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BRP WPA Form 3 – Notice of Intent

(M.G.L. c. 131, §40 and Newburyport Ordinance Chapter 6.5: Environment, Article II: Wetlands Protection Ordinance)

21 Malcolm Hoyt Drive

Submitted to:
Newburyport Conservation Commission
Office of Planning and Development
60 Pleasant Street, 1st Floor
Newburyport, MA 01950

Prepared by:
Hughes Environmental Consulting
44 Merrimac Street
Newburyport, MA 01950

In Association with:
GM2, Inc.
10 Cabot Road, Suite 101B
Medford, MA 02155

and
Winter GEC, LLC
44 Merrimac Street, Suite 309
Newburyport, MA 01950

On Behalf of:
Hale Business Park Realty Trust
23 Hale Street, Unit A
Newburyport, MA 01950

Copies to:
MassDEP NERO
205B Lowell Street
Wilmington, MA 01887

July 29, 2022

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Application Contents:

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PROJECT NARRATIVE

to Accompany a

NOTICE OF INTENT

For

Hale Business Park Realty Trust

21 Malcolm Hoyt Drive

Newburyport

July 29, 2022

Overview

Craig Passina of Hale Business Park Realty Trust proposes to build a two-story 2,880 S.F. footprint light industrial use building and parking on the 6.677-acre lot located at 21 Malcolm Hoyt Drive. The parcel is currently vacant and located within the Newburyport Industrial Park. The building is proposed to be serviced by the City's public sewer and water system. Private utilities include gas, electric and communications. The property was part of a master parcel that included the development previously approved by the Commission at 23 Hale Street. The project when considered with the prior approval represents an increase over the Newburyport Wetlands Regulation limit of development of 20% of the buffer zone on a lot. As a result, the proposal includes a variance request and offers to convey 5.425 Acres of the property to the City of Newburyport for conservation purposes.

Existing Conditions

The existing site is comprised of City of Newburyport Assessors tax map, Map 84 Parcel 1E for 21 Malcolm Hoyt Road. There is no existing driveway access to property from surrounding roads. Elevations on the property range from 21 to 31 based upon the datum NAVD 1988. The project site is undeveloped and consists of upland in the elevated portions of the site, and a wet meadow in the lower portions. An intermittent stream flows from the corner of Hale Street and Malcolm Hoyt Drive through the eastern portion of the site.

Wetland lines adjacent to the proposed development have been delineated by Hughes Environmental Consulting (HEC) as part of the development of 23 Hale Street. In June of 2022, HEC reviewed the wetland boundary and adjusted flags based on current conditions and confirmed the line. . HEC also reviewed the approximate location of the wetland boundary and compared it to a 2001 delineation for the remainder of the site away from any proposed alteration and found it generally accurate for purposes of describing the general nature and character of the site.

Wetland flagging begins on Hale Street towards the intersection with Malcolm Hoyt Drive, where a swale forms that appears to take runoff from Hale Street and drains to an intermittent stream that flows under Hale Street and flows throught the eastern portion of the site. This wetland line runs along an obvious break in slope and change in vegetation from White Pine to meadow species, including sedges and rushes. The wetland line starts at A1 along this swale and wraps around the hill that is located in the western half the property towards Hale Street, and follows the wet meadow until it is bisected by a drainage swale that runs from the parking lot at 25 Hale Street.

The wet meadow is located generally south of the proposed project area. It is marginally wet in some areas, and there may be some upland island areas in a few areas where there are stands of white pine. The meadow has been maintained on a regular basis by mowing/haying, and consists of a mix of grasses, including reed canary grass, sedges, and rushes. Within the grassy vegetation, there are some smaller red-osier dogwoods. The upland areas throughout the site consist largely of white pine and black cherry along the wetland edge, following the base of the hills that makes up the higher, upland, portions of the site. In the immediate area of the wetland boundary, there are invasive plants such as multiflora rose and glossy buckthorn.

The stream that flows through the site drains the neighborhood on the opposite side of Hale Street and provides a valuable function in that regard. The meadow area and associated buffers also provide songbird habitat and valuable open space.

The existing stormwater surface drainage runoff flows to the east and then southerly to the wetland area, another section of the property the runoff flows to the North toward Hale Street and eventually back to the wetland at the northeast corner of the property.

Project Description

The proposed development will consist of new two-story 2,880 S.F. footprint commercial building with bituminous concrete driveway and 17 parking spaces including 2 ADA parking spaces. The proposed driveway access to property will be from Hale Street. Concurrent with this Notice of Intent application the project will be permitted before the Zoning Board and Newburyport Planning Board with Major Site Plan review. A stormwater system is proposed for the new development that includes two rain gardens that collect the runoff from the parking area and the roof. See the attached stormwater report for more information on stormwater management proposed.

We propose to convey over 5 acres of land to the City of Newburyport for conservation purposes. This land area is shown on the attached draft ANR plan and is labeled as lot A4.

Wetlands Protection Act

Buffer Zone to Wetlands

Erosion controls are being installed along the limit of work, and best management practices with regard to site stabilization will be followed to prevent any sediment from entering the wetland area. The project includes native plantings, including trees and shrubs and use of a native forbes and grasses mix.

Stormwater

See the attached stormwater report.

Newburyport Wetlands Ordinance & Regulations

In addition to the Wetlands Protection Act, the project falls under the Newburyport Wetlands Ordinance.

Ordinance, 6.5-34.B.

…Disturbance of any kind is prohibited within this 25-Foot No-Disturbance Zone including but not limited to grading, landscaping, vegetation removal, pruning, cutting, filling, excavation, roadway construction and /or driveway construction. Within the No Disturb Zone established by the Commission, no grading, planting, site work, construction, or storage of materials is allowed. Vegetation in the No Disturb Zone shall not be cut or trimmed in any manner unless authorized by the Commission as part of regular maintenance required for man-made drainage systems (such as seasonal mowing).

The proposed project does not include any work within this No Disturb Zone.

Regulations, Section 8.A.4. 4. Performance Standards for Buffer Zones

The following standards apply to the Buffer Zone of all the resource areas identified in Sections 6(A)(2)(a through d) of these Regulations:

(a.) 25-Foot No-Disturbance Zone. Except as otherwise provided in these Regulations, no activity is permitted within 25 feet of the delineated edge of the above-mentioned wetland resource areas as defined in Section 6(A)(2)(a through d). The Commission has adopted this standard because the alteration of land immediately adjacent to a wetland or water body is likely to result in the alteration of the wetland itself. Alterations typically result from extension of lawns, depositing/dumping of yard waste, over-grading, siltation, extension of impervious areas, deposition of construction debris, unregulated filling, and clearing of vegetation, all of which is prohibited.

The project complies with this section.

(b.) ***No-Disturbance Zone Demarcation. To maintain the perpetual integrity of the No-Disturbance Zone and to ensure that there will be no encroachments into this Zone by the applicant or future owners of the subject property, the Commission may require the No-Disturbance Zone to be marked on the ground, at the applicant's expense, with permanent markers. These markers shall be made of weather resistant material (e.g., granite, or concrete), and the Commission shall determine their number, size and location. The Commission may require one or more of these markers to bear, on their upland side, writing (i.e. permanent plaque or engraving) that shall read "No Disturbance Beyond This Point By Order of the Newburyport Conservation Commission."***

If the Commission wants markers placed along the wetland line, then the applicant would be willing to place some type of demarcation along this line where it runs on site. However, the existing vegetation that remains will essentially demarcate the buffer area.

(c.) Limit on scope of alteration. In addition to complying with the above setbacks, the total disturbance to the Buffer Zone by any project or projects cumulatively shall not exceed twenty percent (20%) of the Buffer Zone existing on the project site (e.g., if a project site has a total of 100 square feet of Buffer Zone and Project "A" disturbs 20 square feet of that Buffer Zone, any subsequent development of that site will have to avoid any disturbance of the Buffer Zone).

The total disturbance from the project plans is more than 20% of the buffer zone when considered with the previously developed lot at 23 Hale Street. The total would be 30% of

the buffer. However, the permenant alteration (hardscape and buildings) remains under 20% at 19.6%. We have requested a variance below.

Minor activities in the outer 50 feet of the Buffer Zone. Minor activities that are proposed within the outer 50 feet of the Buffer Zone (50 feet or more from the delineated edge of the wetland resource) may be allowed through a "Letter Permit" at the discretion of the Commission's agent. Minor activities are those that in the judgment of the Commission's agent or the Commission will not have an impact on the resource area.

This section does not apply.

(d.) Activities prohibited in the Buffer Zone. Underground fuel storage tanks and other structures or facilities for the storage of gasoline, oil, or other fuels or hazardous materials located outside of any dwelling or building shall not be located in any Buffer Zone.

No such structures or facilities are proposed.

(e.) Additional conditions. For work in the Buffer Zone, the Commission may impose conditions to protect the adjacent resource area. The potential for adverse impacts to resource areas from work in the buffer zone may increase with the extent of the work and the proximity to the resource area. The Commission may consider the characteristics of the buffer zone, such as the presence of steep slopes, which may increase the potential for adverse impacts on resource areas. Conditions may include limitations on the scope and location of work in the buffer zone as necessary to avoid adverse impact on resource areas. The Commission may require erosion and sedimentation controls during construction, a clear plan of work, and the preservation or addition of natural vegetation adjacent to the resource area and/or other measures commensurate with the scope and location of the work within the Buffer Zone.

The Notice of Intent includes provisions to protect the wetlands during work in the form of erosion controls.

Variance:

The Applicant requests a variance from the Commission's regulations regarding the amount of resource buffer zone being disturbed. Namely section 8.A.4(c) performance standards and limit on scope of alteration. (TOM CONFIRM) As this Commission is aware the Applicant has gone through an extensive design process to reduce to the extent possible, impacts on the various resource areas around this site. Indeed, while the site is 6.67 acres (290,545 square feet) they are only disturbing 19,000 square feet (14,800 within the buffer zone) and proposing to construct a very modest size industrial building which is 2,880 square feet with 7,399 square feet of supporting hardscape. 15 square feet of the building and 997 square feet of hardscape is out of the buffer zone. The disturbed area impacts only 6.5% of the site. This site was originally a part of the neighboring development which likewise, was sensitive to the resource areas. Finally, as the Commission is aware, the site is contiguous with 25 Hale Street which abuts the uplands to the southwest. This proximity to the adjacent lends the area of Lot A4 to be open to development should it be combined with 25 Hale Street.

As is noted otherwise in this narrative, the portion of the site noted as Parcel 4A includes valuable habitat, including meadow and intermittent stream, with perimeter and interior wetlands.

Given that this site was originally a portion of the adjacent parcel when calculating the disturbance of the buffer zone together the proposal exceeds the 20% threshold. If the Applicant were to calculate only this parcel the disturbance of the buffer zone on this parcel would be 14,800 square feet out of the original 132,601 square foot buffer on both parcels. This would represent a total disturbance of 30% of the original buffer zone. It is important to note that the total buildings and hardscape on both projects, excluding area revegetated remains under 20% at 19.6%. However, in accordance with the Regulations noted above, the total disturbance of the original parcel is 10% more than permitted by the Regulation. The project fully complies with the 25 foot no disturbance buffer requirements of the ordinance and regulations.

The alternative of course would be to combine this parcel with 25 Hale Street to allow development in the rear. Or, to not permit any development whatsoever on this site which may run afoul of Massachusetts Law.

Respectfully, we remind the Commission of the Variance which was granted to the City of Newburyport for the construction of a new Department of Public Services ("DPS") administration building at 16 Perry Way. While the DPS project involved work in the no disturb zone it also included work which disturbed greater than 20% of the total area of the buffer zone on that site, both requiring variances from the Ordinance. The DPS work included the following:

1. placement of a building footing,
2. roof overhang,
3. placement of a new water line,
4. placement of a new drainage pipe,
5. creation of a berm and spillway, outlet control structure,
6. the reconfiguration of an existing detention basin,
7. a pipe and ditch for the reconfigured detention basin, and
8. installation of stone rip rap.
9. 95% of the new building would be located in the 100' buffer zone.

Unlike the Application at hand, the City presented that there were no alternatives which were feasible. The City did propose enhancing the buffer zone with additional plantings, providing habitat value and flood and stormwater controls – but that was related to disturbing the no disturb zone. But in addition to that variance the City needed a variance for disturbing more than 20% of the total area of the buffer zone. No mitigation appears to have been included specifically for this variance. In the instance of the DPS facility, the Commission found that the overriding public interest is that the DPS Administration "... building will serve the public…" in conducting business with the divisions of the DPS.

Here, the Applicant is proposing to convey to the Conservation Commission pursuant to G. L. c. 40 sec. 8C the area of land indicated as Parcel A4 on the plan. This Parcel consists of __ acres and includes valuable upland vegetation and habitat and flood storage associated with

the intermittent stream. The conveyance of the property will serve a valuable public interest by preserving as open space a significant area within the industrial park that provides wildlife habitat as well as serves as a drainage area for waters from the neighborhood to the northwest. This area could potentially lend itself to future flood prevention efforts or recreational opportunities consistent with the Conservation Commission's mission.

Variance from Ordinance and Conditions on Work

Section 6.5-30 of the Ordinance provides that the Commission may grant variances from certain requirements when an overriding public interest is demonstrated or when it is necessary to avoid so restricting the use of property so as to constitute an unconstitutional taking of the property without compensation. The Commission is afforded a considerable amount of discretion in their determination whether a public interest exists, as is noted by the Commissions determination in the case of the DPS facility. The Commission is further allowed to impose conditions in order to insure that any harmful effects of the proposed work will be mitigated and to contribute to the protection of the wetland values protected by the Ordinance. The conditions imposed must be reasonable and related to the work proposed. In all their decisions, the Commission must ensure that the exercise of their discretion is neither arbitrary nor capricious. In reviewing Commission decisions, the court will apply the "arbitrary and capricious" standard. In MA, "a decision is not arbitrary and capricious unless there is no ground which 'reasonable [persons] might deem proper' to support it." Peirce v. Conservation Comm. of Falmouth, 63 Mass. App. Ct. at 1114 quoting FIC Homes of Blackstone, Inc., v. Conservation Comm. of Blackstone, 41 Mass. App. Ct. at 684-685. However, notwithstanding this freedom, the Commission may only impose conditions on work which are related to the particular law which gives them their authority. In reviewing a Commission decision, the court will pay heed to whether or not the Commission "acted for reasons 'extraneous to the prescriptions of the regulatory scheme'" and as part of an "ad hoc agenda". Fieldstone Meadows Devel. Corp. v. Conservation Comm. of Andover, 62 Mass. App. Ct., 265, 267. In Fieldstone, the Town conservation commission's denial of developer's application to perform work within 100 feet of a protected resource area, a vegetated wetland, was improperly based on a policy existing outside of the regulatory framework, and thus denial was arbitrary and capricious. Although a municipal conservation commission is entitled to all rational presumptions in favor of its interpretation of its own bylaw, there must be a rational relation between its decision and the purpose of regulations it is charged with enforcing.

Here, the Commission may issue an Order of Conditions which will include "conditions which the Commission deems necessary or desirable to protect [the] resource area and interests". Arguably, the Commission would exceed its authority by imposing conditions on the Applicant which are neither related to the project at hand nor the purpose of the City ordinance and regulations.

Overriding Public Interest

The public interest cited in the Applicant's NOI includes providing the Commission with 5.425 acres of resource area, habitat, upland and wet meadow, and flood storage. The public has an interest in these additional protections and resources particularly in the industrial park

area. The conveyance of the Property to the City will assure that it is not later sold and combined with 25 Hale Street to further develop and perhaps dismantle the upland habitat currently existing on the Parcel. Further, given the need to plan for rising sea levels, control over the additional flood storage in the industrial park and drainage from the residential area on the opposite side of Hale Street is paramount to not only protecting the resource areas but to help maintain the city employment and tax base.

While it may be that the decisions of the Commission do not create precedence to which the Commission is bound, given the limited decisions of the Commission in regards to a variance, the prior decisions provide guidance. The DPS facility had a much greater environmental impact and required a broader set of variances. The overriding public interest was not related to the environmental interests the Commission seeks to protect and access to a public building can only be achieved by the City or other governmental entity. In the case at hand, not only is the Applicant creating the more general benefit to the overriding public interest, that being preservation of open space and resource and habitat area including flood storage. By gaining ownership of the Parcel it will allow the Commission to have flexibility in the future related to flood storage and thereby protecting the employment and tax base in the industrial park. The acquisition of the land will have a direct and substantial impact on the public interest.

Conclusion:

In summary, the project as proposed complies with the Wetland Protection Act, the Newburyport Wetlands Ordinance (provided a variance is granted), and the Newburyport Wetlands Regulations. We ask that the Commission grant the variance and approve the project as proposed.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

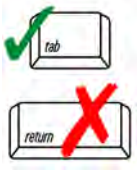
Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Newburyport
City/Town

Important:
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

21 Malcom Hoyt Road — a. Street Address
Newburyport — b. City/Town
01950 — c. Zip Code

Latitude and Longitude:
42.806969 — d. Latitude
-70.896162 — e. Longitude

84 — f. Assessors Map/Plat Number
1-E — g. Parcel /Lot Number

2. Applicant:

Craig — a. First Name
Pessina — b. Last Name
Hale Business Park Realty Trust — c. Organization
23 Hale Street, Unit A — d. Street Address
Newburyport — e. City/Town
MA — f. State
01950 — g. Zip Code
h. Phone Number
i. Fax Number
j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

a. First Name
b. Last Name
c. Organization
d. Street Address
e. City/Town
f. State
g. Zip Code
h. Phone Number
i. Fax Number
j. Email address

4. Representative (if any):

Thomas — a. First Name
Hughes — b. Last Name
Hughes Environmental Consulting — c. Company
44 Merrimac Street, Suite 311 — d. Street Address
Newburyport — e. City/Town
MA — f. State
01950 — g. Zip Code
978-465-5400 — h. Phone Number
978-465-8100 — i. Fax Number
thughes@hughesenvr.com — j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

1050.00 — a. Total Fee Paid
512.50 — b. State Fee Paid
537.50 — c. City/Town Fee Paid

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A. General Information (continued)

6. General Project Description:

Commercial Building and associated site work in the buffer zone

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

1. ☐ Single Family Home
2. ☐ Residential Subdivision
3. ☒ Commercial/Industrial
4. ☐ Dock/Pier
5. ☐ Utilities
6. ☐ Coastal engineering Structure
7. ☐ Agriculture (e.g., cranberries, forestry)
8. ☐ Transportation
9. ☐ Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No

If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

a. County	b. Certificate # (if registered land)
Essex South	
c. Book	d. Page Number
34937	566

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☒ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☐ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced

f. ☐ Riverfront Area

1. Name of Waterway (if available) - **specify coastal or inland**

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☐ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f**. above.

Massachusetts Department of Environmental Protection
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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. ☐ Land Containing Shellfish	1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. ☐ Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings

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C. Other Applicable Standards and Requirements

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

   a. ☐ Yes ☒ No

   If yes, include proof of mailing or hand delivery of NOI to:

   Natural Heritage and Endangered Species Program
   Division of Fisheries and Wildlife
   1 Rabbit Hill Road
   Westborough, MA 01581

   August 1, 2021
   b. Date of map

   If *yes*, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

   c. Submit Supplemental Information for Endangered Species Review*

      1. ☐ Percentage/acreage of property to be altered:

         (a) within wetland Resource Area _____ percentage/acreage

         (b) outside Resource Area _____ percentage/acreage

      2. ☐ Assessor's Map or right-of-way plan of site

2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

   (a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

   (b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see https://www.mass.gov/ma-endangered-species-act-mesa-regulatory-review).
Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 3 – Notice of Intent
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
Newburyport
City/Town

C. Other Applicable Standards and Requirements (cont'd)

(c) ☐ MESA filing fee (fee information available at https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review).
Make check payable to "Commonwealth of Massachusetts - NHESP" and ***mail to NHESP*** at above address

*Projects altering **10 or more acres** of land, also submit:*

(d) ☐ Vegetation cover type map of site

(e) ☐ Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. a. NHESP Tracking # b. Date submitted to NHESP

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. ☒ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

c. ☐ Is this an aquaculture project? d. ☐ Yes ☒ No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Newburyport
City/Town

C. Other Applicable Standards and Requirements (cont'd)

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

   a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC

5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

   a. ☐ Yes ☒ No

6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

   a. ☐ Yes ☒ No

7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

   a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

      1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)

      2. ☐ A portion of the site constitutes redevelopment

      3. ☐ Proprietary BMPs are included in the Stormwater Management System.

   b. ☐ No. Check why the project is exempt:

      1. ☐ Single-family house

      2. ☐ Emergency road repair

      3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☐ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

2. ☐ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Newburyport
City/Town

D. Additional Information (cont'd)

3. ☐ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☐ List the titles and dates for all plans and other materials submitted with this NOI.

C101 to C103
a. Plan Title

GM2, Inc.
b. Prepared By

Stephen B. Sawyer, PE
c. Signed and Stamped by

7/28/2022
d. Final Revision Date

varies
e. Scale

f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. ☒ Attach NOI Wetland Fee Transmittal Form

9. ☒ Attach Stormwater Report, if needed.

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

4192
2. Municipal Check Number

7/29/2022
3. Check date

4191
4. State Check Number

7/29/2022
5. Check date

Hughes Environmental Consutling
6. Payor name on check: First Name

7. Payor name on check: Last Name

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Newburyport
City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant	2. Date 7/28/22
3. Signature of Property Owner (if different)	4. Date
5. Signature of Representative (if any)	6. Date 7/29/2022

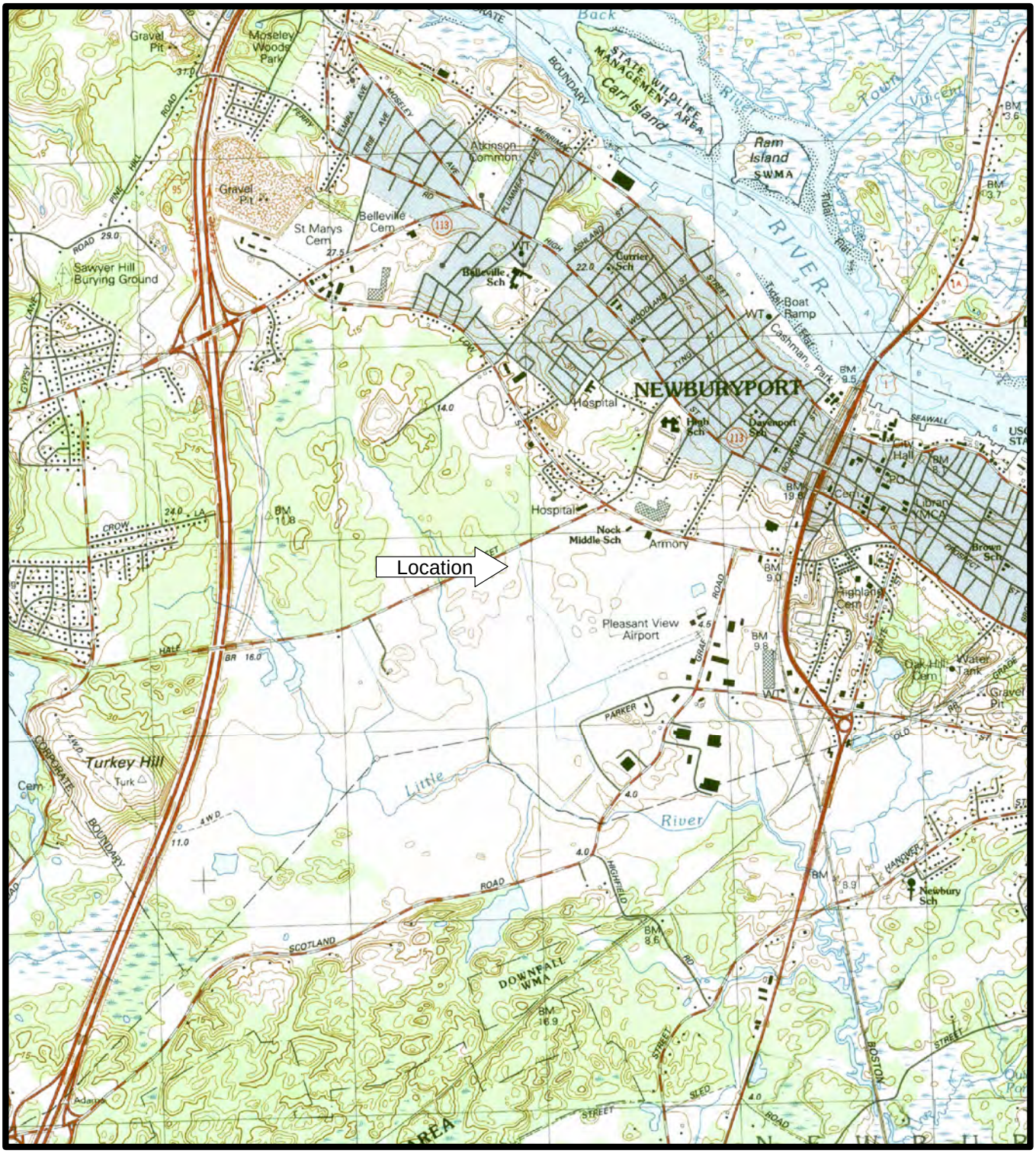
For Conservation Commission:
Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:
One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

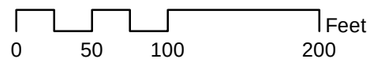
The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

21 Malcolm Hoyt Drive
USGS Location Map



Prepared by Hughes Environmental Consulting
Data Source Office of Geographic and Environmental Information (MassGIS),
Commonwealth of Massachusetts Executive Office of Environmental Affairs

2021 Orthophoto
21 Malcom Hoyt Drive



Prepared by Hughes Environmental Consulting. Data Source MassGIS and Hughes Environmental Consulting.

