

**City of Portland, Maine – Building or Use Permit Application** 389 Congress Street, 04101, Tel: (207) 874-8703, FAX: 874-8716

Location of Construction: 74 Evergreen Drive		Owner: Elichaa, Joseph & Suzan		Phone:		Permit No: <b>971217</b>	
Owner Address:		Lessee/Buyer's Name: Maine Resources		Phone:		BusinessName:	
Contractor Name: Keeley Construction Inc.		Address: P.O. Box 1074 Ptld, ME 04104		Phone: 773-8499		Permit Issued: <b>NOV 12 1997</b>	
Past Use:  Office/Comm		Proposed Use:  Same		COST OF WORK: \$		PERMIT FEE: \$ 100.00	
				FIRE DEPT. <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied		INSPECTION: Use Group: Type:	
				Signature: <i>[Signature]</i>		Signature:	
Proposed Project Description:  Expand Parking Lot Addition to be constructed in Spring of 98				PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.) Action: Approved <input type="checkbox"/> Approved with Conditions: <input type="checkbox"/> Denied <input type="checkbox"/>		Zoning Approval: <i>[Signature]</i> 11/7/97 Special Zone or Review: <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan maj <input type="checkbox"/> minor <input type="checkbox"/> mm <input type="checkbox"/>	
Permit Taken By: Mary Gresik		Date Applied For: 29 October 1997				Zone: CBL: 329-A-004	

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

**PERMIT ISSUED WITH REQUIREMENTS**

**CERTIFICATION**

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

*Howard Getchell*  
SIGNATURE OF APPLICANT Howard Getchell ADDRESS: DATE: 29 October 1997 PHONE:

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE PHONE:

White-Permit Desk Green-Assessor's Canary-D.P.W. Pink-Public File Ivory Card-Inspector

**PERMIT ISSUED**  
**NOV 12 1997**  
**CITY OF PORTLAND**

Zone: CBL: 329-A-004

Zoning Approval:  
*[Signature]* 11/7/97  
Special Zone or Review:  
 Shoreland  
 Wetland  
 Flood Zone  
 Subdivision  
 Site Plan maj  minor  mm

**Zoning Appeal**  
 Variance  
 Miscellaneous  
 Conditional Use  
 Interpretation  
 Approved  
 Denied

**Historic Preservation**  
 Not in District or Landmark  
 Does Not Require Review  
 Requires Review

Action:  
 Approved  
 Approved with Conditions  
 Denied

Date: *11/3/97*

*[Signature]*

CEO DISTRICT **7**  
*[Signature]*

COMMENTS

3/11/98 - Talked to Howard Galtchell - all done except  
paved Court - Ref'd to Jim Wendell

~~3/17/99~~ 9/17/99 Will refer matters to Jim Wendell. JW

11/01/00 Completed. F.G.  
JW

Inspection Record

Type

Foundation: \_\_\_\_\_  
Framing: \_\_\_\_\_  
Plumbing: \_\_\_\_\_  
Final: \_\_\_\_\_  
Other: \_\_\_\_\_

Date

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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# BUILDING PERMIT REPORT

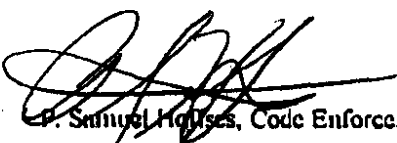
DATE: 12 NOV 97 ADDRESS: 74 Evergreen Dr.  
REASON FOR PERMIT: To Expand Parking lot  
BUILDING OWNER: Joseph Elchag  
CONTRACTOR: Keeley Const. Inc.  
PERMIT APPLICANT: \_\_\_\_\_ APPROVAL: X1 DENIED  
USE GROUP Parking Lot BOCA 1996 CONSTRUCTION TYPE \_\_\_\_\_

## CONDITION(S) OF APPROVAL

- X1. This permit does not excuse the applicant from meeting applicable State and Federal rules and laws.
2. Before concrete for foundation is placed, approvals from the Development Review Coordinator and Inspection Services must be obtained. (A 24 hour notice is required prior to inspection)
3. Precaution must be taken to protect concrete from freezing.
4. It is strongly recommended that a registered land surveyor check all foundation forms before concrete is placed. This is done to verify that the proper setbacks are maintained.
5. Private garages located beneath habitable rooms in occupancies in Use Group R-1, R-2, R-3 or I-1 shall be separated from adjacent interior spaces by fire partitions and floor/ceiling assembly which are constructed with not less than 1-hour fire resisting rating. Private garages attached side-by-side to rooms in the above occupancies shall be completely separated from the interior spaces and the attic area by means of ½ inch gypsum board or the equivalent applied to the garage means of ½ inch gypsum board or the equivalent applied to the garage side. (Chapter 4 Section 407.0 of the BOCA/1996)
6. All chimneys and vents shall be installed and maintained as per Chapter 12 of the City's Mechanical Code. (The BOCA National Mechanical Code/1993).
7. Sound transmission control in residential building shall be done in accordance with Chapter 12 section 1214.0 of the city's building code.
8. **Guardrails & Handrails:** A guardrail system is a system of building components located near the open sides of elevated walking surfaces for the purpose of minimizing the possibility of an accidental fall from the walking surface to the lower level. Minimum height all Use Groups 42", except Use Group R which is 36". In occupancies in Use Group A, B, H-4, I-1, I-2 M and R and public garages and open parking structures, open guards shall have balusters or be of solid material such that a sphere with a diameter of 4" cannot pass through any opening. Guards shall not have an ornamental pattern that would provide a ladder effect. (Handrails shall be a minimum of 34" but not more than 38". Use Group R-3 shall not be less than 30", but not more than 38".)
9. Headroom in habitable space is a minimum of 7'6"
10. Stair construction in Use Group R-3 & R-4 is a minimum of 10" tread and 7 3/4" maximum rise. All other Use group minimum 11" tread, 7" maximum rise.
11. The minimum headroom in all parts of a stairway shall not be less than 80 inches. (6' 8")
12. Every sleeping room below the fourth story in buildings of use Groups R and I-1 shall have at least one operable window or exterior door approved for emergency egress or rescue. The units must be operable from the inside without the use of special knowledge or separate tools. Where windows are provided as means of egress or rescue they shall have a sill height not more than 44 inches (1118mm) above the floor. All egress or rescue windows from sleeping rooms shall have a minimum net clear opening height dimension of 24 inches (610mm). The minimum net clear opening width dimension shall be 20 inches (508mm), and a minimum net clear opening of 5.7 sq. ft.
13. Each apartment shall have access to two (2) separate, remote and approved means of egress. A single exit is acceptable when it exits directly from the apartment to the building exterior with no communications to other apartment units.
14. All vertical openings shall be enclosed with construction having a fire rating of at least one (1) hour, including fire doors with self closer's.
15. The boiler shall be protected by enclosing with (1) hour fire-rated construction including fire doors and ceiling, or by providing automatic extinguishment.
16. All single and multiple station smoke detectors shall be of an approved type and shall be installed in accordance with the provisions of the City's Building Code Chapter 9, Section 19, 920.3.2 (BOCA National Building Code/1996), and NFPA 101 Chapter 18 & 19. (Smoke detectors shall be installed and maintained at the following locations):
  - In the immediate vicinity of bedrooms
  - In all bedrooms

