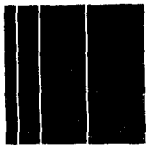
cc: Alexander Jaegerman, Chief Planner
Sarah Hopkins, Development Review Program Manager
Kandice Talbot, Planner
Jay Reynolds, Development Review Coordinator
Marge Schmuckal, Zoning Administrator
✓Jodine Adams, Inspections
William Bray, Director of Public Works
Larry Ash, Traffic Engineer
Tony Lombardo, Project Engineer
Eric Labelle, City Engineer
Jeff Tarling, City Arborist
Penny Littell, Associate Corporation Counsel
Lee Urban, Director of Economic Development
Lt. Gaylen McDougall, Fire Prevention
Don Hall, Appraiser, Assessor's Office
Susan Doughty, Assessor's Office
Approval Letter File
Correspondence File



Sebago Technics

Engineering & Planning for the Future

Major Site Plan and Subdivision Application to City of Portland

STARBIRD ROAD CONDOMINIUMS

on behalf of

Brown Development Corporation
P. O. Box 7022
Scarborough, ME 04070-7022

October 2001

One Chabot Street P.O. Box 1339 Westbrook, Maine 04098-1339 207-856-0277 Fax 207-856-2206

SebagoTechnics
Engineering & Planning for the Future

October 24, 2001
00256

Kandice Talbot, Planner
City of Portland
389 Congress Street
Portland, ME 04101

Site Plan and Subdivision Application, Starbird Road Condominiums
Brown Development Corporation

Dear Kandi:

On behalf of Brown Development Corporation, we are pleased to submit the enclosed plans and associated information for a Site Plan and Subdivision Application for Starbird Road Condominiums. As you will recall, this project has been before the Planning Board and City Council previously for a Contract Zone Application. The City Council approved the Contract Zone at their meeting on September 5, 2001. In accordance with that approval, the applicant is requesting Site Plan and Subdivision Review from the Planning Board.

The development proposal consists of constructing four (4) buildings each containing three (3) condominiums for a total of twelve (12) units on the 1.4 acre site located at the terminus of Starbird Road. Access to the units will be accomplished via a 24 foot wide paved private drive extended from the existing pavement of Starbird Road. A bituminous curb is proposed, along with a five (5) foot sidewalk on one side of the access drive. Three (3) parking spaces are proposed on the westerly side of the access for public parking. In accordance with the Contract Zone, a forty (40) foot wide public access easement will encompass the private drive to allow access to the abutting open space to be retained by the City of Portland.

Sanitary sewer service will be accomplished by connecting individual laterals to the existing sanitary sewer main crossing the site. Water service will be accomplished by extending the existing water main within Starbird Road. A new hydrant will be installed for fire suppression. Stormwater runoff will be collected by a series of grassed swales to the rear of the buildings and catch basins. All collected runoff will be directed to a stormwater treatment tank and then to a riprap level spreader to dissipate the runoff velocity and to minimize the erosion potential. Electrical and telephone services will be extended underground from the existing overhead lines servicing Starbird Road residents.

A landscaping plan is included within the plan set. This plan depicts proposed plantings along the rear property line and along the buildings. Lighting is proposed to consist mainly of individual architectural and yard lighting rather than pole mounted light fixtures to minimize glare. Retaining walls are proposed in two (2) locations to minimize wetland impacts and to provide a level building site.

We look forward to discussing the proposed development in more detail with the Planning Board. In the interim, please call with any questions or if you require additional information. Thank you for your consideration.

Sincerely,

SEBAGO TECHNICS, INC.

Shawn M. Frank, P.E.
Project Manager

SMF:dlf/jc
Enc.

cc: Terry Brown, Jr., Brown Development Corp.

Table of Contents

Site Review Pre-Application
Multi-Family/Attached Single Family Dwellings/Two-Family Dwelling
or Commercial Structures and Additions Thereto

In the interest of processing your application in the quickest possible manner, please complete the Information below for Site Plan Review

NOTEIf you or the property owner owes real estate or personal property taxes or user charges on ANY PROPERTY within the City, payment arrangements must be made before permits of any kind are accepted.**

Brown Development Corporation
Applicant

10-10-01
Application Date

P.O. Box 7022
Scarborough, ME 04070-7022
Applicant's Mailing Address

Starbird Road Condominiums
Project Name/Description

Shawn M. Frank, P.E.
c/o Sebago Technics, Inc.
Consultant/Agent

Starbird Road
Address Of Proposed Site

(207)856-0277 / (207)856-2206
Applicant/Agent Daytime telephone and FAX

224/A/1
Assessor's Reference, Chart#, Block. Lot#

Proposed Development (Check all that apply) X New Building ____ Building Addition ____ Change of Use X Residential ____ Office ____ Retail

____ Manufacturing ____ Warehouse/Distribution ____ Parking Lot____Other(Specify) _____

12 condominiums in 4 buildings
Proposed Building Square Footage and /or # of Units

1.40 ac
Acreage of Site

Contract Zone
Zoning

Major Site Plan X Minor Site Plan____

You must Include the following with you application:

1) A Copy of Your Deed or Purchase and Sale Agreement

2) 9 sets of Site Plan packages containing the information found in the attached sample plans and checklist.

(Section 14-522 of the Zoning Ordinance outlines the process, copies are available for review at the counter, photocopies are $ 0.25 per page)

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/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if an approval for the proposed project or use described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this approval at any reasonable hour to enforce the provisions of the codes applicable to this approval.

Signature of applicant:	**Date:**

Site Review Fee: Major $500.00 Minor 400.00

This application is for site review ONLY, a Building Permit application and associated fees will be required prior to construction.

Exhibit 1

Stormwater Management

00256

STORMWATER MANAGEMENT PLAN

Condominiums
Starbird Road
Portland, Maine

General

This Stormwater Management Plan has been prepared to evaluate the pre and post-developed conditions associated with the proposed development for Brown Development Corporation off Starbird Road in Portland, Maine

The total development proposal consists of constructing four multi-family detached condominiums that will have a total of 12 units, with approximately 16,500 square feet of footprint with associated roadways, parking areas, landscape areas, sidewalks, and stormwater management facilities. The stormwater from the impervious areas will generally sheet flow to grassed swales and catch basins where the runoff will be transported via subsurface storm drains to a proposed Vortechnics unit which will provide treatment prior to outletting to the existing wetland areas.

Characteristics

The project site currently consists of open field, wooded areas, and wetland areas. The proposal will add impervious areas within a new roadway, new parking, and buildings. All new impervious areas will be graded to allow all runoff to drain toward the grassed swales and catch basins so that all the runoff from these areas will be intercepted and treated prior to outletting to the wetland areas.

Soils

Soils information used for the stormwater evaluation was obtained from the Cumberland County Medium Intensity Soil Survey. A copy of the soils and project location maps are enclosed. The soil survey maps the predominant site soil as Raynham, which has a hydrologic soil group of "C".

Methodology

The pre and post developed watershed analyses were conducted using the "HydroCAD" computer-modeling program, which incorporates the TR-55 and TR-20 methodologies as provided by the Soil Conservation Service of the Department of Agriculture.

