow to slow in the fragipan. Available water capacity is high.

This soil can be used for limited hay and pasture if artificial drainage is provided. It is too wet for row crops, even if drained. It generally is not suited to woodland, and if it is used for this purpose, seedling mortality is severe, and wetness severely limits the use of woodland equipment. The hazard of windthrow is severe because of a shallow root zone caused by a high water table. This soil has very severe limitations for most community uses, principally because of a high water table and excessive wetness. Excess surface water very severely limits all recreational uses. Capability unit Vw–4; woodland group 5w1; wildlife group 4.

Windsor Series

The Windsor series consists of deep, excessively drained, nearly level to strongly sloping, coarse-textured soils. These soils formed in glacial outwash deposits. They are on terraces adjacent to many streams and rivers throughout the county.

A representative profile of a Windsor soil in a cultivated area has a surface layer of dark-brown loamy sand 6 inches thick. The upper 9 inches of the subsoil is brown, very friable loamy sand, and the lower 11 inches of the subsoil is light olive-brown, loose loamy sand. The substratum, at a depth of 26 inches, is pale-yellow, loose medium sand.

Permeability is rapid or very rapid in these soils, and available water capacity is low. Depth to bedrock is 5 feet or more.

Many areas of Windsor soils were formerly cultivated, but they are now wooded. Common species are northern hardwoods, white pine, red pine, and eastern hemlock.

Representative profile of Windsor loamy sand, 0 to 8 percent slopes, 0.25 mile south of the Gorham-Scarboro town line on the south side of Burnham Road in Scarborough Township:

Ap—0 to 6 inches, dark-brown (10YR 3/3) loamy sand; weak, medium, granular structure; very friable when moist; many roots; strongly acid; abrupt, smooth boundary.

B21—6 to 15 inches, brown (10YR 5/3) loamy sand; weak, fine, granular structure; very friable when moist; a few roots; strongly acid; gradual, wavy boundary.

B22—15 to 26 inches, light olive-brown (2.5Y 5/6) loamy sand; single grain; loose when moist; a few roots in upper 4 inches; strongly acid; gradual, wavy boundary.

C—26 to 60 inches, pale-yellow (2.5Y 7/4) medium sand; single grain; loose when moist; strongly acid.

The solum ranges from 24 to 30 inches in thickness. Reaction ranges from strongly acid to very strongly acid throughout the profile. The content of gravel in the solum ranges from 0 to 5 percent and from 0 to 10 percent in the C horizon.

The Ap horizon ranges from loamy sand to loamy fine sand. In the B21 horizon hue ranges from 7.5YR to 2.5Y, value is 4 or 5, and chroma ranges from 3 to 8. The B21 horizon ranges from loamy sand to loamy fine sand. In the B21 horizon hue is 10YR or 2.5Y, value ranges from 5 to 7, and chroma ranges

from 2 to 6. The B22 horizon ranges from loamy sand to fine sand. In the C horizon hue is 5Y, 10YR, or 2.5Y; value ranges from 5 to 7; and chroma ranges from 1 to 4. The C horizon ranges from medium sand to fine sand.

Associated with Windsor soils in the landscape are Au Gres, Deerfield, Saugatuck, Scarboro, and Sebago soils. Windsor soils are similar to these soils, but Deerfield soils are moderately well drained, Au Gres soils are somewhat poorly drained, and Scarboro soils are very poorly drained. Windsor soils lack the ortstein layer of Saugatuck soils. Sebago soils formed in deep organic deposits.

Windsor loamy sand, 0 to 8 percent slopes (WmB).—This soil has the profile described as representative of the series. It is on the top of terraces adjacent to streams and rivers. Runoff is slow. Included in mapping are small areas of Hinckley, Deerfield, and Au Gres soils. Also included are small areas of soils that have thin lenses of clay.

This Windsor soil can be used for row crops, pasture, and hay, and as woodland. For row crops, irrigation is needed because of low available water capacity. Low available water capacity also limits the use of this soil for hay and pasture. This soil does respond well to fertilizer.

For woodland use, white pine and red pine are suitable for planting, but seedling mortality is severe. This soil has slight limitations for use as homesites that have public sewage disposal. Because of possible ground-water contamination from septic effluent, this soil has moderate limitations for use as homesites where septic tank systems must be installed. This soil has slight limitations for use as wilderness tent sites. Capability unit IIIs–5; woodland group 5s1; wildlife group 5.

Windsor loamy sand, 8 to 15 percent slopes (WmC).—This soil is on the side of terraces adjacent to streams and rivers. Runoff is medium. Included in mapping are small areas of moderately steep and gently sloping Windsor soils and small areas of Hinckley soils.