In each story within a dwelling unit, including basements  
In addition to the required AC primary power source, required smoke detectors in occupancies in Use Groups R-2, R-3 and I-1 shall receive power from a battery when the AC primary power source is interrupted. (Interconnection is required)

- 17. A portable fire extinguisher shall be located as per NFPA #10. They shall bear the label of an approved agency and be of an approved type.
- 18. The Fire Alarm System shall be maintained to NFPA #72 Standard.
- 19. The Sprinkler System shall maintained to NFPA #13 Standard.
- 20. All exit signs, lights, and means of egress lighting shall be done in accordance with Chapter 10 Section & Subsections 1023. & 1024. Of the City's building code. (The BOCA National Building Code/1996)
- 21. No construction or demolition work shall begin until you have obtained permits for dumpsters or containers. A work Stop Order shall be issued if this requirement is not met.
- 22. Section 25-135 of the Municipal Code for the City of Portland states, "No person or utility shall be granted a permit to excavate or open any street or sidewalk from the time of November 15 of each year to April 15 of the following year".
- 23. The builder of a facility to which Section 4594-C of the Maine State Human Rights Act Title 5 MRSA refers, shall obtain a certification from a design professional that the plans commencing construction of the facility, the builder shall submit the certification to the Division of Inspection Services.
- 24. This permit does not excuse the applicant from obtaining any license which may be needed from the City Clerk's office.
- 25. Ventilation shall meet the requirements of Chapter 12 Sections 1210. of the City's Building Code.
- 26. All electrical, plumbing and HVAC permits must be obtained by a Master Licensed holders of their trade.
- 27. All requirements must be met before a final Certificate of Occupancy is issued.
- 28. All building elements shall meet the fastening schedule as per Table 2305.2 of the City's Building Code. (The BOCA National Building Code/1996).
- 29. Ventilation of spaces within a building shall be done in accordance with the City's Mechanical Code (The BOCA National Mechanical Code/1993).
- 30. *This permit is ~~for~~ to expand parking lot only.*
- 31. \_\_\_\_\_
- 32. \_\_\_\_\_
- 33. \_\_\_\_\_
- 34. \_\_\_\_\_

  
P. Samuel Holmes, Code Enforcement

cc: Lt. McDougall, PFD  
Marge Schimmickal

STEPHEN W. TIBBETTS, P.E.  
15 OAK RIDGE ROAD  
BRUNSWICK, ME 04011  
(207) 725-2667

April 18, 1997

Joseph Gray, Jr.  
Director of Planning  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Main Resource Expansion  
74 Evergreen Drive  
Portland, Maine

Dear Mr. Gray:

I am applying on behalf of Joseph and Suzan Elichaa, Owners of Main Resource, for a permit to expand the current Telephone Repair Facility. The initial building was completed in the summer of 1996 and was approved under staff review. I believe the application is in conformance with the Zoning Code and we are not seeking any variances.

**Zoning summary**

Current Zone	I M
Land Area	1.6 acres
Existing Building Area	9,990 sq. ft.
Proposed Building Area	15,990 sq. ft.
Existing Parking Spaces Required	16
Existing Parking Spaces Provided	20
Proposed Parking Spaces Required	28 (8,000 sf office & 8,000 sf industrial)
Proposed Parking Spaces	58
Requirements of External Effects	All criteria are met or non applicable
Space and Bulk	All criteria are met or non applicable

**Scope of expansion**

**Sitework**

1. The expansion of the building is towards the rear of the site.
2. Storm water will be directed to a detention pond at the rear of site. Storm water calculations are attached.
3. No additional planting other than grass is proposed.
4. An Erosion and Sedimentation Control Plan has been developed for this work and is attached.

74 Evergreen Dr.

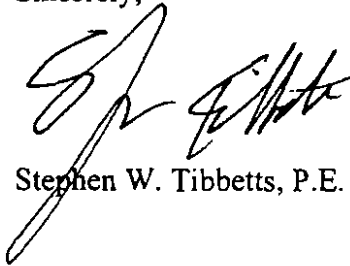
Planning staff  
City of Portland  
Re: Main Resource Expansion  
74 Evergreen Drive  
Portland, Maine  
April 18, 1997  
Page 2 of 2

#### Building

1. The building's siding and roofing will match existing.
2. Two light packs will be added to the rear of the building. Specifications are attached.
3. One loading dock will be added beside the two existing docks.
4. No additional signage will be added.

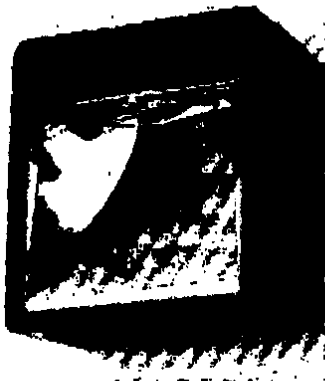
I trust this submission contains all the information you require. Please contact me with any questions or comments. Thank you for your assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "S. Tibbetts", written over a large, light-colored scribble or mark.