Existing Watersheds

The existing site consists of one watershed that flows to the existing wetland area, which is designated as the study point. The total pre-developed contributing area contains approximately 7.43 acres of land. Stormwater runoff from Watershed 1 flows from Capisic Street across yards to the proposed site. From there, the runoff will flow to the existing wetland areas.

Proposed Watersheds

The total post-developed contributing areas contain approximately 7.43 acres of land. The impervious and developed areas of the site are analyzed as six watersheds. Watershed 6 remains in the same condition as it was in the pre-developed condition, which consists of wooded areas and lawn areas that flow directly to the study point. Watersheds 1-5 consist of the developed areas of the site flowing to the proposed catch basins. These areas are all new development and the runoff is directed toward the proposed catch basins and swales to the Vortechnics unit. The runoff from these watersheds will be transported via grassed swales and subsurface storm drains to the proposed Vortechnics unit, which will provide treatment prior to outletting to the existing wetland areas.

Stormwater Management

The following table summarizes the results of stormwater calculations for the design storm events for the project areas. Calculations and computer modeling data sheets are provided with this report.

Stormwater Runoff Summary Table

Study Point	Total Watershed Area		Average Weighted Curve No. (cn)		Peak Rates of Runoff (cfs)								
					2-Year			10-Year			25-Year		
						Post			Post			Post	
	Pre	Post	Pre	Post	Pre	wo/d	w/d	Pre	wo/d	w/d	Pre	wo/d	w/d
1	7.43	7.43	75	78	5.09	6.18	--	12.30	13.69	--	15.55	17.43	--

Summary

The proposed development of the four multi-family detached condominiums will include the installation of catch basins, swales, subsurface storm drains, and a Vortechnics unit to which the runoff from the majority of the impervious areas will be directed. The subsurface storm drains and swales will transport the runoff to a proposed Vortechnics unit prior to outletting to the existing wetland areas. The use of the Vortechnics unit will provide treatment for the runoff.

Other drainage provisions will include an erosion and sedimentation control plan to be implemented throughout the construction cycle. The incorporation of these measures and the drainage provisions is expected to adequately address stormwater runoff such that no downstream property will be adversely impacted.

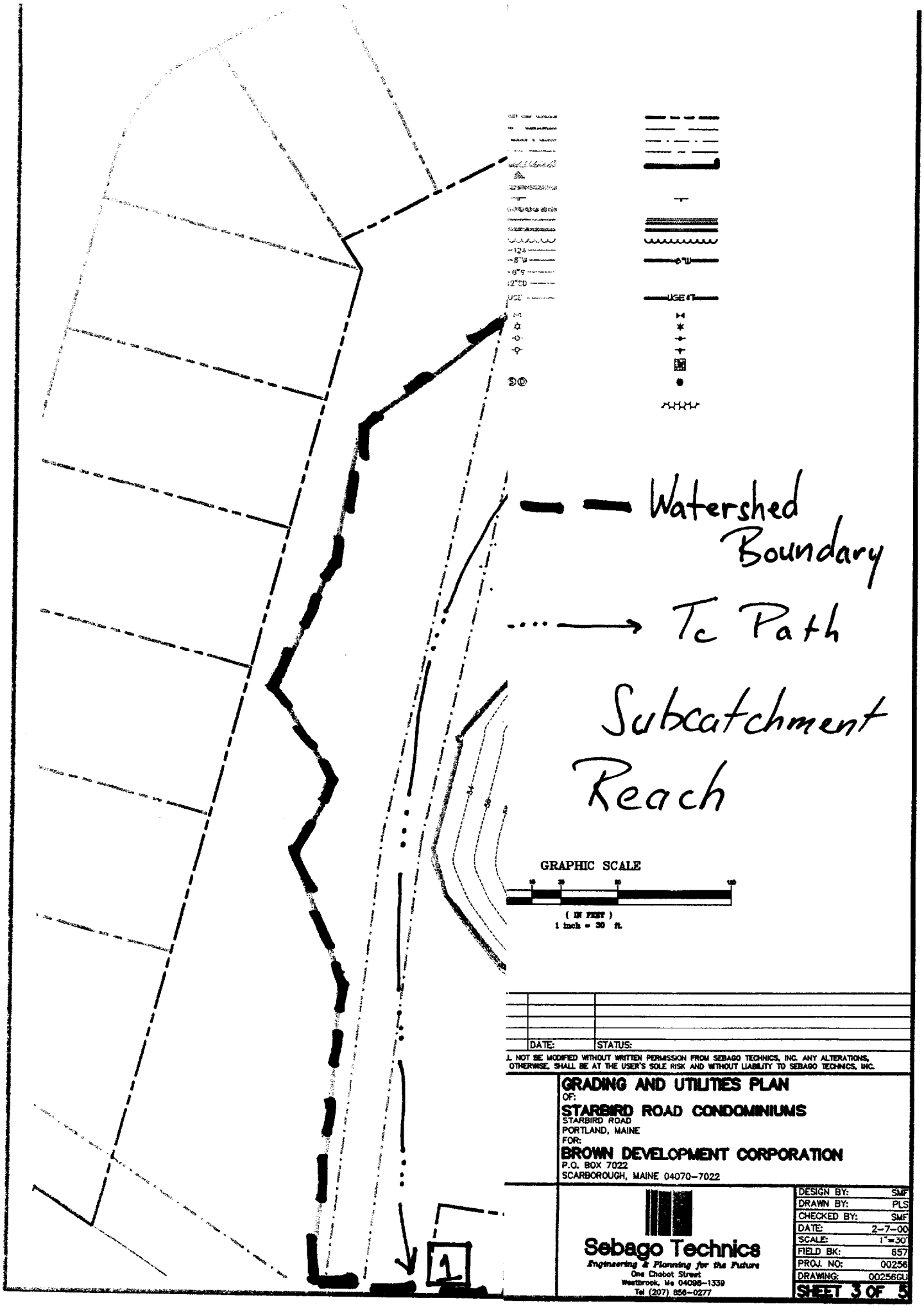
Prepared by,

SEBAGO TECHNICS, INC.

