
THE LAW OFFICES OF BELLO & MORTON, LLC

184 Main Street Wareham, Massachusetts 02571 · 508-295-2522

February 17, 2022

Zoning Board of Appeals of Wareham

Memorial Town Hall

54 Marion Road

Wareham, MA 02571

*Re: Application for Site Plan Review and Variances on 8 & 10 Charge Pond Road,
Wareham, MA 02571*

1. Petitioners

David Sergi
21 Patterson Brook Road, Suite G
West Wareham, MA 02576

2. Recorded Owner:

William Lee, Jr. & Barbara A. Lee
70 Fuller Road
Trumbull, CT 06611

3. Certified Abutters List:

Copy Attached as Exhibit A.

4. Current Deeds:

Plymouth Registry of Deeds:

Book 3641, Page 368, and Book 3641, Page 370 (2 Deeds). Exhibit B.

5. Building Inspector's Notice of Violation Letter:

Denial Letter for 8& 10 Charge Pond Road dated February 8, 2022 attached here as Exhibit C from the Building Commissioner.

6. Proposed Site Plan:

Attached as Exhibit D is a copy of the Relevant Plan. Please note our Parcels are in CG and R-60 Zoning Districts.

7. Architectural Renderings of proposed Build: Attached as Exhibit E.

8. Stormwater Management for 8& 10 Charge Pond Road (which includes Impact Statement) prepared by JC Engineering, Inc. (Exhibit F)

9. Application for Site Plan Review (Exhibit G)

10. Application for Public Hearing for Variance (Exhibit H)

11. Tax Verification Form (Exhibit I)

12. Letter of Intent (herewith)

Dear Mr. Chairman,

I represent the applicant Mr. David Sergi re the above application for Site Plan Review and Variances his proposed build of a 6050 square foot metal building comprising of a 1250 square foot office area and a 4800 square foot contractor garage for vehicle and equipment storage on the properties known as 8 & 10 Charge Pond Road.

Background:

Mr. Sergi runs a local landscaping services business D&J Enterprise, Inc that has been providing excellent service to Wareham residents and surrounding communities for over 10 years. He has been located on Marion Road in Wareham and is looking to move to expand to service his growing customer base and operation. His business includes edging & mulching, irrigation, landscape design, organic mosquito & tick spraying, property clean ups and property maintenance. He provides many of our residents with full time and seasonal jobs as well as providing necessary upkeep for full time and summer resident property owners here in Wareham.

The properties involved here are two parcels on Charge Pond Road before you get to the YMCA. The lots are currently wooded. Both parcels are mixed zoned and located in Commercial General Zoning and in R-60 (Residential District). He is proposing to build a well-kept commercial space which shall include a contractor garage, storage space, and a front office for staff and customers alike. The space would include parking spaces for his commercial vehicles and trailers, designated bays for mulch, soil and other landscaping materials. The proposed build as shown on the proposed site plans enclosed has a proposed 6' tall privacy fence and gate to minimize any review of operations or materials from passersby.

In a February 8, 2022 letter the Building Commissioner flagged the following items as reasons for Denial:

1. Article 3 Table 320, Table of Principal Use Regulations: Industrial uses are not permitted in the CG, or the R60 zoning districts, A use variance is required to permit the use in both districts.

2. Article 10 Section 1042, Minimum Landscape Buffer: A 40' Landscape buffer is required between Industrial and residential uses.

3. Article 15 Section 1520, Site Plan Review: A new use requires 10 or more parking spaces under the parking schedule must undergo a Site Plan Review.

Relevant By Law for Relief: Variances

1470 VARIANCES

The Board of Appeals shall have the power to hear and decide applications for Variances from the provisions of the Zoning By-Laws, including the power to grant a Variance authorizing a Use or activity not otherwise permitted in the district in which the land or structure is located. A Variance may be granted when factors relating to soil conditions, lot shape, or topography of such land creates an impracticality or limits the location or positioning of a new structure or addition on a site or location that previously conformed to zoning requirements. An applicant must demonstrate that a literal enforcement of the By-law would involve substantial hardship, financial or otherwise, to the petitioner or appellant, and that desirable relief may be granted without substantial detriment to the public good and without nullifying or substantially derogating from the intent or purpose of such ordinance or by-law.

Argument for Use Variance:

As for the statutory requirements, these lots very unique in the shape. I draw your attention to the existing conditions Map- Lot 1076 is a triangular in shape piece that has all the frontage on Charge Pond Road, while the larger parcel 1035 is situated behind that parcel.

Then even more unique is that the Zoning map cuts the lots in half as far as uses- both lots have mixed zoning Commercial General and R-60. These unique features of the lot's shape and location comply with the zoning requirements for the variance and are directly affecting circumstances around the relief the applicant is looking for here.

The literal enforcement of the bylaw would create financial hardship for the applicant and create financial hardship for the petitioner and the owner. The parties have been under contract and looking for the contract to come to fruition. The Petitioner is a growing local company who needs the space to expand to service his growing customers. The change in location of his enterprise I would argue is an improvement as his current location in on Marion Road in a high traffic area with his landscaping trucks and trailers entering the road which is frequently traveled. The Charge Pond Road location will be in a less traffic area and the stop sign at the end of the road provides easier access for his vehicles and in turn reduces that traffic once the build is in operation on, off the Marion Road location.

It is our hope that the Board views the granting of these Variances as keeping with the nature of the neighborhood which already has other commercial uses and the bulk of the residential units are down the road father down Charge Pond Road. In fact, there are commercial buildings further down the road like the YMCA, Sure Cran Services, and Wareham Municipal Maintenance. There is also the National Grid building which uses access from Route 28. The plans show a well thought out building that considers surrounding properties with a privacy fence and landscaping with my trees and other greenery.

Lastly, granting the Petitioner the relief being requests in no way derogates from the intent of the zoning by-laws as the lots are zoned for commercial general and Residential. The standard when looking at use variances is outlined in Boston Edison Co. v. Boston Redevelopment Authority 374 Mass.37, 66:

When an area is zoned for residential purposes and the district has retained its essentially residential character, a variance allowing the introduction of commercial enterprise is improvidently granted. The inquiry which these cases require is whether the introduction of the nonconforming use "would unquestionably alter the essential character of an otherwise residential neighborhood."

This area in the beginning of Charge Pond Road has some residential but also other properties that are commercial as discussed National Grid owns the parcel directly behind this parcel.

All things considered allowing these Variances would not be detrimental to the neighborhood and certainly would not derogate from the intent of the Zoning by Law.

Variance Argument for Landscape Buffer:

The topography and triangular shape lend it to the uniqueness of the variance request as discussed in the argument for the use variance. Due to the lot shape of the front lot having all of the frontage

and the splitting of the Zoning line right through both lots -the ability for a landscape buffer in-between them is an impossibility. The plan shows that the tree line buffer that is provided all around the property. The abutting property is zoned R60 but is vacant land as well.

Therefore, there being no substantial detriment to the neighborhood we as that landscape variance be approved as well.

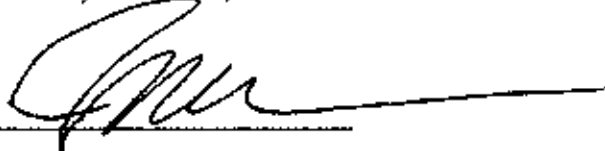
All things considered, we ask for a thorough review by the Board of Appeals of the reasons for our application and consider the new build that will add to tax revenues for the Town, increase overall building values for the area, and would show support for a local successful landscaping service company.

Site Plan Review Standards:

We have submitted the Application for Site Plan review along with the accompanying documents for review to the Town. The purpose of Site Plan Review is clearly laid out in Section 1510 of the ByLaws: *"Each use for which a site plan submission is required is a potentially significant addition to a developing or developed area of the town, and to a residential, commercial or industrial neighborhood. The purpose of Site Plan Review Special Permit is to ensure the design and layout of certain development permitted as a matter of right or by Special Permit will constitute suitable development and will not result in a detriment to the neighborhood or the environment."*

The proposal to develop land for expansion of a local businesses operations in an area that does not result in high traffic or interference with abutting neighbors will not be substantially detrimental to the neighborhood. The proposed build was thoughtfully crafted to create a development that would not impede on any of the surrounding residential abutters. Charge Pond Road itself already has a commercial flavor of the neighborhood with the YMCA up the road, as well as other businesses. The plans show adequate emergency access for vehicles as well as a landscape plan that takes into the review of drivers on the road. All things considered we look forward to a thoughtful review of the plan set proposed, stormwater management calculations and impact statement. We propose this build will be an asset to the Town in creating taxable revenue for the town on this now vacant wooded lot.

Respectfully submitted,

By 

Jilian A. Morton, Esq.

EXHIBIT A

EXHIBIT B

0043641 and 370
1, CHASE ADDRESS

of Weymouth, Plymouth

has received in accordance with the terms of deed recorded and 20/100
(14,000.00) dollars, grant to WILLIAM LEE, SR. and MARIANA ANN LEE, a
husband and wife, as joint tenants, both

at 70 Miller Road
Framingham, Massachusetts

with certain covenants

to be in violation, Plymouth County, Massachusetts, described as follows:

beginning at a stone bound at the southwest corner of the lot
premise, which bound also shows the northerly corner of land
hereinafter sold by A. B. Macomber Company to Charles Leighton

thence North 1° 41' east, 1000 feet, then South 89° 59' 30" west
(484.11) feet to a stone monument also set by said party
from a pole line of the same occupation of Leighton

thence by a line (nearly parallel) with said pole line, south
78° 53' east, 1000 feet, then North 89° 59' 30" west to a
stone bound;

thence by a line 66° or more of A. B. Macomber Company, given
11 1/2 feet, then South 89° 59' 30" west 1000 feet to a
stone bound, being the northerly corner of land hereinafter sold
by A. B. Macomber Company to Charles Leighton

thence by land now or formerly of Charles Leighton and
Henry Alderman, South 89° 57' west, two hundred thirty-seven and
66/100 (237.66) feet to the point of beginning.

Containing 2.48 acres by the same more or less.

together with all covenants, privileges and easements connected therewith
and subject to restrictions and covenants of record and not hereby
conveyed subject to any building and zoning law requirements which may
be in force and applicable.

A. B. Macomber Company dated April 17, 1959, recorded in
County Registry of Deeds, Book 1155, page 448.

RECORDED
DEEDS
1959
APR 17 1959
PLUMOUTH COUNTY REGISTRY OF DEEDS

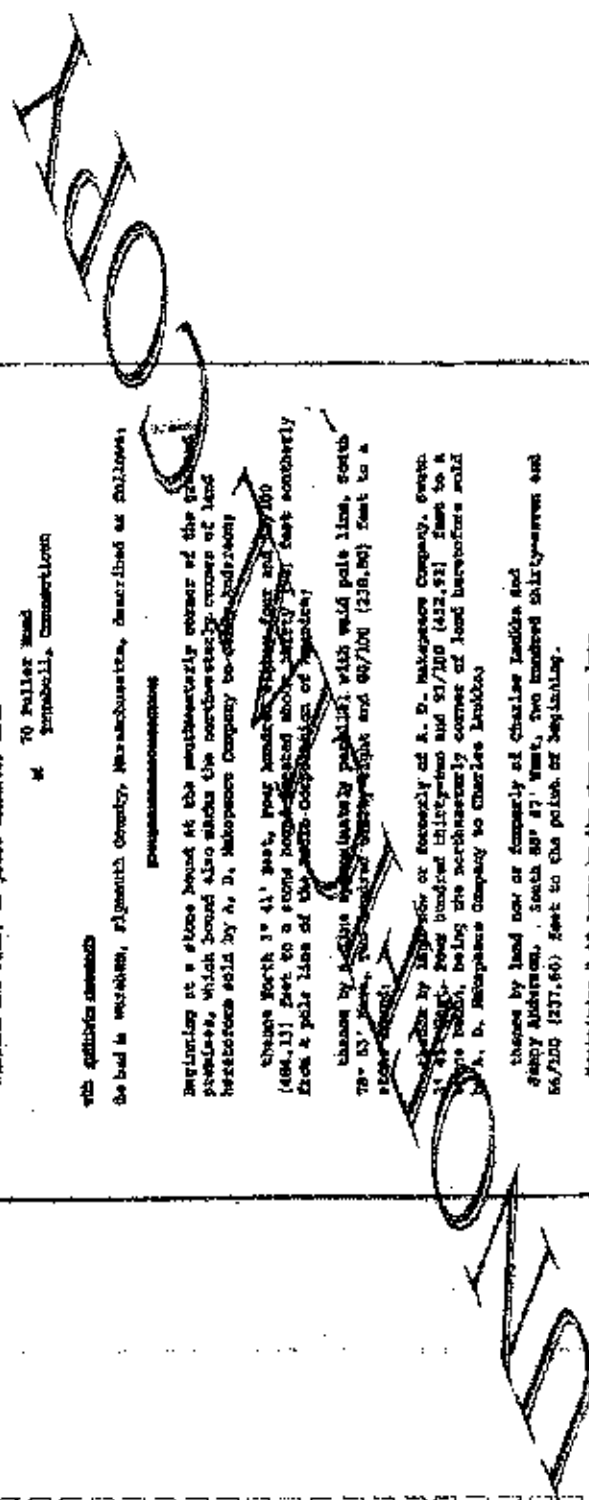


EXHIBIT C



TOWN of WAREHAM

Massachusetts

BUILDING DEPARTMENT

David L. Riquinha
Building Commissioner

David Sergi

February 8, 2022

C/o J.C. Engineering; Sam Iamele
2854 Cranberry Highway
East Wareham, MA 02538

RE: 8 & 10 Charge Pond Road

Map # 110, Lot # 1076

I have reviewed your application for construction at 8 & 10 Charge Pond Road, in Wareham, MA. Your proposal is not in compliance with current zoning regulations and must be denied at this time.