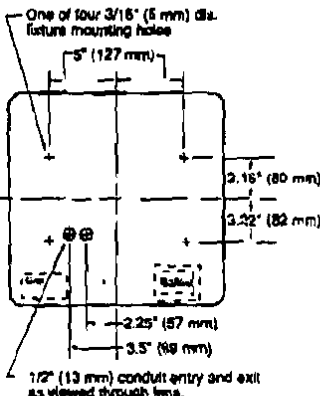
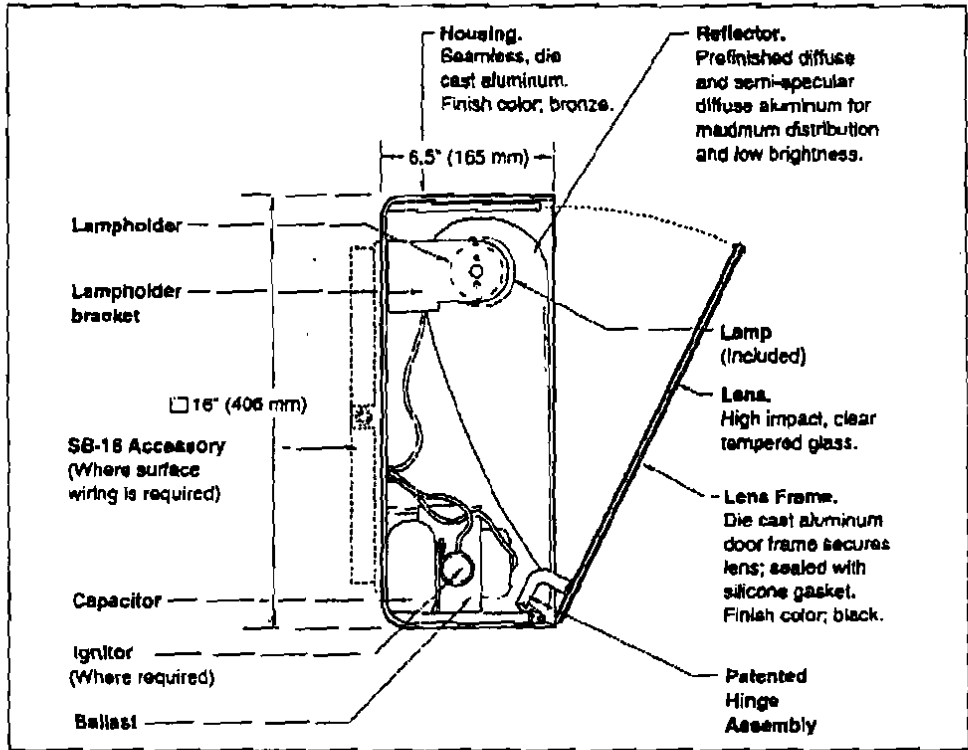
Stephen W. Tibbetts, P.E.

# 16" (406 mm) WALL PACK



SPEC. #	WATTAGE	CATALOG #	(a) VOLTAGE	(b) OPTIONS (Factory Installed)
	<b>175W MH</b>	W0417-	M=120/208/240/277V	E=Embedded Installation (N/A on 400w)
	250W MH	W0425-	T=120/277/347V	F=Fusing (N/A with 'E' option)
	400W MH	W0440-	S=480V	J=Tamperproof Lens Fasteners
	250W HPS	W0525-	500=220/240V 50 Hz	P=Photocell (single voltage ballast supplied)
	400W HPS	W0540-	8=220V 60 Hz	(N/A with 'E' option)
				Q=Quartz Standby (includes 150W quartz lamp) (non delay-rally type)
				V=Flat Polycarbonate Lens
				(N/A with 'E' option) (150W Max.)
				-SP=External Mounted Photocell (for 480V)

Specify (a) Voltage, and (b) Options.



**GENERAL DESCRIPTION:** Wall pack luminaire for HID lamp, totally enclosed. Housing is seamless die cast aluminum. Provided with four .188 (5 mm) clearance holes and steel mounting screws with sealing washers. Two 1/2" (13 mm) conduit openings provided for wire supply. Lens assembly consists of a rigid die cast aluminum frame and high impact clear tempered glass. Use of SB-16 surface box accessory is required with 400W units, unless mounting is to brick, concrete or metal surface. 175W & 250W fixtures are suitable for embedded mount in poured concrete surface. (Quartz Standby, Fusing & Photocell options are not available with embedded installation).

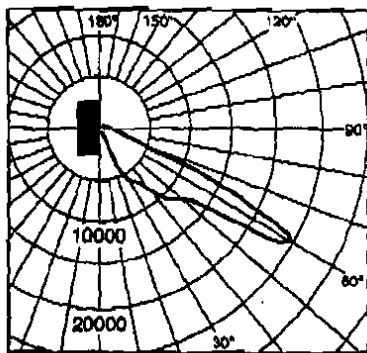
**ELECTRICAL:** Fixture includes a clear mogul base lamp, 400W MH utilizes the ED28 lamp. Porcelain enclosed, 4kv rated screw shell type lampholder with spring loaded center contact and lamp locking feature. In U.S., 90°C temperature feed wire required, in Canada, 150°C. Ballast assemblies consist of high power factor Constant Wattage Autotransformer ballast. Fully encapsulated Ignitor included on HPS assembly. (See voltage options).

**FINISH:** Exclusive DeltaGuard™ finish features an E-coat epoxy primer with medium bronze acrylic powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. The finish is covered by our 7 year limited warranty.