Gregory J. Boulette
Project Engineer

Shawn M. Frank, PE
Project Manager

GJB/SMF:gjb/jc
May 21, 2001



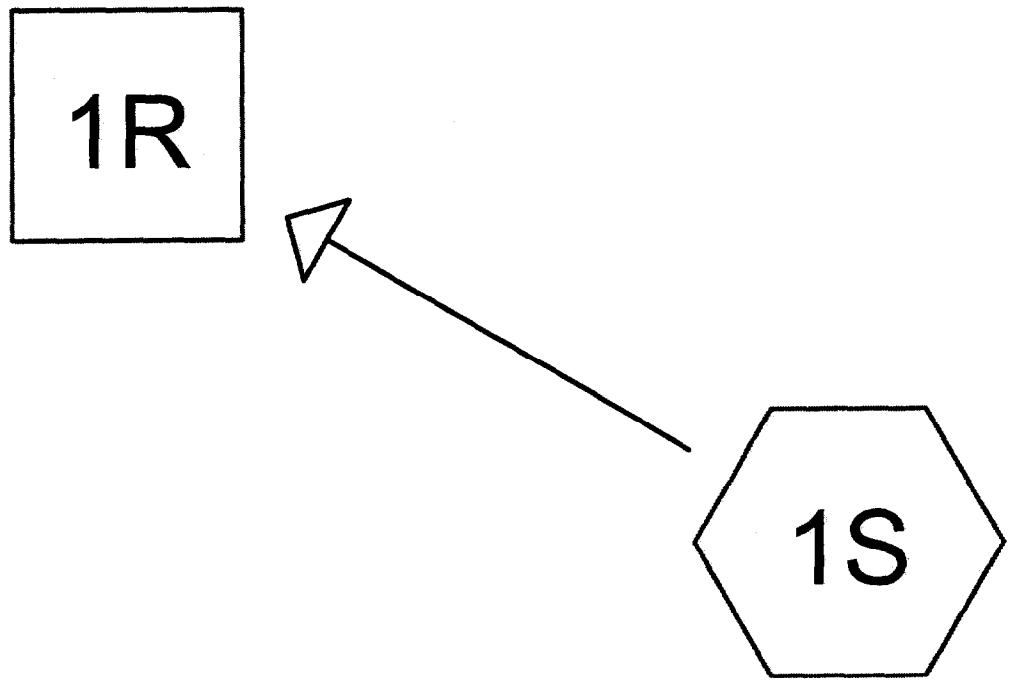
DATE: STATUS:

GRADING AND UTILITIES PLAN
OF:
STARBIRD ROAD CONDOMINIUMS
STARBIRD ROAD
PORTLAND, MAINE
FOR:
BROWN DEVELOPMENT CORPORATION
P.O. BOX 7022
SCARBOROUGH, MAINE 04070-7022

Sebago Technics
Engineering & Planning for the Future
One Chabot Street
Westbrook, Me 04098-1339
Tel (207) 856-0277

DESIGN BY:	SMF
DRAWN BY:	PLS
CHECKED BY:	SMF
DATE:	2-7-00
SCALE:	1"=30'
FIELD BK:	657
PROJ. NO:	00256
DRAWING:	00256GU
SHEET 3 OF 5	

10/22/2001



Subcat Reach Pond Link

Drainage Diagram for 00256 STARBIRD ROAD CONDOMINIUMS (PRE)
Prepared by SEBAGO TECHNICS INC 9/27/01

Subcatchment 1S: AREA DRAINING TO STUDY POINT

Runoff = 5.09 cfs @ 12.28 hrs, Volume= 0.540 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=3.00"

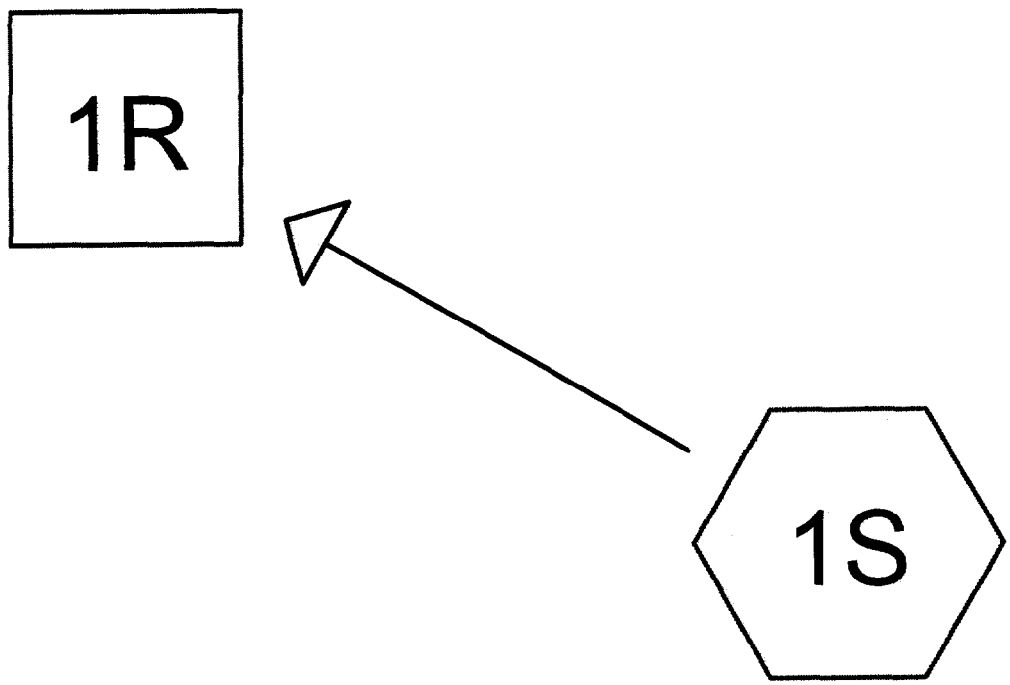
Area (ac)	CN	Description
0.360	98	IMPERVIOUS
1.380	79	WOODS, GOOD, "D"
3.450	72	WOODS, GOOD, "C"
2.240	74	GRASS, GOOD, "C"
7.430	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	150	0.0667	0.2		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
8.6	740	0.0324	1.4		**Shallow Concentrated Flow,** Kv= 8.0 fps
21.2	890	Total			

Reach 1R:

Inflow = 5.09 cfs @ 12.28 hrs, Volume= 0.540 af
Outflow = 5.09 cfs @ 12.28 hrs, Volume= 0.540 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs



Subcat Reach Pond Link

Drainage Diagram for 00256 STARBIRD ROAD CONDOMINIUMS (PRE)
Prepared by SEBAGO TECHNICS INC 9/27/01