After performing a careful review of the plans you provided, which are labeled "Job No 5942" and dated December 27, 2021, I am of the understanding that you would like to construct a 6050 square foot metal building comprising a 1250 square foot office area, and a 4800 square foot contractor garage for vehicle and equipment storage. The proposed use is not specifically mentioned in the zoning by-law; however, it does fall under the Industrial use category. A study of surrounding and nearby towns determined that to be in line with neighboring community regulations. Industrial uses are not permitted in the CG, and /or the R-60 zoning districts; therefore, a Use Variance from the Zoning Board of Appeals must be secured to permit the Industrial Use in both districts.

Looking at the plans, it is unclear what the landscape buffer will be along the southern property boundary. A 40' buffer is required between Industrial, and residential uses, and if one cannot be provided, a Variance will be required from the Zoning Board of Appeals. The Variance will not be required if an adequate buffer can be provided and maintained. Additionally, the project does require more than 10 parking spaces and a site plan review is required by the Zoning Board of Appeals.

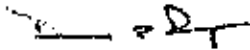
Your building permit is being denied under the following sections of the Wareham Zoning By-law:

- **Article 3 Table 320, Table of Principal Use Regulations:** Industrial uses are not permitted in the CG, or the R60 zoning districts. A use variance is required to permit the use in both districts.
- **Article 10 Section 1042, Minimum Landscape Buffer:**
A 40' landscape buffer is required between Industrial and residential uses. If the appropriate buffer cannot be provided, a Variance will be required from the Zoning Board of Appeals.
- **Article 15 Section 1520, Site Plan Review:** A new use that requires 10 or more parking spaces under the current parking schedule must undergo a Site Plan Review. The Zoning Board of Appeals is the regulatory authority for this review.

You must bring this letter to the Zoning Board office and apply for a hearing where you will request the necessary relief as previously explained. If you are successful, you will be required to wait 20 days for the statutory appeal period to lapse; you will then need to record the ZBA decision with the Plymouth County Registry of Deeds; then apply for a new building permit to perform the work in accordance with the zoning approval. The existing permit application has been denied and will not be reopened to perform the requested work.

The subject property is located in the CG, and R-60 zoning districts.

Respectfully,



David Riquinha
Building Commissioner
Zoning Enforcement Officer

It is the owners' responsibility to check with other departments, i.e. Health, and conservation, etc. to ensure full compliance.

In accordance with the provisions of MGL chapter 40A §§ 15, you may apply to the Zoning Board of Appeals for the above noted relief within thirty (30) days of the date of this letter.

EXHIBIT D

EXHIBIT E

EXHIBIT F

8 & 10 CHARGE POND ROAD

WAREHAM, MA

TABLE OF CONTENTS

	<u>Page</u>
1. Project Overview	1
2. Impact Statement	1
3. Stormwater Management	
Methodology	2
General Soils Information.....	3
Proposed Stormwater Management System and Mitigation	3
4. Supplemental Information and Calculations	
Pipe Sizing Calculations	
Proposed Conditions Drainage Calculations	
2-year Storm	
10-year Storm	
25-year Storm	
100-year Storm	
Drainage Area Plan	

1. Project Overview

The project is located at 8 & 10 Charge Pond Road in Wareham and consists of Lots 1035 & 1076 as shown on Assessor's Map 110. These properties lie partially within the General Commercial Zoning District and Residence 60 Zoning District. The total land area of the two lots is 140,003 square feet. Currently, this is a vacant wooded lot. The topography is relatively flat and pitches southerly and westerly off the property.

Under proposed conditions, the applicant would like to construct a 7,350 s.f. structure to be used for a landscaping company services. The structure will be made up of office space as well as garage storage and will require a total of 28 parking spaces. The parking area is proposed to be paved and will have a total of 33 parking spaces, including two handicap spaces as well as 18 company vehicle parking spaces. Landscaping is proposed between the roadway and building. To aid in buffering along Charge Pond Road, a proposed privacy fence will be installed at the front face of the structure.

2. Impact Statement

Water and Sewer System

The proposed building will be serviced by Town Water and a Private Septic System. An existing fire hydrant has been located only 30' from the northern property line.

Fire and Police Protection

The proposed parking lot entrances will provide adequate accessibility for fire and police. The aisle widths are proposed at minimum of 24' wide and the two entrances off Charge Pond Road allow for vehicular circulation throughout the entire site.

Schools and Parks

This is a proposed commercial development; therefore, no additional residences are proposed that may impact the student population or existing park uses.

Traffic and Pedestrian

There will not be an adverse impact to the traffic and pedestrian movement from the proposed development. The project is located directly off Charge Pond Road. Another landscaping service company exists directly across the street.

Ecology

A majority of the site is wooded and does not contain any wetland resource areas. The proposed drainage system is designed so that stormwater runoff leaving the site post-development will be less than what currently exists. The proposed development also includes the installation of numerous trees, shrubs, and landscaped areas.

2. Stormwater Management

Methodology

Stormwater runoff was evaluated for the 2-year, 10-year, 25-year, and 100-year, Type III, 24-hour storm for post-development conditions. The runoff generated from the area of the lot to be developed currently drains towards the south and west. Once this project is completed, a majority of the runoff will be captured and infiltrated onsite, therefore, considerably reducing the amount of runoff that exits the property. Four proposed catch basins will capture the runoff generated from the parking area and direct the runoff to two detention basins. A proposed leaching chamber will be situated as the bottom of both detention basins to provide additional storage and infiltration. The proposed grading is very similar to the current topography, therefore, not major changes in drainage patterns are proposed.

The Pre- and Post-development conditions were modeled using HydroCAD software, which combines USDA Soil Conservation Service hydrology and hydraulic techniques (commonly known as SCS TR-55 and TR-20) to generate hydrographs (calculations are provided in the supplemental section of this report). The rainfall amounts used for calculating runoff for the 2-year, 10-year, and 100-year storm events were obtained from the HydroCAD Manual.

General Soils Information

Existing soil classifications and hydrologic soil groups for the site were obtained from the USDA Soil Conservation Service, Soil Survey of Plymouth County, Massachusetts, Southern Part (1969). The soil type found within the project site is classified as Carver Coarse Sand (CaB). Carver Soils are very deep, excessively drained soils formed in thick deposits of coarse and very coarse sands. Carver soils are in broad areas on outwash plains, terraces and deltas. Carver soil is classified as Hydrologic Group A and is the dominant soil type found within the site. An on-site examination of the soils in the vicinity of the proposed detention basin and leaching chambers were performed and found to be consistent with the properties of Carver soils (see attached Test Pits Logs).

Proposed Stormwater Management System and Mitigation

The purpose of the proposed stormwater management system is to remove a minimum of 80% total of the suspended solids, while preventing off-site flooding and adverse environmental impacts from the 2-year, 10-year, 25-year, and 100-year storm events. Additionally, a goal of a site's stormwater management plan also includes the improvement of water quality through the design and implementation of best management practices (BMP's) for the site. BMP's can include physical features, such as infiltration structures, detention basins and swales, as well as maintenance procedures and other management techniques. Several regulatory standards or policies are applicable for the proposed site, including the Town of Wareham Subdivision Rules and Regulations and Zoning Bylaws.

Criteria for the management of stormwater runoff were designed in accordance with the applicable criteria for drainage design of the Department of Environmental Protection (DEP) Stormwater Management Policy.

The stormwater will be captured by a four deep sump catch basins and will be infiltrated through two detention basins, which are designed to capture and infiltrate the 100-year storm event. A proposed leaching pit will be situated at the bottom of each detention basin to provide additional storage and infiltration. The catch basin, sediment forebay, and detention basin, combined, will remove a minimum of 80% total suspended solids.



Site Runoff



Detention Basin



Site Runoff



Detention Basin



Routing Diagram for Proposed Conditions
Prepared by JC Engineering Inc., Printed 1/31/2022
HydroCAD® 10.00-22 eh 02717 © 2018 HydroCAD Software Solutions LLC

Proposed Conditions

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.931	49	Pasture/grassland/range, Fair, HSG A (DA-1, DA-2)
1.234	98	Paved parking, HSG A (DA-1, DA-2)
1.012	36	Woods, Fair, HSG A (DA-1, DA-2)
3.178	84	TOTAL AREA

Proposed Conditions

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
3.178	HSG A	DA-1, DA-2
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
3.178		TOTAL AREA

Proposed Conditions

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 4

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.931	0.000	0.000	0.000	0.000	0.931	Pasture/grassland/range, Fair	DA-1, DA-2
1.234	0.000	0.000	0.000	0.000	1.234	Paved parking	DA-1, DA-2
1.012	0.000	0.000	0.000	0.000	1.012	Woods, Fair	DA-1, DA-2
3.178	0.000	0.000	0.000	0.000	3.178	TOTAL AREA	

Proposed Conditions

Type III 24-hr 2-year Rainfall=3.44"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 5

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment DA-1: Site Runoff Runoff Area=32,772 sf 86.38% Impervious Runoff Depth=1.66"
Flow Length=188' Slope=0.0100 1' Tc=1.9 min CN=81 Runoff=1.69 cfs 0.104 af

Subcatchment DA-2: Site Runoff Runoff Area=105,667 sf 30.30% Impervious Runoff Depth=0.46"
Flow Length=355' Tc=17.9 min CN=58 Runoff=0.60 cfs 0.094 af

Pond 1P: Detention Basin Peak Elev=26.91' Storage=1,873 cf Inflow=1.69 cfs 0.104 af
Outflow=0.13 cfs 0.104 af

Pond 2P: Detention Basin Peak Elev=26.18' Storage=734 cf Inflow=0.60 cfs 0.094 af
Outflow=0.21 cfs 0.093 af

Total Runoff Area = 3.178 ac Runoff Volume = 0.198 af Average Runoff Depth = 0.75"
61.16% Pervious = 1.944 ac 38.84% Impervious = 1.234 ac

Proposed Conditions

Prepared by JC Engineering Inc.

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-year Rainfall=3.44"

Printed 1/31/2022

Page 6

Summary for Subcatchment DA-1: Site Runoff

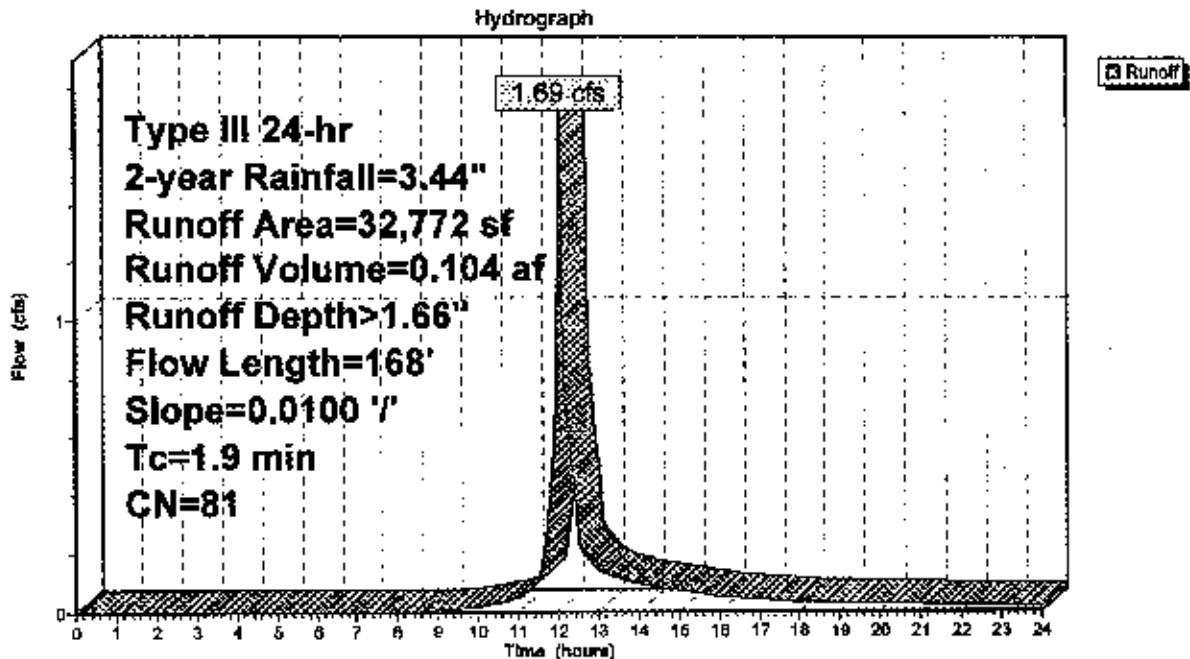
Runoff = 1.69 cfs @ 12.03 hrs, Volume= 0.104 af, Depth> 1.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
21,755	98	Paved parking, HSG A
1,140	36	Woods, Fair, HSG A
9,877	49	Pasture/grassland/range, Fair, HSG A
32,772	81	Weighted Average
11,017		33.62% Pervious Area
21,755		66.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0100	0.94		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.40"
1.0	118	0.0100	2.03		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
1.9	168	Total			

Subcatchment DA-1: Site Runoff



Proposed Conditions

Prepared by JC Engineering Inc.