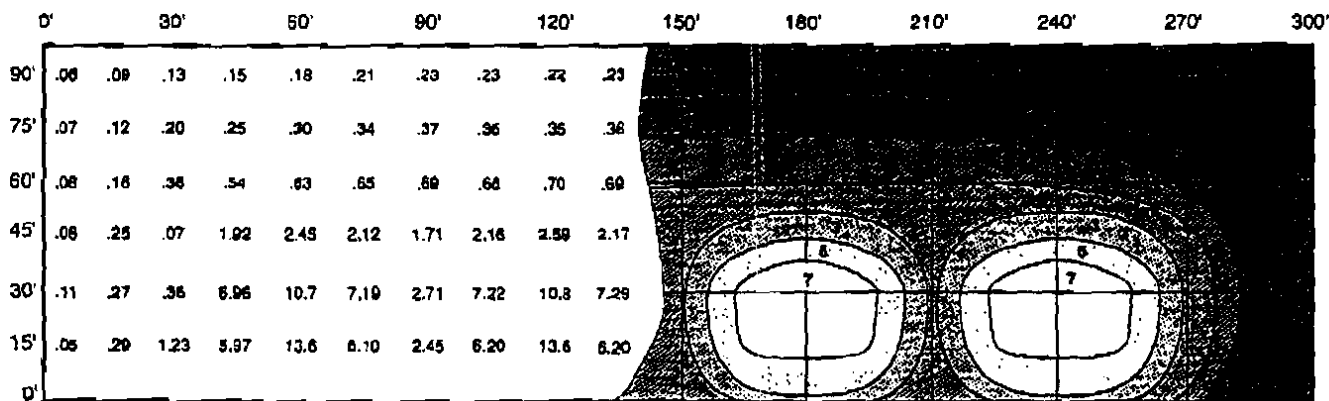
**LABELS:** ANSI lamp wattage label supplied, visible during relamping. UL Listed for wet locations and enclosure classified IP54 per IEC 529; in Canada, CSA Certified or Canadian UL Listed for wet locations.

**ACCESSORIES:**  
 FWG-16 = Wire Guard  
 LS-16 = Polycarbonate Vandal Shield  
 SB-16 = Surface Box  
 TPS-1 = Tamperproof Screwdriver  
 WWS-16 = Wall Wash/Glare Shield

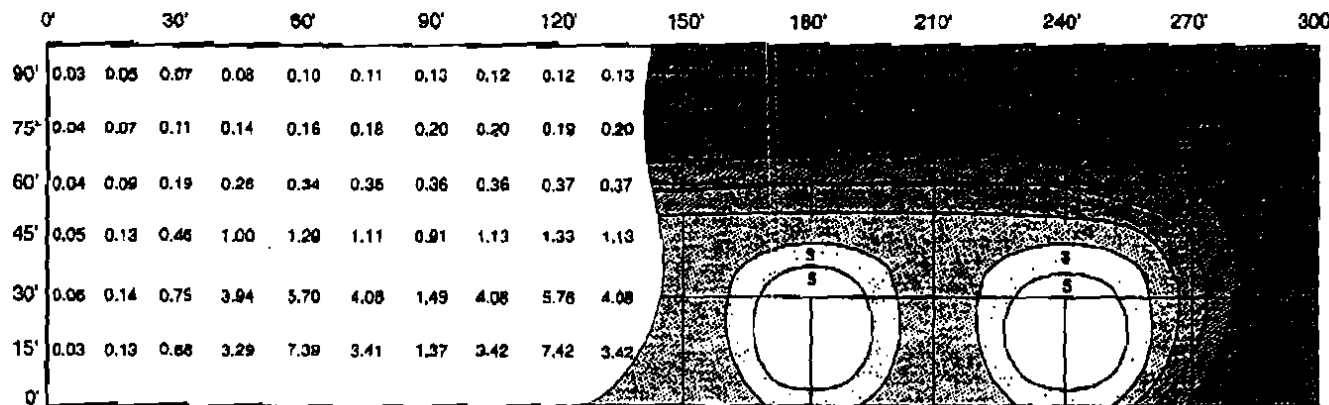
### 16" (406 mm) WALL PACK APPLICATION DATA



Candlepower distribution curve of 250W HPS 16" (406 mm) Wall Pack.



Initial Footcandle Plot and Isofootcandle Curve (at grade) of four 400W Super MH Wall Packs at 20' (6.1 m) mounting height and 60' (18.3 m) spacing.



Initial Footcandle Plot and Isofootcandle Curve (at grade) of four 250W HPS Wall Packs at 20' (6.1 m) mounting height and 60' (24.4 m) spacing.

### RUUD LIGHTING, INC.

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CANADA 5700 Timberlea Blvd., Unit 3 Mississauga, Ontario L4W 5H9

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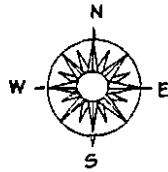


# **EROSION AND SEDIMENTATION CONTROL PLAN**

**MAINE RESOURCES  
BUILDING AND PARKING EXPANSION  
Lot #4, Evergreen Drive, Portland, Maine**

**April 8, 1997**

**Prepared By:**



**STEPHEN W. TIBBETTS, P.E.**

Professional Civil Engineer  
15 Oak Ridge Road  
Brunswick, maine 04011

## **EROSION AND SEDIMENTATION CONTROL MEASURES**

These proposed measures are based upon sound engineering and soil conservation practices and incorporate Best Management Practices for sedimentation and erosion control as presented in Maine Erosion and Sedimentation Control Handbook for Construction: Best Management Practices, March 1991, by the Cumberland County Soil and Water Conservation District and the State of Maine, Department of Environmental Protection. *The Developer and his General Contractor are directed to have a copy of this document on hand during the construction of this project to supplement the following plan.*

### **GENERAL RECOMMENDATIONS**

In order to prevent erosion and sedimentation before, during and after construction of this project, the Developer and its General Contractor will make an effort at all times to:

1. Minimize disturbed areas.
2. Seed and mulch disturbed areas ready for revegetation immediately after final grading or use temporary mulch.
3. Correct any erosion problems immediately.
4. Monitor and maintain all of the proposed practices on a regular basis.

### **CONSTRUCTION PHASE**

During the construction of the building addition, parking area expansion, roadway and detention basin expansion, erosion and sedimentation will be controlled from this site by a series of recommended measures. They consist of a number of site specific nonstructural and structural measures as outlined below, as well as general nonstructural measures that apply throughout the construction period.