Subcatchment 1S: AREA DRAINING TO STUDY POINT

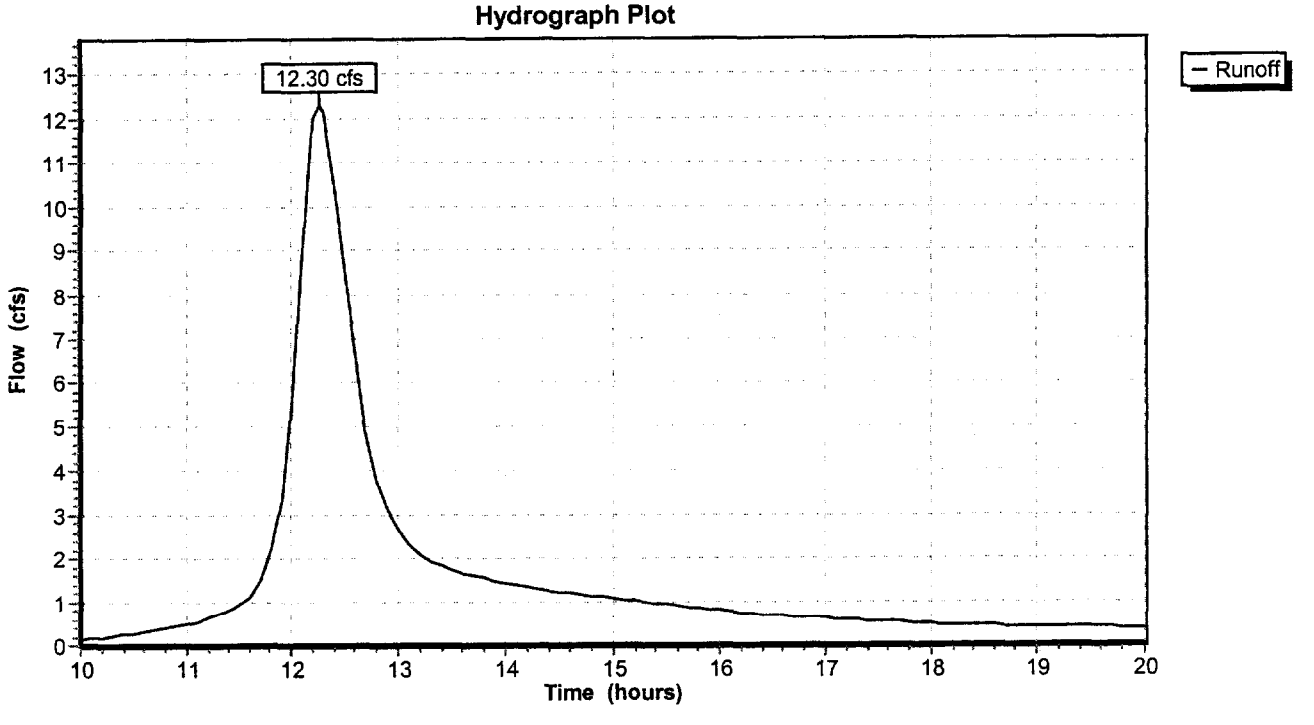
Runoff = 12.30 cfs @ 12.26 hrs, Volume= 1.257 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.360	98	IMPERVIOUS
1.380	79	WOODS, GOOD, "D"
3.450	72	WOODS, GOOD, "C"
2.240	74	GRASS, GOOD, "C"
7.430	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	150	0.0667	0.2		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
8.6	740	0.0324	1.4		**Shallow Concentrated Flow,** Kv= 8.0 fps
21.2	890	Total			

Subcatchment 1S: AREA DRAINING TO STUDY POINT

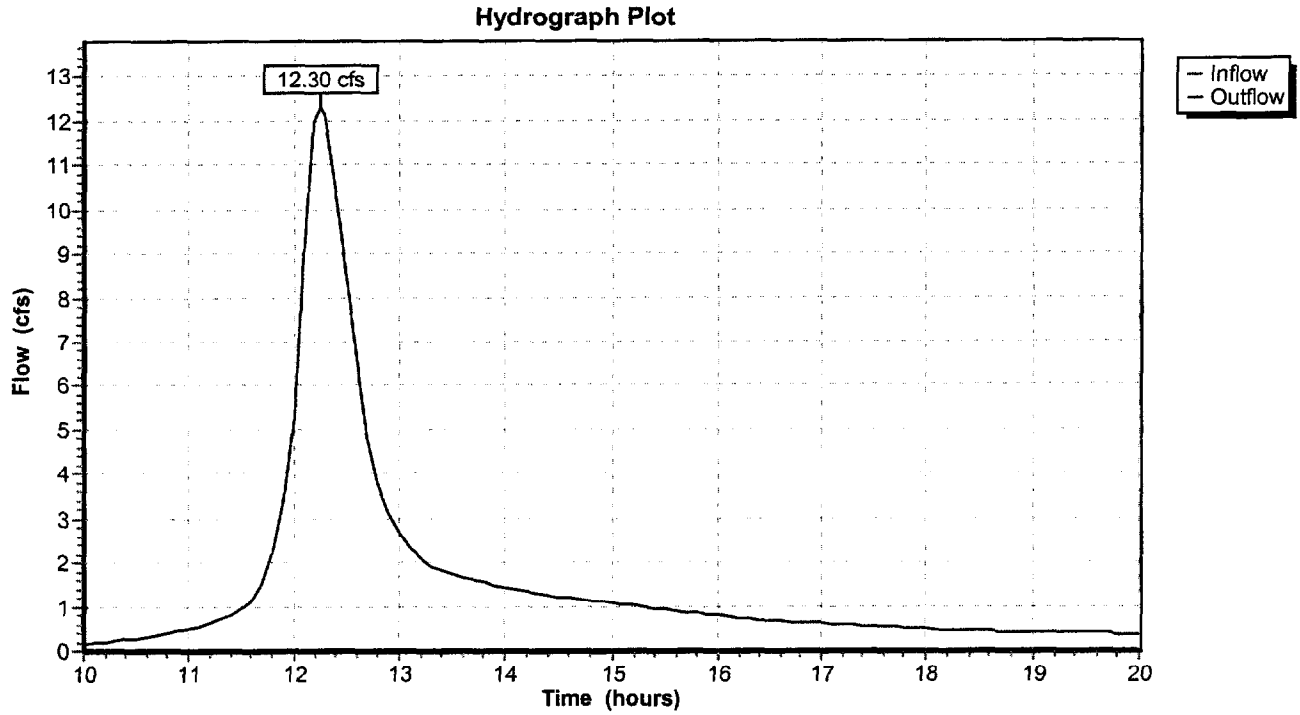


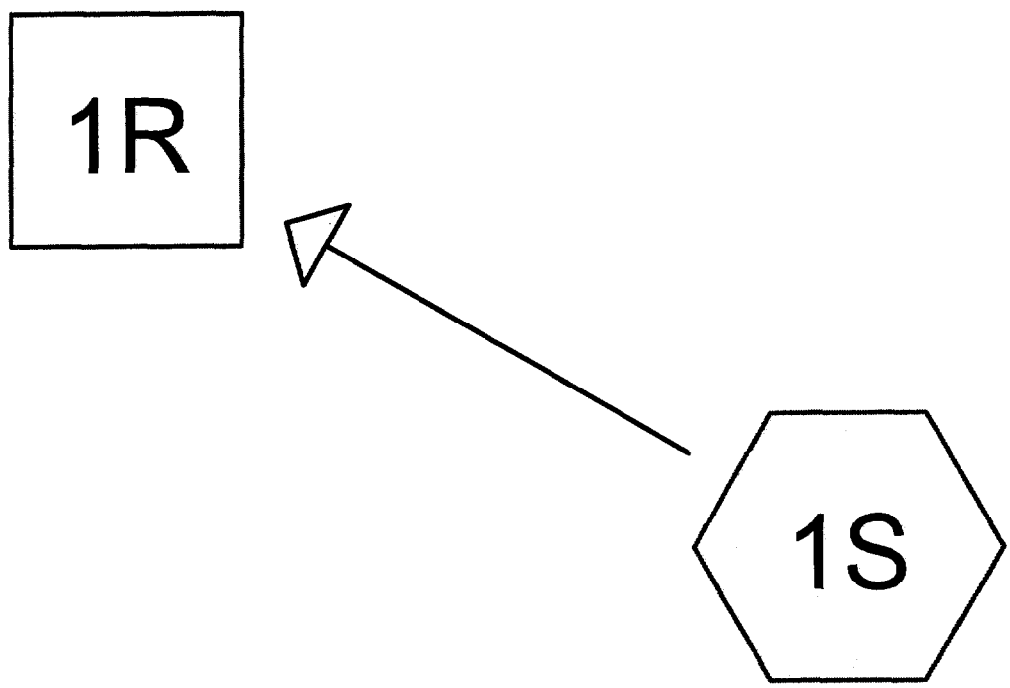
Reach 1R:

Inflow	=	12.30 cfs @	12.26 hrs, Volume=	1.257 af
Outflow	=	12.30 cfs @	12.26 hrs, Volume=	1.257 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Reach 1R:





Subcat Reach Pond Link

Drainage Diagram for 00256 STARBIRD ROAD CONDOMINIUMS (PRE)
Prepared by SEBAGO TECHNICS INC 9/27/01

Subcatchment 1S: AREA DRAINING TO STUDY POINT

Runoff = 16.02 cfs @ 12.25 hrs, Volume= 1.627 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=5.50"

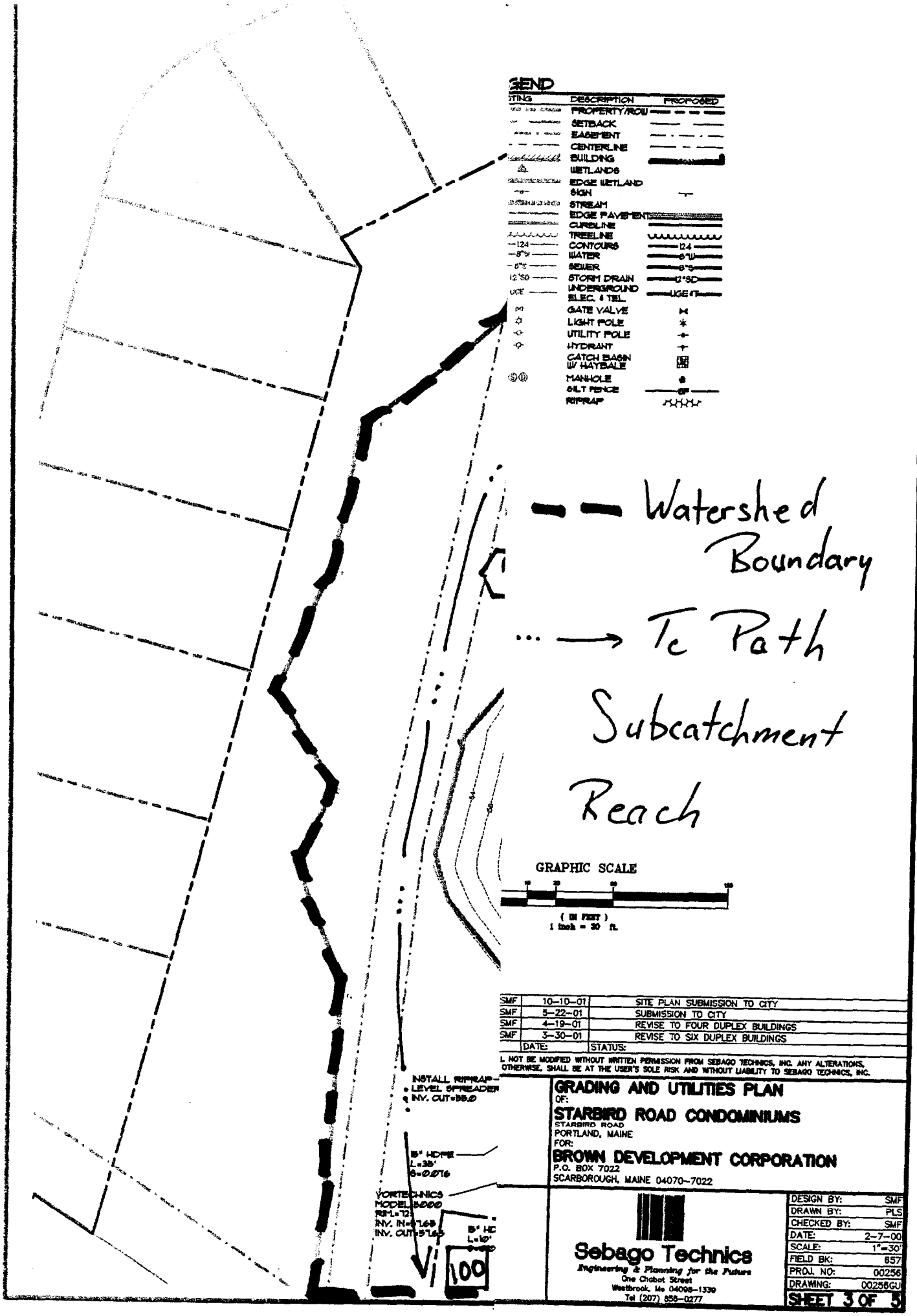
Area (ac)	CN	Description
0.360	98	IMPERVIOUS
1.380	79	WOODS, GOOD, "D"
3.450	72	WOODS, GOOD, "C"
2.240	74	GRASS, GOOD, "C"
7.430	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	150	0.0667	0.2		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
8.6	740	0.0324	1.4		**Shallow Concentrated Flow,** Kv= 8.0 fps
21.2	890	Total			

Reach 1R:

Inflow = 16.02 cfs @ 12.25 hrs, Volume= 1.627 af
Outflow = 16.02 cfs @ 12.25 hrs, Volume= 1.627 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs



SMF	10-10-01	SITE PLAN SUBMISSION TO CITY
SMF	5-22-01	SUBMISSION TO CITY
SMF	4-19-01	REVISE TO FOUR DUPLEX BUILDINGS
SMF	3-30-01	REVISE TO SIX DUPLEX BUILDINGS
	DATE:	STATUS:

GRADING AND UTILITIES PLAN
OF:
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STARBIRD ROAD
PORTLAND, MAINE
FOR:
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Tel (207) 856-0277