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-year Rainfall=3.44"

Printed 1/31/2022

Page 7

Summary for Subcatchment DA-2: Site Runoff

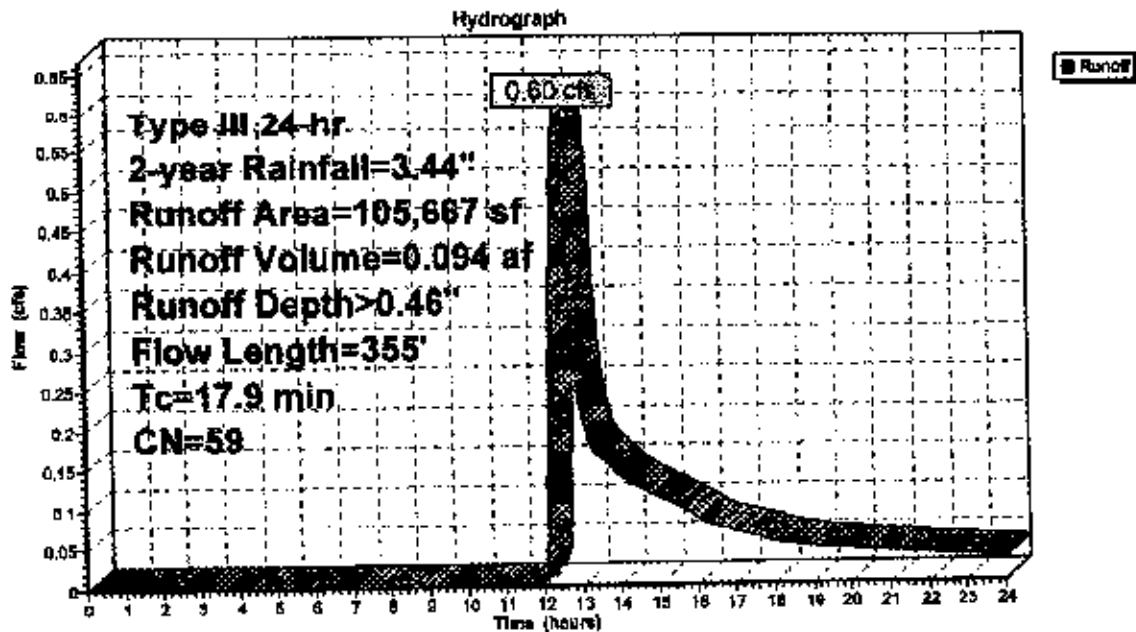
Runoff = 0.60 cfs @ 12.36 hrs, Volume= 0.094 af, Depth> 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
32,015	98	Paved parking, HSG A
42,960	36	Woods, Fair, HSG A
30,692	49	Pasture/grassland/range, Fair, HSG A
105,667	59	Weighted Average
73,652		89.70% Pervious Area
32,015		30.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.40"
5.1	215	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.4	30	0.0300	1.21		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
0.4	60	0.0150	2.49		Shallow Concentrated Flow, D-E Paved Kv= 20.3 fps
17.9	355	Total			

Subcatchment DA-2: Site Runoff



Proposed Conditions

Prepared by JC Engineering Inc.

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-year Rainfall=3.44"

Printed 1/31/2022

Page 8

Summary for Pond 1P: Detention Basin

Inflow Area = 0.752 ac, 66.38% impervious, Inflow Depth > 1.66" for 2-year event
 Inflow = 1.69 cfs @ 12.03 hrs, Volume= 0.104 af
 Outflow = 0.13 cfs @ 13.19 hrs, Volume= 0.104 af, Atten= 92%, Lag= 69.7 min
 Discarded = 0.13 cfs @ 13.19 hrs, Volume= 0.104 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 26.91' @ 13.19 hrs Surf.Area= 2,352 sf Storage= 1,873 cf

Plug-Flow detention time= 144.1 min calculated for 0.104 af (100% of inflow)
 Center-of-Mass det. time= 142.0 min (974.0 - 832.0)

Volume	Invert	Avail.Storage	Storage Description
#1	26.00'	12,998 cf	Custom Stage Data (Conic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
26.00	1,725	0	0	1,725
27.00	2,415	2,060	2,060	2,433
28.00	3,214	2,805	4,865	3,254
29.00	4,010	3,605	8,470	4,078
30.00	5,067	4,528	12,998	5,162

Device	Routing	Invert	Outlet Devices
#1	Discarded	26.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.13 cfs @ 13.19 hrs HW=26.91' (Free Discharge)
 ↳ Exfiltration (Exfiltration Controls 0.13 cfs)

Proposed Conditions

Prepared by JC Engineering Inc.

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

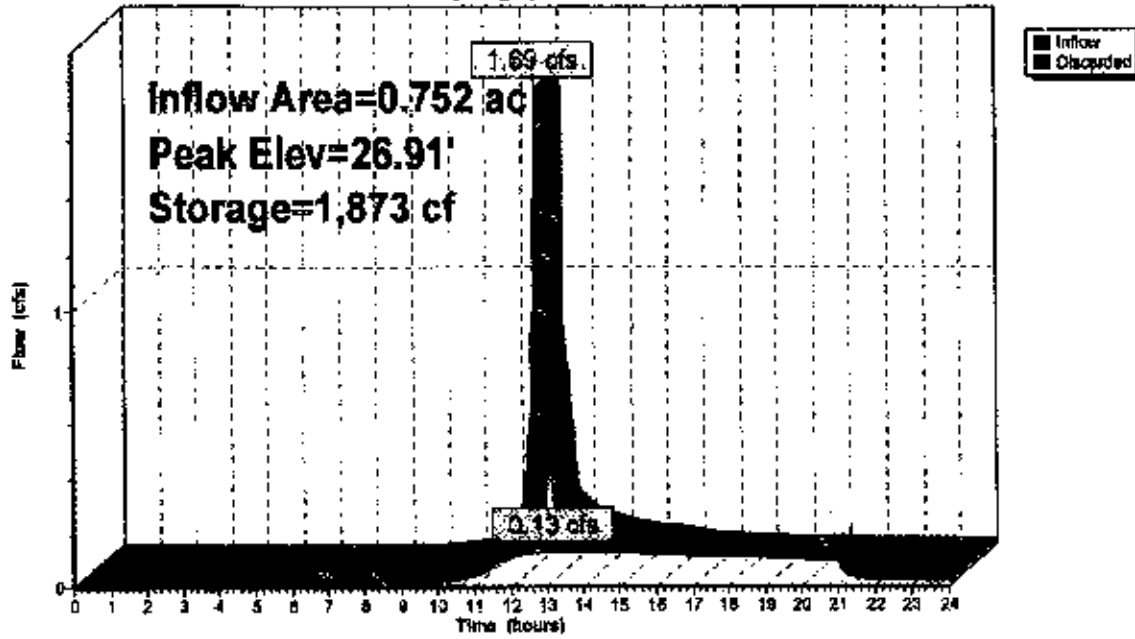
Type III 24-hr 2-year Rainfall=3.44"

Printed 1/31/2022

Page 9

Pond 1P: Detention Basin

Hydrograph



Proposed Conditions

Type III 24-hr 2-year Rainfall=3.44"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 10

Summary for Pond 2P: Detention Basin

Inflow Area = 2.426 ac, 30.30% Impervious, Inflow Depth > 0.46" for 2-year event
 Inflow = 0.60 cfs @ 12.36 hrs, Volume= 0.094 af
 Outflow = 0.21 cfs @ 13.05 hrs, Volume= 0.093 af, Atten= 65%, Lag= 41.7 min
 Discarded = 0.21 cfs @ 13.05 hrs, Volume= 0.093 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 26.18' @ 13.05 hrs Surf.Area= 3,746 sf Storage= 734 cf

Plug-Flow detention time= 29.6 min calculated for 0.093 af (99% of inflow)
 Center-of-Mass det. time= 26.4 min (950.0 - 923.6)

Volume	Invert	Avail.Storage	Storage Description		
#1	26.00'	23,817 cf	Custom Stage Data (Conic) Listed below		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
26.00	3,553	0	0	3,553	
27.00	4,626	4,078	4,078	4,650	
28.00	6,075	5,334	9,412	6,121	
29.00	7,198	6,629	16,040	7,281	
30.00	8,369	7,776	23,817	8,493	

Device	Routing	Invert	Outlet Devices
#1	Discarded	26.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.21 cfs @ 13.05 hrs HW=26.18' (Free Discharge)
 ↳ Exfiltration (Exfiltration Controls 0.21 cfs)

Proposed Conditions

Prepared by JC Engineering Inc.

HydroCAD® 10.00-22, s/n 02717 © 2018 HydroCAD Software Solutions LLC

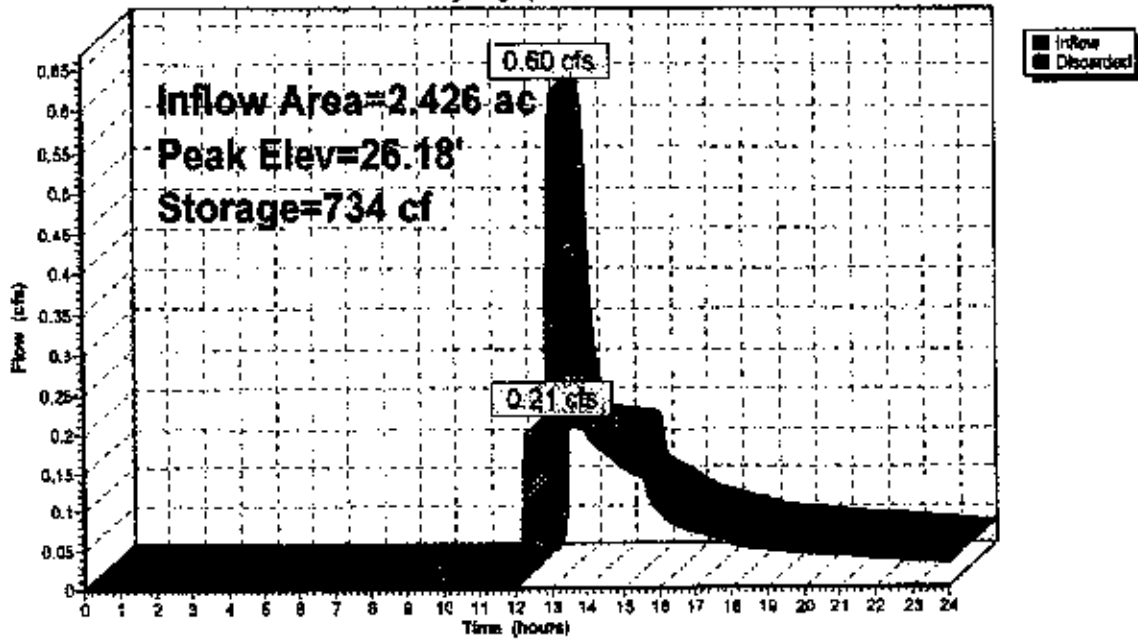
Type III 24-hr 2-year Rainfall=3.44"

Printed 1/31/2022

Page 11

Pond 2P: Detention Basin

Hydrograph



Proposed Conditions

Type III 24-hr 10-year Rainfall=5.05"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 12