#### **General Measures**

1. Only those areas under active construction will be cleared and left in an unvegetated or untreated condition. *Final grading, loaming and seeding shall take place within 30 days of the start of construction. Refer to Permanent Revegetation Measures section for details.* If a longer period is anticipated, temporary stabilization measures need to be taken. (See Item 5 below.)
2. Before starting construction sediment barriers (See nonstructural measures) will be installed at the toe of slope and in any other areas as located on the Site and Grading Plan.
3. Immediately after final grading of the parking, roadway and detention basin, install the stone check dams (See nonstructural

measures) as indicated on the Site and Grading Plan, SP1.

4. Topsoil will be stockpiled during construction. Stockpiles shall be:

- a. Surrounded by a sediment barrier.
- b. Placed in piles with side slopes not to exceed 2 : 1.
- c. Mulched immediately and anchored with plastic netting.

5. If any disturbed areas are expected to be left exposed for longer than 7 days, they shall be either:

- a. Treated with mulch immediately, or
- b. Seeded with a standard conservation mix of annual rye grass at a rate of 0.9 lbs/1000 sf and mulched.

6. All grading will be held to a maximum slope of 3H : 1 V or flatter.

### **Nonstructural Measures (Temporary)**

The following, temporary nonstructural measures have been recommended by the Project Engineer for this project. Reference is also made to the relevant BMP in the aforementioned Manual. Installation details for the following measures are presented on the Site and Grading Plan for this project.

#### Stone Check Dams (BMP 15.0)

Stone check dams will be installed in the swale shown on the Site Plan in order to reduce velocities.

#### Sediment Barriers (BMP 14.6.2.2)

Synthetic silt fencing shall be installed at the toe of *all* fill slopes along the roadway reconstruction at the rear of the building addition and where shown on the Site and Grading Plan for this project.

#### Storm Drain Inlet Protection (BMP 16.0)

A straw bale drop inlet sediment filter shall be installed around the catch basin by the loading dock. A silt fence drop inlet sediment filter shall be installed around the existing detention basin outlet structure.

### **Structural Measures**

Structural erosion and sedimentation control measures designed for this development are:

#### Pipe Inlet Protection (BMP 31.0)

The culvert inlet behind the expansion shall be protected as

indicated in the Inlet Protection Detail shown on the Site and Grading Plan Details Sheet after regrading has taken place in this area. The protection shall consist of stone rip rap (d50 = 3") set over Geotextile fabric and placed as shown in the Details.

Pipe Outlet Protection (BMP 32.0)

The outlet for the culvert under the roadway behind the building will be protected by stone rip rap (D50 = 3") set on Geotextile fabric and placed as shown in the Details after regrading of the detention basin has taken place. The outlet for the roof drains will have the same treatment.

**Permanent Revegetation Measures**

The following measures will be used to establish permanent grass and legume cover on all disturbed areas as soon as final grading has occurred. Refer to BMP 3.0 if a more detailed description is necessary.

1. Topsoil will be placed and graded to a uniform minimum depth of 2 inches. If the subsoil is compacted, it should be properly scarified to create the requisite bonding between subsoil and topsoil. In areas where the subsoil is determined to provide an adequate growth medium, topsoil will not be necessary.

2. Apply limestone and fertilizer according to soil test results. If testing is not feasible and timing is critical, apply fertilizer (10-20-10) at a rate of 18.4 lbs/ 1000 sq.ft., and ground limestone at a rate of 138lbs/1000 sq.ft.. Work the fertilizer and limestone into the soil as nearly as practical to a depth of 4 inches with a disc, spring tooth harrow, or other suitable equipment, working along the contour.

3. Permanent seeding shall be completed before August 15. A recommended broadcast seeding mixture from BMP 3.0, Table 3.2 is (in lbs/1000 sqft): .46 lbs Creeping Red Fescue, .46 lbs Tall Fescue, and .05 lbs Red Top (Total of .97 lbs). For Hydroseeding increase these rates by 10%. Other suitable mixtures recommended in BMP 3.0, Table 3.2 may be substituted after checking with the Project Engineer.

4. After seeding, an area shall be mulched immediately. Mulching shall consist of straw mulch, hydro-mulch or any suitable substitute as outlined in BMP 1.0, Table 1.1 and deemed acceptable by the Project Engineer.

a. Straw mulch shall be applied at a rate of 2 bales/ 1000 sq. ft.

b. Straw mulch shall be anchored on all slopes greater than 5% with degradable/biodegradable netting.

c. AMEXCO, Double Net, CURLEX Erosion Control Blankets

*shall be used in the bottom of the grassed ditch leading to the detention basin and the basin side slopes. Refer to the Erosion Control Netting Installations Detail on the Site Plan for this project.*

*5. If permanent seeding cannot take place before August 15, then all areas ready for permanent seeding shall be have a temporary seeding and/or mulch applied until a permanent seeding can be undertaken in the spring of the following year. The recommended temporary seeding is Annual Winter Rye broadcast seeded at a rate of 2.4 lbs/1000sq.ft. If seeding cannot take place until late October or November, then the prepared soils shall be covered with staked, erosion control mats or a 6 inch layer of wood chips until seeding can take place the following spring.*

6. Following final seeding, the Developer and General Contractor shall insure that all seedings are checked after each storm event and every 30 days until there is a catch of at least 80% of the seeds. If any seed is lost to erosion or the catch is not adequate, then the Developer will reseed those areas needing attention.

## MONITORING SCHEDULE

The Developer and General Contractor shall be responsible for installing, monitoring, maintaining, replacing and removing, where required, all of the erosion and sedimentation control measures recommended in this plan. A qualified subcontractor may be appointed for this element of the plan. The City Engineer for the City of Portland should be kept notified of the implementation of this plan and requested to conduct follow-up inspections. Maintenance measures will be applied as needed during the construction cycle. *After each rainfall event, a visual inspection will be made of all measures to insure that they are functioning as designed.* Further detailed inspections must be made as follows:

1. The silt fencing and hay bale barriers shall be inspected and repaired once a week or immediately after any significant rainfall. Sediment trapped behind these barriers shall be removed when it reaches a depth of 6" and redistributed to areas undergoing final grading.