DESIGN BY:	SMF
DRAWN BY:	PLS
CHECKED BY:	SMF
DATE:	2-7-00
SCALE:	1"=30'
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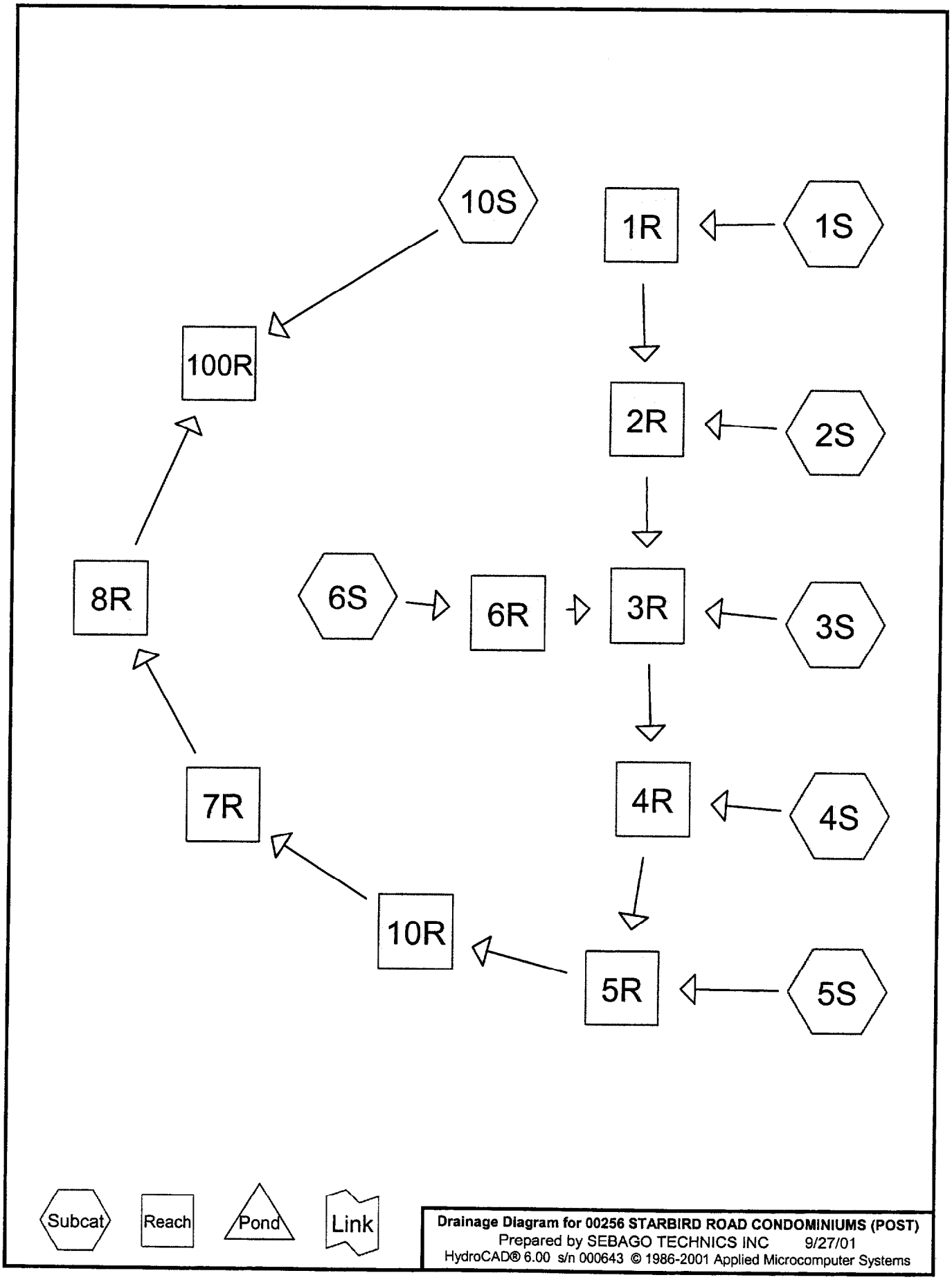


Drainage Diagram for 00256 STARBIRD ROAD CONDOMINIUMS (POST)
Prepared by SEBAGO TECHNICS INC 9/27/01
HydroCAD® 6.00 s/n 000643 © 1986-2001 Applied Microcomputer Systems

Subcatchment 1S: AREA DRAINING TO CB 1

Runoff = 0.42 cfs @ 12.11 hrs, Volume= 0.034 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.060	98	IMPERVIOUS
0.100	72	WOODS, GOOD, "C"
0.250	74	GRASS, GOOD, "C"
0.410	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	130	0.1070	0.2		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.6	70	0.0570	1.9		**Shallow Concentrated Flow,** Kv= 8.0 fps
9.9	200	Total			

Subcatchment 2S: AREA DRAINING TO CB 2

Runoff = 0.68 cfs @ 12.08 hrs, Volume= 0.053 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.110	98	IUMPERVIOUS
0.210	72	WOODS, GOOD, "C"
0.330	74	GRASS, GOOD, "C"
0.650	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.1400	0.2		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.5	70	0.0857	2.3		**Shallow Concentrated Flow,** Kv= 8.0 fps
7.3	170	Total			

Subcatchment 3S: AREA DRAINING TO CB 3

Runoff = 0.62 cfs @ 12.09 hrs, Volume= 0.048 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.100	98	IMPERVIOUS
0.200	72	WOODS, GOOD, "C"
0.260	74	GRASS, GOOD, "C"
0.560	78	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	110	0.1450	0.3		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.5	80	0.1250	2.8		**Shallow Concentrated Flow,** Kv= 8.0 fps
7.7	190	Total			

Subcatchment 4S: AREA DRAINING TO CB 4

Runoff = 0.61 cfs @ 12.06 hrs, Volume= 0.048 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.120	98	IMPERVIOUS
0.230	72	WOODS, GOOD, "C"
0.200	74	GRASS, GOOD, "C"
0.550	78	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	100	0.2000	0.3		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.5	70	0.0857	2.3		**Shallow Concentrated Flow,** Kv= 8.0 fps
6.4	170	Total			

Subcatchment 5S: AREA DRAINING TO CB 5

Runoff = 0.43 cfs @ 12.05 hrs, Volume= 0.033 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.070	98	IMPERVIOUS
0.180	72	WOODS, GOOD, "C"
0.150	74	GRASS, GOOD, "C"
0.400	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	90	0.2000	0.3		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.5	80	0.1250	2.8		**Shallow Concentrated Flow,** Kv= 8.0 fps
5.9	170	Total			

Subcatchment 6S: AREA DRAINING TO CB 6

Runoff = 1.12 cfs @ 11.99 hrs, Volume= 0.072 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.380	98	IMPERVIOUS

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	150	0.0150	1.3		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	70	0.0150	2.5		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	220	Total			

Subcatchment 10S: AREA DRAINING DIRECTLY TO STUDY POINT

Runoff = 3.27 cfs @ 12.28 hrs, Volume= 0.345 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.220	98	IMPERVIOUS
1.630	72	WOODS, GOOD, "C"
1.250	74	GRASS, GOOD, "C"
1.380	79	WOODS, GOOD, "D"
4.480	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	150	0.0667	0.2		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
8.6	740	0.0324	1.4		**Shallow Concentrated Flow,** Kv= 8.0 fps
21.2	890	Total			

Reach 1R: STORM DRAIN 1

Inflow = 0.42 cfs @ 12.11 hrs, Volume= 0.034 af
Outflow = 0.41 cfs @ 12.12 hrs, Volume= 0.033 af, Atten= 2%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Max. Velocity= 3.6 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.6 fps, Avg. Travel Time= 0.9 min

Peak Depth= 0.19'
Capacity at bank full= 8.57 cfs
15.0" Diameter Pipe n= 0.012 Length= 90.0' Slope= 0.0150 '/'

Reach 2R: STORM DRAIN 2

Inflow = 1.08 cfs @ 12.10 hrs, Volume= 0.087 af
Outflow = 1.07 cfs @ 12.11 hrs, Volume= 0.087 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Max. Velocity= 4.8 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.30'
Capacity at bank full= 8.57 cfs
15.0" Diameter Pipe n= 0.012 Length= 92.0' Slope= 0.0150 '/'

Reach 3R: STORM DRAIN 3

Inflow = 2.48 cfs @ 12.04 hrs, Volume= 0.207 af
Outflow = 2.40 cfs @ 12.06 hrs, Volume= 0.207 af, Atten= 3%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Max. Velocity= 6.0 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 0.6 min

Peak Depth= 0.46'
Capacity at bank full= 8.57 cfs
15.0" Diameter Pipe n= 0.012 Length= 92.0' Slope= 0.0150 '/'