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21 Malcolm Hoyt, View from the West

04/21/2014

City of Newburyport
Office of the Assessor
60 Pleasant Street / P.O. Box 550
Newburyport, MA 01950
978-465-4403 / Fax 978-462-8495
assessor@cityofnewburyport.com

July 27, 2022

To: **Newburyport Conservation Commission**

From: **Newburyport Board of Assessors**

Re: **Abutters List: 21 MALCOLM HOYT ROAD**

Newburyport Map: 84 Lot: 1E

The following are the abutters of the above-mentioned property:

Board of Assessors

Jill Brennan

The Assessors Office is certifying that the persons listed in the foregoing list of abutters are the owners of record of the foregoing properties as of January 1, 2022. The city Assessor is not certifying that the persons so listed are the persons who are required to receive notification under applicable law.

82/A 12/ / /
THIRA PARTNERS LLC
2 STANLEY TUCKER DR
NEWBURYPORT, MA 01950

82/A 13/ / /
GERRISH LLC
16 MALCOLM HOYT RD
NEWBURYPORT, MA 01950

83/ 3/B / /
POLYCHRONOPOULOS LLC
16 MALCOLM HOYT RD
NEWBURYPORT, MA 01950

83/ 8/A / /
CITY OF NEWBURYPORT
HIGHWAY DEPARTMENT
16A PERRY WAY
NEWBURYPORT, MA 01950

83/ 9/ / /
BERNIER DEBRA E.
26 HALE ST
NEWBURYPORT, MA 01950

83/ 3C/ / /
POLYCHRONOPOULOS LLC
16 MALCOLM HOYT RD
NEWBURYPORT, MA 01950

84/ 1/B / /
HALE STREET 25 REALTY LLC
25 HALE ST
NEWBURYPORT, MA 01950

84/ 1/D A/ /
23 HALE BUSINESS PARK A LLC
24 MARKET SQ
NEWBURYPORT, MA 01950

84/ 1/D B/ /
23 HALE BUSINESS PARK B LLC
24 MARKET SQ
NEWBURYPORT, MA 01950

84/ 1/D C/ /
JD 23 HALE STREET LLC
15 SHANDEL DR
NEWBURYPORT, MA 01950

84/ 1/D D/ /
JD 23 HALE STREET LLC
15 SHANDEL DR
NEWBURYPORT, MA 01950

84/ 1/D E/ /
HALE STREET INDUSTRIAL PARK LLC
24 MARKET SQ
NEWBURYPORT, MA 01950

84/ 1/D F/ /
JTK PROPERTY MANAGEMENT LLC
16 HALLISEY DR
NEWBURYPORT, MA 01950

84/ 1/D G/ /
HALE STREET INDUSTRIAL PARK LLC
24 MARKET SQ
NEWBURYPORT, MA 01950

84/ 1/D H/ /
HALE STREET INDUSTRIAL PARK LLC
24 MARKET SQ
NEWBURYPORT, MA 01950

84/ 1/E / /
PESSINA CRAIG TRS
PATRICK REDDY TRS
24 MARKET SQUARE
NEWBURYPORT, MA 01950

96/ 3/ / /
KELLY DOROTHY M TRS
2020 KELLY LIVING TRUST
24 CRITERION RD
READING, MA 01867

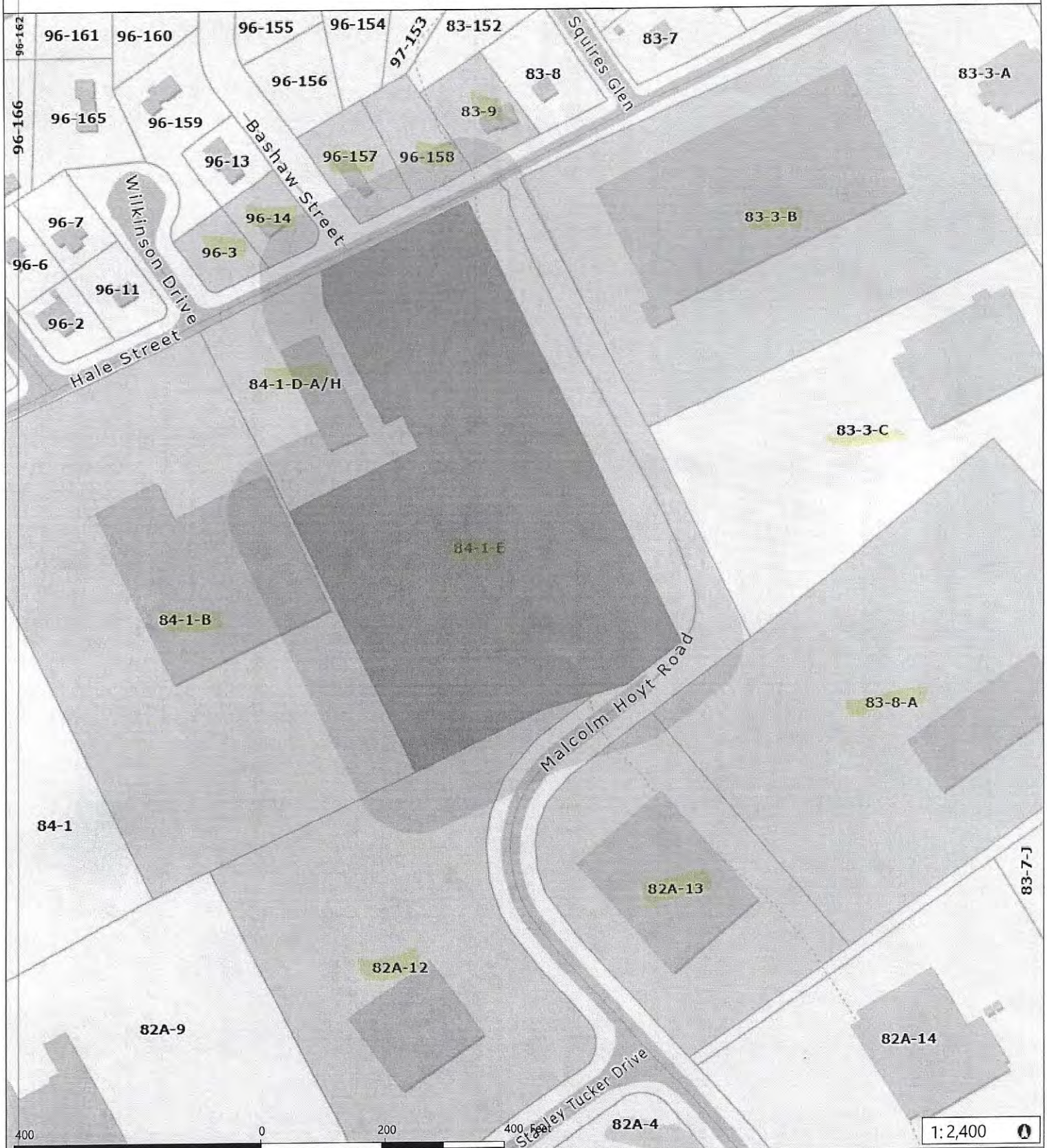
96/ 14/ / /
BANKS RICHARD D
32 HALE ST
NEWBURYPORT, MA 01950

96/ 157/ / /
HERLIHY MARGARET L & JOHN A TRS
HERLIHY CARMELLA J L/I
11 MAGUIRE ST
NEWBURYPORT, MA 01950

96/ 158/ / /
BONURA S J SQUIRES GLEN CORP
TRS NBPT REALTY TRUST
63 ATLANTIC AVE
BOSTON, MA 02110

City of Newburyport

07/27/2022



Data Sources: Produced by Merrimack Valley Planning Commission (MVPC) using data provided by the City of Newburyport & MassIT/MassGIS. MVPC AND THE CITY OF NEWBURYPORT MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, CONCERNING THE ACCURACY, COMPLETENESS, RELIABILITY, OR SUITABILITY OF THESE DATA. THE CITY OF NEWBURYPORT AND MVPC DOES NOT ASSUME ANY LIABILITY ASSOCIATED WITH THE USE OR MISUSE OF THIS INFORMATION.

Legend

Municipal Boundary
Roads
Road Right of Way
Stream
Intermittent Stream
Interstate
Paved
Major Road
Unpaved
Local Road
Hydrographic Features
Parcels
Streams

Projection: NAD_1983_StatePlane_Massachusetts_Mainland_FIPS_2001

HUGHES ENVIRONMENTAL CONSULTING

44 MERRIMAC STREET, NEWBURYPORT, MA 01950 PO BOX 392, CONCORD, MA 01742
PHONE 978.465.5400 ● FAX 978.465.8100 PHONE/FAX 978.369.2100
EMAIL THUGHES@HUGHESENVR.COM

Notification to Abutters Under the Massachusetts Wetlands Protection Act and the Newburyport Wetlands Ordinance

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40 and the City of Newburyport's Wetlands Ordinance, you are hereby notified of the following.

A. The name of the applicant is **Hale Business Park Realty Trust**

B. The applicant has filed a Notice of Intent with the Conservation Commission for the City of Newburyport seeking permission to remove, fill, dredge, or alter an Area subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, Section 40) and the City of Newburyport's Wetlands Ordinance. The project involves renovations to the existing building and associated site work within buffer zone to bank, land subject to coastal storm flowage and within the riverfront area associated with the Merrimack River.

C. The address of the lot where the activity is proposed is: **21 Malcolm Hoyt Drive**

D. The Public Hearing will be held on **August 16, 2022** at 7 pm. Said hearing shall be located either in the Senior/Community Center or online via remote participation with confirmation and access information to be posted on the City Website meetings calendar at www.cityofnewburyport.com/calendar. All interested parties should look to the meetings calendar on the City website as the hearing date approaches.

E. Copies of the Notice of Intent may be examined by visiting www.cityofnewburyport.com/conservation-commission and selecting the meeting agenda.

F. Copies of the Notice of Intent may be obtained from applicant's representative Hughes Environmental Consulting, by calling 978-465-5400 between the hours of 9 and 4:30, on the following days of the week: Monday thru Thursday.

NOTE: Notice of the public hearing, including its date, time, and place, will be published at least five (5) days in advance in the Newburyport Daily News.

NOTE: Notice of the public hearing, including its date, time, and place, will be posted in Newburyport City Hall not less than forty-eight (48) hours in advance.

NOTE: You also may contact the Newburyport Conservation Commission or the Department of Environmental Protection Northeast Regional Office for more information about this application or the Wetlands Protection Act. To contact the Newburyport Conservation Commission, please email jgodtfredsen@cityofnewburyport.com.

Please do not hesitate to contact me with any questions regarding this hearing or the application,

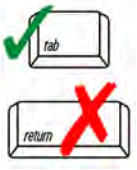
Thomas G. Hughes, BS, MA

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:

21 Malcolm Hoyt	Newburyport
a. Street Address	b. City/Town
4191	512.50
c. Check number	d. Fee amount

2. Applicant Mailing Address:

Craig	Pessina
a. First Name	b. Last Name

Hale Business Park Realty Trust
c. Organization

23 Hale Street, Unit A
d. Mailing Address

Newburyport	MA	01950
e. City/Town	f. State	g. Zip Code

h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

a. First Name	b. Last Name

c. Organization

d. Mailing Address

e. City/Town	f. State	g. Zip Code

h. Phone Number	i. Fax Number	j. Email Address

B. Fees

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

Fee should be calculated using the following process & worksheet. ***Please see Instructions before filling out worksheet.***

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract $12.50. To calculate the city/town share of the fee, divide the total fee in half and add $12.50.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 3 building with site	1	1050.00	1050.00

Step 5/Total Project Fee:

Step 6/Fee Payments:

Total Project Fee:	1050.00 a. Total Fee from Step 5
State share of filing Fee:	512.50 b. 1/2 Total Fee **less $**12.50
City/Town share of filling Fee:	537.50 c. 1/2 Total Fee **plus** $12.50

C. Submittal Requirements

a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

PROJECT NARRATIVE AND STORMWATER ANALYSIS

21 MALCOLM HOYT DRIVE

NEWBURYPORT, MA

June 29, 2022

Prepared For:

Chart House Development, LLC

234 Middle St

West Newburyport, MA 01985

Prepared By:

GM2

10 Cabot Road, Suite 101B

Medford, MA 02155

Table of Contents

1. Site Plan Review

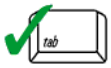
MA DEP STORMWATER CHECKLIST

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

Stephen Sawyer July 28, 2022

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☒ New development

☐ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

☒ No disturbance to any Wetland Resource Areas

☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)

☐ Reduced Impervious Area (Redevelopment Only)

☐ Minimizing disturbance to existing trees and shrubs

☐ LID Site Design Credit Requested:

- ☐ Credit 1
- ☐ Credit 2
- ☐ Credit 3

☒ Use of "country drainage" versus curb and gutter conveyance and pipe

☒ Bioretention Cells (includes Rain Gardens)

☒ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)

☐ Treebox Filter

☐ Water Quality Swale

☐ Grass Channel

☐ Green Roof

☐ Other (describe): _____

Standard 1: No New Untreated Discharges

☒ No new untreated discharges

☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth

☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☐ Soil Analysis provided.

☐ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☐ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☐ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

☒ Site is comprised solely of C and D soils and/or bedrock at the land surface

☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000

☐ Solid Waste Landfill pursuant to 310 CMR 19.000

☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☒ The BMP is sized (and calculations provided) based on:

- ☒ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☒ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☒ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☐ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☐ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☐ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☐ Description and delineation of public safety features;
- ☐ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☐ An Illicit Discharge Compliance Statement is attached;

☒ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

2. Project Overview

Introduction

This project proposes to build a two-story 2,880 S.F. footprint light industrial use building and parking on the 6.677-acre lot. The parcel is currently vacant and located within the Newburyport Industrial Park. The building is proposed to be serviced by the City's public sewer and water system. Private utilities include gas, electric and communications.

Existing Conditions

The existing site is comprised of City of Newburyport Assessors tax map, Map 84 Parcel 1E for 21 Malcolm Hoyt Road. There is no existing driveway access to property from surrounding roads. Elevations on the property range from 21 to 31 based upon the datum NAVD 1988.

The project site is undeveloped brush/grass with trees and bordering vegetated wetland. Wetland lines adjacent to the proposed development have been delineated by Hughes Environmental Consulting confirmed the Border Vegetable Wetland (BVW) line in June 2022.

The existing stormwater surface drainage runoff flows to the east and then southerly to the wetland area, another section of the property the runoff flows to the North toward Hale Street and eventually the gutter line comes back to the wetland at the northeast corner of the property. The drainage flow line is shown on the existing drainage area figure. The soils on site consist of Maybid silt loam, Scantic silt loam, hydrologic group C/D and bedrock. See Appendix A for NCRS soil information and soil logs.

Project Description

The proposed development will consist of new two-story 2,880 S.F. footprint commercial building with bituminous concrete driveway and 17 parking spaces including 2 ADA parking spaces. The proposed driveway access to property will be from Hale Street. Concurrent with this Notice of Intent application the project will be permitted before the Zoning Board and Newburyport Planning Board with Major Site Plan review. A stormwater system is proposed for the new development that includes two rain gardethat collected the runoff from the parking area and the roof. The two-rain garden are connected with 52 LF 8" SDR35 pipe to redirect flow between both rain garden prior to discharge into the wetland. The proposed stormwater system will mitigate peak runoff rates along with providing a minimum of 80% total suspended solids removal.

Utilities

The new building is proposed to be serviced with new water, sewer, gas services, electric and communications conduits from Hale Street. Public and private utilities are all available along the property frontage.

3. Stormwater Management

Introduction

The current site consists of two sub-catchment area. The total area being analyzed is approximately 26,390 square feet. The existing areas being analyzed consisting wetland, wooded and pervious areas. The pervious area is mostly undeveloped brush/grass area.

According to the USDA Soil Survey, the on-site soils consist of Maybid silt loam, Scantic silt loam, hydrologic group C/D and bedrock. A detailed description of the on-site soils is included as Appendix A.

The proposed project increases impervious areas; multiple BMP's will be implemented. With the use of these BMP's, the project will comply with the ten standards of the DEP Stormwater Handbook.

Consistency with the DEP Stormwater Management Policy

The project is new development and therefore must meet all ten of the Stormwater Management Standards. Each of the standards of the DEP Stormwater Handbook and how the project meets or exceeds them is discussed below.

Standard 1 – Untreated Stormwater

Standard 1 states that "*No new stormwater conveyances (e.g. outfalls) will discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth*."

The proposed drainage system does not include new conveyances that discharge directly without pre-treatment. Several BMP's are proposed to treat stormwater and to prevent any erosion to the surrounding Resource Areas. Since no new conveyances will directly discharge untreated stormwater, the project meets this standard.

Standard 2 – Post Development Peak Discharge Rates

Standard 2 states that "*Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates*."

The site was analyzed under both the existing and proposed conditions to compare the pre and post development peak discharge rates at two design point leaving the property. The analysis divides the site into two sub-catchments that discharge to the wetland next of the site. The discharge point was analyzed to ensure that there is no impact on abutting properties as a result of the project. A detailed description of both the existing and proposed conditions hydrology is described below. A copy of the HydroCAD printouts for both existing and proposed conditions is included in Appendix B.

Existing Conditions Hydrology

The existing hydrology on site is conform by two sub-catchment area. Sub-catchments 1S flows from a high surface point at the wooded area of the southern property to the low point at the wetland area of the south side of the property line. The second sub-catchment 2S flow from the northern property, travel along Hale Street toward northeast side of the property eventually to the low point at the wetland area of the east side of the property line.

Proposed Conditions Hydrology

Proposed Sub-catchment 10S: This sub-catchment located south-western side of the property, it consists mostly of bituminous concrete pavement, sidewalks, and new landscape areas. It drains to pond 10P a rain garden through two swales that collected the runoff from the parking area. This pond will have an outlet pipe that connected to the second pond 20P and another outlet pipe flared end with rip-rap splash pad that discharge into the wetland, the first design point 10R.

Proposed Sub-catchment 20S: This sub-catchment consists mainly in the pervious and landscape areas located south-west of the parking area. It drains directly to the wetland.

Proposed Sub-catchment 30S: This sub-catchment is the building roof that have a roof drain to pond 20P, the second rain garden located on the North-east of the property. This pond will have an outlet pipe flared end with rip-rap splash pad that discharge into the second design point 20R.

Proposed Sub-catchment 40S: This sub-catchment consists mainly in the pervious and landscape areas located North-east of the property. It drains directly to the wetland.

Summary

The mitigation measures include swale to collected and treat runoff from the parking area and two rain gardens to hold and infiltrate runoff from the site. These mitigation measures result in a stormwater management system that meets the requirements of Standard 2. The project does not increase flow rate for 2, 10 & 100 year design storm. The calculations are based upon the rainfall rates in the City of Newburyport Drainage regulations. A summary of the pre and post development discharge rates is shown on Table 1 below.

Table 2: Existing and Proposed Peak Discharge Rate Comparison at Design Points

DESIGN POINT 1 – To Wetland

	2 Year Storm - (3.10 in)		10 Year Storm - (4.70 in)		100 Year Storm - (8.30 in)	
Design Point	Existing (cfs)	Proposed (cfs)	Existing (cfs)	Proposed (cfs)	Existing (cfs)	Proposed (cfs)
1	0.89	0.63	1.42	1.25	2.60	2.53

DESIGN POINT 2 – To Wetland

	2 Year Storm - (3.10 in)		10 Year Storm - (4.70 in)		100 Year Storm - (8.30 in)	
Design Point	Existing (cfs)	Proposed (cfs)	Existing (cfs)	Proposed (cfs)	Existing (cfs)	Proposed (cfs)
1	0.59	0.29	0.96	0.89	1.80	1.65

Since the proposed project is designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates, the project is in compliance with Standard 2.

Standard 3 – Recharge to Groundwater

Standard 3 states that "*Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This condition is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook*."

The volume of the recharge system was calculated according to the Massachusetts Stormwater Handbook. The proposed site design increases impervious area approximated 10,279 square feet. For this calculation, all impervious areas will be counted as being on Hydrologic Group C/D soils having a volume requirement of 0.175 inch of runoff (average of C and D) inches multiply by the new area of impervious cover. **This gives a required recharge volume of 149 cubic feet. The sump of both rain garden provides a total recharge volume of 1,250 cubic feet. The project is in compliance with Standard 3.**

Standard 4 – Removal of 80% Total Suspended Solids (TSS)

Standard 4 states that "*Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when: (a) Suitable practices for source control and pollution prevention are identified in long-term pollution prevention plan, and thereafter implemented and maintained; (b) Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and (c) Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook*."

Removal of Total Suspended Solids (TSS) is proposed for the developed areas of the site. TSS removal is accomplished by the combination of the following structural and non-structural BMPs:

- Swales and Rain Garden

Below is a summary of each discharge point analyzed and the stormwater treatment provided. The TSS Removal worksheets are also provided in the section.

Swale #1 – The runoff from the parking area is collected via two swales prior to discharge into the first Rain Garden (10P). *80% TSS removal is provided for this drainage area.*

Rain Garden #1 & #2 – The runoff to this basin is collected via swales prior to entering the rain garden. Rain garden 10P overflow to the second rain garden (20P). *90% TSS removal is provided for this drainage area.* This area requires 1/2" water quality volume (WQV) over the new paved surfaces. The total paved surface contributing to this basin is 7,399 sf with a required WQV of 308 cubic feet. Basin #1 provides 257 cubic feet of water quality volume and basin #2 provides another 993 cubic feet of WQU. The required pretreatment is provided with the combination of both BMPs; the swales and the rain gardens working in conjunction.