2. Stone check dams shall be inspected once a week and/or after each significant rainfall and repaired as needed. The center of the dam shall be inspected to insure that the center of the dam is lower than the edges. If it is not, then it must be corrected immediately. Sediment trapped behind these dams shall be removed once it attains a depth equal to 1/2 the height of the dam. The sediment removed shall be distributed off-site or to an area undergoing final grading. The sediment removal shall be handled in a manner which does not result in any erosion or sedimentation

of the site.

## **REMOVAL OF TEMPORARY EROSION CONTROL MEASURES**

Silt fencing and hay bale barriers are temporary measures that shall be removed once vegetation has become established and areas are stable. This occurs when there is an 80% growth of planted seeds and paving has occurred. Silt fencing shall be disposed of legally and off-site. All sediment trapped behind the fencing shall be either:

- a. Distributed to an area undergoing final grading.
- b. Graded in an aesthetic manner to conform to the topography, fertilized, seeded and mulched in accordance with the Permanent Revegetation Measures section in this Plan.

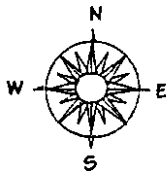
Stone check dams shall be removed and reused either on-site where the stone can be utilized as rip rap, or off-site. The ground below the dams shall be regraded, limed, fertilized reseeded and mulched according to the measures in this Plan. Sediment trapped behind the dams shall be removed and relocated off-site or to an area undergoing final grading.

# **STORMWATER MANAGEMENT STUDY**

**MAINE RESOURCES  
BUILDING AND PARKING EXPANSION  
Lot #4, Evergreen Drive, Portland, Maine**

**April 8, 1997**

**Prepared By:**



**STEPHEN W. TIBBETTS, P.E.**

Professional Civil Engineer  
15 Oak Ridge Road  
Brunswick, maine 04011

# **STORMWATER ANALYSIS**

## **MAINE RESOURCES**

### **BUILDING AND PARKING EXPANSION EVERGREEN DRIVE, PORTLAND, MAINE**

#### **INTRODUCTION**

This stormwater analysis has been prepared for Maine Resources' proposed 5000 square foot building addition and its associated driveways and parking to be constructed on Lot #4 of the Evergreen Industrial Park, Riverside Drive, Portland. The purpose of the analysis is to assess the potential storm water impacts on the existing watershed from the proposed expansion of the facility.

#### **EXISTING SITE CONDITIONS**

The site is currently developed with a 10,000 square foot building and associated parking and driveways. The soils are Scantic which are poorly drained with a high seasonal water table. There is a detention basin at the rear of the property that was designed to detain peak increases from the original project with some buffer for future site expansion.

The site currently has four small subcatchment areas. They are shown on Figure 1. Drainage area 2, DA 2, drains one half of the roof, all of the parking on the southern portion of the site, the driveway along the new expansion and a portion of the northeastern corner of the lot. This drainage area includes the detention basin. This subcatchment empties into the detention basin where it is controlled by the existing outlet structure before draining into the swale in the City of Portland easement.

Drainage area 2, DA 2, drains the northern half of the addition's roof and a small portion of the roadway. This subcatchment area drains into an 8 inch PVC culvert that goes under the road and empties into the detention basin.

Drainage area 3, DA3, drains the northern half of the roof of the existing building, the truck ramps and the balance of the northern parking area. It drains into an existing catch basin located at the first truck ramp. From there, it flows through an 8 inch PVC culvert into the detention basing outlet control structure.

Drainage Area 4, which drains approximately 15% of the property, flows to the southwest into a 24 inch PVC culvert. This culvert flows to the north along Evergreen Drive where it connects into a storm drain that flows along a City of Portland easement that forms the northern boundary of the site. At the northeasterly corner of the lot, the culvert empties into a drainage swale.

#### **DESCRIPTION OF PROPOSED SITE IMPROVEMENTS**

The proposed project includes a 5000 square foot expansion at the rear of the existing building along with an additional 38 parking spaces and a new ramp area to accommodate trucking. The project expansion is shown on the accompanying Site and Grading Plan, SP1.

#### **STORMWATER ANALYSIS**

##### **Methodology**

Stormwater runoff calculations for the site were prepared utilizing the Hydrocad computer methodology. The pre and post development peak discharges were calculated for the 2 year and 25 year frequency storms. The post development calculations include the existing detention basin



reconfigured for more storage.

### **Summary of Findings and Recommended Control Measures**

The calculated peak discharges for the 2 year and 25 year storm events are summarized below.

#### SUMMARY OF PEAK DISCHARGES

Design Storm	Preconstruction Conditions	Post Construction Conditions	Increase in Peak
2 year	.75 cfs	1.21 cfs	.47 cfs
25 year	2.26 cfs	1.99 cfs	-.27 cfs