Reach 4R: STORM DRAIN 4

Inflow = 3.01 cfs @ 12.06 hrs, Volume= 0.254 af
Outflow = 3.01 cfs @ 12.07 hrs, Volume= 0.254 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Max. Velocity= 6.4 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.9 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.51'
Capacity at bank full= 8.59 cfs
15.0" Diameter Pipe n= 0.012 Length= 95.0' Slope= 0.0151 '/'

Reach 5R: STORM DRAIN 5

Inflow = 3.43 cfs @ 12.07 hrs, Volume= 0.287 af
Outflow = 3.43 cfs @ 12.07 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Max. Velocity= 6.6 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.0 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.55'
Capacity at bank full= 8.61 cfs
15.0" Diameter Pipe n= 0.012 Length= 35.0' Slope= 0.0151 '/'

Reach 6R: STORM DRAIN 6

Inflow = 1.12 cfs @ 11.99 hrs, Volume= 0.072 af
Outflow = 1.10 cfs @ 11.99 hrs, Volume= 0.072 af, Atten= 2%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Max. Velocity= 4.8 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.30'
Capacity at bank full= 8.50 cfs
15.0" Diameter Pipe n= 0.012 Length= 19.0' Slope= 0.0147 '/'

Reach 7R: STORM DRAIN LEAVING VORTECH UNIT

Inflow = 3.43 cfs @ 12.07 hrs, Volume= 0.287 af
Outflow = 3.43 cfs @ 12.08 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Max. Velocity= 6.5 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.0 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.55'
Capacity at bank full= 8.48 cfs
15.0" Diameter Pipe n= 0.012 Length= 15.0' Slope= 0.0147 '/'

Reach 8R: FLOW THROUGH WETLAND

Inflow = 3.43 cfs @ 12.08 hrs, Volume= 0.287 af
Outflow = 3.14 cfs @ 12.15 hrs, Volume= 0.285 af, Atten= 9%, Lag= 4.8 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Max. Velocity= 0.9 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 7.7 min

Peak Depth= 0.20'
Capacity at bank full= 16.02 cfs
20.00' x 0.50' deep channel, n= 0.040 Length= 140.0' Slope= 0.0050 '/'

Reach 10R:

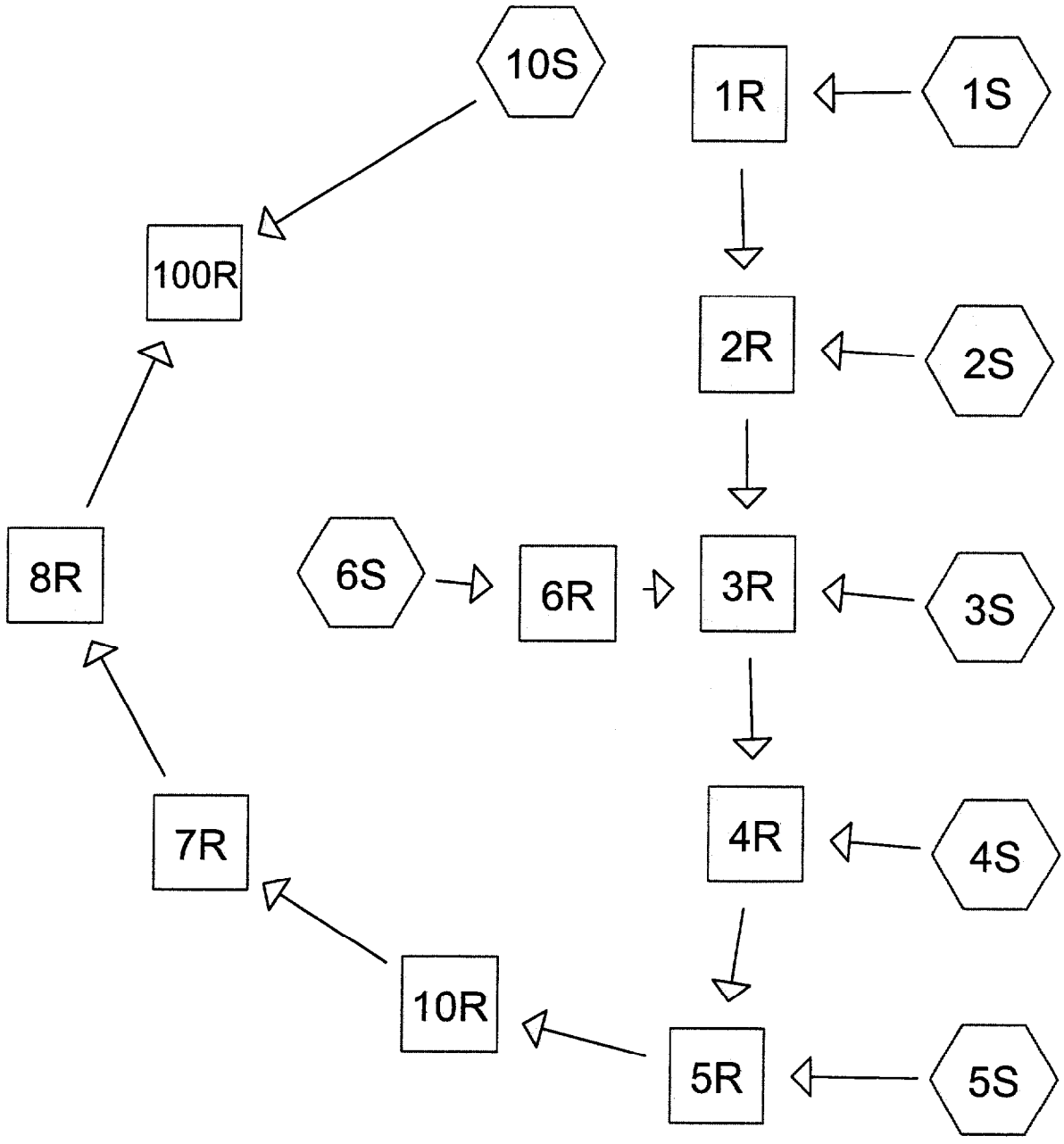
Inflow	=	3.43 cfs @	12.07 hrs, Volume=	0.287 af
Outflow	=	3.43 cfs @	12.07 hrs, Volume=	0.287 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Reach 100R:

Inflow	=	6.19 cfs @	12.21 hrs, Volume=	0.630 af
Outflow	=	6.19 cfs @	12.21 hrs, Volume=	0.630 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs



Subcat Reach Pond Link

Drainage Diagram for 00256 STARBIRD ROAD CONDOMINIUMS (POST)
Prepared by SEBAGO TECHNICS INC 9/27/01