Standard 5 – Land Uses with Higher Potential Pollutant Loads

Standard 5 states that "*For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook*."

The project use is not a Land Use with Higher Potential Pollutant Loads. Therefore, Standard 5 is not applicable to this project.

Standard 6 – Critical Areas

Standard 6 states that "*Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas as provided in the Massachusetts Stormwater Handbook*."

The project's is not located in estimated habitat or any critical area.

Standard 7 - Redevelopment

Standard 7 states that "*A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5 and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions*."

The proposed project is in undeveloped area and therefore it does not meet the definition of a redevelopment, Standard 7 does not apply.

Standard 8 – Erosion and Sedimentation Controls

Standard 8 states that "*A plan to control construction related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented*."

A Stormwater Pollution Prevention Plan for the Project will be submitted prior to any land disturbance on the site.

Standard 9 – Operation and Maintenance Plans

Standard 9 states: "A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed. "

A long-term operation and maintenance plan is included in Appendix C. The Plan includes provisions for Construction-Phase measures, as well as long term maintenance and inspections. Therefore the Project complies with Standard 9.

Standard 10 – Illicit Discharges to Drainage System

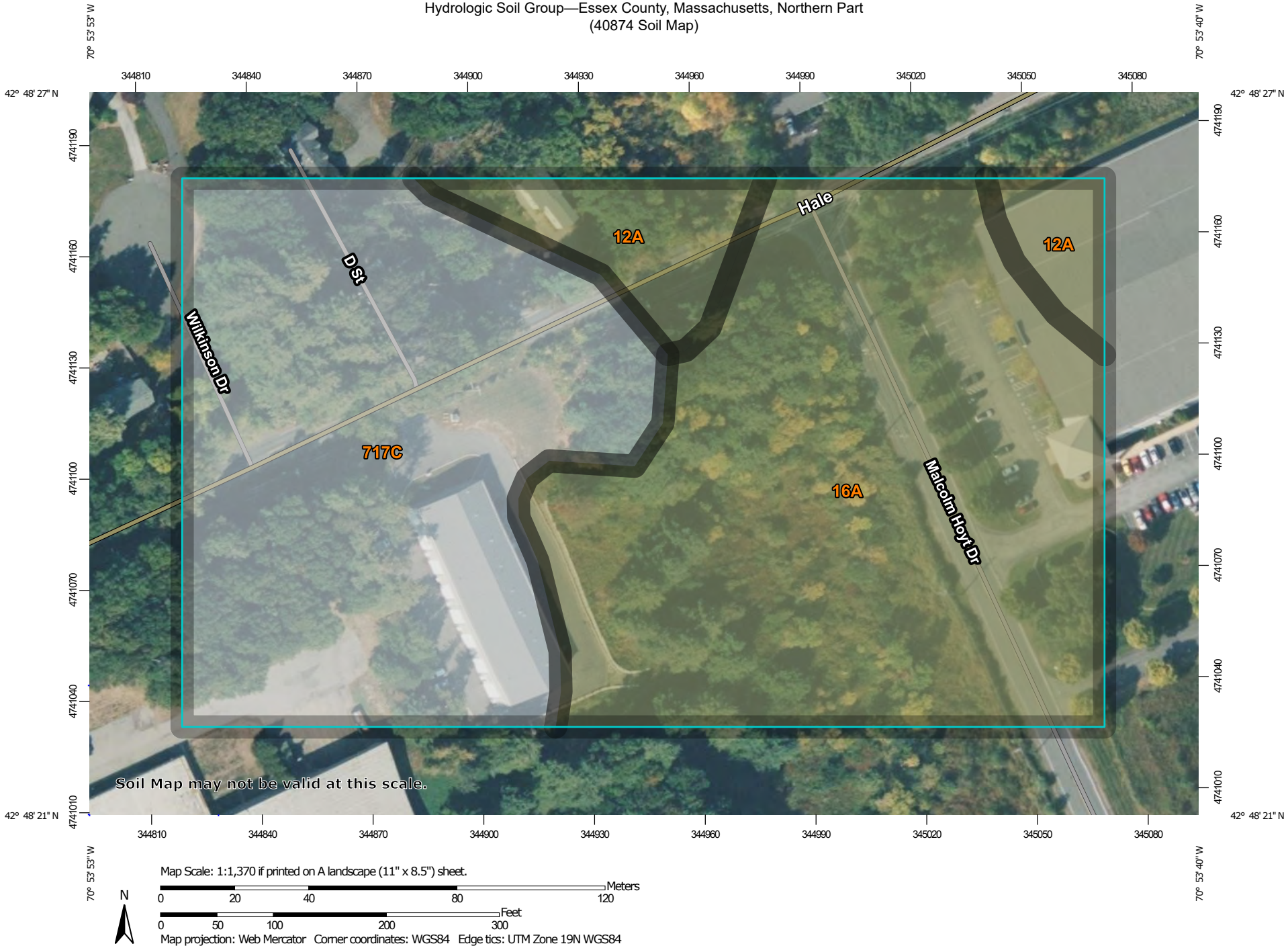
Standard 10 states: "All illicit discharges to the stormwater management system are prohibited."

There are no known or suspected illicit discharges to the stormwater management system at the project site. Therefore the Project complies with Standard 10.

Appendix A

USDA NRCS Soil Map

Hydrologic Soil Group—Essex County, Massachusetts, Northern Part
(40874 Soil Map)



Map Scale: 1:1,370 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Essex County, Massachusetts, Northern Part
Survey Area Data: Version 17, Sep 2, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 22, 2020—Sep 25, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
12A	Maybid silt loam, 0 to 3 percent slopes	C/D	0.8	8.6%
16A	Scantic silt loam, 0 to 3 percent slopes	C/D	4.5	49.1%
717C	Rock outcrop-Charlton-Hollis complex, 3 to 15 percent slopes		3.9	42.3%
Totals for Area of Interest			**9.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

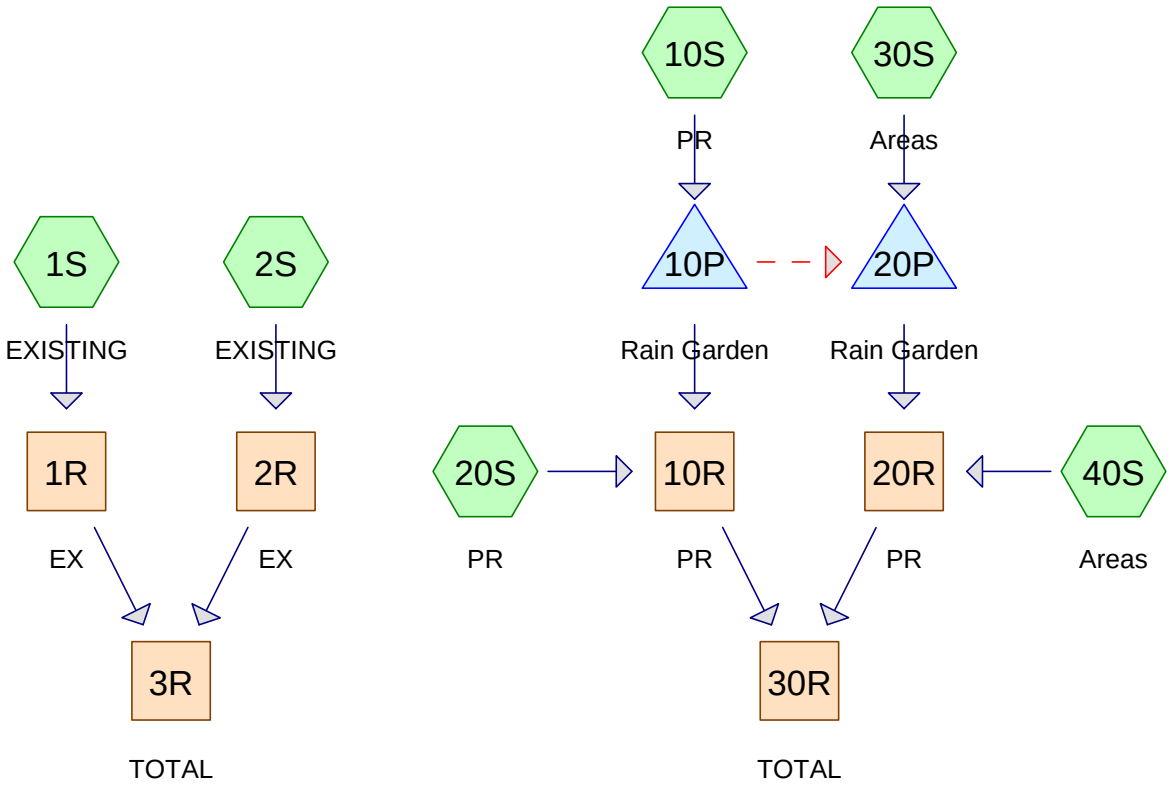
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix B

HydroCAD Hydrology Printout



Subcat Reach Pond Link

Routing Diagram for 40874 DR

Prepared by {enter your company name here}, Printed 6/29/2022

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type III 24-hr		Default	24.00	1	2.58	2
2	1-Year 6"	Type III 6-hr		Default	6.00	1	1.60	2
3	2-Year	Type III 24-hr		Default	24.00	1	3.10	2
4	5-Year	Type III 24-hr		Default	24.00	1	3.90	2
5	10-Year	Type III 24-hr		Default	24.00	1	4.70	2
6	25-Year	Type III 24-hr		Default	24.00	1	5.87	2
7	50-Year	Type III 24-hr		Default	24.00	1	7.00	2
8	100-Year	Type III 24-hr		Default	24.00	1	8.30	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
13,915	89	<50% Grass cover, Poor, HSG D (1S, 2S)
11,504	80	>75% Grass cover, Good, HSG D (20S, 40S)
8,352	98	Bed Rock, HSG D (1S)
4,927	98	BedRock, HSG D (2S, 40S)
3,801	98	Bedrock, HSG D (20S)
7,399	98	Paved parking, HSG D (10S, 40S)
2,880	98	Roofs, HSG D (30S)
52,778	**92**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
52,778	HSG D	1S, 2S, 10S, 20S, 30S, 40S
0	Other	
52,778		**TOTAL AREA**

Summary for Subcatchment 1S: EXISTING

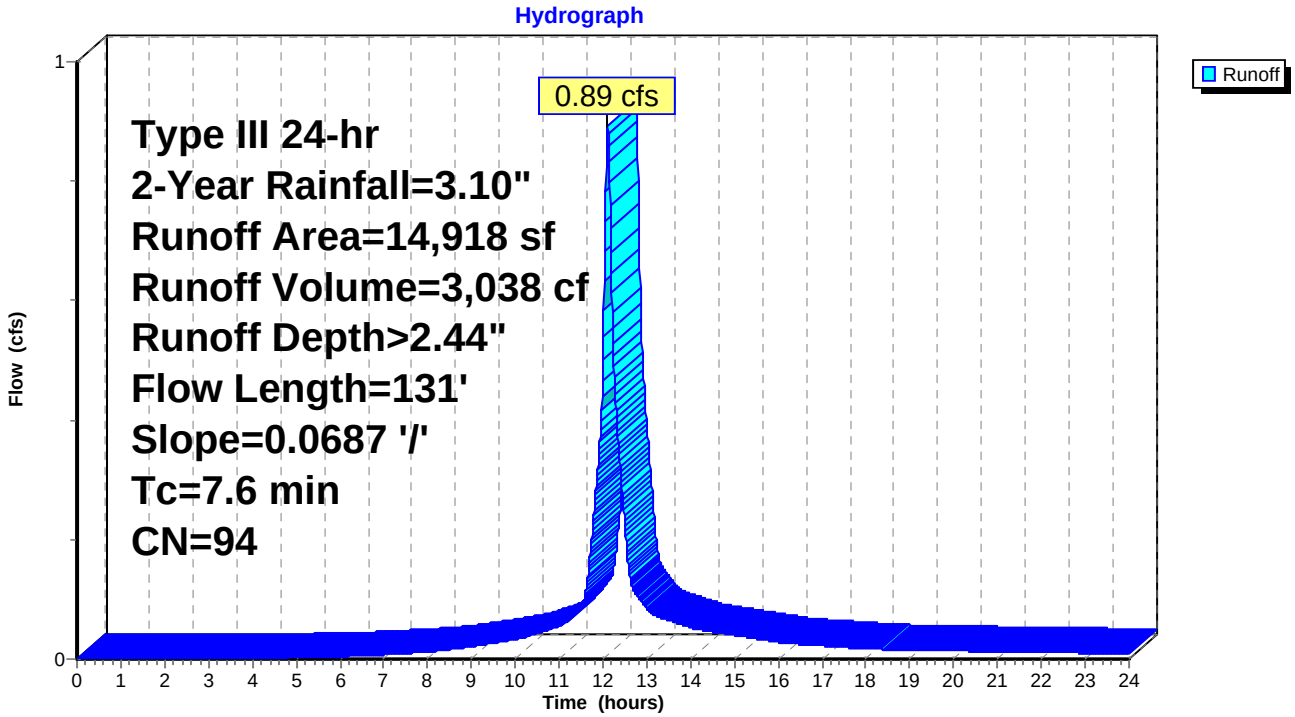
Runoff = 0.89 cfs @ 12.10 hrs, Volume= 3,038 cf, Depth> 2.44"

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=3.10"

	Area (sf)	CN	Description
	6,566	89	<50% Grass cover, Poor, HSG D
*	8,352	98	Bed Rock, HSG D
	14,918	94	Weighted Average
	6,566		44.01% Pervious Area
	8,352		55.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	131	0.0687	0.29		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.09"

Subcatchment 1S: EXISTING



Summary for Subcatchment 2S: EXISTING

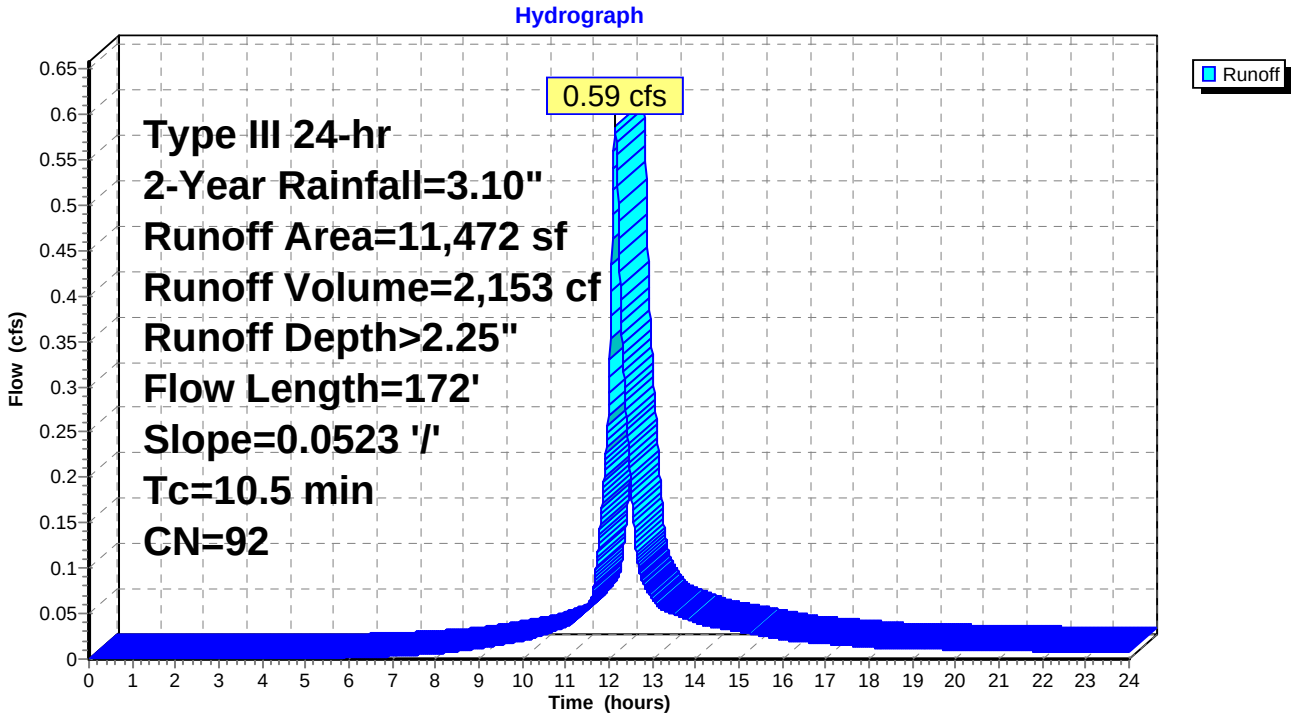
Runoff = 0.59 cfs @ 12.14 hrs, Volume= 2,153 cf, Depth> 2.25"

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=3.10"

	Area (sf)	CN	Description
	7,349	89	<50% Grass cover, Poor, HSG D
*	4,123	98	BedRock, HSG D
	11,472	92	Weighted Average
	7,349		64.06% Pervious Area
	4,123		35.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	172	0.0523	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.09"

Subcatchment 2S: EXISTING



Summary for Subcatchment 10S: PR

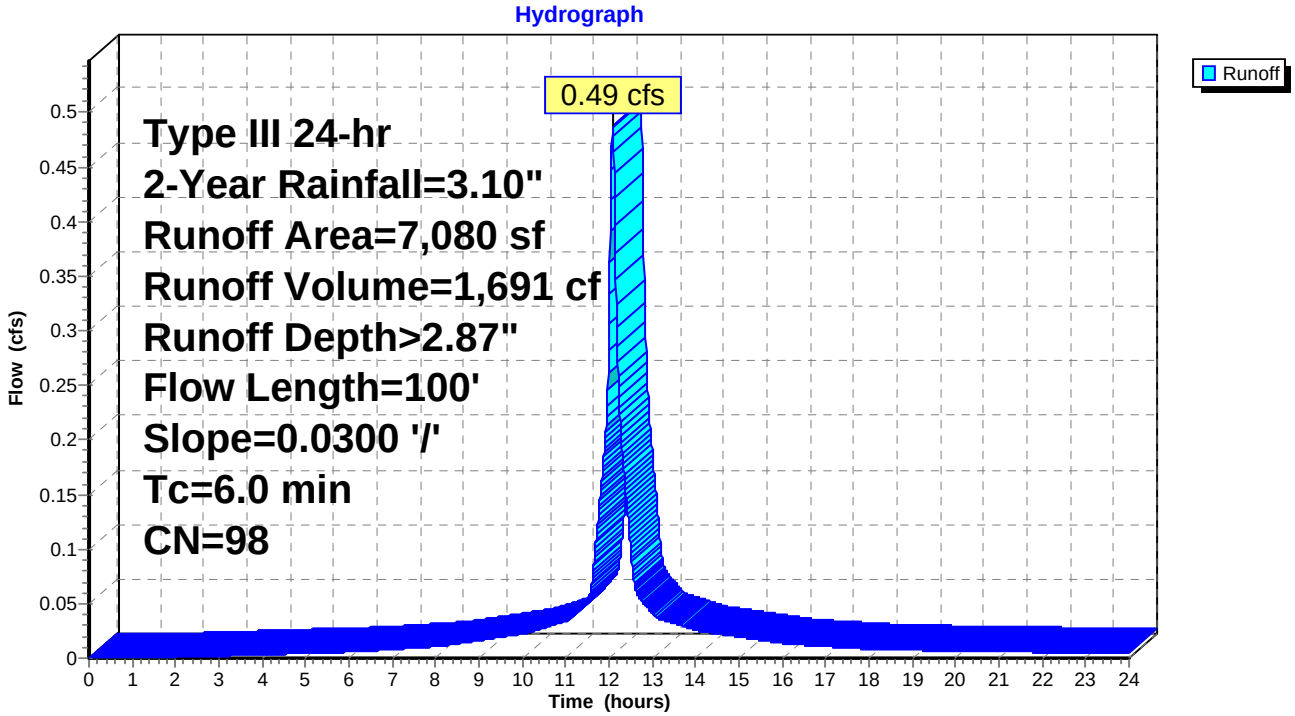
Runoff = 0.49 cfs @ 12.08 hrs, Volume= 1,691 cf, Depth> 2.87"

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=3.10"

Area (sf)	CN	Description
7,080	98	Paved parking, HSG D
7,080		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0300	1.59		**Sheet Flow, Parking** Smooth surfaces n= 0.011 P2= 3.09"
1.0	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 10S: PR



Summary for Subcatchment 20S: PR

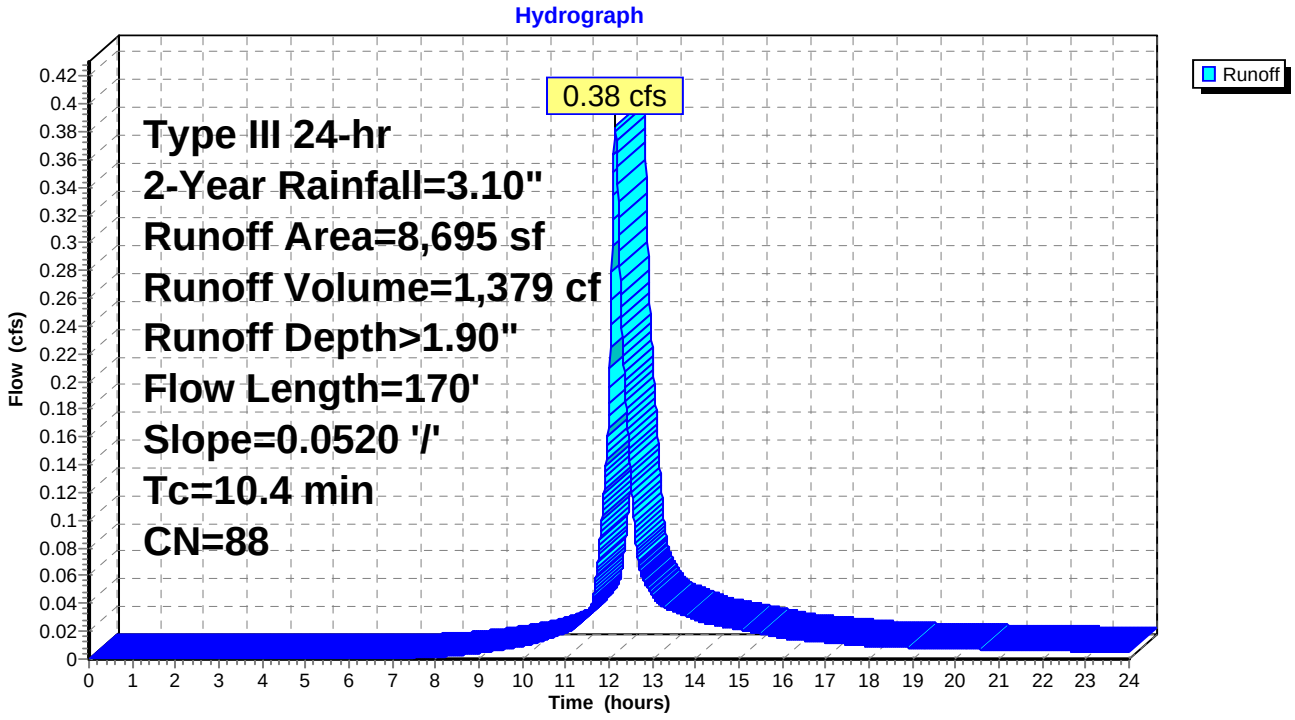
Runoff = 0.38 cfs @ 12.14 hrs, Volume= 1,379 cf, Depth> 1.90"

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=3.10"