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

SubcatchmentDA-1: Site Runoff Runoff Area=32,772 sf 66.38% Impervious Runoff Depth=3.03"
Flow Length=168' Slope=0.0100 1/1 Tc=1.9 min CN=81 Runoff=3.10 cfs 0.190 af

SubcatchmentDA-2: Site Runoff Runoff Area=105,667 sf 30.30% Impervious Runoff Depth=1.26"
Flow Length=355' Tc=17.9 min CN=59 Runoff=2.22 cfs 0.254 af

Pond 1P: Detention Basin Peak Elev=27.70' Storage=4,026 cf Inflow=3.10 cfs 0.190 af
Outflow=0.17 cfs 0.165 af

Pond 2P: Detention Basin Peak Elev=27.09' Storage=4,575 cf Inflow=2.22 cfs 0.254 af
Outflow=0.27 cfs 0.242 af

Total Runoff Area = 3.178 ac Runoff Volume = 0.444 af Average Runoff Depth = 1.68"
61.16% Pervious = 1.944 ac 38.84% Impervious = 1.234 ac

Proposed Conditions

Type III 24-hr 10-year Rainfall=5.05"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 13

Summary for Subcatchment DA-1: Site Runoff

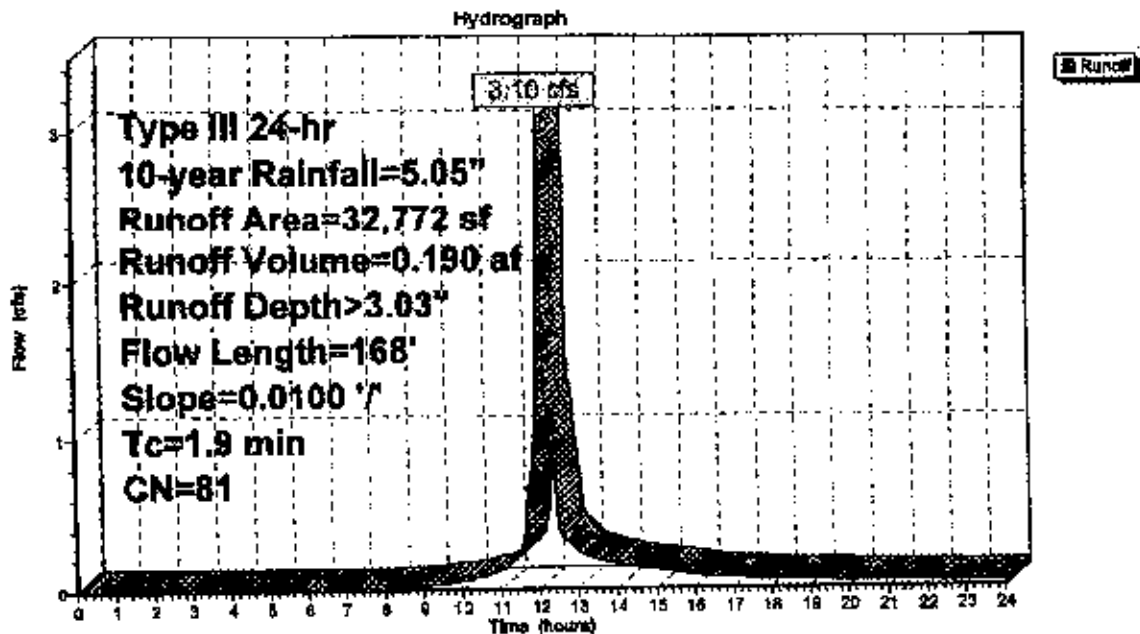
Runoff = 3.10 cfs @ 12.03 hrs, Volume= 0.190 af, Depth> 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
21,765	98	Paved parking, HSG A
1,140	36	Woods, Fair, HSG A
9,877	49	Pasture/grassland/range, Fair, HSG A
32,772	81	Weighted Average
11,017		33.62% Pervious Area
21,755		68.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.40"
1.0	118	0.0100	2.03		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
1.9	168	Total			

Subcatchment DA-1: Site Runoff



Proposed Conditions

Type III 24-hr 10-year Rainfall=5.05"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 14

Summary for Subcatchment DA-2: Site Runoff

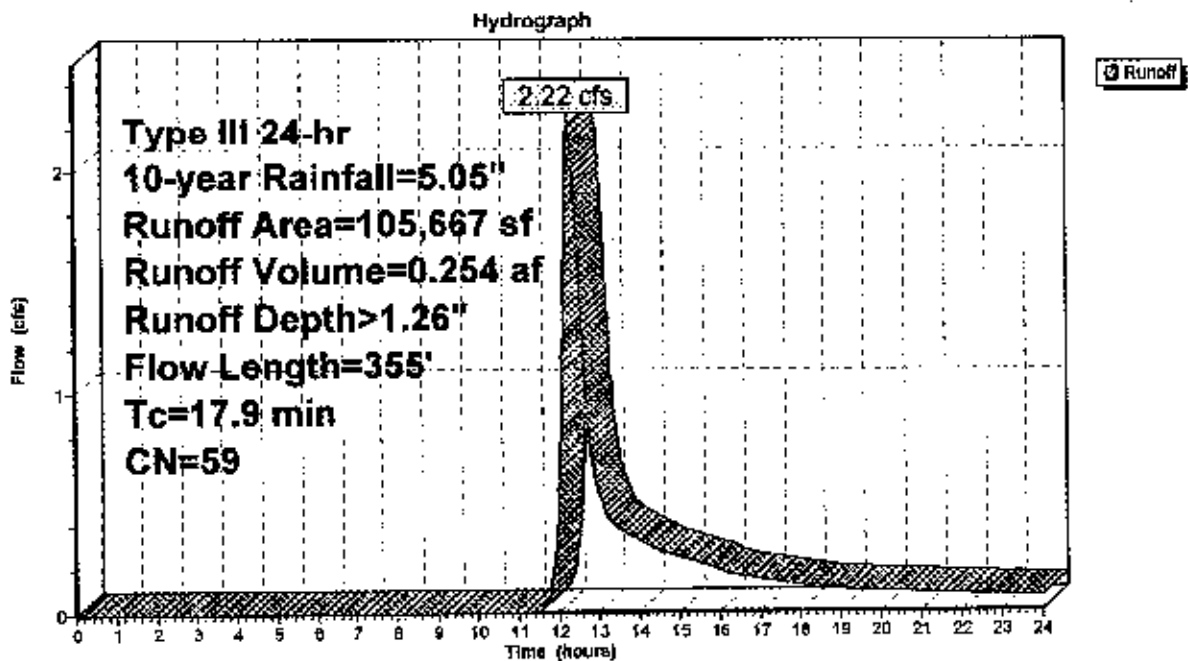
Runoff = 2.22 cfs @ 12.28 hrs, Volume= 0.254 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
32,015	98	Paved parking, HSG A
42,960	36	Woods, Fair, HSG A
30,692	49	Pasture/grassland/range, Fair, HSG A
105,667	59	Weighted Average
73,652		69.70% Pervious Area
32,015		30.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.40"
5.1	215	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.4	30	0.0300	1.21		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
0.4	60	0.0150	2.49		Shallow Concentrated Flow, D-E Paved Kv= 20.3 fps
17.9	355	Total			

Subcatchment DA-2: Site Runoff



Proposed Conditions

Type III 24-hr 10-year Rainfall=5.05"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 15

Summary for Pond 1P: Detention Basin

Inflow Area = 0.752 ac, 66.38% Impervious, Inflow Depth > 3.03" for 10-year event
 Inflow = 3.10 cfs @ 12.03 hrs, Volume= 0.190 af
 Outflow = 0.17 cfs @ 13.93 hrs, Volume= 0.165 af, Atten= 95%, Lag= 114.2 min
 Discarded = 0.17 cfs @ 13.93 hrs, Volume= 0.165 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 27.70' @ 13.93 hrs Surf.Area= 2,975 sf Storage= 4,026 cf

Plug-Flow detention time= 257.0 min calculated for 0.165 af (87% of inflow)
 Center-of-Mass det. time= 198.1 min (1,012.7 - 814.6)

Volume	Invert	Avail.Storage	Storage Description		
#1	26.00'	12,998 cf	Custom Stage Data (Conic) Listed below		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
26.00	1,725	0	0	1,725	
27.00	2,415	2,060	2,060	2,433	
28.00	3,214	2,805	4,865	3,254	
29.00	4,010	3,605	8,470	4,078	
30.00	5,067	4,528	12,998	5,102	

Device	Routing	Invert	Outlet Devices	
#1	Discarded	26.00'	2,410 in/hr Exfiltration over Surface area	

Discarded OutFlow Max=0.17 cfs @ 13.93 hrs HW=27.70' (Free Discharge)

↳ Exfiltration (Exfiltration Controls 0.17 cfs)

Proposed Conditions

Prepared by JC Engineering Inc.

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

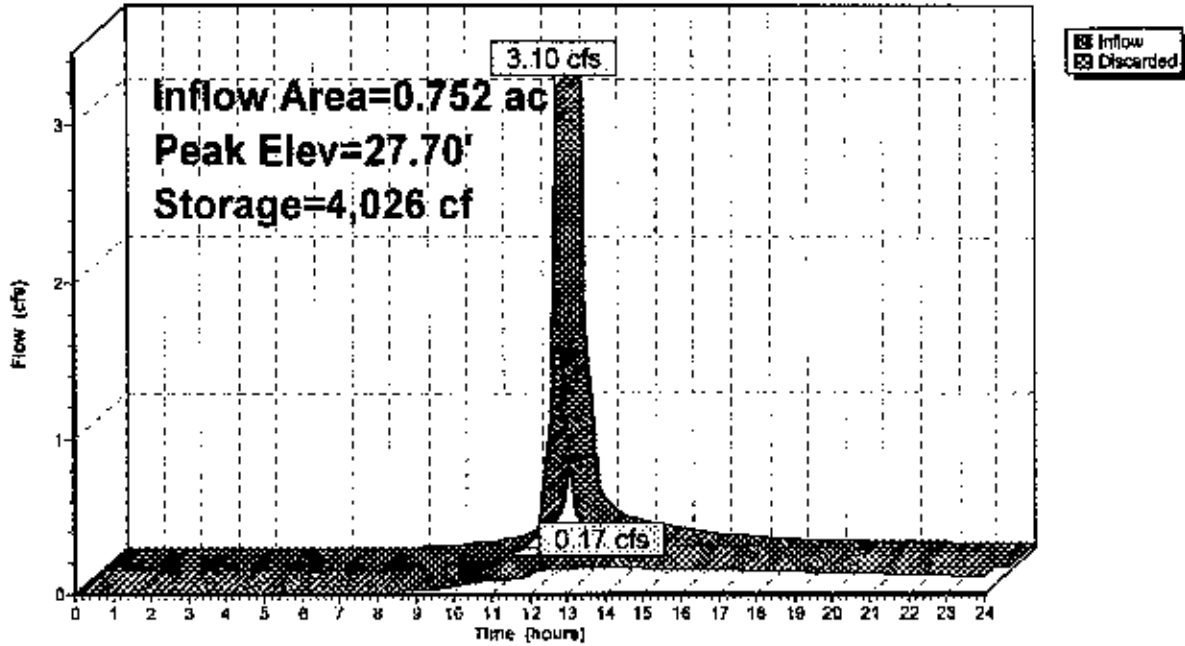
Type III 24-hr 10-year Rainfall=5.05"

Printed 1/31/2022

Page 16

Pond 1P: Detention Basin

Hydrograph



Proposed Conditions

Type III 24-hr 10-year Rainfall=5.05"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 17

Summary for Pond 2P: Detention Basin

Inflow Area = 2.426 ac, 30.30% Impervious, Inflow Depth > 1.28" for 10-year event
 Inflow = 2.22 cfs @ 12.28 hrs, Volume= 0.254 af
 Outflow = 0.27 cfs @ 14.75 hrs, Volume= 0.242 af, Atten= 88%, Lag= 148.4 min
 Discarded = 0.27 cfs @ 14.75 hrs, Volume= 0.242 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 27.09' @ 14.75 hrs Surf.Area= 4,761 sf Storage= 4,575 cf

Plug-Flow detention time= 203.0 min calculated for 0.242 af (95% of inflow)
 Center-of-Mass det. time= 179.6 min (1,065.4 - 885.8)

Volume	Invert	Avail.Storage	Storage Description		
#1	26.00'	23,817 cf	Custom Stage Data (Conic) Listed below		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet Area (sq-ft)	
26.00	3,553	0	0	3,553	
27.00	4,626	4,078	4,078	4,650	
28.00	6,075	6,334	9,412	6,121	
29.00	7,198	6,629	16,040	7,281	
30.00	8,389	7,778	23,817	8,483	

Device	Routing	Invert	Outlet Devices	
#1	Discarded	26.00'	2.410 In/hr Exfiltration over Surface area	

Discarded OutFlow Max=0.27 cfs @ 14.75 hrs HW=27.09' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.27 cfs)

Proposed Conditions

Prepared by JC Engineering Inc.