Subcatchment 1S: AREA DRAINING TO CB 1

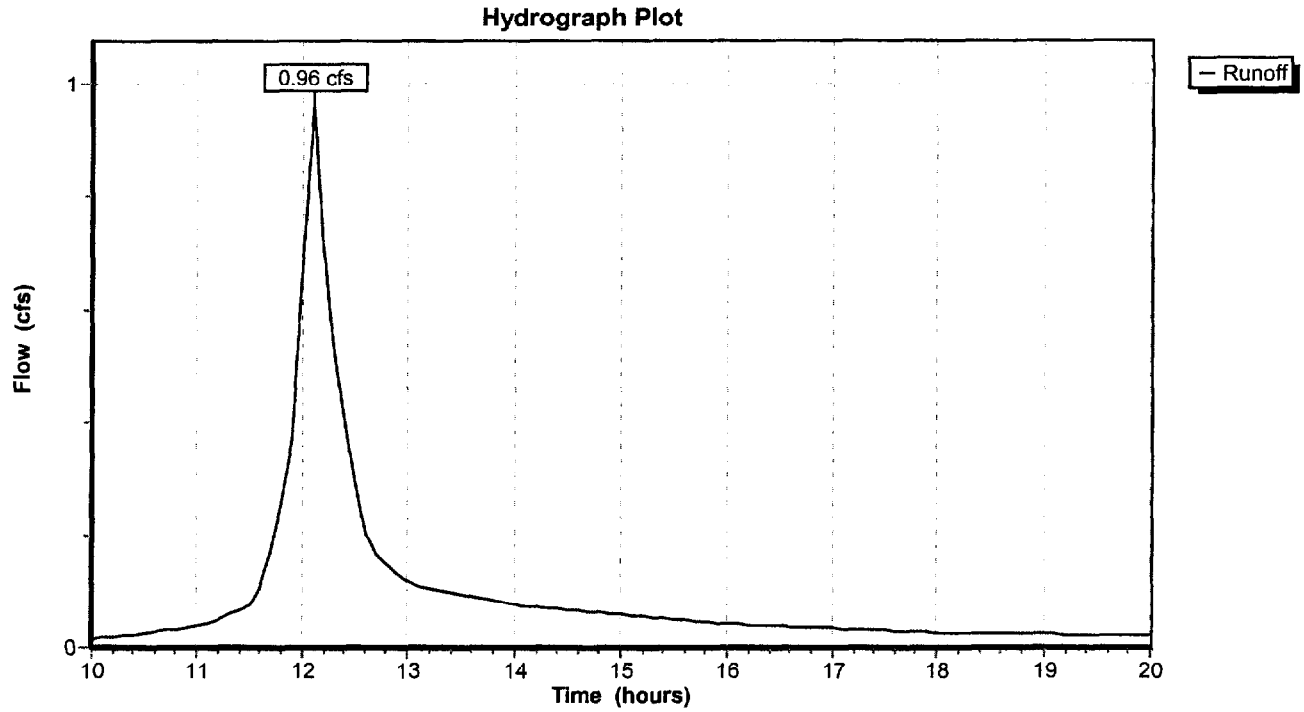
Runoff = 0.96 cfs @ 12.11 hrs, Volume= 0.075 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.060	98	IMPERVIOUS
0.100	72	WOODS, GOOD, "C"
0.250	74	GRASS, GOOD, "C"
0.410	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	130	0.1070	0.2		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.6	70	0.0570	1.9		**Shallow Concentrated Flow,** Kv= 8.0 fps
9.9	200	Total			

Subcatchment 1S: AREA DRAINING TO CB 1



Subcatchment 2S: AREA DRAINING TO CB 2

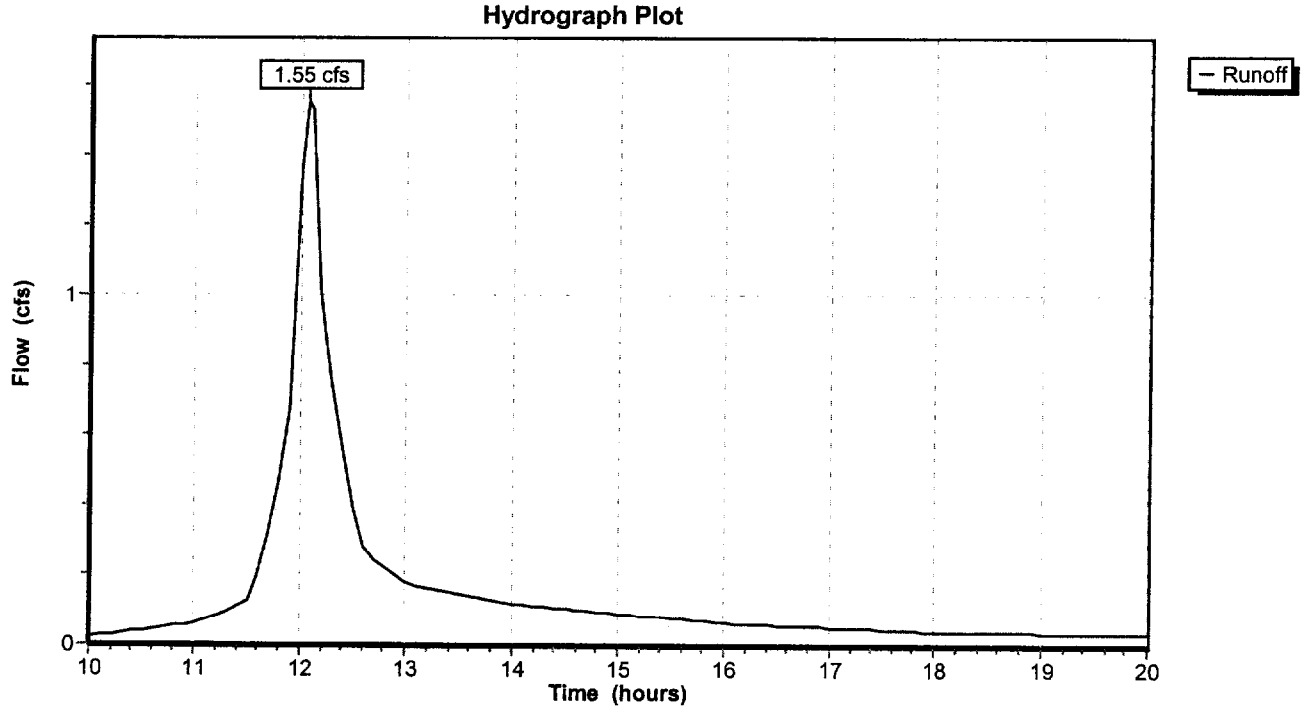
Runoff = 1.55 cfs @ 12.07 hrs, Volume= 0.118 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.110	98	IUMPERVIOUS
0.210	72	WOODS, GOOD, "C"
0.330	74	GRASS, GOOD, "C"
0.650	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.1400	0.2		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.5	70	0.0857	2.3		**Shallow Concentrated Flow,** Kv= 8.0 fps
7.3	170	Total			

Subcatchment 2S: AREA DRAINING TO CB 2



Subcatchment 3S: AREA DRAINING TO CB 3

Runoff = 1.38 cfs @ 12.08 hrs, Volume= 0.106 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.100	98	IMPERVIOUS
0.200	72	WOODS, GOOD, "C"
0.260	74	GRASS, GOOD, "C"
0.560	78	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	110	0.1450	0.3		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.5	80	0.1250	2.8		**Shallow Concentrated Flow,** Kv= 8.0 fps
7.7	190	Total			

Subcatchment 3S: AREA DRAINING TO CB 3