	Area (sf)	CN	Description
*	3,801	98	Bedrock, HSG D
	4,894	80	>75% Grass cover, Good, HSG D
	8,695	88	Weighted Average
	4,894		56.29% Pervious Area
	3,801		43.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	170	0.0520	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.09"

Subcatchment 20S: PR



Summary for Subcatchment 30S: Areas

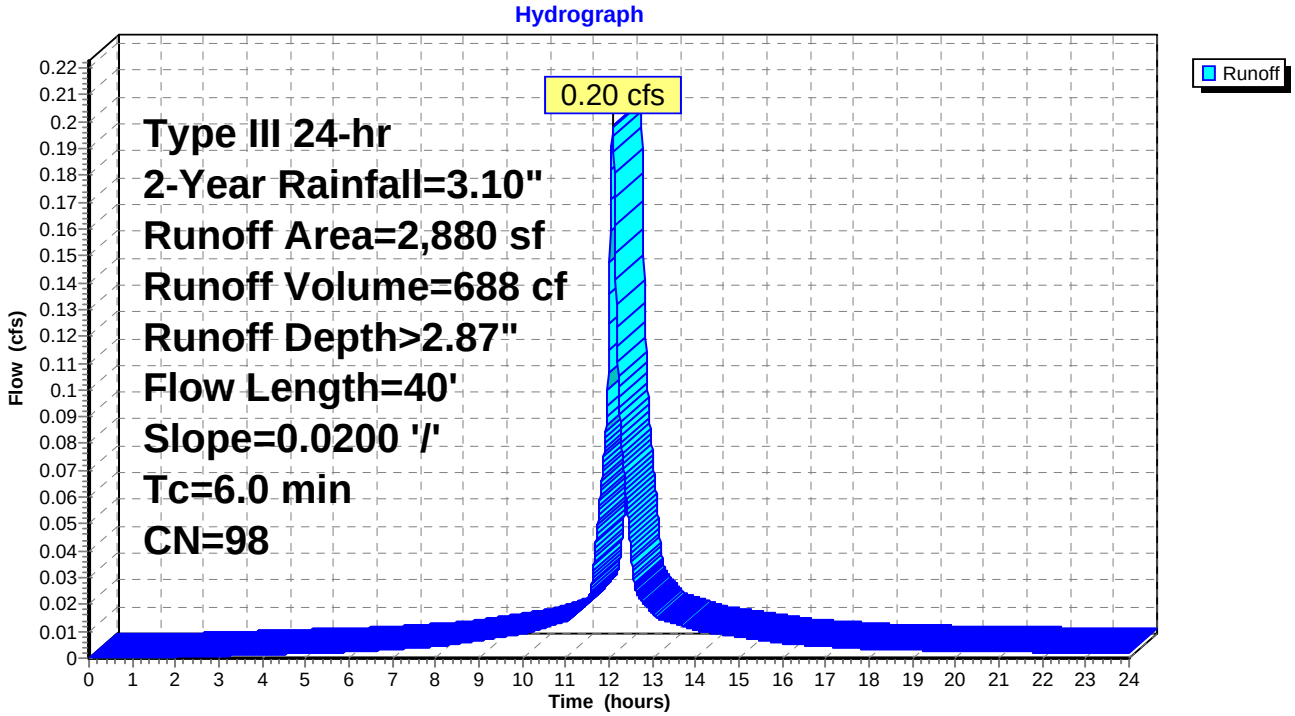
Runoff = 0.20 cfs @ 12.08 hrs, Volume= 688 cf, Depth> 2.87"

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=3.10"

Area (sf)	CN	Description
2,880	98	Roofs, HSG D
2,880		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.13		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.09"
0.6	40	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 30S: Areas



Summary for Subcatchment 40S: Areas

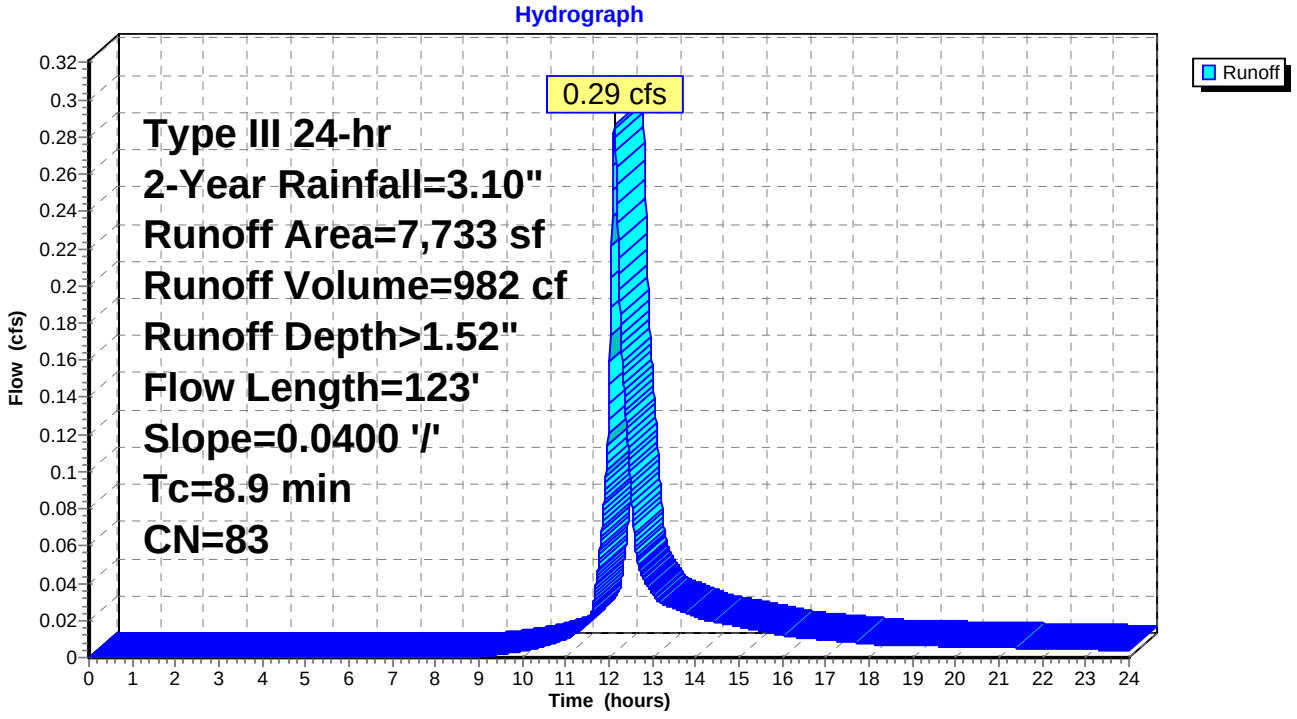
Runoff = 0.29 cfs @ 12.13 hrs, Volume= 982 cf, Depth> 1.52"

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=3.10"

	Area (sf)	CN	Description
	319	98	Paved parking, HSG D
*	804	98	BedRock, HSG D
	6,610	80	>75% Grass cover, Good, HSG D
	7,733	83	Weighted Average
	6,610		85.48% Pervious Area
	1,123		14.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	123	0.0400	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.09"

Subcatchment 40S: Areas



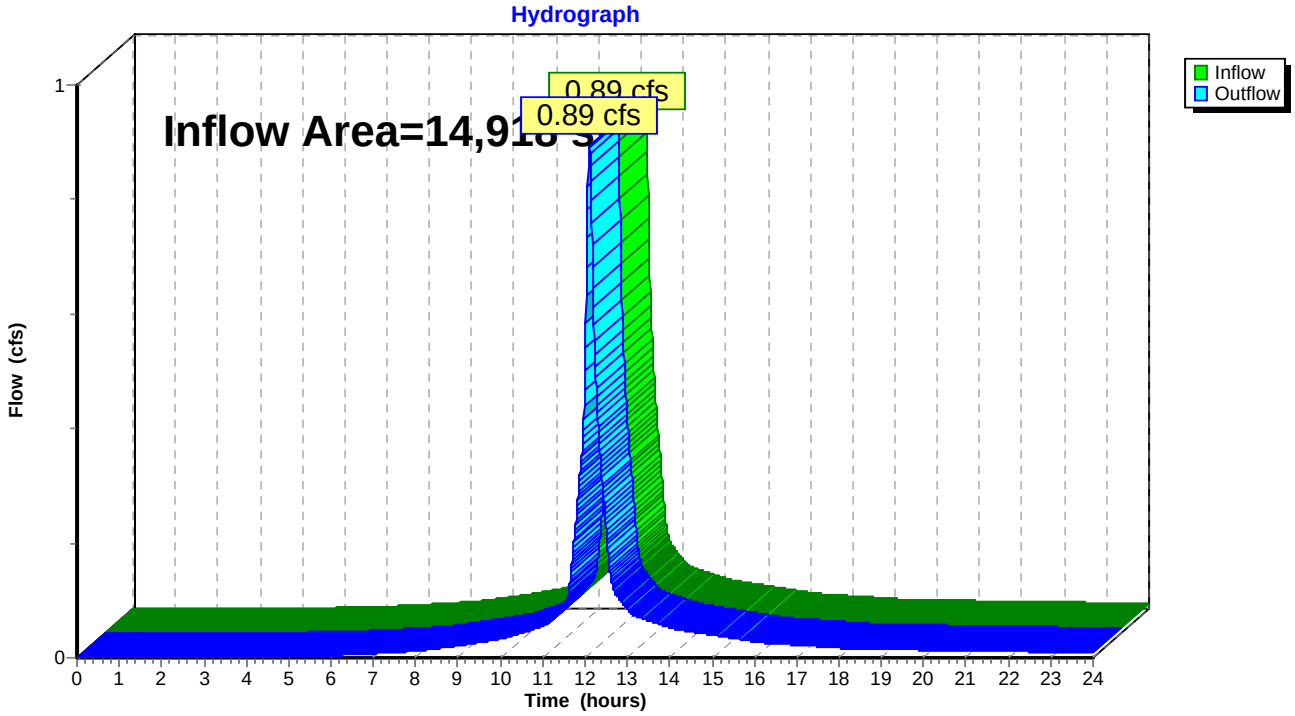
Summary for Reach 1R: EX

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 14,918 sf, 55.99% Impervious, Inflow Depth > 2.44" for 2-Year event
Inflow = 0.89 cfs @ 12.10 hrs, Volume= 3,038 cf
Outflow = 0.89 cfs @ 12.10 hrs, Volume= 3,038 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 1R: EX



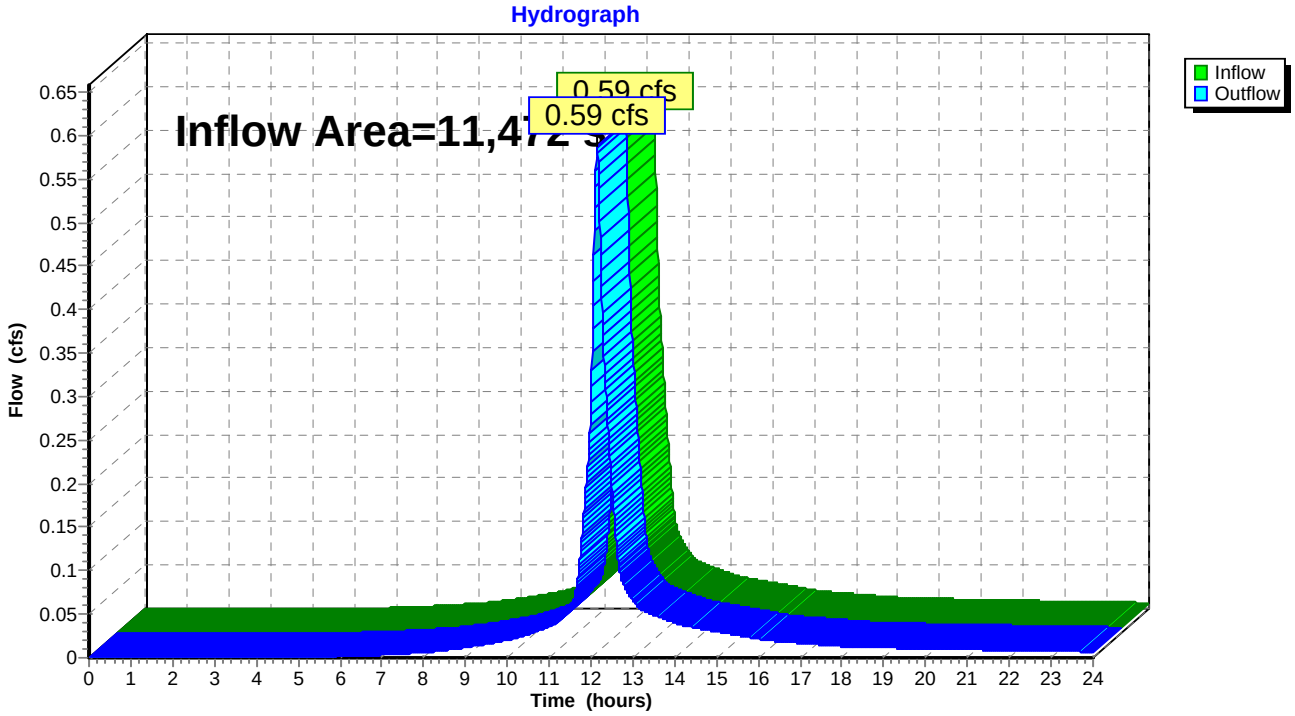
Summary for Reach 2R: EX

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11,472 sf, 35.94% Impervious, Inflow Depth > 2.25" for 2-Year event
Inflow = 0.59 cfs @ 12.14 hrs, Volume= 2,153 cf
Outflow = 0.59 cfs @ 12.14 hrs, Volume= 2,153 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 2R: EX



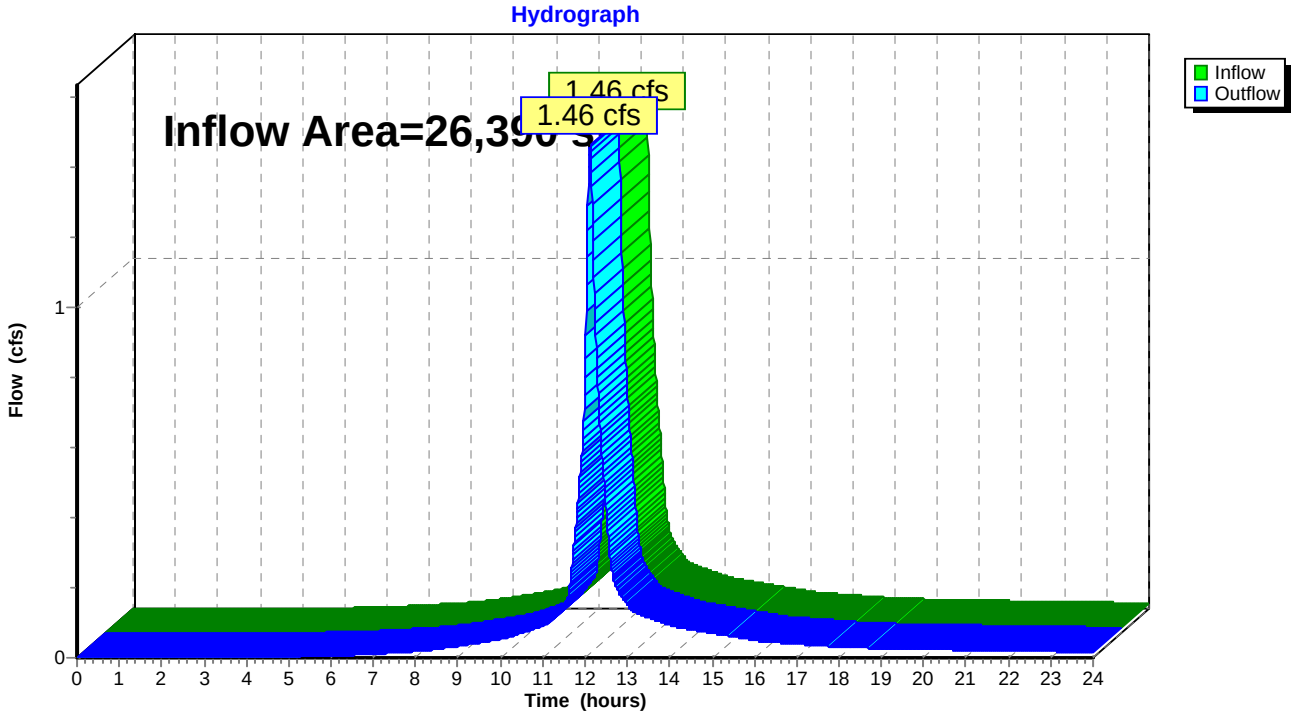
Summary for Reach 3R: TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 26,390 sf, 47.27% Impervious, Inflow Depth > 2.36" for 2-Year event
Inflow = 1.46 cfs @ 12.12 hrs, Volume= 5,191 cf
Outflow = 1.46 cfs @ 12.12 hrs, Volume= 5,191 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 3R: TOTAL



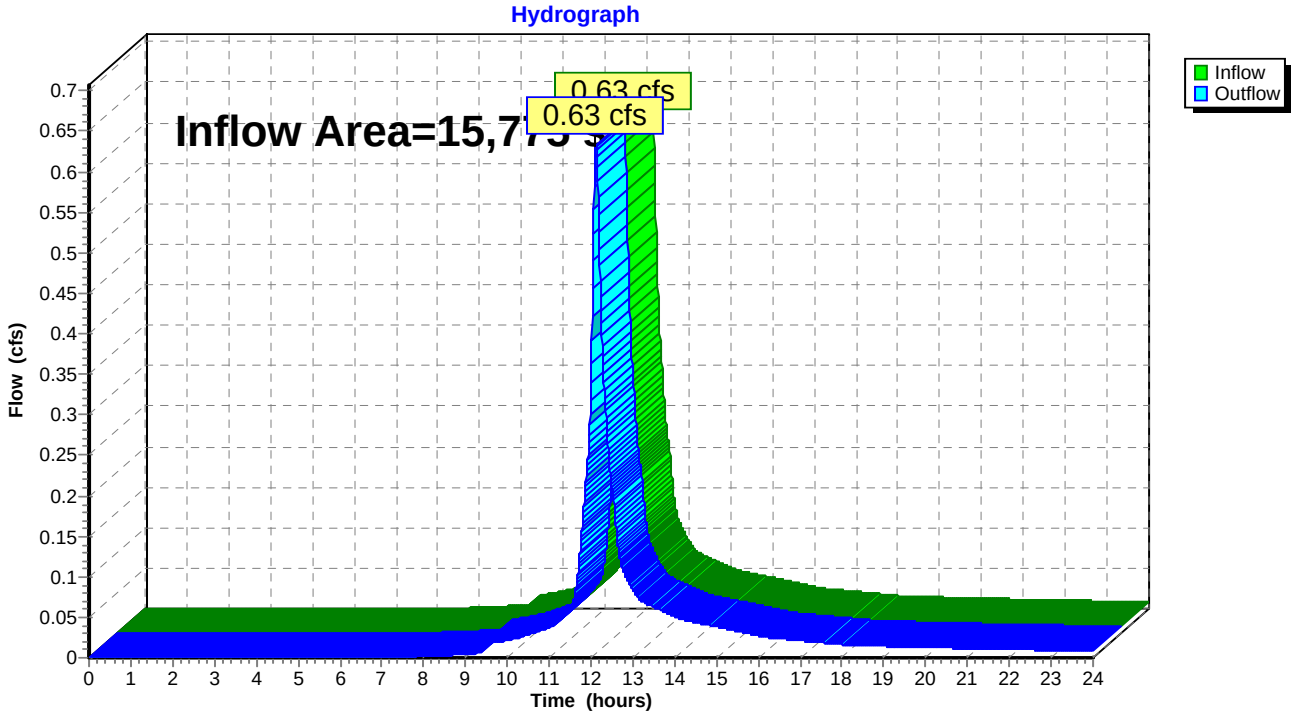
Summary for Reach 10R: PR

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15,775 sf, 68.98% Impervious, Inflow Depth > 1.82" for 2-Year event
Inflow = 0.63 cfs @ 12.12 hrs, Volume= 2,396 cf
Outflow = 0.63 cfs @ 12.12 hrs, Volume= 2,396 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 10R: PR



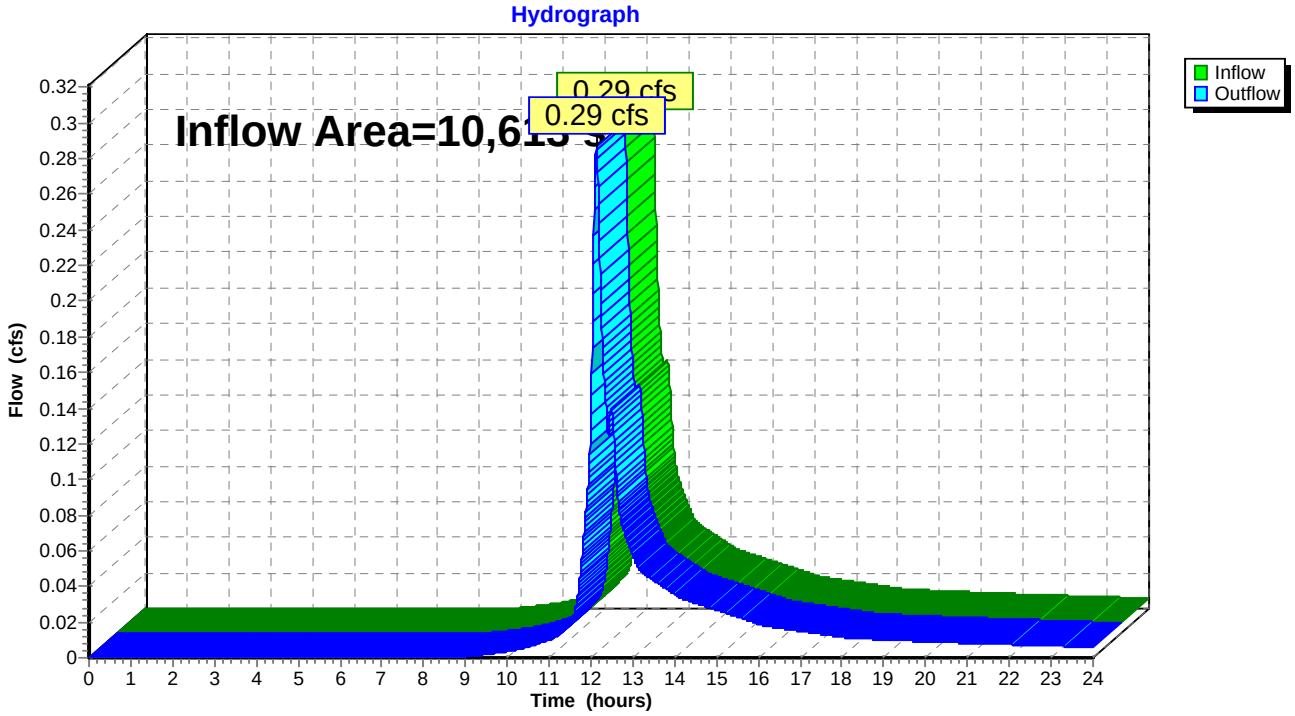
Summary for Reach 20R: PR

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10,613 sf, 37.72% Impervious, Inflow Depth > 1.45" for 2-Year event
Inflow = 0.29 cfs @ 12.13 hrs, Volume= 1,285 cf
Outflow = 0.29 cfs @ 12.13 hrs, Volume= 1,285 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 20R: PR