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

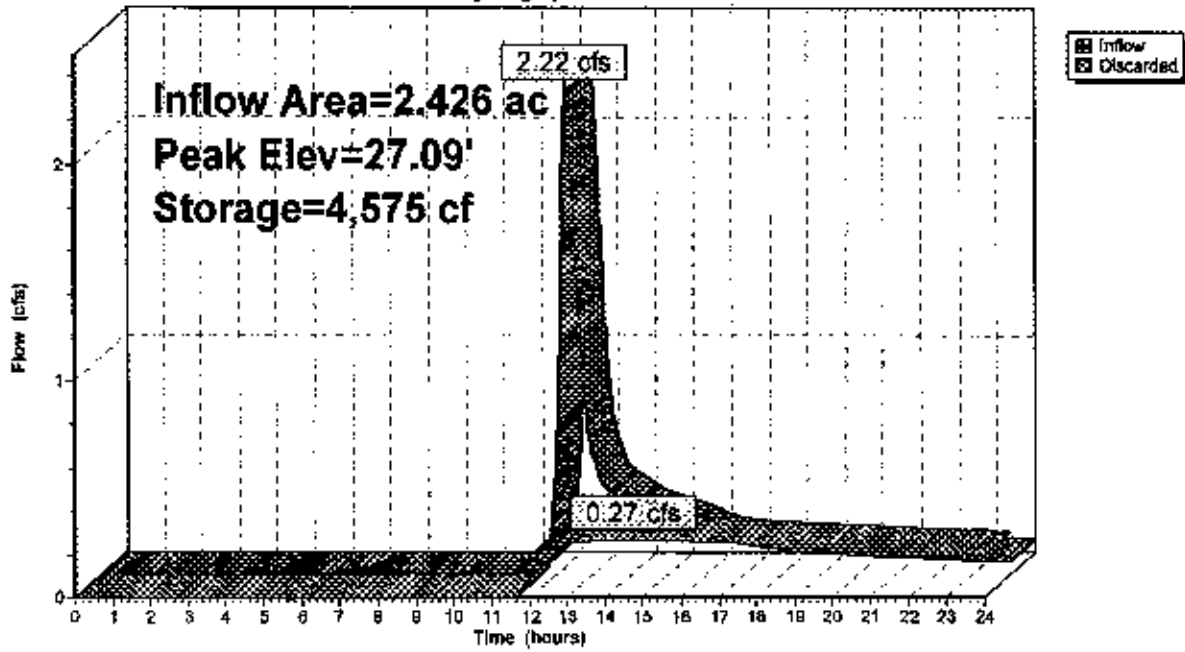
Type III 24-hr 10-year Rainfall=5.05"

Printed 1/31/2022

Page 18

Pond 2P: Detention Basin

Hydrograph



Proposed Conditions

Type III 24-hr 25-year Rainfall=8.05"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 19

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment DA-1: Site Runoff Runoff Area=32,772 sf 66.38% Impervious Runoff Depth=3.93"
Flow Length=168' Slope=0.0100 /' Tc=1.9 min CN=81 Runoff=3.99 cfs 0.245 af

Subcatchment DA-2: Site Runoff Runoff Area=105,667 sf 30.30% Impervious Runoff Depth=1.86"
Flow Length=355' Tc=17.9 min CN=59 Runoff=3.48 cfs 0.378 af

Pond 1P: Detention Basin Peak Elev=28.19' Storage=5,547 cf Inflow=3.99 cfs 0.245 af
Outflow=0.18 cfs 0.193 af

Pond 2P: Detention Basin Peak Elev=27.73' Storage=7,952 cf Inflow=3.48 cfs 0.378 af
Outflow=0.32 cfs 0.294 af

Total Runoff Area = 3.178 ac Runoff Volume = 0.623 af Average Runoff Depth = 2.35"
61.16% Pervious = 1.944 ac 38.84% Impervious = 1.234 ac

Proposed Conditions

Prepared by JC Engineering Inc.

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-year Rainfall=6.05"

Printed 1/31/2022

Page 20

Summary for Subcatchment DA-1: Site Runoff

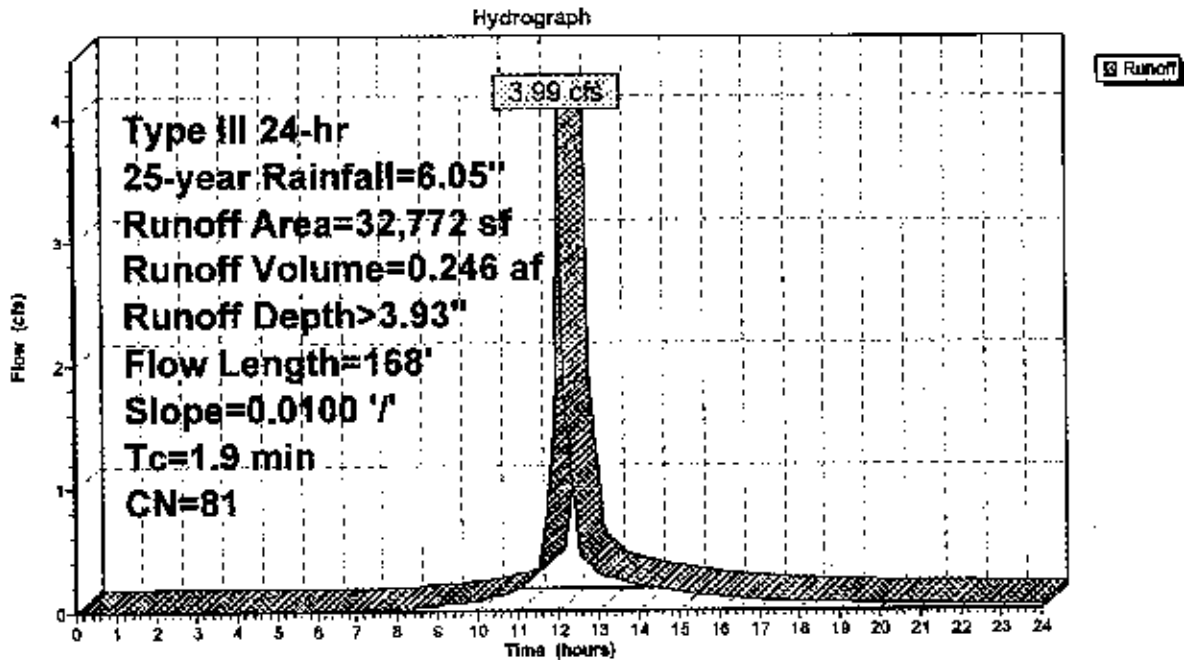
Runoff = 3.99 cfs @ 12.03 hrs, Volume= 0.246 af, Depth> 3.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
21,755	98	Paved parking, HSG A
1,140	36	Woods, Fair, HSG A
9,877	49	Pasture/grassland/range, Fair, HSG A
32,772	81	Weighted Average
11,017		33.62% Pervious Area
21,755		66.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.40"
1.0	118	0.0100	2.03		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
1.9	168	Total			

Subcatchment DA-1: Site Runoff



Proposed Conditions

Type III 24-hr 25-year Rainfall=6.05"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 21

Summary for Subcatchment DA-2: Site Runoff

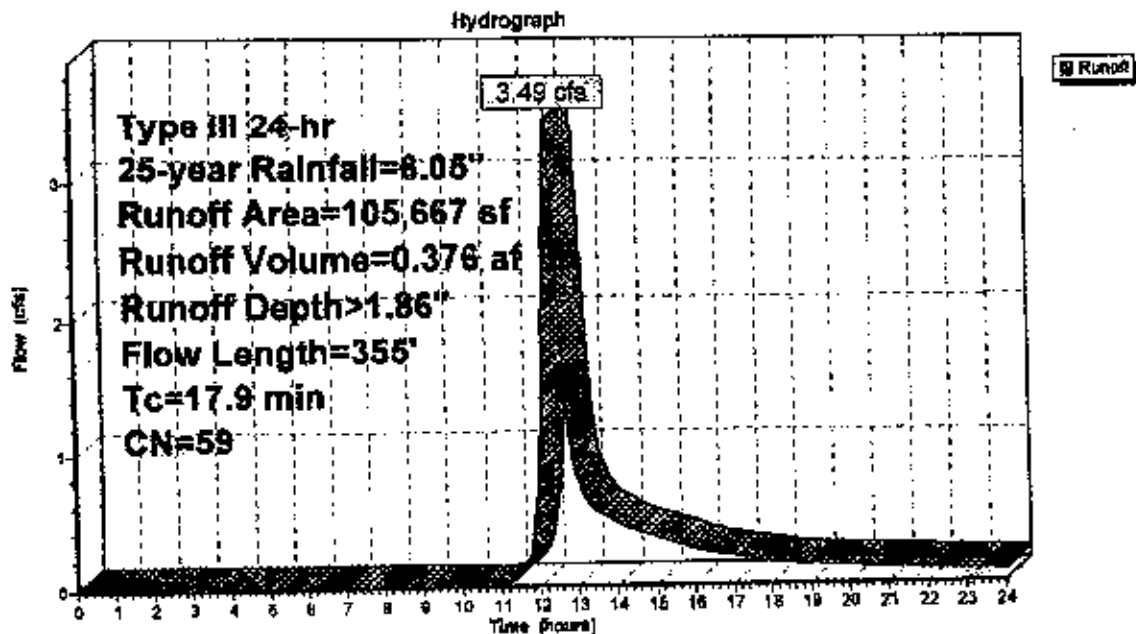
Runoff = 3.49 cfs @ 12.27 hrs, Volume= 0.376 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
32,015	98	Paved parking, HSG A
42,960	36	Woods, Fair, HSG A
30,692	49	Pasture/grassland/range, Fair, HSG A
105,667	59	Weighted Average
73,852		69.70% Pervious Area
32,015		30.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.40"
5.1	215	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.4	30	0.0300	1.21		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
0.4	60	0.0150	2.49		Shallow Concentrated Flow, D-E Paved Kv= 20.3 fps
17.9	355	Total			

Subcatchment DA-2: Site Runoff



Proposed Conditions

Type III 24-hr 25-year Rainfall=6.05"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 22

Summary for Pond 1P: Detention Basin

Inflow Area = 0.752 ac, 66.38% Impervious, Inflow Depth > 3.93" for 25-year event
 Inflow = 3.99 cfs @ 12.03 hrs, Volume= 0.246 af
 Outflow = 0.19 cfs @ 14.26 hrs, Volume= 0.193 af, Atten= 95%, Lag= 133.9 min
 Discarded = 0.19 cfs @ 14.26 hrs, Volume= 0.193 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 28.19' @ 14.26 hrs Surf.Area= 3,364 sf Storage= 5,547 cf

Plug-Flow detention time= 280.4 min calculated for 0.193 af (78% of inflow)
 Center-of-Mass det. time= 200.7 min (1,008.0 - 807.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	26.00'	12,998 cf	Custom Stage Data (Conic) Listed below		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
26.00	1,725	0	0	1,725	
27.00	2,415	2,060	2,060	2,433	
28.00	3,214	2,805	4,865	3,254	
29.00	4,010	3,605	8,470	4,078	
30.00	5,067	4,528	12,998	5,162	

Device	Routing	Invert	Outlet Devices
#1	Discarded	26.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.19 cfs @ 14.26 hrs HW=28.19' (Free Discharge)
 ←1=Exfiltration (Exfiltration Controls 0.19 cfs)

Proposed Conditions

Prepared by JC Engineering Inc.