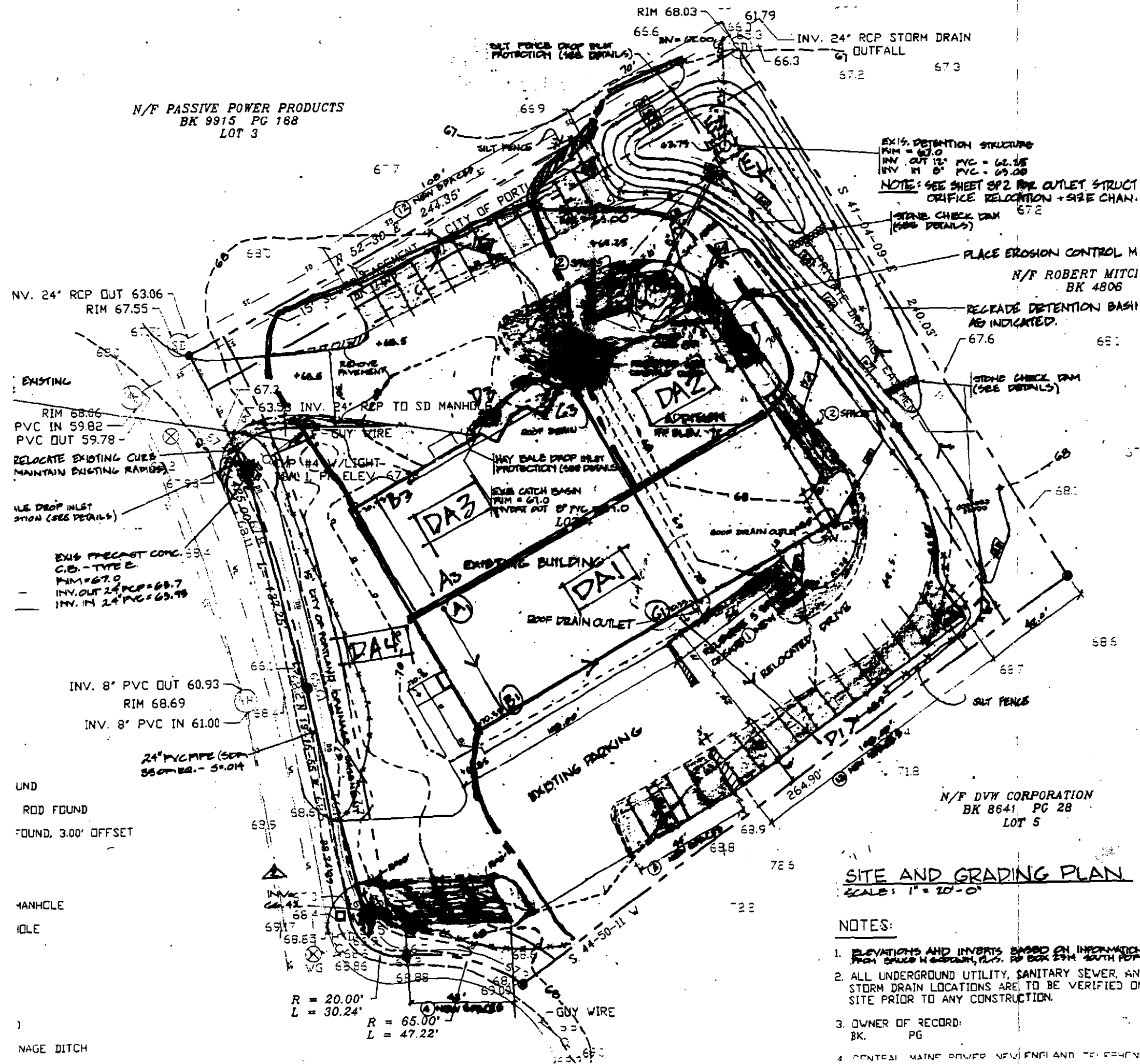
The detention basin will be regraded as shown on the Site and Grading Plan, SP1, to provide the required storage. The stage-storage calculations are shown on page 5 of the attached calculations.

The outlet structure is a 4 foot ID round concrete catch basin with circular orifices designed to regulate the peak flows. In order to provide the necessary detention at the structure, the main outlet control orifice will be reduced to 5 inches and relocated to elevation 63.75. These changes are shown on the accompanying Details Plan, SP2.

Submitted by

Stephen W. Tibbetts, P.E.

Registration Number 3314



**FIGURE 1**  
**ME RESOURCE**

**SUB CATCHMENT**  
**AREAS**

**SITE AND GRADING PLAN**  
SCALE: 1" = 20'-0"

- NOTES:**
- ELEVATIONS AND INVERTS BASED ON INFORMATION FROM BRUCE W. GARDNER, P.E., PO BOX 2314 SOUTH POB
  - ALL UNDERGROUND UTILITY, SANITARY SEWER, AND STORM DRAIN LOCATIONS ARE TO BE VERIFIED ON SITE PRIOR TO ANY CONSTRUCTION.
  - OWNER OF RECORD:  
BK. PG
  - CENTRAL MAINE POWER NEW ENGLAND TELEPHONE

# **STORMWATER CALCULATIONS**

TYPE II 24-HOUR RAINFALL= 5.5 IN

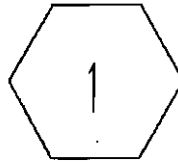
Prepared by Stephen W Tibbetts, PE

7 Apr 97

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WATERSHED ROUTING =====



SUBCATCHMENT



REACH



POND



LINK

SUBCATCHMENT 1

PEAK= .75 CFS @ 12.51 HRS, VOLUME= .10 AF

ACRES	CN
1.27	77 D, woods, good

SCS TR-20 METHOD  
TYPE II 24-HOUR  
RAINFALL= 3.0 IN  
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:a-b	46.7
Woods: Light underbrush	n=.4 L=150' P2=3 in s=.007 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:b-c	6.0
Woodland Kv=5 L=140' s=.006 '/' V=.39 fps		
Total Length= 290 ft		Total Tc= 52.7

SUBCATCHMENT 1

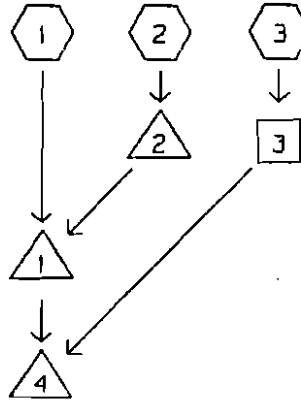
PEAK= 2.26 CFS @ 12.48 HRS, VOLUME= .29 AF

ACRES	CN	
1.27	77	D, woods, good

SCS TR-20 METHOD  
 TYPE II 24-HOUR  
 RAINFALL= 5.5 IN  
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:a-b	46.7
Woods: Light underbrush	n=.4 L=150' P2=3 in s=.007 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:b-c	6.0
Woodland	Kv=5 L=140' s=.006 '/' V=.39 fps	
Total Length= 290 ft		Total Tc= 52.7