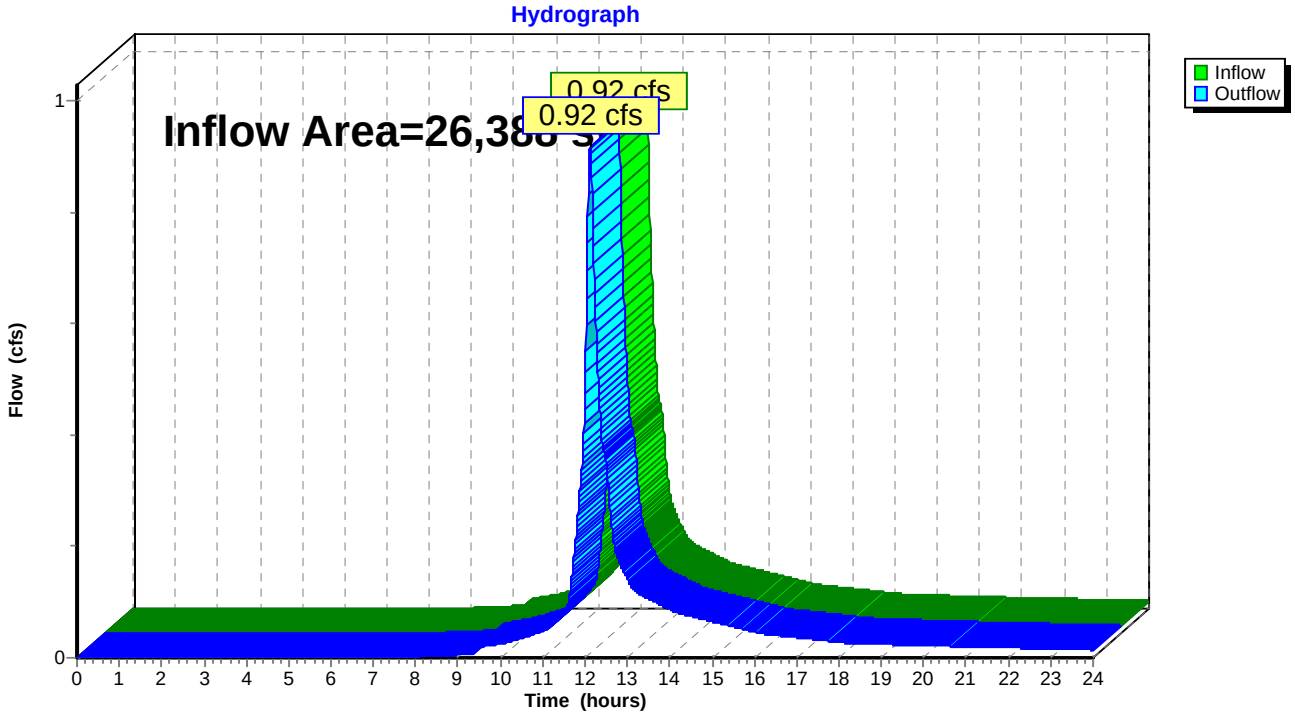
Summary for Reach 30R: TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 26,388 sf, 56.40% Impervious, Inflow Depth > 1.67" for 2-Year event
Inflow = 0.92 cfs @ 12.12 hrs, Volume= 3,681 cf
Outflow = 0.92 cfs @ 12.12 hrs, Volume= 3,681 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 30R: TOTAL



Summary for Pond 10P: Rain Garden

Inflow Area = 7,080 sf,100.00% Impervious, Inflow Depth > 2.87" for 2-Year event
Inflow = 0.49 cfs @ 12.08 hrs, Volume= 1,691 cf
Outflow = 0.48 cfs @ 12.09 hrs, Volume= 1,515 cf, Atten= 1%, Lag= 0.7 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 20 cf
Primary = 0.27 cfs @ 12.09 hrs, Volume= 1,017 cf
Secondary = 0.22 cfs @ 12.09 hrs, Volume= 478 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.60' @ 12.09 hrs Surf.Area= 289 sf Storage= 202 cf

Plug-Flow detention time= 90.6 min calculated for 1,514 cf (90% of inflow)
Center-of-Mass det. time= 40.2 min (796.8 - 756.5)

Volume	Invert	Avail.Storage	Storage Description
#1	22.00'	265 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
22.00	12	0	0	12
23.00	156	70	70	159
23.80	342	194	265	350

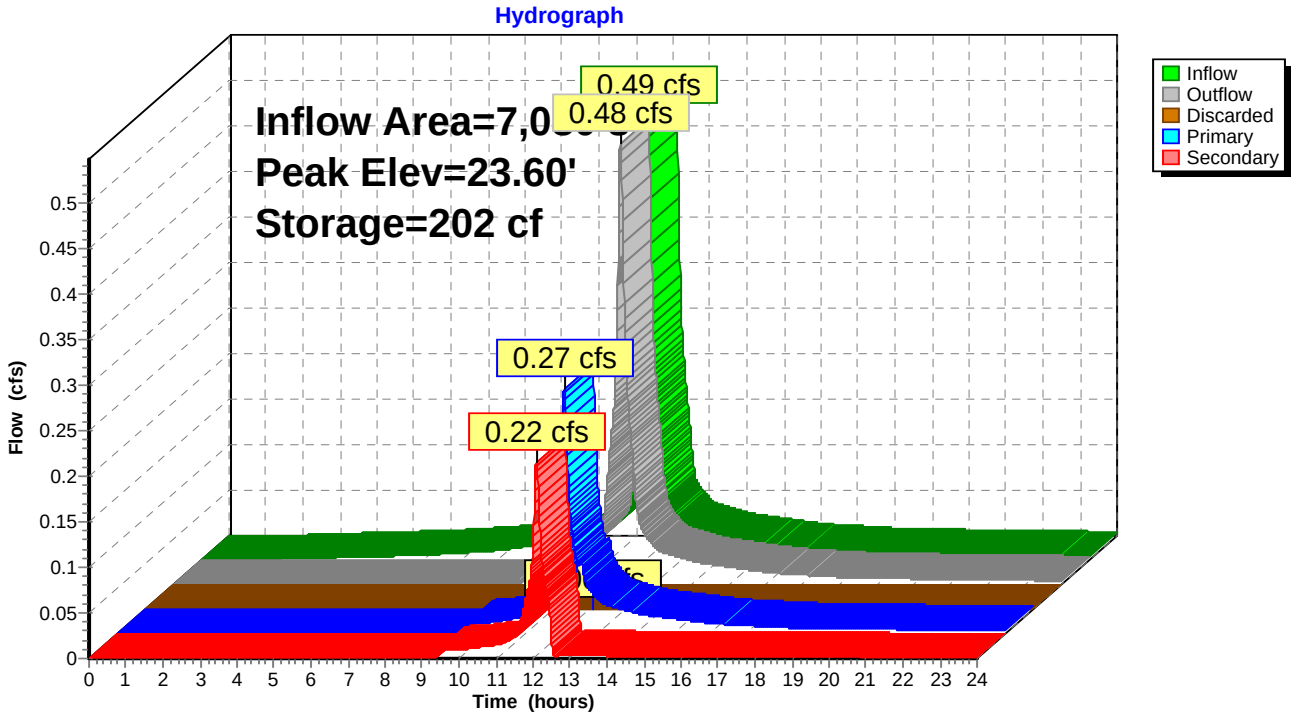
Device	Routing	Invert	Outlet Devices
#1	Discarded	22.00'	**0.050 in/hr Exfiltration over Surface area**
#2	Secondary	23.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	23.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=23.60' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.27 cfs @ 12.09 hrs HW=23.60' TW=0.00' (Dynamic Tailwater)
↑└**3=Orifice/Grate** (Weir Controls 0.27 cfs @ 1.03 fps)

Secondary OutFlow Max=0.21 cfs @ 12.09 hrs HW=23.60' TW=23.02' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.21 cfs @ 1.03 fps)

Pond 10P: Rain Garden



Summary for Pond 20P: Rain Garden

Inflow Area = 2,880 sf,100.00% Impervious, Inflow Depth > 4.86" for 2-Year event
Inflow = 0.41 cfs @ 12.09 hrs, Volume= 1,166 cf
Outflow = 0.05 cfs @ 12.52 hrs, Volume= 339 cf, Atten= 88%, Lag= 26.1 min
Discarded = 0.00 cfs @ 12.52 hrs, Volume= 36 cf
Primary = 0.05 cfs @ 12.52 hrs, Volume= 303 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.54' @ 12.52 hrs Surf.Area= 584 sf Storage= 849 cf

Plug-Flow detention time= 330.8 min calculated for 339 cf (29% of inflow)
Center-of-Mass det. time= 184.7 min (936.0 - 751.4)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	1,140 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

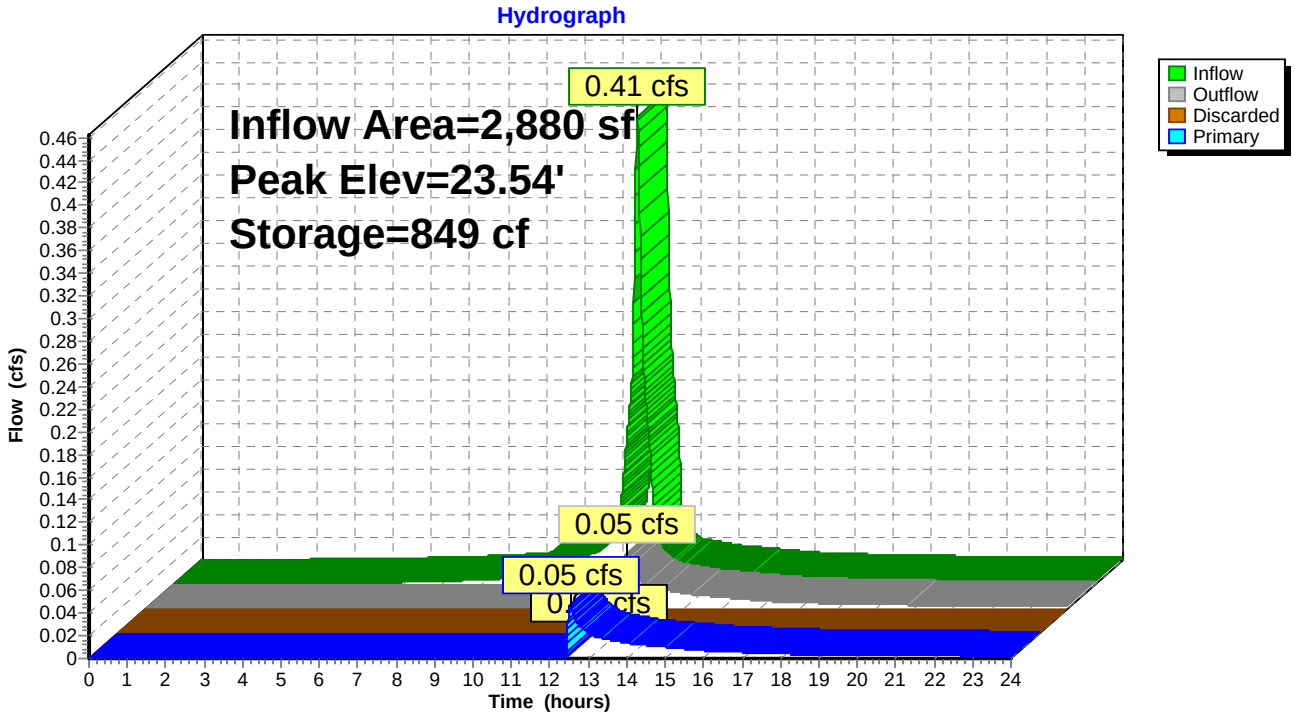
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
21.00	117	0	0	117
22.00	279	192	192	286
23.00	471	371	563	490
24.00	689	577	1,140	724

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.00'	**0.050 in/hr Exfiltration over Surface area**
#2	Primary	23.50'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.52 hrs HW=23.54' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.05 cfs @ 12.52 hrs HW=23.54' TW=0.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Weir Controls 0.05 cfs @ 0.68 fps)

Pond 20P: Rain Garden



Summary for Subcatchment 1S: EXISTING

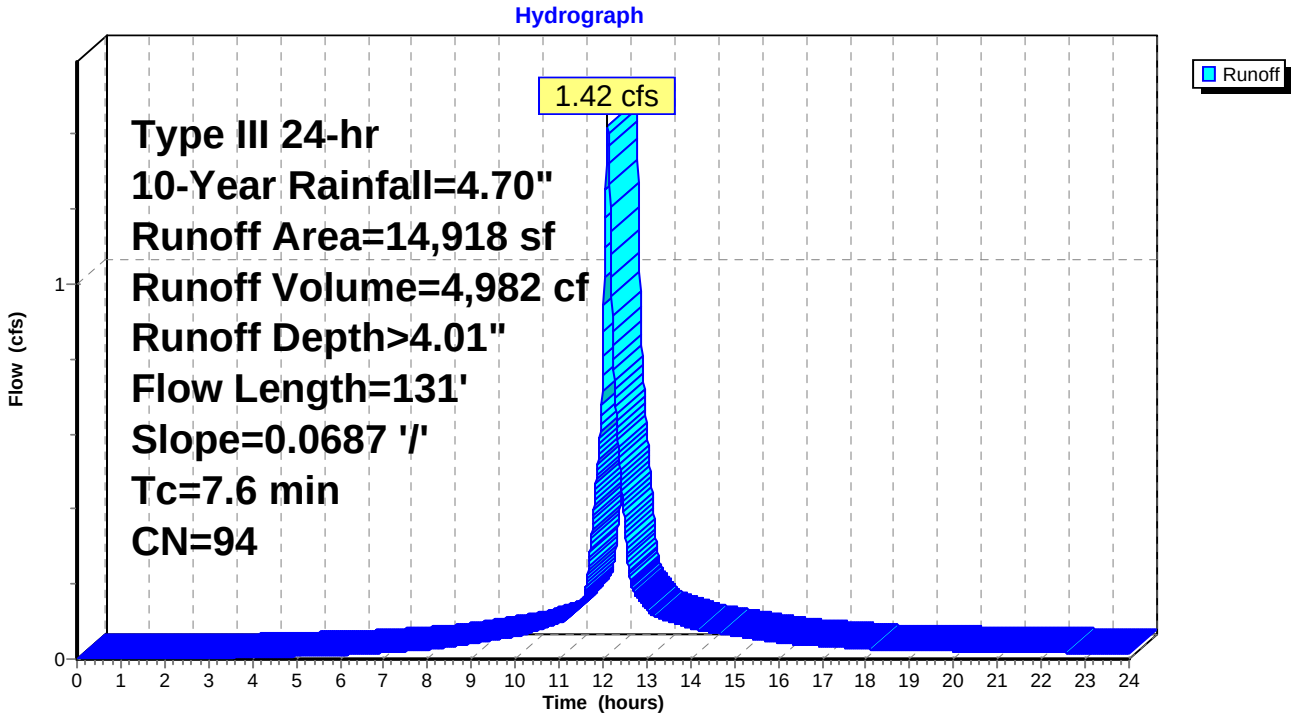
Runoff = 1.42 cfs @ 12.10 hrs, Volume= 4,982 cf, Depth> 4.01"

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=4.70"

	Area (sf)	CN	Description
	6,566	89	<50% Grass cover, Poor, HSG D
*	8,352	98	Bed Rock, HSG D
	14,918	94	Weighted Average
	6,566		44.01% Pervious Area
	8,352		55.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	131	0.0687	0.29		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.09"

Subcatchment 1S: EXISTING



Summary for Subcatchment 2S: EXISTING

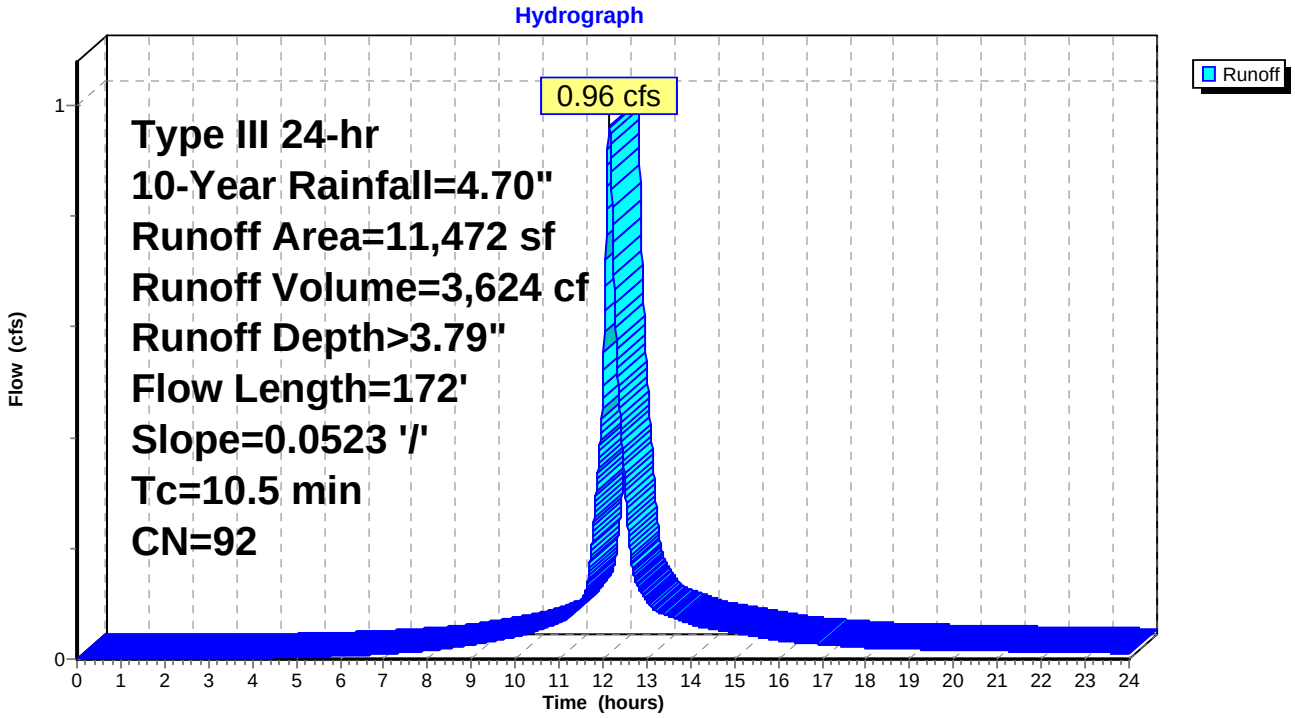
Runoff = 0.96 cfs @ 12.14 hrs, Volume= 3,624 cf, Depth> 3.79"

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=4.70"

	Area (sf)	CN	Description
	7,349	89	<50% Grass cover, Poor, HSG D
*	4,123	98	BedRock, HSG D
	11,472	92	Weighted Average
	7,349		64.06% Pervious Area
	4,123		35.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	172	0.0523	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.09"

Subcatchment 2S: EXISTING



Summary for Subcatchment 10S: PR

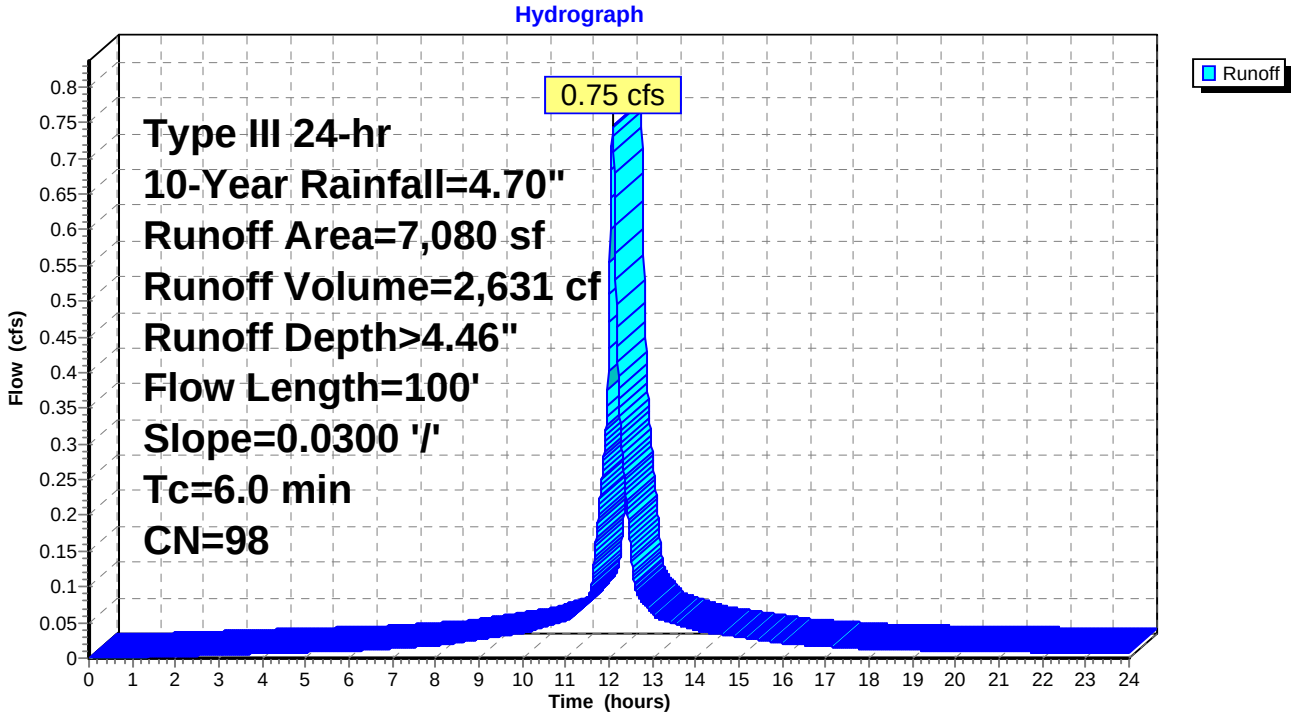
Runoff = 0.75 cfs @ 12.08 hrs, Volume= 2,631 cf, Depth> 4.46"

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 10-Year Rainfall=4.70"

Area (sf)	CN	Description
7,080	98	Paved parking, HSG D
7,080		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0300	1.59		**Sheet Flow, Parking** Smooth surfaces n= 0.011 P2= 3.09"
1.0	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 10S: PR



Summary for Subcatchment 20S: PR

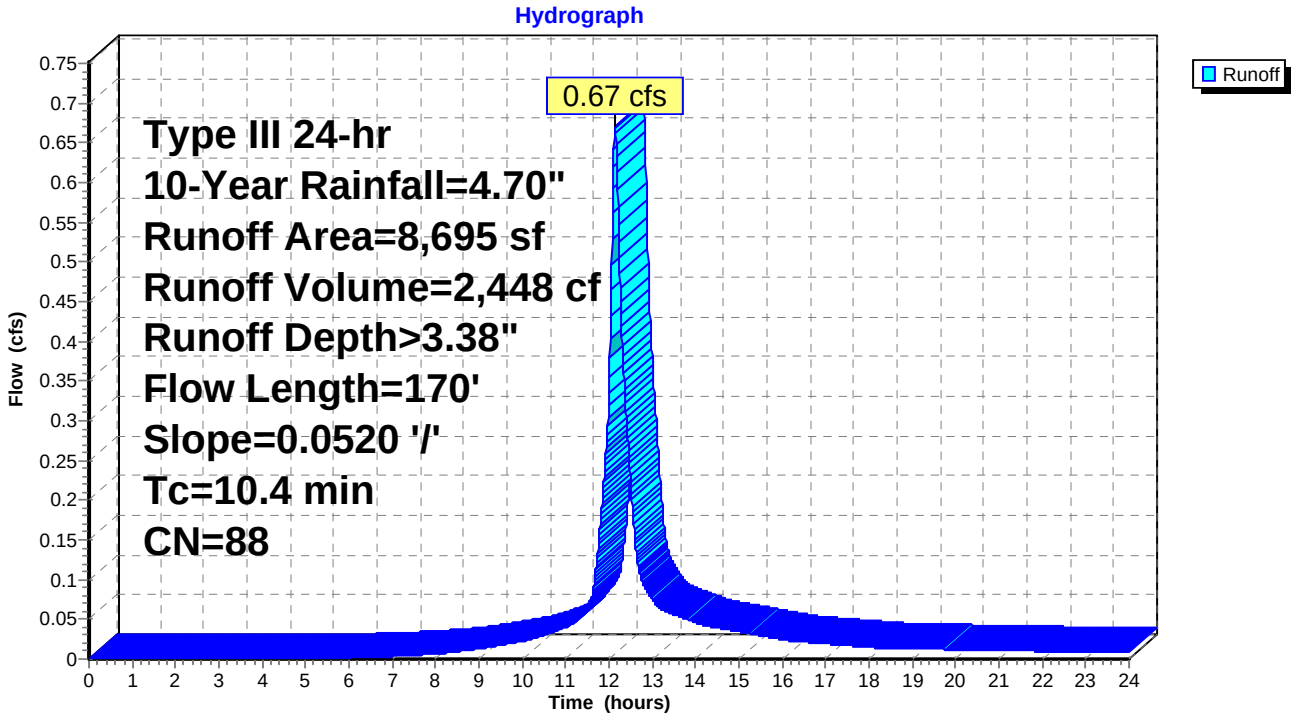
Runoff = 0.67 cfs @ 12.14 hrs, Volume= 2,448 cf, Depth> 3.38"