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

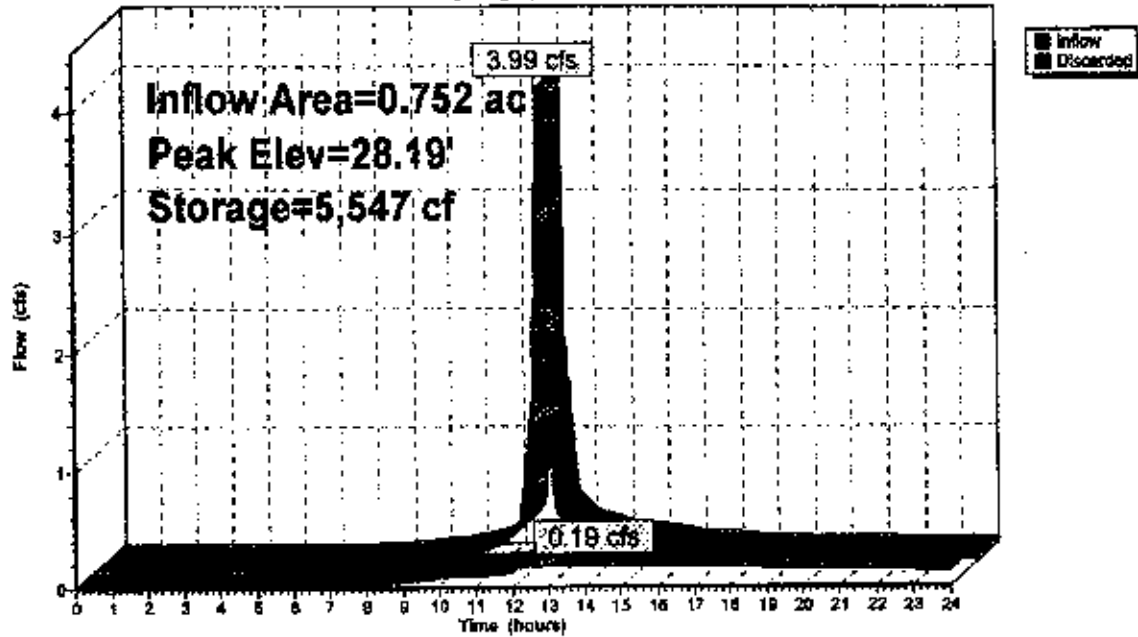
Type III 24-hr 25-year Rainfall=6.05"

Printed 1/31/2022

Page 23

Pond 1P: Detention Basin

Hydrograph



Proposed Conditions

Type III 24-hr 25-year Rainfall=6.05"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 24

Summary for Pond 2P: Detention Basin

Inflow Area = 2.426 ac, 30.30% Impervious, Inflow Depth > 1.86" for 25-year event
 Inflow = 3.49 cfs @ 12.27 hrs, Volume= 0.376 af
 Outflow = 0.32 cfs @ 15.34 hrs, Volume= 0.294 af, Atten= 91%, Lag= 184.0 min
 Discarded = 0.32 cfs @ 15.34 hrs, Volume= 0.294 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 27.73' @ 15.34 hrs Surf.Area= 5,678 sf Storage= 7,952 cf

Plug-Flow detention time= 275.5 min calculated for 0.294 af (78% of inflow)
 Center-of-Mass det. time= 190.7 min (1,063.9 - 873.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	26.00'	23,817 cf	Custom Stage Data (Conlc) Listed below		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
26.00	3,553	0	0	3,553	
27.00	4,626	4,078	4,078	4,650	
28.00	6,075	5,334	9,412	6,121	
29.00	7,198	6,629	16,040	7,281	
30.00	8,369	7,776	23,817	8,493	

Device	Routing	Invert	Outlet Devices
#1	Discarded	26.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.32 cfs @ 15.34 hrs HW=27.73' (Free Discharge)
 1=Exfiltration (Exfiltration Controls 0.32 cfs)

Proposed Conditions

Prepared by JC Engineering Inc.

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

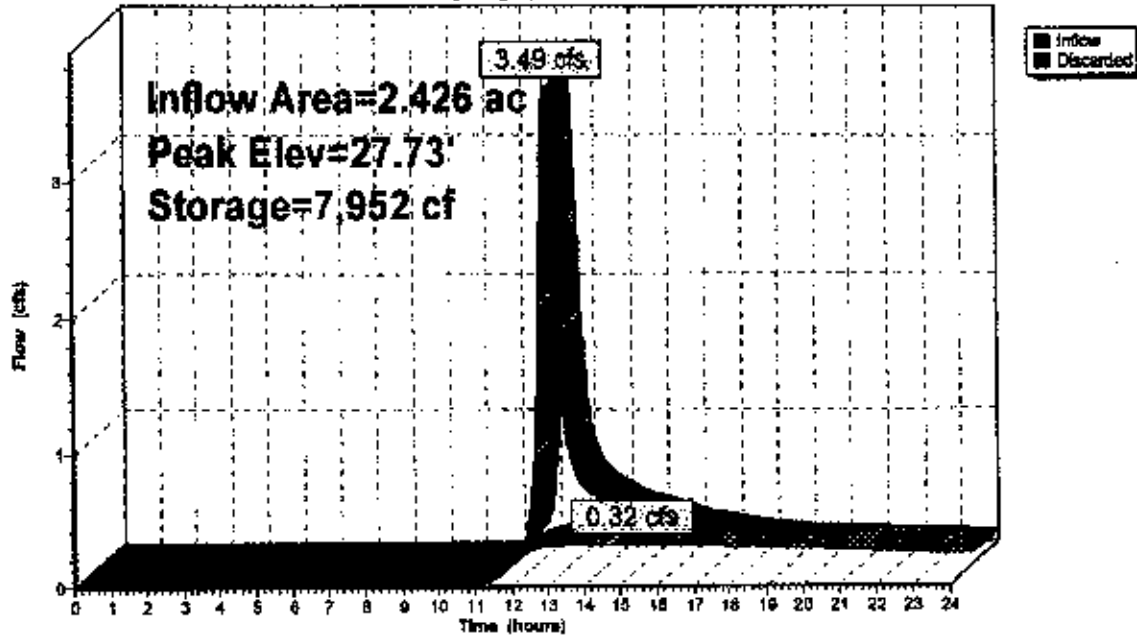
Type III 24-hr 25-year Rainfall=6.05"

Printed 1/31/2022

Page 25

Pond 2P: Detention Basin

Hydrograph



Proposed Conditions

Type III 24-hr 100-year Rainfall=7.59"

Prepared by JC Engineering Inc.

Printed: 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 26

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment DA-1: Site Runoff Runoff Area=32,772 sf 66.38% Impervious Runoff Depth>5.35"
Flow Length=168' Slope=0.0100 1' Tc=1.9 min CN=81 Runoff=5.39 cfs 0.336 af

Subcatchment DA-2: Site Runoff Runoff Area=105,667 sf 30.30% Impervious Runoff Depth>2.91"
Flow Length=355' Tc=17.9 min CN=59 Runoff=5.68 cfs 0.588 af

Pond 1P: Detention Basin Peak Elev=28.90' Storage=8,098 cf Inflow=5.39 cfs 0.336 af
Outflow=0.22 cfs 0.233 af

Pond 2P: Detention Basin Peak Elev=28.72' Storage=14,169 cf Inflow=5.68 cfs 0.588 af
Outflow=0.38 cfs 0.378 af

Total Runoff Area = 3.178 ac Runoff Volume = 0.924 af Average Runoff Depth = 3.49"
61.16% Pervious = 1.944 ac 38.84% Impervious = 1.234 ac

Proposed Conditions

Type III 24-hr 100-year Rainfall=7.59"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 27

Summary for Subcatchment DA-1: Site Runoff

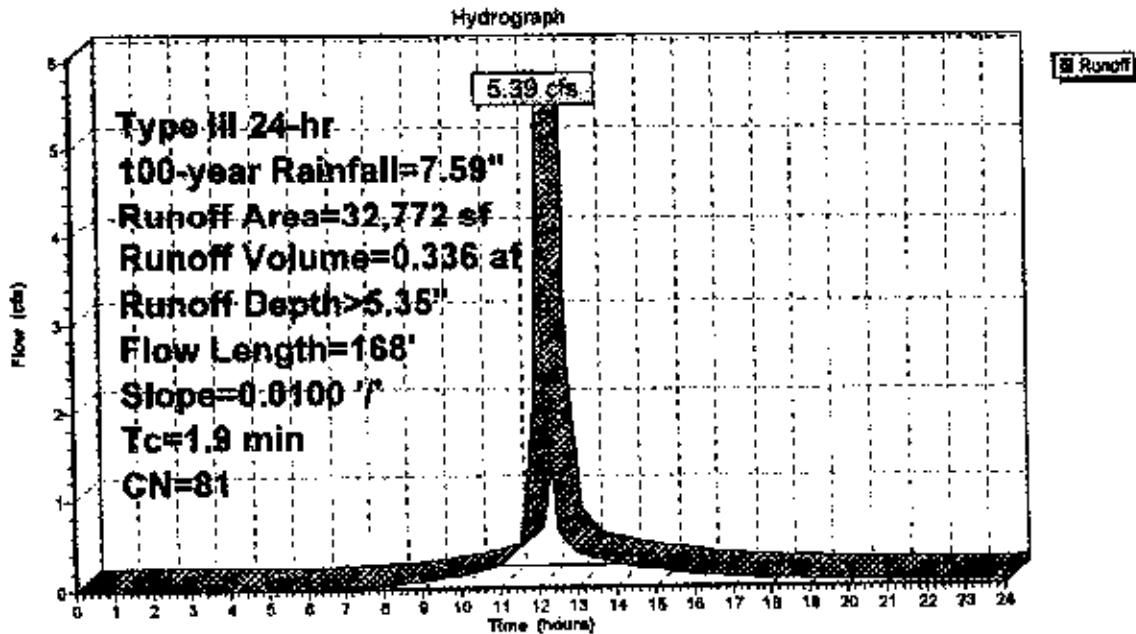
Runoff = 5.39 cfs @ 12.03 hrs, Volume= 0.336 af, Depth> 5.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-year Rainfall=7.59"

Area (sf)	CN	Description
21,755	98	Paved parking, HSG A
1,140	36	Woods, Fair, HSG A
9,877	49	Pasture/grassland/range, Fair, HSG A
32,772	81	Weighted Average
11,017		33.62% Pervious Area
21,755		66.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.40"
1.0	118	0.0100	2.03		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
1.9	168	Total			

Subcatchment DA-1: Site Runoff



Proposed Conditions

Prepared by JC Engineering Inc.
 HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-year Rainfall=7.59"

Printed 1/31/2022
 Page 28

Summary for Subcatchment DA-2: Site Runoff

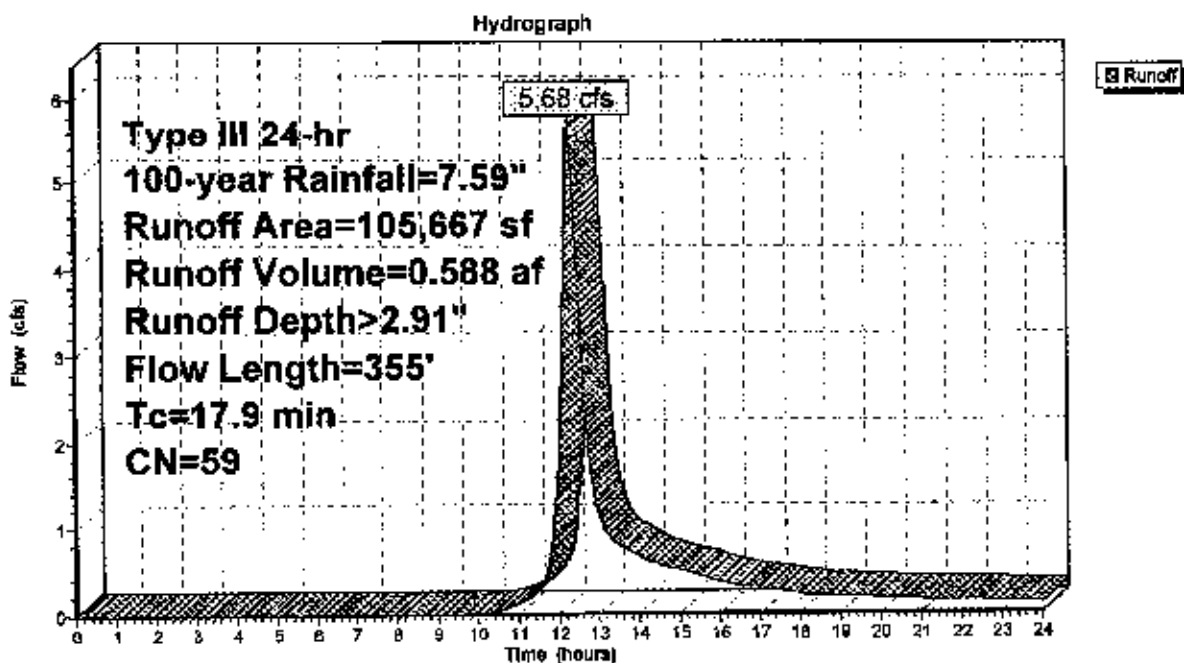
Runoff = 5.68 cfs @ 12.26 hrs, Volume= 0.588 af, Depth> 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-year Rainfall=7.59"

Area (sf)	CN	Description
32,015	98	Paved parking, HSG A
42,960	36	Woods, Fair, HSG A
30,692	49	Pasture/grassland/range, Fair, HSG A
105,667	59	Weighted Average
73,652		69.70% Pervious Area
32,015		30.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.40"
5.1	215	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.4	30	0.0300	1.21		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
0.4	60	0.0150	2.49		Shallow Concentrated Flow, D-E Paved Kv= 20.3 fps
17.9	355	Total			