This Windsor soil can be used for hay, pasture, row crops, and woodland. If this soil is used for row crops, irrigation is needed because of low available water capacity. Low available water capacity limits the use of this soil for hay and pasture and measures to conserve soil moisture should be used. This soil does not hold fertilizer well. For woodland, white pine and red pine are suitable for planting, but seedling mortality is severe. This soil has slight limitations for use as homesites that have public sewage disposal. Because ground water is likely to become contaminated from septic effluent, this soil has moderate limitations for use as homesites where septic tank systems must be installed for the disposal of sewage. This soil has slight limitations for use as wilderness tent sites. Capability unit IVs–5; woodland group 5s1; wildlife group 5.

Windsor loamy sand, 15 to 30 percent slopes (WmD).—This soil is on the lower part of irregular slopes of terraces adjacent to streams and rivers. It has a profile similar to the one described as representative of the series, except that its surface layer and the upper part of its subsoil are thinner. Runoff is rapid. Included in mapping are small areas of gently sloping, steep, and very steep Windsor soils and small areas of Hinckley soils.

This Windsor soil can be used for pasture and as woodland, but if it is used for pasture, droughtiness is a problem during dry periods. For woodland, white pine and red pine are suitable for planting, but seedling mortality is severe, and equipment limitations are moderate because of strong slopes. Strong slopes severely limit use of this soil for homesites where septic tank systems must be installed for the disposal of sewage, and they severely or very severely limit it for most recreational uses. Capability unit VIs–5; woodland group 5s2; wildlife group 8.

Woodbridge Series

The Woodbridge series consists of deep, moderately well drained, nearly level to moderately sloping, moderately coarse textured and medium textured soils. These soils formed in very firm stony glacial till. They are on hills and ridges throughout the county.

A representative profile of a Woodbridge soil in a wooded area has a surface layer of very dark grayish-brown fine sandy loam, 2 inches thick, that is underlain by a layer of grayish-brown, very friable fine sandy loam 1 inch thick. The upper 13 inches of subsoil is dark-brown or brown, very friable fine sandy loam. The lower 4 inches of the subsoil is light olive-brown, friable fine sandy loam that has dark-brown and brownish-yellow mottles. The substratum, at a depth of 20 inches, is olive-gray, very firm fine sandy loam that has strong-brown and yellowish-brown mottles. The substratum is a fragipan.

Permeability is moderately rapid above the fragipan and moderately slow within it. Available water capacity is high. A water table is at a depth of 1 to 2½ feet in spring and during periods of heavy precipitation. Depth to bedrock is 5 feet or more. Many areas of these soils are farmed, but most areas are wooded. Common species are white spruce, white pine, eastern hemlock, and balsam fir.

Representative profile of Woodbridge very stony fine sandy loam, 0 to 8 percent slopes, 0.3 mile west of Dry Mills on the East Raymond Road from the junction with North Raymond Road and on the south side of the road 100 feet into the woods in Gray Township:

A1—0 to 2 inches, very dark grayish-brown (10YR 3/2) fine sandy loam; moderate, fine, granular structure; very friable when moist; many roots; 5 percent coarse fragments; strongly acid; clear, broken boundary.

A2—2 to 3 inches, grayish-brown (10YR 5/2) fine sandy loam; weak, fine, granular structure; very friable when moist; many roots; 5 percent coarse fragments; strongly acid; clear, broken boundary.

B21—3 to 6 inches, dark-brown (7.5YR 4/4) fine sandy loam; weak, fine, granular structure; very friable when moist; many roots; 5 percent coarse fragments; strongly acid; clear, irregular boundary.

B22—6 to 16 inches, brown (10YR 5/3) fine sandy loam; weak, fine, granular structure; friable when moist; many roots; 5 to 10 percent coarse fragments; strongly acid; clear, smooth boundary.

B23—16 to 20 inches, light olive-brown (2.5Y 5/4) fine sandy loam; many, coarse, distinct, dark-brown (7.5YR 3/2) and brownish-yellow (10YR 6/6) mottles; moderate, fine, granular structure; friable when moist; many roots; 5 to 10 percent coarse fragments; medium acid; clear, smooth boundary.

Cx—20 to 60 inches, olive-gray (5Y 5/2) fine sandy loam; many, coarse, distinct, strong-brown (7.5YR 5/8) and yellowish-brown (10YR 5/6) mottles; moderate, thick, platy structure; very firm when moist; thin, very fine, sandy coating between plates; 15 percent coarse fragments; medium acid.

Depth to fragipan ranges from 16 to 36 inches. The solum ranges from 16 to 36 inches in thickness. Reaction ranges from strongly acid to medium acid throughout the profile. The