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=4.70"

	Area (sf)	CN	Description
*	3,801	98	Bedrock, HSG D
	4,894	80	>75% Grass cover, Good, HSG D
	8,695	88	Weighted Average
	4,894		56.29% Pervious Area
	3,801		43.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	170	0.0520	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.09"

Subcatchment 20S: PR



Summary for Subcatchment 30S: Areas

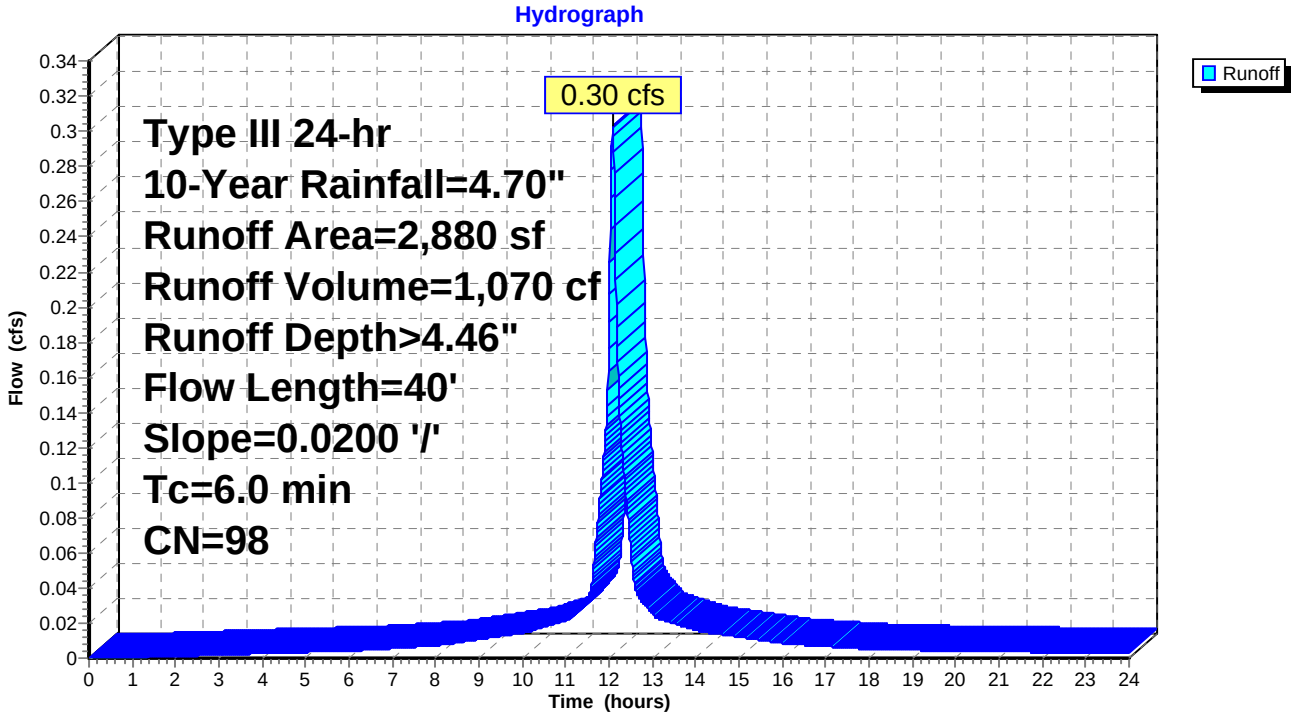
Runoff = 0.30 cfs @ 12.08 hrs, Volume= 1,070 cf, Depth> 4.46"

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 10-Year Rainfall=4.70"

Area (sf)	CN	Description
2,880	98	Roofs, HSG D
2,880		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.13		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.09"
0.6	40	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 30S: Areas



Summary for Subcatchment 40S: Areas

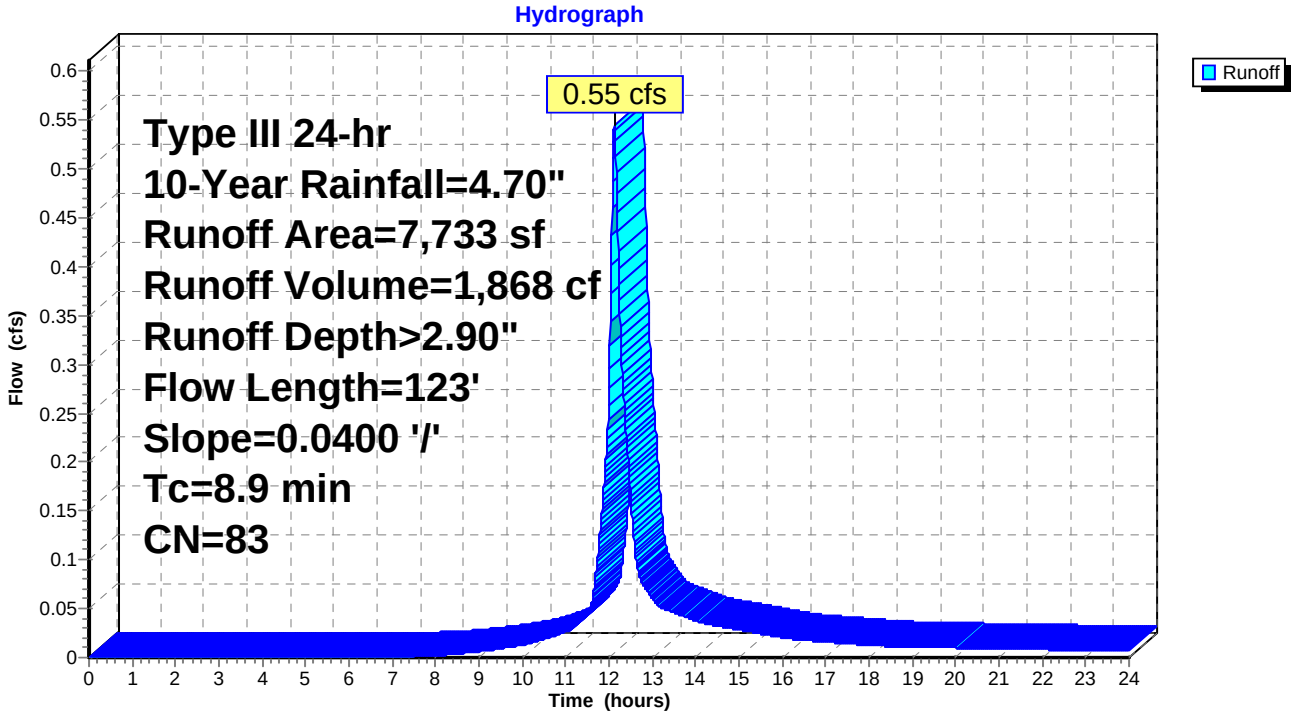
Runoff = 0.55 cfs @ 12.13 hrs, Volume= 1,868 cf, Depth> 2.90"

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=4.70"

	Area (sf)	CN	Description
	319	98	Paved parking, HSG D
*	804	98	BedRock, HSG D
	6,610	80	>75% Grass cover, Good, HSG D
	7,733	83	Weighted Average
	6,610		85.48% Pervious Area
	1,123		14.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	123	0.0400	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.09"

Subcatchment 40S: Areas



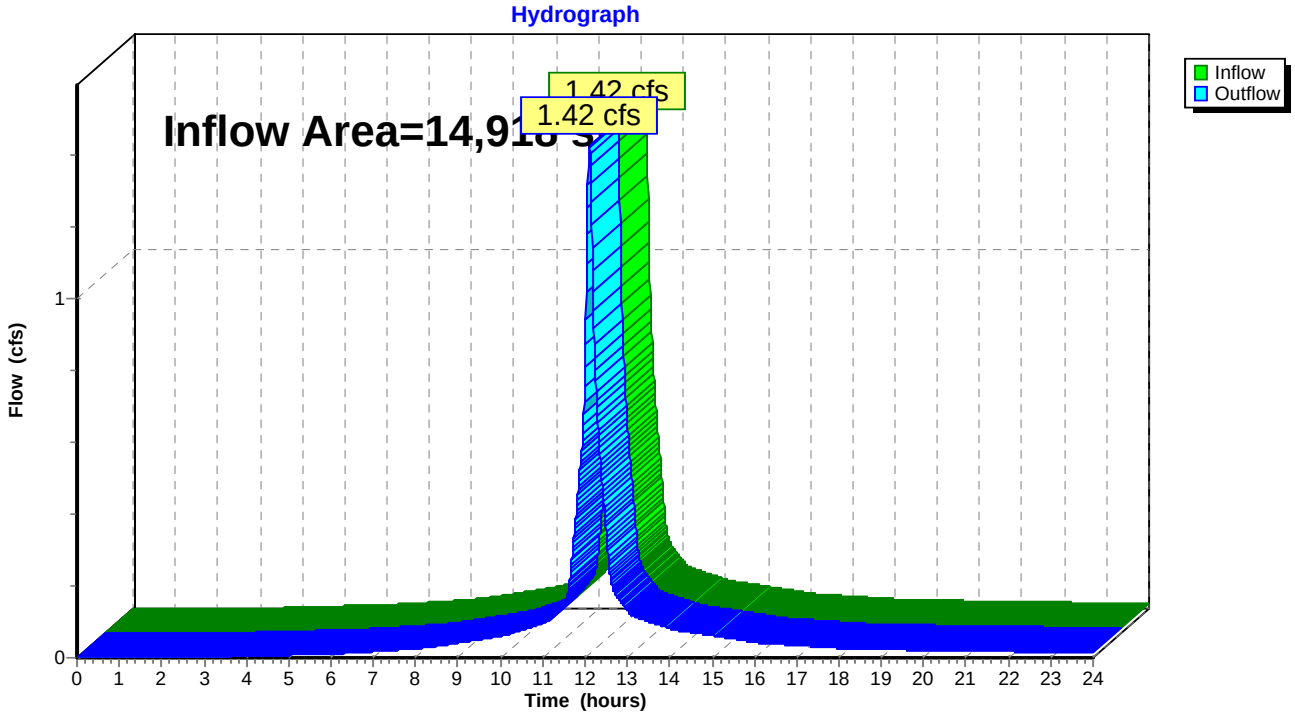
Summary for Reach 1R: EX

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 14,918 sf, 55.99% Impervious, Inflow Depth > 4.01" for 10-Year event
Inflow = 1.42 cfs @ 12.10 hrs, Volume= 4,982 cf
Outflow = 1.42 cfs @ 12.10 hrs, Volume= 4,982 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 1R: EX



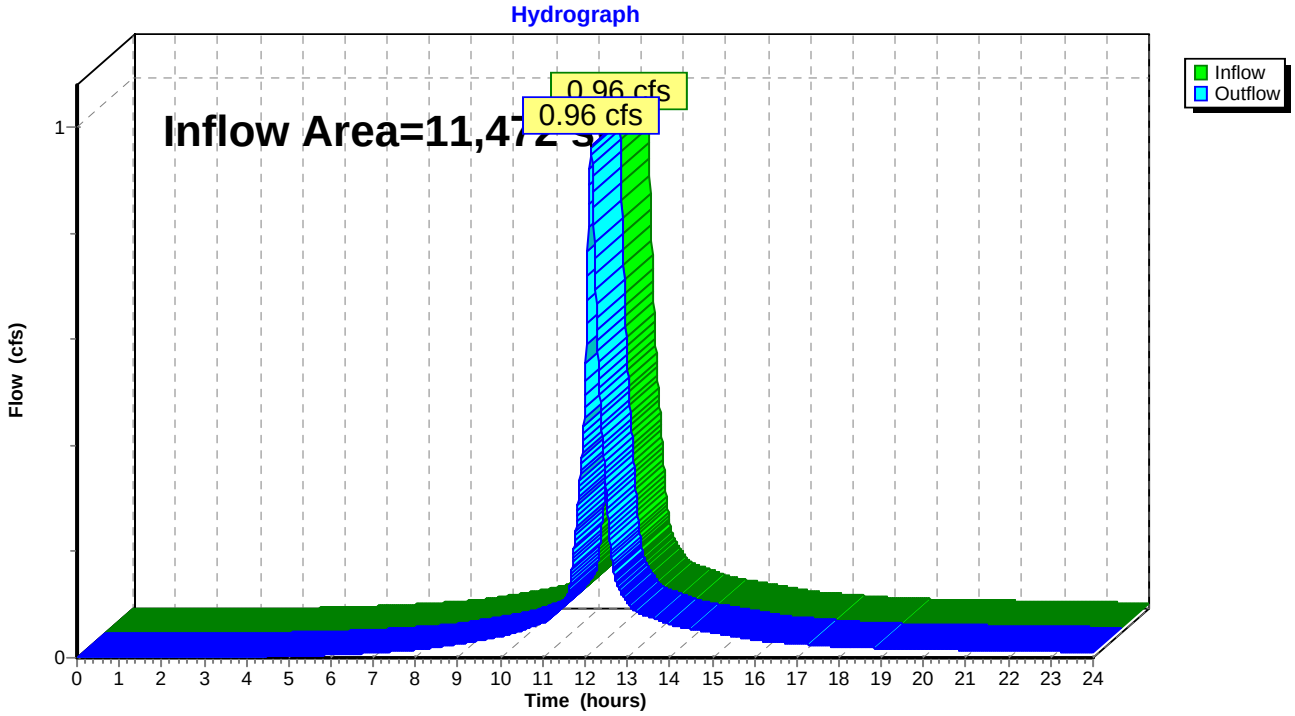
Summary for Reach 2R: EX

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11,472 sf, 35.94% Impervious, Inflow Depth > 3.79" for 10-Year event
Inflow = 0.96 cfs @ 12.14 hrs, Volume= 3,624 cf
Outflow = 0.96 cfs @ 12.14 hrs, Volume= 3,624 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 2R: EX



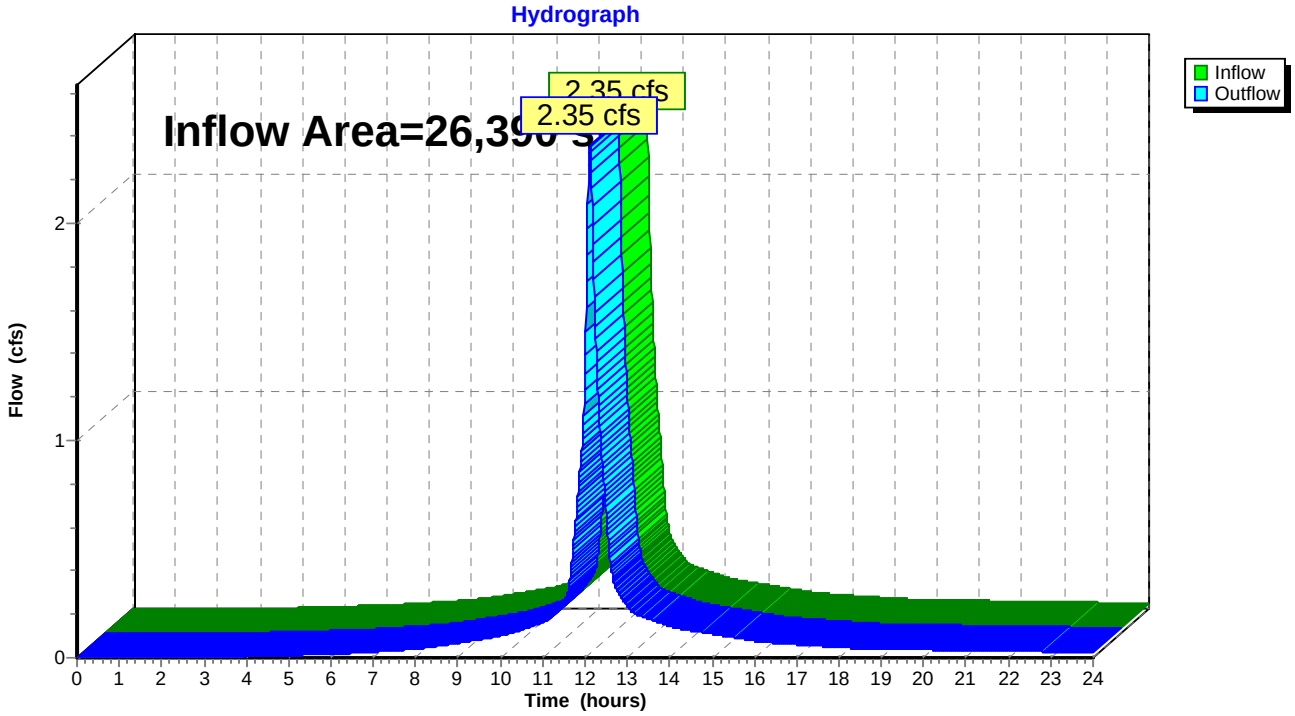
Summary for Reach 3R: TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 26,390 sf, 47.27% Impervious, Inflow Depth > 3.91" for 10-Year event
Inflow = 2.35 cfs @ 12.12 hrs, Volume= 8,606 cf
Outflow = 2.35 cfs @ 12.12 hrs, Volume= 8,606 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 3R: TOTAL



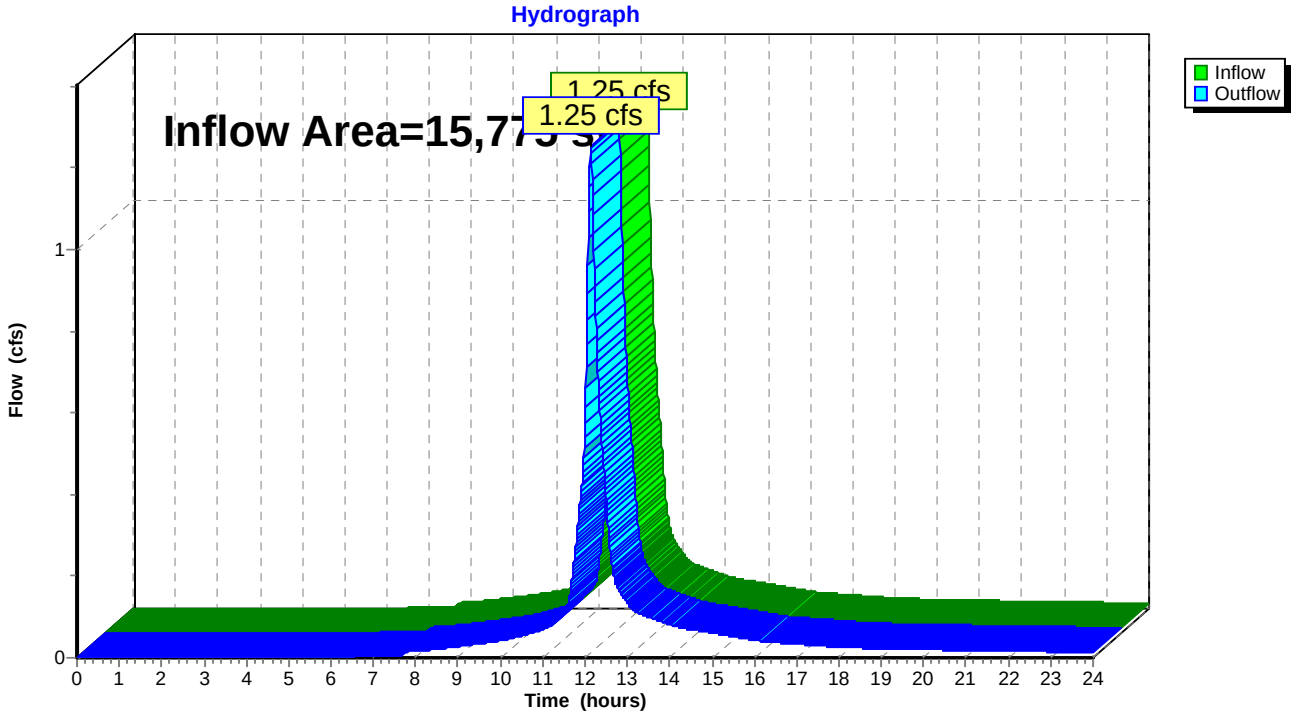
Summary for Reach 10R: PR

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15,775 sf, 68.98% Impervious, Inflow Depth > 3.27" for 10-Year event
Inflow = 1.25 cfs @ 12.13 hrs, Volume= 4,303 cf
Outflow = 1.25 cfs @ 12.13 hrs, Volume= 4,303 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 10R: PR



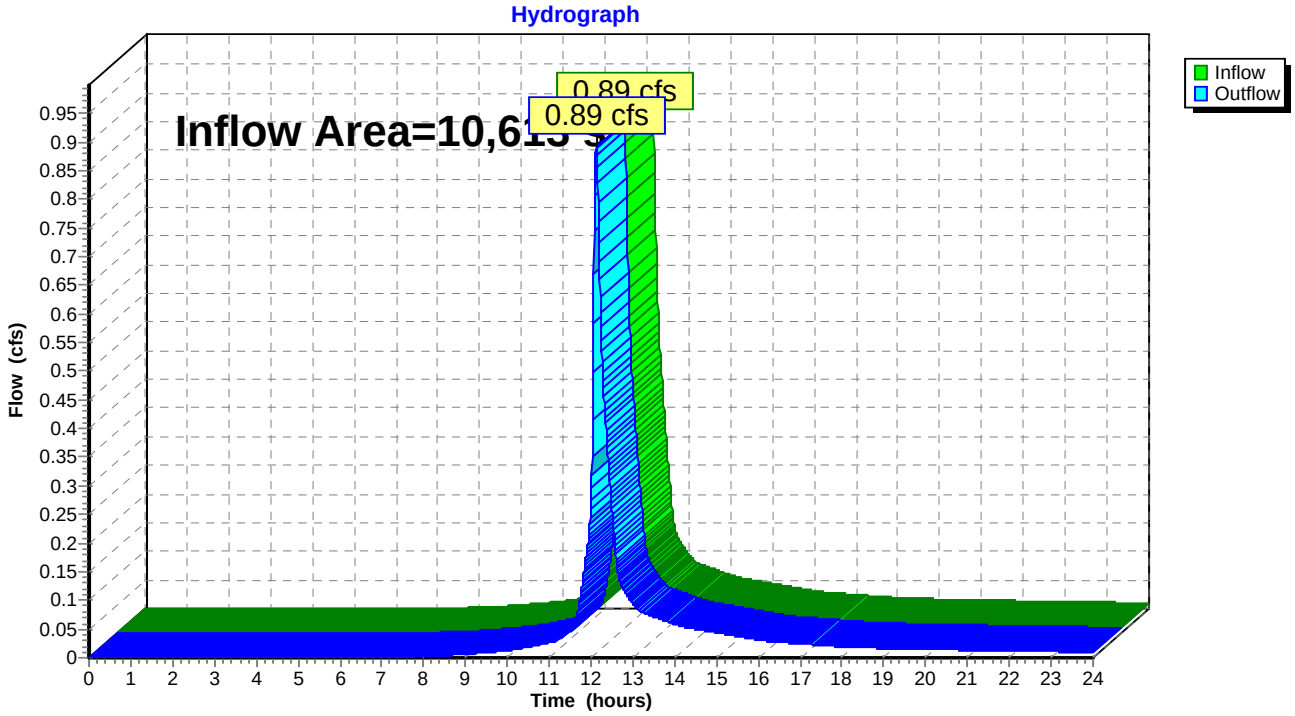
Summary for Reach 20R: PR

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10,613 sf, 37.72% Impervious, Inflow Depth > 3.00" for 10-Year event
Inflow = 0.89 cfs @ 12.12 hrs, Volume= 2,650 cf
Outflow = 0.89 cfs @ 12.12 hrs, Volume= 2,650 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 20R: PR