Subcatchment DA-2: Site Runoff



Proposed Conditions

Type III 24-hr 100-year Rainfall=7.59"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 29

Summary for Pond 1P: Detention Basin

Inflow Area = 0.752 ac, 66.38% Impervious, Inflow Depth > 5.35" for 100-year event
 Inflow = 5.39 cfs @ 12.03 hrs, Volume= 0.336 af
 Outflow = 0.22 cfs @ 14.69 hrs, Volume= 0.233 af, Atten= 96%, Lag= 159.7 min
 Discarded = 0.22 cfs @ 14.69 hrs, Volume= 0.233 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 28.90' @ 14.69 hrs Surf.Area= 3,928 sf Storage= 8,098 cf

Plug-Flow detention time= 298.4 min calculated for 0.233 af (89% of inflow)
 Center-of-Mass det. time= 205.0 min (1,003.5 - 798.5)

Volume	Invert	Avail. Storage	Storage Description		
#1	26.00'	12,998 cf	Custom Stage Data (Conic) Listed below		
Elevation (feet)	Surf. Area (sq-ft)	Inc. Store (cubic-feet)	Cum. Store (cubic-feet)	Wet Area (sq-ft)	
26.00	1,726	0	0	1,726	
27.00	2,415	2,060	2,060	2,433	
28.00	3,214	2,805	4,865	3,254	
29.00	4,010	3,605	8,470	4,078	
30.00	5,067	4,528	12,998	5,162	

Device	Routing	Invert	Outlet Devices	
#1	Discarded	26.00'	2.410 in/hr Exfiltration over Surface area	

Discarded OutFlow Max=0.22 cfs @ 14.69 hrs HW=28.90' (Free Discharge)
 ↑=Exfiltration (Exfiltration Controls 0.22 cfs)

Proposed Conditions

Prepared by JC Engineering Inc.

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

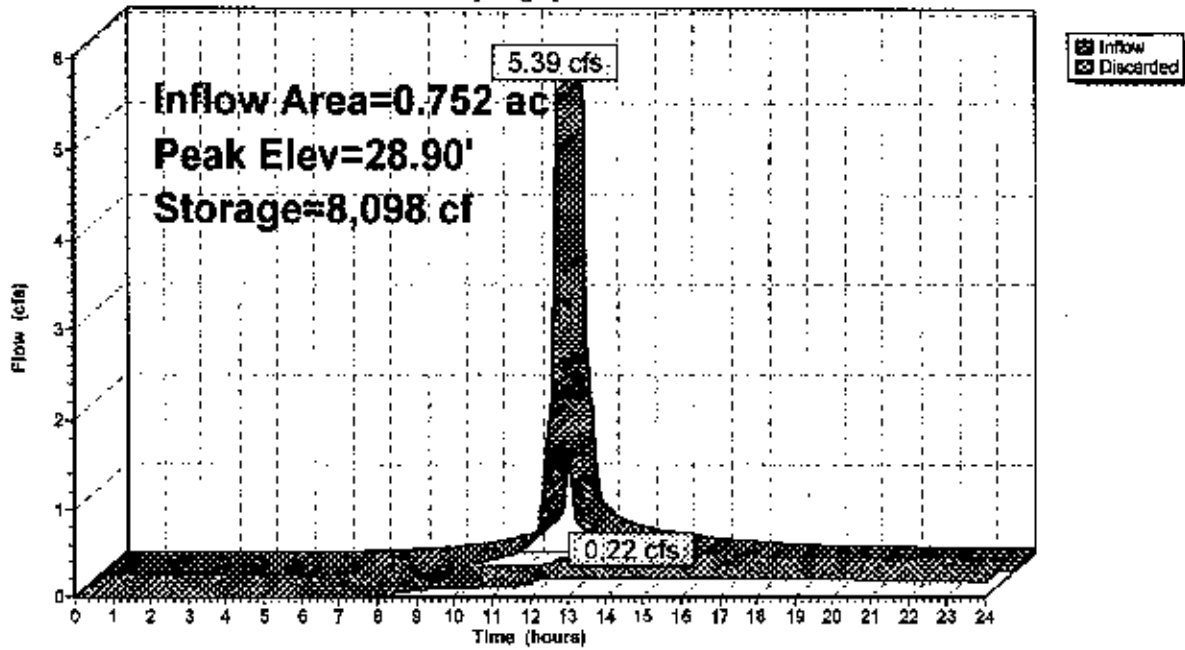
Type III 24-hr 100-year Rainfall=7.59"

Printed: 1/31/2022

Page 30

Pond 1P: Detention Basin

Hydrograph



Proposed Conditions

Type III 24-hr 100-year Rainfall=7.59"

Prepared by JC Engineering Inc.

Printed 1/31/2022

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Page 31

Summary for Pond 2P: Detention Basin

Inflow Area = 2.428 ac, 30.38% Impervious, Inflow Depth > 2.91" for 100-year event
 Inflow = 5.68 cfs @ 12.26 hrs, Volume= 0.588 af
 Outflow = 0.38 cfs @ 15.87 hrs, Volume= 0.378 af, Atten= 93%, Lag= 216.7 min
 Discarded = 0.38 cfs @ 15.87 hrs, Volume= 0.378 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 28.72' @ 15.87 hrs Surf.Area= 6,881 sf Storage= 14,169 cf

Plug-Flow detention time= 312.0 min calculated for 0.378 af (64% of inflow)
 Center-of-Mass det. time= 202.8 min (1,062.5 - 859.7)

Volume	Invert	Avail.Storage	Storage Description
#1	26.00'	23,817 cf	Custom Stage Data (Conlc) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
26.00	3,553	0	0	3,553
27.00	4,626	4,078	4,078	4,650
28.00	6,075	5,334	9,412	6,121
29.00	7,198	6,629	16,040	7,281
30.00	8,389	7,776	23,817	8,493

Device	Routing	Invert	Outlet Devices
#1	Discarded	26.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.38 cfs @ 15.87 hrs HW=28.72' (Free Discharge)
 ←1=Exfiltration (Exfiltration Controls 0.38 cfs)

Proposed Conditions

Prepared by JC Engineering Inc.

HydroCAD® 10.00-22 s/n 02717 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-year Rainfall=7.59"

Printed 1/31/2022

Page 32

Pond 2P: Detention Basin

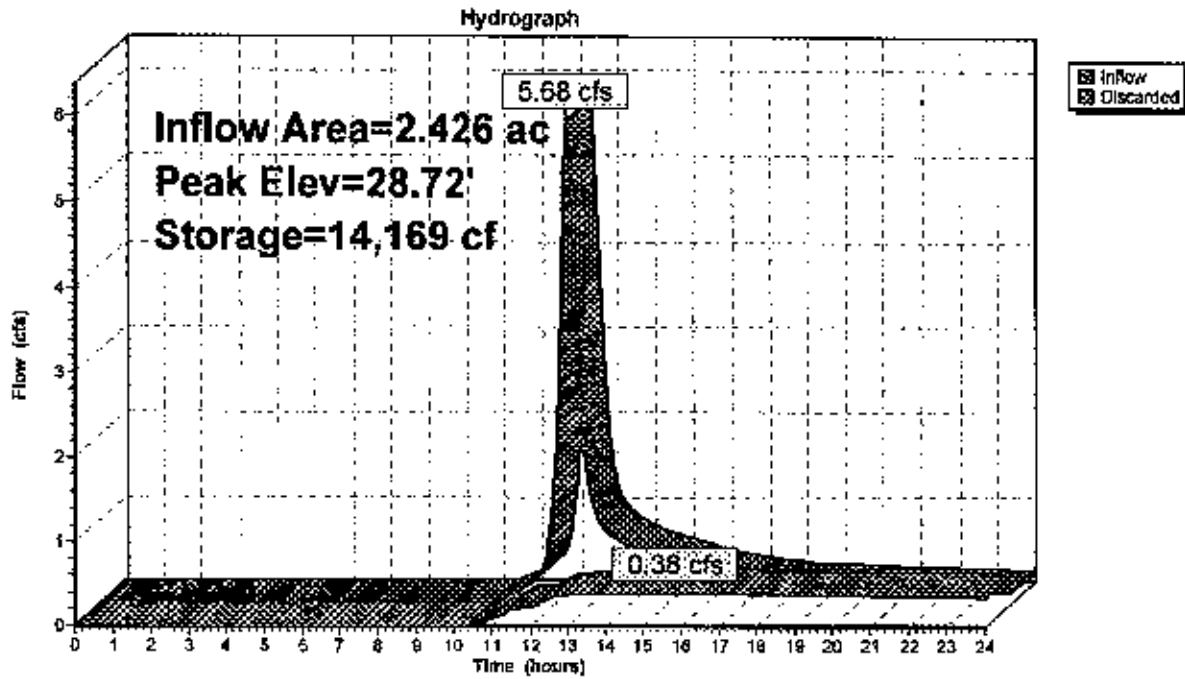


EXHIBIT G

APPLICATION FOR SITE PLAN REVIEW

Page 1

Applicant: Name: David Sergi

Mailing address: 21 Patterson Brook Road, Suite G, W. Wareham, MA 02576

Telephone: 888-436-6383

Project: Street & Number: 8 & 10 Charge Pond Road

Assessor's Map: 110 Lot(s) 1035 & 1076

Dwelling Units # 0

Parking Spaces # 33

Acres: 3.21 Square Feet Commercial Space: 53,307 S.F.

Briefly describe project: This project involves the construction of a proposed landscaping building with associated parking, grading, drainage, septic system, and utilities.

Date: 12-28-21

Signature of Applicant:  Representative

APPLICATION FOR SITE PLAN REVIEW

Page 2

List of abutters:

Please list the names of all abutters, owners of land directly opposite on any public or private street or way, and abutters to the abutters within three hundred feet of the property line of the petitioner as they appear on the most recent applicable tax list.

See attached certified abutters list

SITE PLAN REVIEW CHECKLIST

Plans shall be prepared by a registered architect, landscape architect, or Professional Engineer. 14 complete sets are required with the following information included:

1. GENERAL INFORMATION

- X Developer name, address, telephone number
- X Property owner name, address, telephone number, legal relationship between developer and property owner
- X Date of application
- X Statement briefly describing project
- X Locus map (1" = 2,000')
- X Location of property to surrounding area (this plan shall show at a scale of not less than 1" = 100' the general characteristics of all lands within 200' of the proposed site and shall include structures, parking areas, driveways, pedestrian ways and natural characteristics)
- X Zoning district (square feet within each district if more than one district)
- X Total area of project in square feet to include wetland and 100 year flood plain (both in square feet)
- X All contiguous land owned by the applicant or by the owner of the property. At the discretion of the Planning Board photographs of the site at size 8" x 10"

2. EXISTING FEATURES

Plans shall be accurately drawn to a scale of 1" = 20', 1" = 40', or 1" = 100' where practical and appropriate to the size of the proposal and shall show all existing natural, manmade, and legal features of the site. Such plans are to include but not be limited to the following:

- X Tree line of wooded area
- X Individual trees 18" dbh or over
- N/A Bogs or agricultural areas

- N/A All wetlands protected under CMR 10.02 (1) (a-d)
- X Flood plain (100 years) with base flood elevation data
- X Contour lines (2' intervals)
- X General soil types

2b. EXISTING MANMADE FEATURES

- X Vehicle accommodation areas
- X Street, roads, private ways, walkways
- X Curbs, gutters, curb cuts, drainage grates
- X Storm drainage facilities, including manholes
- X Utility lines, including water, sewer, electric, telephone, gas, cable TV
- X Fire hydrants and location of dumpsters
- X Building, structures, and signs (free standing), including dimensions of each
- X Existing light fixtures

2c. EXISTING LEGAL FEATURES

- X Zoning of property (district lines)
- X Property lines (with dimensions identified)
- X Street right of way lines
- X Utility or other easement lines
- X Monuments

3. THE DEVELOPMENT PLAN

The development plan shall show proposed changes in the (a) existing natural features; (b) existing man made features and (c) existing legal features.