WATERSHED ROUTING =====



TYPE III 24-HOUR RAINFALL= 3.0 IN

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## SUBCATCHMENT 1

## Subcat 1

PEAK= 1.45 CFS @ 12.07 HRS, VOLUME= .11 AF

ACRES	CN
.41	98
.33	80
.74	90

Impervious  
D Open space, goodSCS TR-20 METHOD  
TYPE III 24-HOUR  
RAINFALL= 3.0 IN  
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:A-B	.5
Smooth surfaces	n=.011 L=50' P2=3 in s=.05 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:b-c	.8
Paved	Kv=20.3282 L=100' s=.01 '/' V=2.03 fps	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:c-d	.4
Paved	Kv=20.3282 L=80' s=.023 '/' V=3.08 fps	
PARABOLIC CHANNEL	Segment ID:d-e	5.9
W=10' D=1' a=6.67 sq-ft Pw=10.3' r=.65'		
s=.023 '/' n=.24 V=.7 fps L=250' Capacity=4.7 cfs		
Total Length= 480 ft		Total Tc= 7.6

## SUBCATCHMENT 2

## Subcat 2

PEAK= .32 CFS @ 11.98 HRS, VOLUME= .02 AF

ACRES	CN
.10	98
.02	80
.12	95

Impervious  
Soil Type D Open Space, Good condSCS TR-20 METHOD  
TYPE III 24-HOUR  
RAINFALL= 3.0 IN  
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:a-b	.5
Smooth surfaces	n=.011 L=50' P2=3 in s=.05 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:b-c	.4
Paved	Kv=20.3282 L=50' s=.01 '/' V=2.03 fps	
PARABOLIC CHANNEL	Segment ID:c-d	.2
W=5' D=1' a=3.33 sq-ft Pw=5.5' r=.607'		
s=.15 '/' n=.24 V=1.72 fps L=20' Capacity=5.7 cfs		
Total Length= 120 ft		Total Tc= 1.1



TYPE III 24-HOUR RAINFALL= 3.0 IN

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SUBCATCHMENT 3

Subcat 3

PEAK= .84 CFS @ 11.99 HRS, VOLUME= .05 AF

<u>ACRES</u>	<u>CN</u>		SCS TR-20 METHOD
.26	98	Impervious	TYPE III 24-HOUR
.05	80	D, open space, good	RAINFALL= 3.0 IN
.31	95		SPAN= 10-20 HRS, dt=.1 HRS

<u>Method</u>	<u>Comment</u>	<u>Tc (min)</u>
TR-55 SHEET FLOW	Segment ID:a-b	.5
Smooth surfaces n=.011 L=50'	P2=3 in s=.05 ''	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:b-c	.8
Paved Kv=20.3282 L=100' s=.01 '' V=2.03 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:c-d	.2
Paved Kv=20.3282 L=35' s=.03 '' V=3.52 fps		
Total Length= 185 ft		Total Tc= 1.5

REACH 3

Reach 3

Qin = .84 CFS @ 11.99 HRS, VOLUME= .05 AF  
Qout= .80 CFS @ 12.00 HRS, VOLUME= .05 AF, ATTEN= 6%, LAG= .7 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)	8" PIPE	STOR-IND+TRANS METHOD
0.0	-0.0	0.00		PEAK DEPTH= .41 FT
.1	0.0	.02	n= .011	PEAK VELOCITY= 3.7 FPS
.1	0.0	.10	LENGTH= 140 FT	TRAVEL TIME = .6 MIN
.2	.1	.23	SLOPE= .007 FT/FT	SPAN= 10-20 HRS, dt=.1 HRS
.5	.3	1.00		
.5	.3	1.17		
.6	.3	1.27		
.6	.3	1.29		
.6	.3	1.27		
.7	.3	1.19		

POND 1 Large Detention Pond

Qin = 1.67 CFS @ 12.05 HRS, VOLUME= .13 AF  
 Qout= .60 CFS @ 12.39 HRS, VOLUME= .13 AF, ATTEN= 64%, LAG= 20.5 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
63.8	0	0	0	PEAK STORAGE = 1759 CF
64.0	1400	140	140	PEAK ELEVATION= 64.8 FT
65.0	2450	1925	2065	FLOOD ELEVATION= 67.1 FT
66.0	3675	3063	5128	START ELEVATION= 63.8 FT
67.1	4500	4496	9624	SPAN= 10-20 HRS, dt=.1 HRS
				Tdet= 35.9 MIN (.13 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	63.8'	5" ORIFICE/GRATE Q=.6 PI r^2 SQR(2g) SQR(H-r)
2	P	66.0'	6" ORIFICE/GRATE Q=.6 PI r^2 SQR(2g) SQR(H-r)
3	P	67.0'	24" HORIZONTAL ORIFICE/GRATE Q=.6 Area SQR(2gH)

POND 2 Small Detention Basin

Qin = .32 CFS @ 11.98 HRS, VOLUME= .02 AF  
 Qout= .32 CFS @ 11.99 HRS, VOLUME= .02 AF, ATTEN= 1%, LAG= .3 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
65.5	0	0	0	PEAK STORAGE = 11 CF
66.0	70	18	18	PEAK ELEVATION= 65.8 FT
67.0	300	185	203	FLOOD ELEVATION= 67.0 FT
				START ELEVATION= 65.5 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				Tdet= 1.2 MIN (.02 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	65.5'	8" CULVERT n=.011 L=50' S=.01'/' Ke=.5 Cc=.9 Cd=.6

TYPE III 24-HOUR RAINFALL= 3.0 IN

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POND 4                      Outlet Structure basin

Qin = 1.22 CFS @ 12.02 HRS, VOLUME= .18 AF  
 Qout= 1.21 CFS @ 12.02 HRS, VOLUME= .18 AF, ATTEN= 1 $\frac{1}{2}$ , LAG= .2 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
60.2	13	0	0	PEAK STORAGE = 42 CF
66.5	13	79	79	PEAK ELEVATION= 63.6 FT
				FLOOD ELEVATION= 66.5 FT
				START ELEVATION= 60.2 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				Tdet= 2.7 MIN (.18 AF)

f	ROUTE	INVERT	OUTLET DEVICES
1	P	63.0'	12" CULVERT
			n=.011 L=40' S=.025'/1' Ke=.5 Cc=.9 Cd=.6