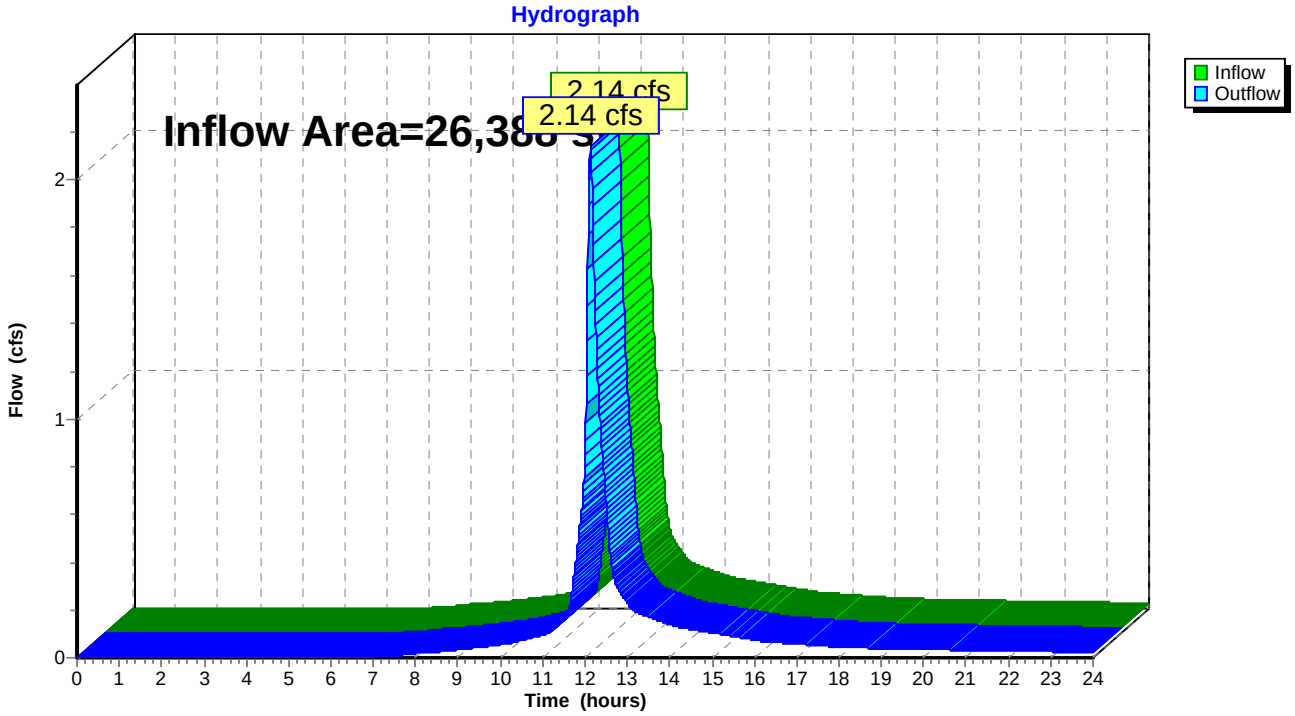
Summary for Reach 30R: TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 26,388 sf, 56.40% Impervious, Inflow Depth > 3.16" for 10-Year event
Inflow = 2.14 cfs @ 12.13 hrs, Volume= 6,954 cf
Outflow = 2.14 cfs @ 12.13 hrs, Volume= 6,954 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 30R: TOTAL



Summary for Pond 10P: Rain Garden

Inflow Area = 7,080 sf,100.00% Impervious, Inflow Depth > 4.46" for 10-Year event
Inflow = 0.75 cfs @ 12.08 hrs, Volume= 2,631 cf
Outflow = 0.69 cfs @ 12.09 hrs, Volume= 2,455 cf, Atten= 8%, Lag= 0.2 min
Discarded = 0.00 cfs @ 12.13 hrs, Volume= 22 cf
Primary = 0.58 cfs @ 12.13 hrs, Volume= 1,855 cf
Secondary = 0.27 cfs @ 12.05 hrs, Volume= 578 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.67' @ 12.13 hrs Surf.Area= 306 sf Storage= 222 cf

Plug-Flow detention time= 68.7 min calculated for 2,455 cf (93% of inflow)
Center-of-Mass det. time= 31.8 min (780.4 - 748.5)

Volume	Invert	Avail.Storage	Storage Description
#1	22.00'	265 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
22.00	12	0	0	12
23.00	156	70	70	159
23.80	342	194	265	350

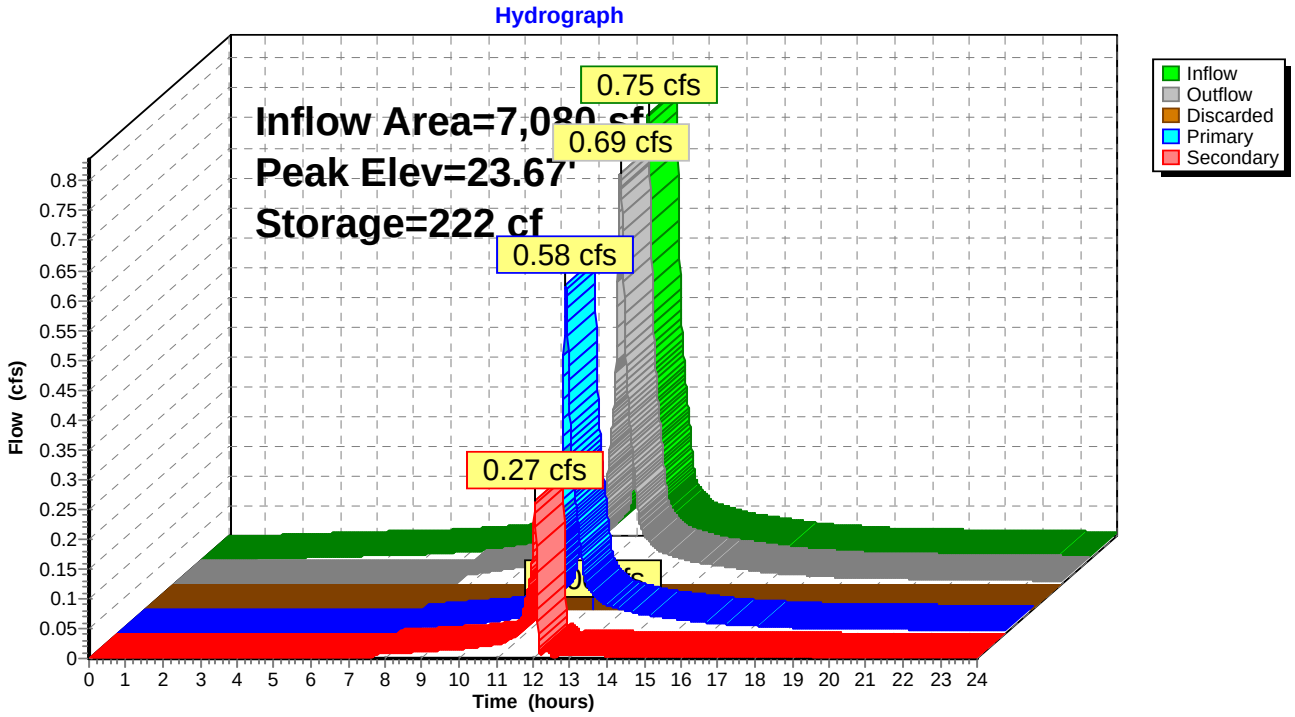
Device	Routing	Invert	Outlet Devices
#1	Discarded	22.00'	**0.050 in/hr Exfiltration over Surface area**
#2	Secondary	23.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	23.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.13 hrs HW=23.67' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.58 cfs @ 12.13 hrs HW=23.67' TW=0.00' (Dynamic Tailwater)
3=Orifice/Grate (Weir Controls 0.58 cfs @ 1.34 fps)

Secondary OutFlow Max=0.23 cfs @ 12.05 hrs HW=23.62' TW=23.56' (Dynamic Tailwater)
2=Orifice/Grate (Weir Controls 0.23 cfs @ 0.94 fps)

Pond 10P: Rain Garden



Summary for Pond 20P: Rain Garden

Inflow Area = 2,880 sf,100.00% Impervious, Inflow Depth > 6.87" for 10-Year event
Inflow = 0.55 cfs @ 12.06 hrs, Volume= 1,649 cf
Outflow = 0.35 cfs @ 12.12 hrs, Volume= 821 cf, Atten= 37%, Lag= 3.8 min
Discarded = 0.00 cfs @ 12.12 hrs, Volume= 38 cf
Primary = 0.35 cfs @ 12.12 hrs, Volume= 782 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.67' @ 12.12 hrs Surf.Area= 612 sf Storage= 922 cf

Plug-Flow detention time= 236.4 min calculated for 821 cf (50% of inflow)
Center-of-Mass det. time= 119.9 min (858.3 - 738.4)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	1,140 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

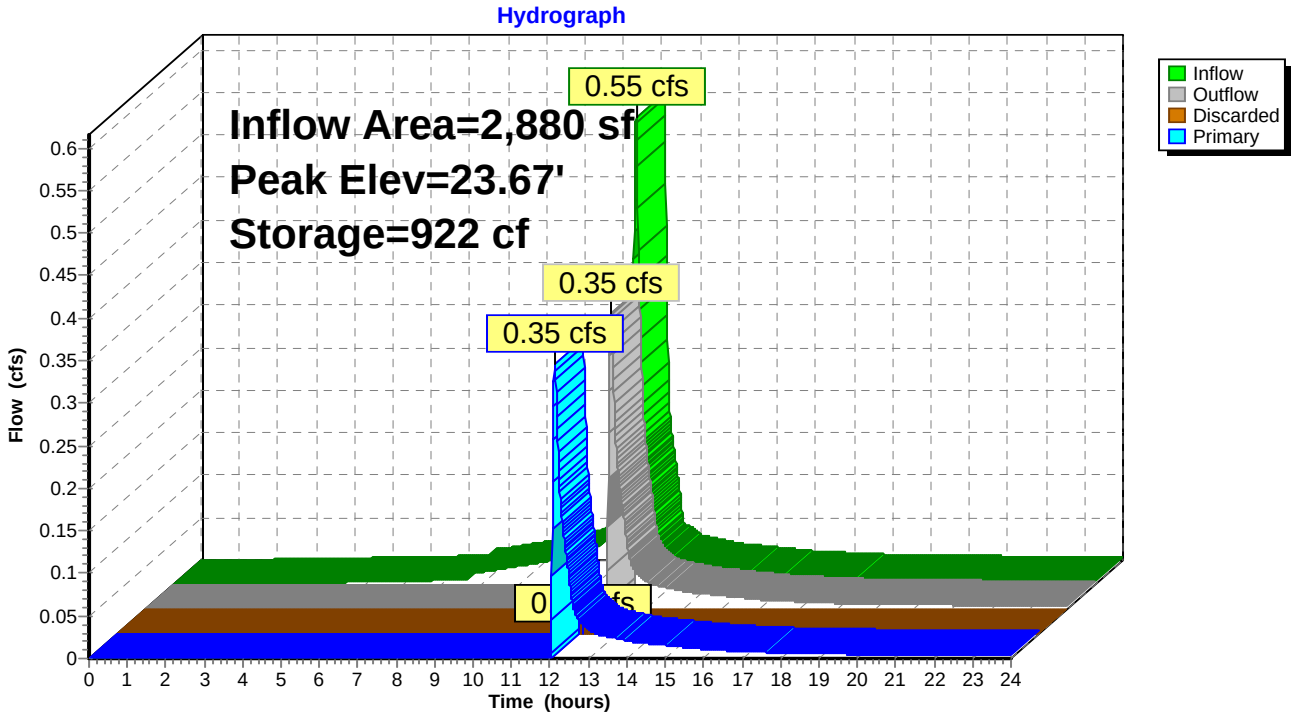
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
21.00	117	0	0	117
22.00	279	192	192	286
23.00	471	371	563	490
24.00	689	577	1,140	724

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.00'	**0.050 in/hr Exfiltration over Surface area**
#2	Primary	23.50'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=23.67' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.35 cfs @ 12.12 hrs HW=23.67' TW=0.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Weir Controls 0.35 cfs @ 1.33 fps)

Pond 20P: Rain Garden



Summary for Subcatchment 1S: EXISTING

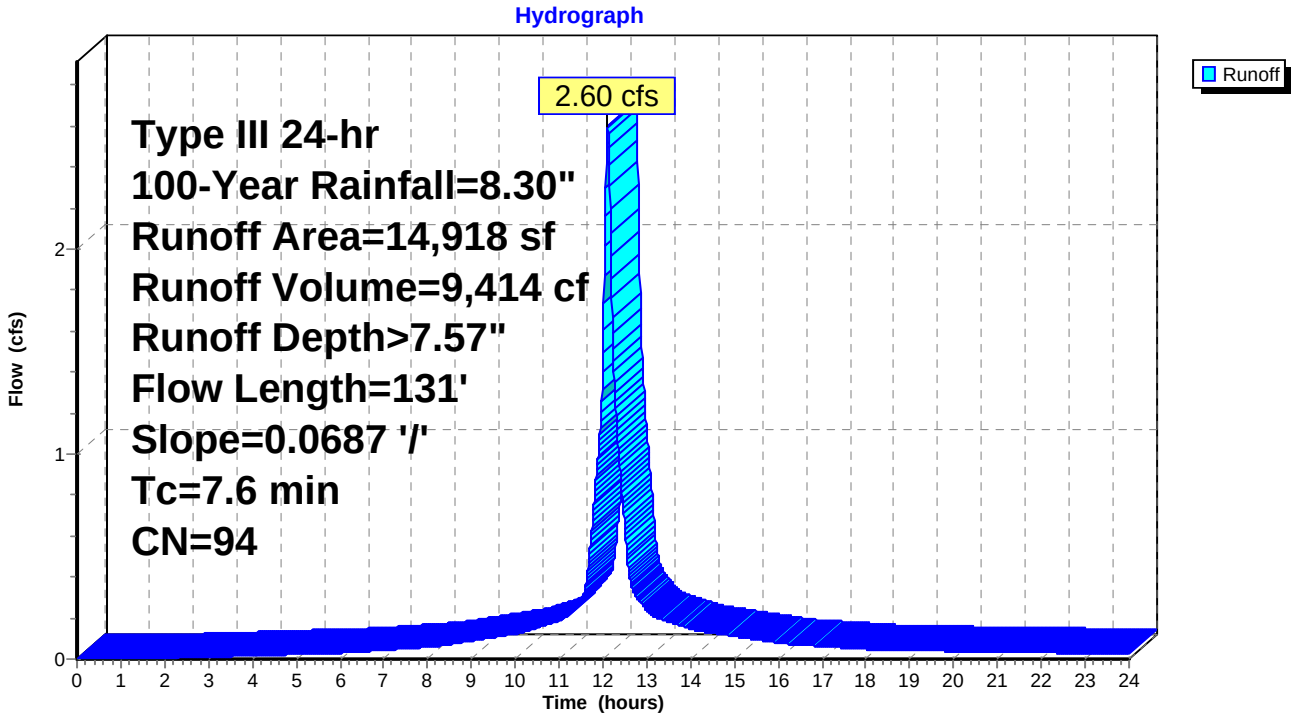
Runoff = 2.60 cfs @ 12.10 hrs, Volume= 9,414 cf, Depth> 7.57"

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=8.30"

	Area (sf)	CN	Description
	6,566	89	<50% Grass cover, Poor, HSG D
*	8,352	98	Bed Rock, HSG D
	14,918	94	Weighted Average
	6,566		44.01% Pervious Area
	8,352		55.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	131	0.0687	0.29		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.09"

Subcatchment 1S: EXISTING



Summary for Subcatchment 2S: EXISTING

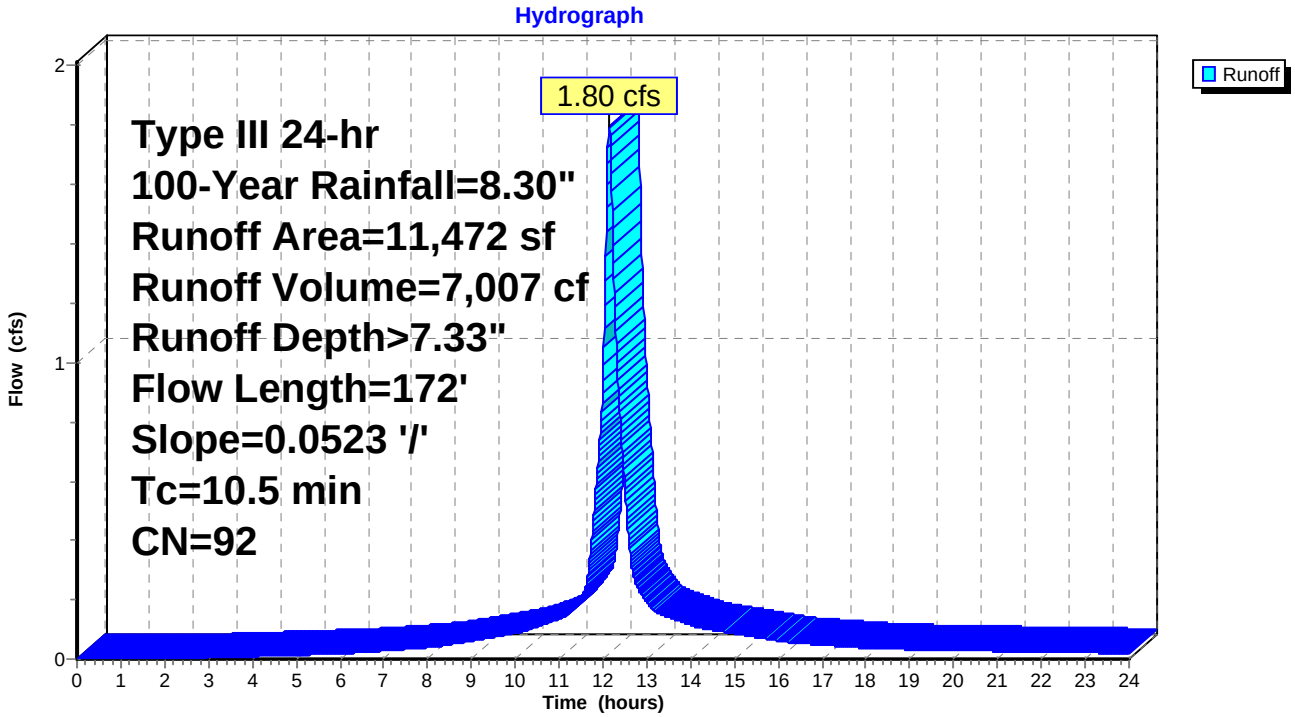
Runoff = 1.80 cfs @ 12.14 hrs, Volume= 7,007 cf, Depth> 7.33"

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=8.30"

	Area (sf)	CN	Description
	7,349	89	<50% Grass cover, Poor, HSG D
*	4,123	98	BedRock, HSG D
	11,472	92	Weighted Average
	7,349		64.06% Pervious Area
	4,123		35.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	172	0.0523	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.09"

Subcatchment 2S: EXISTING



Summary for Subcatchment 10S: PR

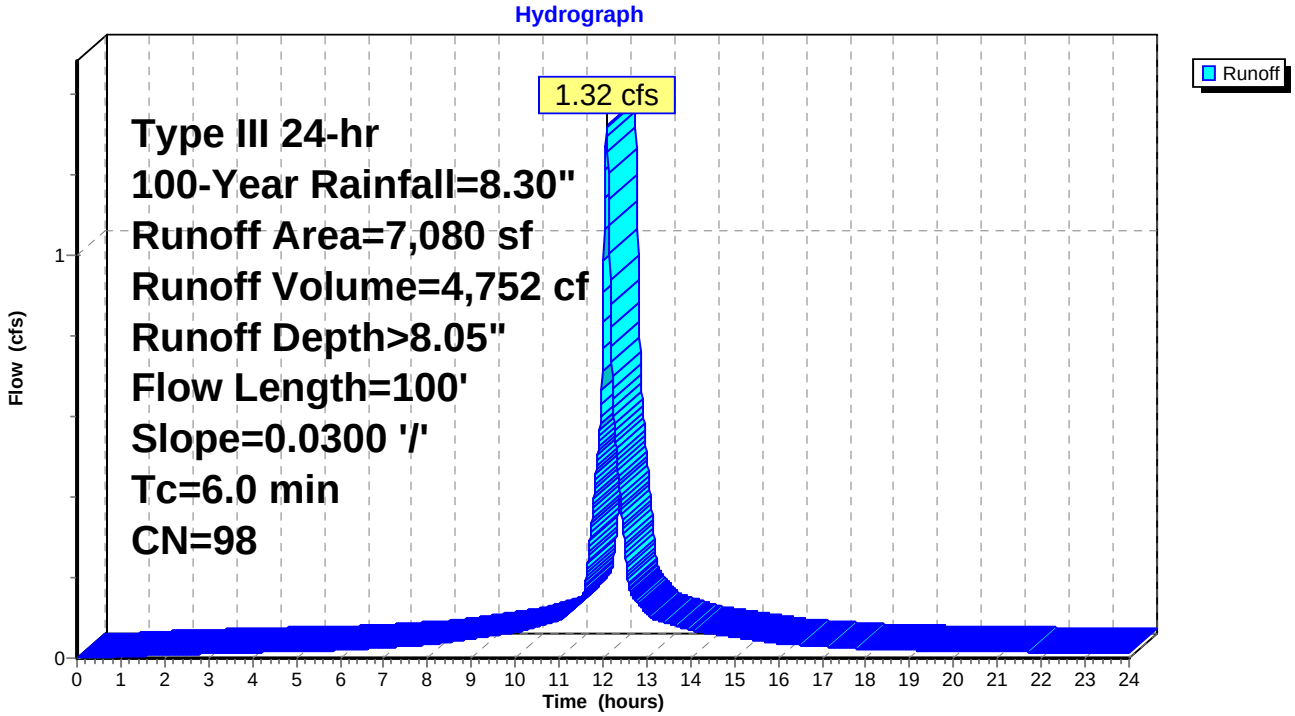
Runoff = 1.32 cfs @ 12.08 hrs, Volume= 4,752 cf, Depth> 8.05"