The Development Plan shall include:

- | | |
|------------|--|
| <u>N/A</u> | Square feet in every new lot |
| <u>X</u> | Lot dimensions |
| <u>X</u> | Location and dimensions of all buildings and free standing signs as well as the distances from all buildings to lot lines, streets, or street right of way |
| <u>X</u> | Building elevations (side, front, and back for a typical unit) showing building height and any proposed wall signs |
| <u>X</u> | Location, dimensions, and designated use for all recreation areas |
| <u>X</u> | Location and dimension of all open space; indicate whether open space is to be dedicated to public use or to remain private |
| <u>X</u> | Streets (including street names) which conform to the design standards of the Planning Board's Rules and Regulations Governing the Subdivision of Land |
| <u>X</u> | Curbs and gutters, curb cuts, drainage grates |
| <u>X</u> | Drainage facilities including manholes, pipes, drainage ditches, and retention ponds |
| <u>X</u> | Sidewalks and walkways showing widths and materials |
| <u>X</u> | Outdoor illumination with lighting fixture size and type identified |
| <u>X</u> | Utilities; water, sewer, electric, telephone, gas, cable TV |
| <u>X</u> | Fire hydrant location |
| <u>X</u> | Dumpster (trash collection facilities) |
| <u>X</u> | New contour lines resulting from earth movement (at 2' intervals) and indications of types of ground cover and other precautions to stabilize slopes |
| <u>X</u> | Vehicle parking, loading, and circulation areas showing dimensions |
| <u>X</u> | Proposed new plantings by size and location or construction of other devices to comply with screening and shading requirements |

4. IMPACT STATEMENT

In order to evaluate the Impact of the proposed development to Town services and the welfare of the community, there shall be submitted an impact statement in two parts.

- All applicable Town services including but not limited to schools, sewer services, water systems, parks, fire, and police.
- The roads in the immediate vicinity of the proposed development (including an estimate of both peak and average daily counts)
- The ecology of the area within the site and any significant off-site impacts

Part Two shall describe what actions have been taken to mitigate the impacts described in Part One

This application constitutes the applicant's willingness to work under the Town of Wareham's Zoning Bylaws. Any errors or omissions from this checklist or the Zoning Bylaw may result in the application not being placed on a Planning Board Agenda or denial of the Site Plan.

Site Plan Review Application Checklist

Note to Applicant(s): The following checklist serves as an instrument to help ensure that all necessary information and materials are submitted with the application for Site Plan Review. Please verify that all related items listed below have been accounted for in your submission. (Refer to Article 15 of the Zoning By-Law of the Town of Wareham, Massachusetts, adopted October 2004).

Name of site: 8 & 10 Charge Pond Road Date: 12-30-21

Owner(s): William Lee Jr.

Address: 70 Fuller Road, Trumbull, CT 06611

Telephone Number: _____ Cell Phone: _____

Developer(s): David Sergi

Address: 21 Patterson Brook Road, Suite G, W. Wareham, MA 02576

Telephone Number: 888-436-5383 Cell Phone: _____

Relationship between Developer & Property Owner: Developer seeks to purchase property

Surveyor: JC Engineering Inc

Engineer: JC Engineering Inc

Architect: Cape Building Systems, Inc

Landscape Architect: _____

ITEM	Complete
Application for Site Plan Review – Special Permit filed with Planning Board (14 copies of application and supplementary materials)	X
Application for Special Permit – Residential Cluster Development filed with Planning Board (11 copies of application and supplementary materials)	
Copies filed with Town Clerk	X
Filing Fees	X
GENERAL INFORMATION	
Developer Name, address, telephone number	X
Property Owner Name, address, telephone number	X
Date of Application	X
Statement briefly describing project	X
Locus Map (1" = 2,000')	X
Location of property to surrounding area (scale should be no less than 1" = 100') and general characteristics of all lands within 200' of the proposed site including structures, parking areas, driveways, pedestrian ways, and natural characteristics	X

Zoning district (sq. feet within each district if more than one)	X
Total area of project to include wetland and 100 year floodplain (both in sq. feet)	X
All contiguous land owned by the applicant or by owner of property	X
Photographs of site (8" by 10") – at discretion of Permitting Authority	
List of abutters, certified by Board of Assessors	X
Number of dwellings which could be constructed by means of a conventional development plan, considering the whole tract, exclusive of water bodies and land prohibited from development by legally enforceable restrictions, easements, or covenants. This includes: <ul style="list-style-type: none"> • Any bank, freshwater wetland, coastal wetland, beach, dune, flat, marsh, or swamp bordering the ocean, any estuary, creek, river, stream, pond, or lake • Lake under any of the water bodies listed above; • Land subject to tidal action • Land subject to coastal storm flowage or slopes in excess of fifteen (15) percent are not to be counted in figuring the number of permissible units of conventional development. 	
EXISTING FEATURES	
(Scale 1" = 20', 1" = 40', or 1" = 100' where practical and appropriate to the size of the proposal) Must include a minimum of the following:	X
1. Existing Natural Features <ol style="list-style-type: none"> a. Tree line of natural area; b. Individual trees 18" dbh or over; c. Bogs or agricultural areas; d. All wetlands protected under 310 CMR 10.01 (1) (a-d); floodplain (100 year) with base flood elevation data; e. Contour lines (2' intervals); f. General soil types. 	X
2. Existing Man-Made Features <ol style="list-style-type: none"> a. Vehicle accommodation areas; streets, roads, private ways, walkways; b. Curbs, gutters, curb cuts, drainage grates; c. Storm drainage facilities including manholes; d. Utility lines including water, sewer, electric, telephone, gas, cable TV; e. Fire hydrants and location of dumpsters; f. Buildings, structures, and signs (free standing) including dimensions of each; g. Exterior lighting features. 	X
3. Existing Legal Features <ol style="list-style-type: none"> a. Zoning of property (district lines); b. Property lines (with dimensions identified); c. Street right-of-way lines; d. Utility or other easement lines; e. Monuments. 	X

DEVELOPMENT PLAN	
Proposed changes to existing natural features, existing man-made features, and existing legal features including the following:	X
<ul style="list-style-type: none"> • Area of each new lot in square feet; 	
<ul style="list-style-type: none"> • Lot dimensions; 	X
<ul style="list-style-type: none"> • Location and dimensions of all buildings and freestanding signs as well as the distances from all buildings to lot lines, streets, or street; 	X
<ul style="list-style-type: none"> • Location, dimension, and designated use for all recreation areas; 	X
<ul style="list-style-type: none"> • Location and dimension of all open space (indicate whether such open space is to be dedicated to public use or remain private); 	X
<ul style="list-style-type: none"> • Streets (including street names) which conform to the design standards of the Planning Board's Rules and Regulations Governing the Subdivision of Land; 	X
<ul style="list-style-type: none"> • Curbs and gutters, curb cuts, drainage grates; 	X
<ul style="list-style-type: none"> • Drainage facilities including manholes, pipes, drainage ditches, and retention ponds; 	X
<ul style="list-style-type: none"> • Sidewalks and walkways showing widths and materials; 	X
<ul style="list-style-type: none"> • Outdoor illumination with lighting fixture size and type identified; 	X
<ul style="list-style-type: none"> • Utilities – Water, sewer, electric, telephone, gas, cable TV; 	X
<ul style="list-style-type: none"> • Fire hydrant locations; 	X
<ul style="list-style-type: none"> • Dumpster (trash collection facilities); 	X
<ul style="list-style-type: none"> • New contour lines resulting from earth movement (2' intervals) and indications of types of ground cover and other precautions to stabilize slopes; 	X
<ul style="list-style-type: none"> • Vehicle parking, loading, and circulation areas showing dimensions and layout of parking spaces, travel lanes, aisles, and driveways; 	X
<ul style="list-style-type: none"> • Proposed new plantings by size and location or construction of other devices to comply with screening and shading requirements. 	X
IMPACT STATEMENT	
Part One: Description of neighborhood and impact of proposed development on all applicable town services including but not limited to schools, sewer service, water system, parks, fire, and police protection;	X
Traffic report of existing and future traffic within and adjacent to proposed development. (Include estimate of both peak and average daily traffic count);	X
Analysis of site in regards to wetlands, coastal wetlands, slopes, soil conditions, 100 year flood plain, and other natural features as Planning Board may request;	X
Environmental Impact Assessment Report relating to proposed plan and copy of environmental impact report if otherwise required in order to illustrate the ecology of the area within the site and any significant off-site impacts;	X
Evaluation of open land proposed within cluster, with respect to size, shape, location, natural resource value, and accessibility by residents of the Town or of the cluster;	X

Part Two: Description of actions that have been taken to mitigate the impacts described in Part One.	X
---	---

**TOWN OF WAREHAM
ANR/SUBDIVISION/SITE PLAN REVIEW FORM**

Check one: ANR _____ Form B _____ Form C _____ Site Plan Review X

Date stamped in _____ Date decision in due _____

Applicant's name(s) David Sergi

Applicant's address 21 Patterson Brook Road, Suite G, W. Wareham, MA 02576

Telephone number 888-436-5383

Address of property 8 & 10 Charge Pond Road

Landowner's name William Lee Jr

Owner's address 70 Fuller Road, Trumbull, CT 06611

Telephone number _____

Contact person Attorney Julian Morton Telephone 508-295-2522

Map # 110 Lot # 1035 & 1076 Zone CG & R-60

Date Approved _____ Date Denied _____

Comments (state reasons for denial or stipulations of approval)

Conditions for: _____

STREET NAME PROPOSED AND ACCEPTED: _____

Conditions for: _____

EXHIBIT H

TOWN OF WAREHAM
ZONING BOARD OF APPEALS

APPLICATION FOR A PUBLIC HEARING FOR A VARIANCE/SPECIAL PERMIT

Certain uses are allowed in several zoning districts only by means of a Variance and/or Special Permit from the Zoning Board of Appeals. Those uses are indicated in the Wareham Zoning By-Laws. To apply for a Variance/Special Permit from the Zoning Board of Appeals, please do the following:

- o Complete this form.
- o Complete information packets. (Directions attached)
- o Submit application form and packet to Town Clerk for signature.
- o Submit application form and packet to Town Collector for signature.
- o Submit completed form, packets, and appropriate fees** to the Zoning Board of Appeals secretary.

**Permits may be issued only after a public hearing. There is a filing fee of \$300.00 per lot, per application for all non-conforming residential lots, whether built upon or not. There is a filing fee of \$750.00 per lot, per application for all commercial applications. In the case of a multi-family development, the fee is \$300.00 plus an additional \$50.00 for every unit over two (2). Please make check payable to the Town of Wareham.

**A check to cover two (2) legal advertisements for the public hearing should be made payable to Wareham Week in the amount of \$80.00.

**The applicant will also be responsible for the costs of sending out abutter notifications by Certified Mail. The cost is \$6.11 per certified letter to each abutter. Please see Zoning Board secretary for cost of mailings. Please make check payable to the Town of Wareham.

I hereby apply for a Variance/Special Permit for a use to be made of the following described place:

1035 &
STREET & NUMBER: 8 & 10 Charge Pond Road LOT: 1078 MAP: 110
ZONING DISTRICT: CG & R-60
USE REQUESTED: Industrial

OWNER OF LAND & BUILDING: William Lee, Jr. & Barbara A. Lee TEL.# _____

ADDRESS OF OWNER: 70 Fuller Road, Trumbull, CT 06611

PERSON(S) WHO WILL UTILIZE PERMIT: David Sergi

ADDRESS: 21 Patterson Brook Road, Suite G, W. Wareham, MA 02576

DATE: 2/15/2022 SIGNATURE: _____

This application was received on the date stamped here: _____

John Maston
at attorney for David Sergi

Town Clerk: _____ Date: _____

Tax Collector: Bridgette Bennett Date: 1-13-2022

Planning/Zoning Dept.: _____ Date: _____

Application fee paid: _____ Check #: _____ Receipt: _____

Advertising fee paid: _____ Check #: _____ Receipt: _____

Abutters fee paid: _____ Check #: _____ Receipt: _____

TOWN OF WAREHAM

APPLICANT/CONTRACTOR/REPRESENTATIVE INFORMATION SHEET

Check Applicable: Variance Special Permit Site Plan Appeal

Date stamped in: _____ Date decision is due _____

Applicant's Name: David Sergi

Applicant's Address: 21 Patterson Brook Road, Suite G. W. West Ubleke MA 02571

Telephone Number: 888-436-5383

Cell Phone Number: _____

Email Address: _____

Address of Property/Project: 8 + 10 Charge Pond Road

Landowner's Name: William Lee Jr.

Owner's Address: 70 Fuller Road, Trumbull, CT 06611

Telephone Number: _____

Contact Person: Attorney Jilian Marton Telephone Number: 508-295-2522

Map 110 Lot 1035 + 1076 Zone CG + R-60

Date Approved _____ Date Denied _____

Comments: _____

EXHIBIT I

PLANNING BOARD
TAX VERIFICATION FORM

This verifies that David Sergi (name of applicant) is up-to-date on the taxes for the property(ies) he/she owns in Wareham. If the applicant is not the current owner of the property that the application addresses, the current owner William Lee Jr. (name of property owner) is up-to-date on taxes and on all properties he/she owns in the Town of Wareham.


John Foster, Tax Collector

MAP 110
LOTS 1035 & 1076