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=8.30"

Area (sf)	CN	Description
7,080	98	Paved parking, HSG D
7,080		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0300	1.59		**Sheet Flow, Parking** Smooth surfaces n= 0.011 P2= 3.09"
1.0	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 10S: PR



Summary for Subcatchment 20S: PR

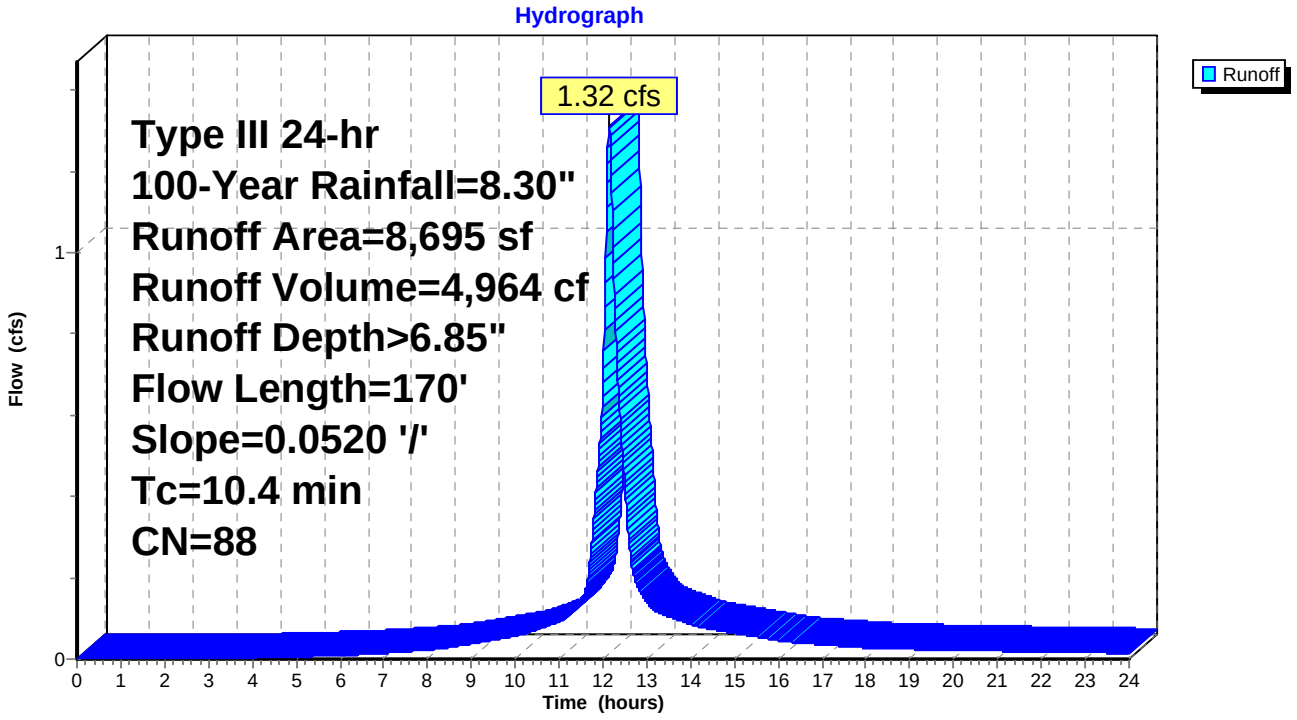
Runoff = 1.32 cfs @ 12.14 hrs, Volume= 4,964 cf, Depth> 6.85"

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=8.30"

	Area (sf)	CN	Description
*	3,801	98	Bedrock, HSG D
	4,894	80	>75% Grass cover, Good, HSG D
	8,695	88	Weighted Average
	4,894		56.29% Pervious Area
	3,801		43.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	170	0.0520	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.09"

Subcatchment 20S: PR



Summary for Subcatchment 30S: Areas

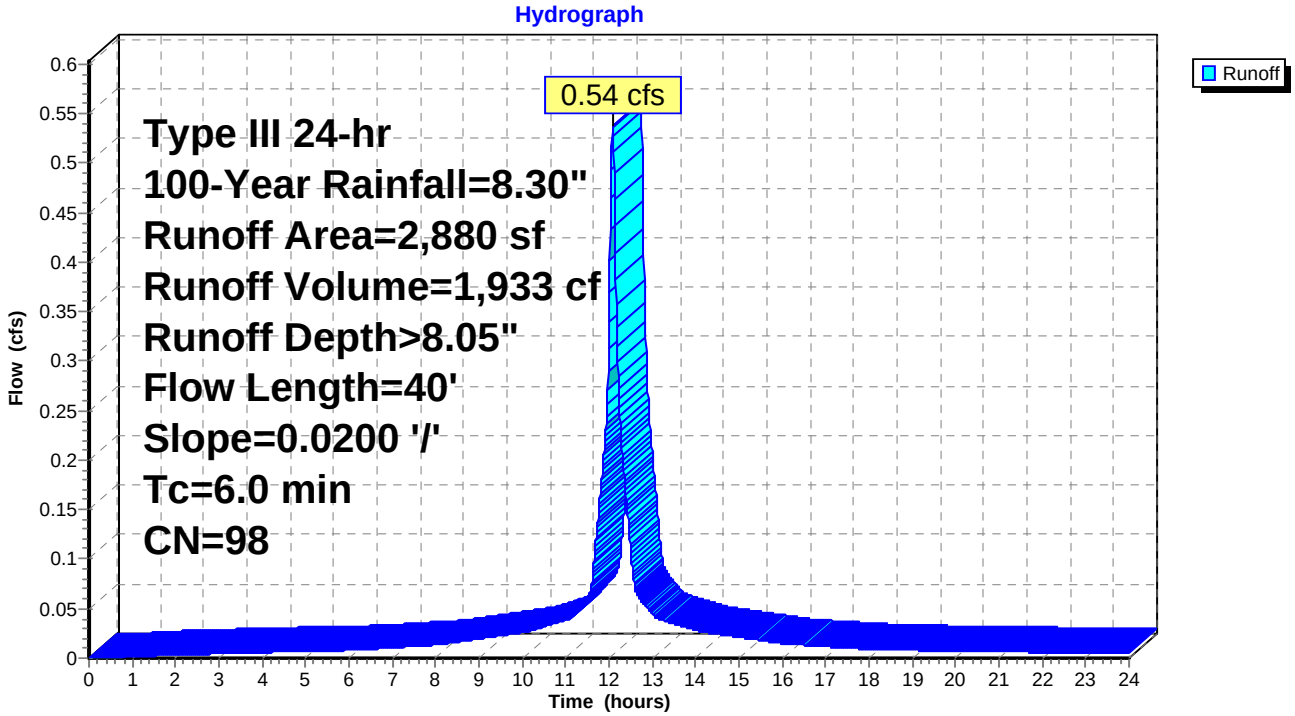
Runoff = 0.54 cfs @ 12.08 hrs, Volume= 1,933 cf, Depth> 8.05"

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=8.30"

Area (sf)	CN	Description
2,880	98	Roofs, HSG D
2,880		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.13		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.09"
0.6	40	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 30S: Areas



Summary for Subcatchment 40S: Areas

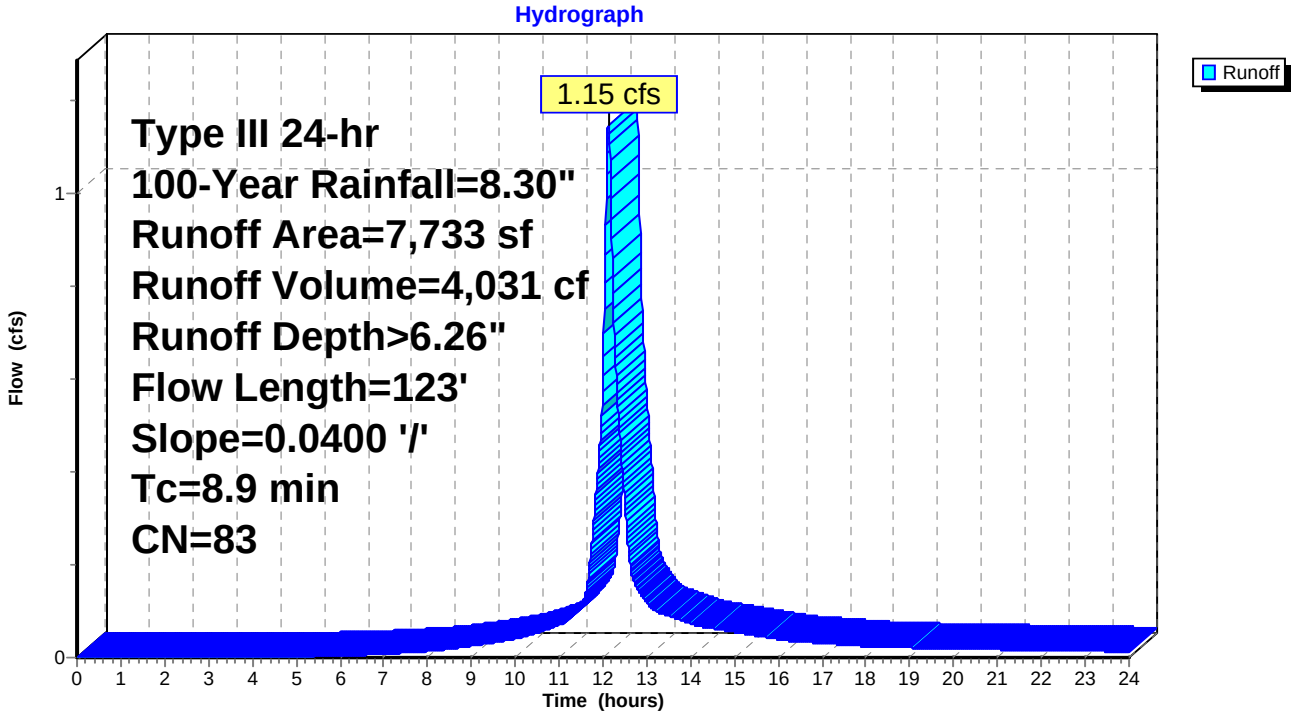
Runoff = 1.15 cfs @ 12.12 hrs, Volume= 4,031 cf, Depth> 6.26"

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 100-Year Rainfall=8.30"

	Area (sf)	CN	Description
	319	98	Paved parking, HSG D
*	804	98	BedRock, HSG D
	6,610	80	>75% Grass cover, Good, HSG D
	7,733	83	Weighted Average
	6,610		85.48% Pervious Area
	1,123		14.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	123	0.0400	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.09"

Subcatchment 40S: Areas



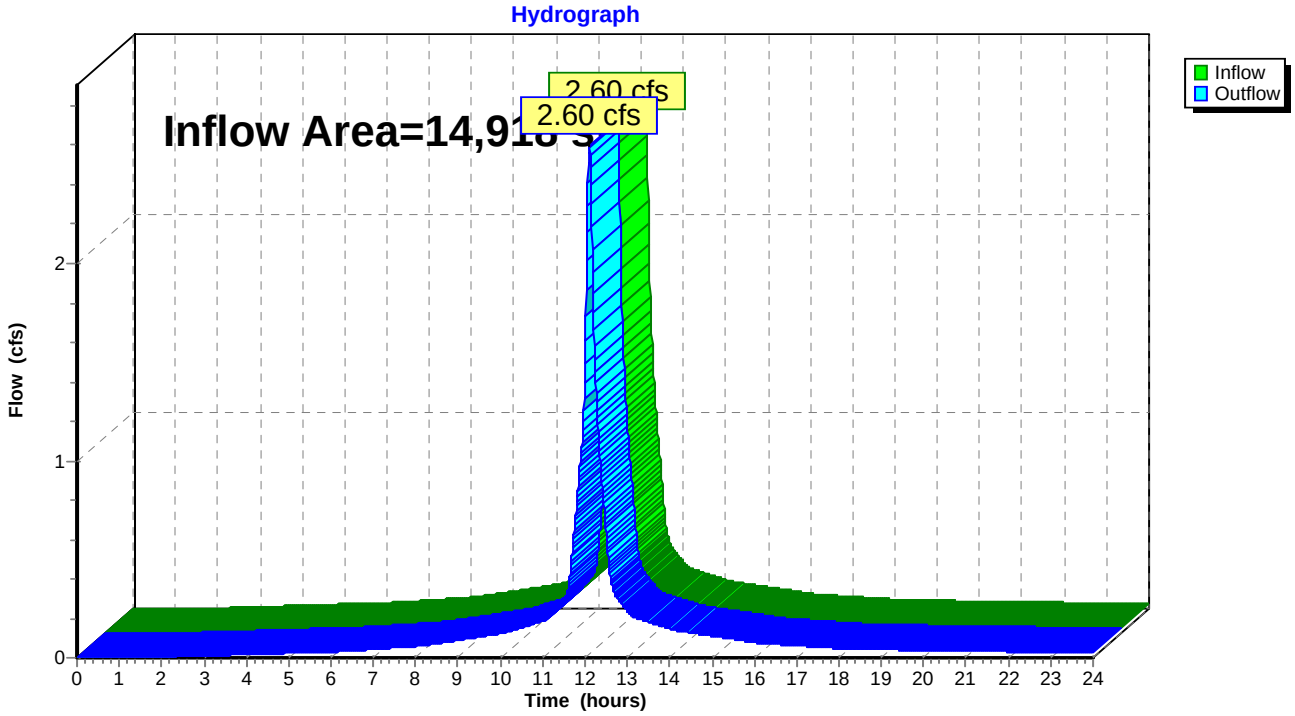
Summary for Reach 1R: EX

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 14,918 sf, 55.99% Impervious, Inflow Depth > 7.57" for 100-Year event
Inflow = 2.60 cfs @ 12.10 hrs, Volume= 9,414 cf
Outflow = 2.60 cfs @ 12.10 hrs, Volume= 9,414 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 1R: EX



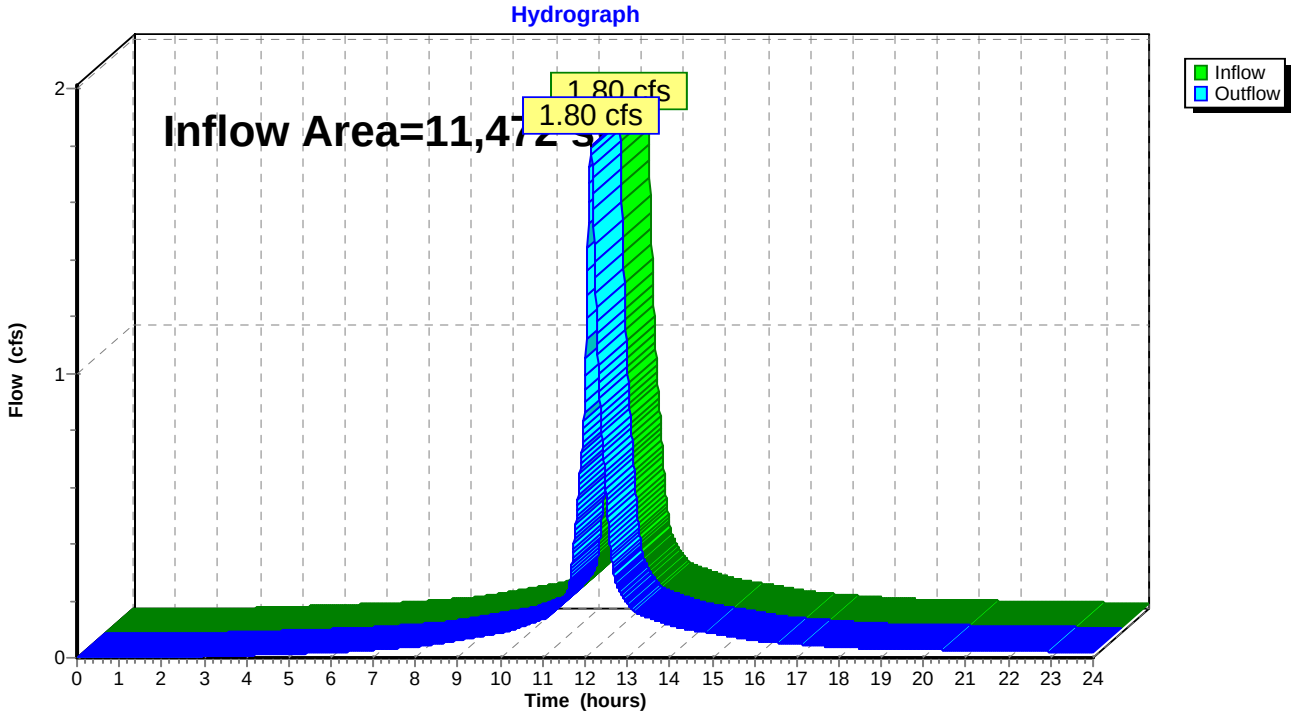
Summary for Reach 2R: EX

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11,472 sf, 35.94% Impervious, Inflow Depth > 7.33" for 100-Year event
Inflow = 1.80 cfs @ 12.14 hrs, Volume= 7,007 cf
Outflow = 1.80 cfs @ 12.14 hrs, Volume= 7,007 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 2R: EX



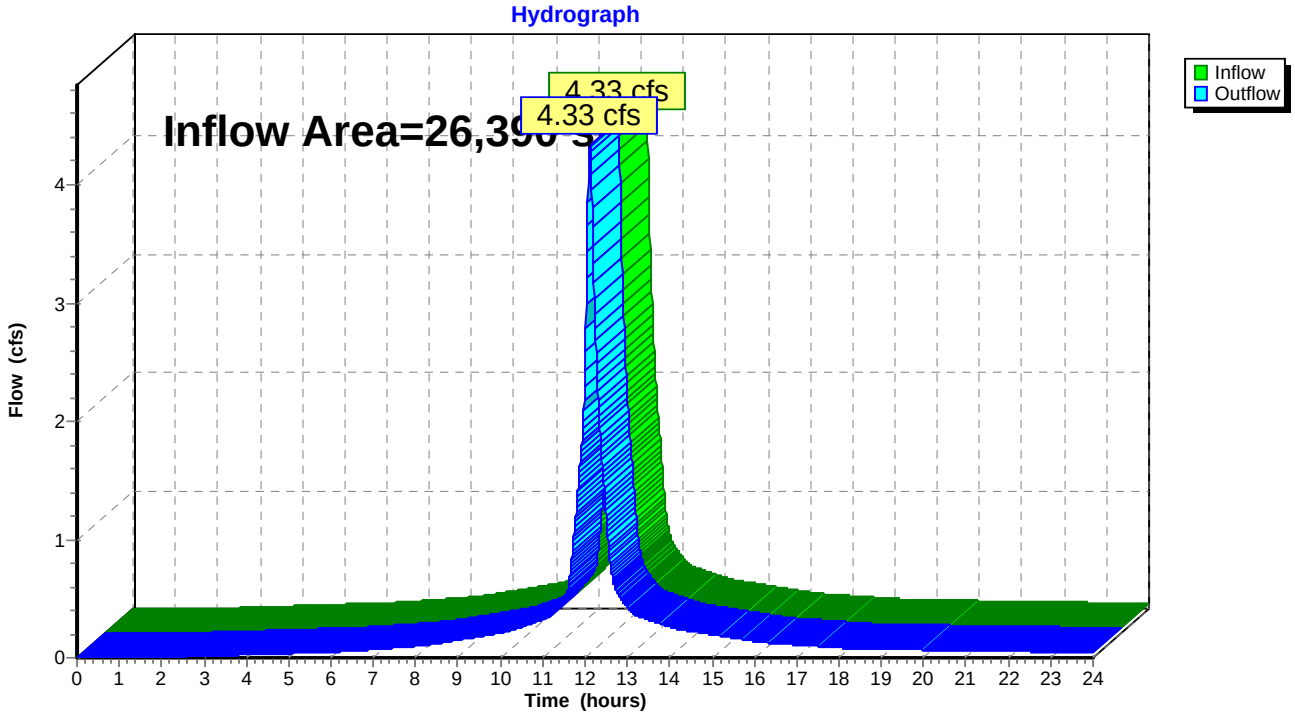
Summary for Reach 3R: TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 26,390 sf, 47.27% Impervious, Inflow Depth > 7.47" for 100-Year event
Inflow = 4.33 cfs @ 12.12 hrs, Volume= 16,421 cf
Outflow = 4.33 cfs @ 12.12 hrs, Volume= 16,421 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 3R: TOTAL



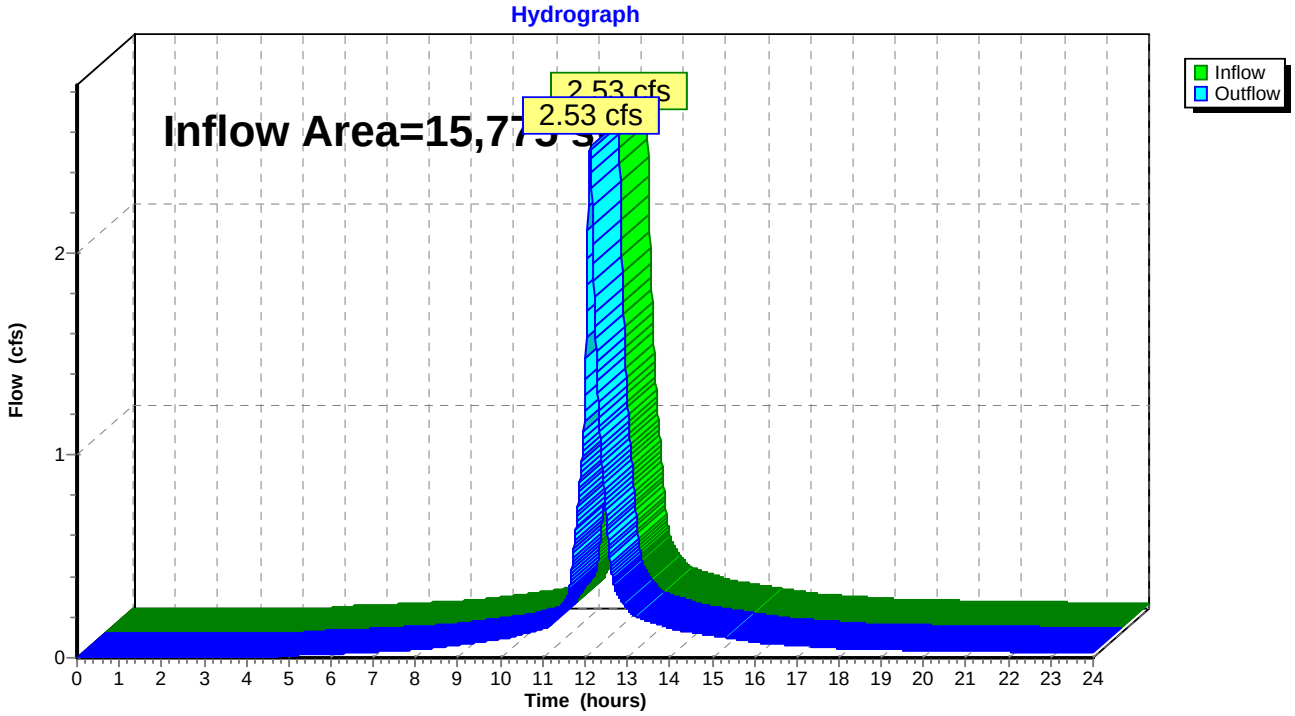
Summary for Reach 10R: PR

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15,775 sf, 68.98% Impervious, Inflow Depth > 6.64" for 100-Year event
Inflow = 2.53 cfs @ 12.12 hrs, Volume= 8,730 cf
Outflow = 2.53 cfs @ 12.12 hrs, Volume= 8,730 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 10R: PR



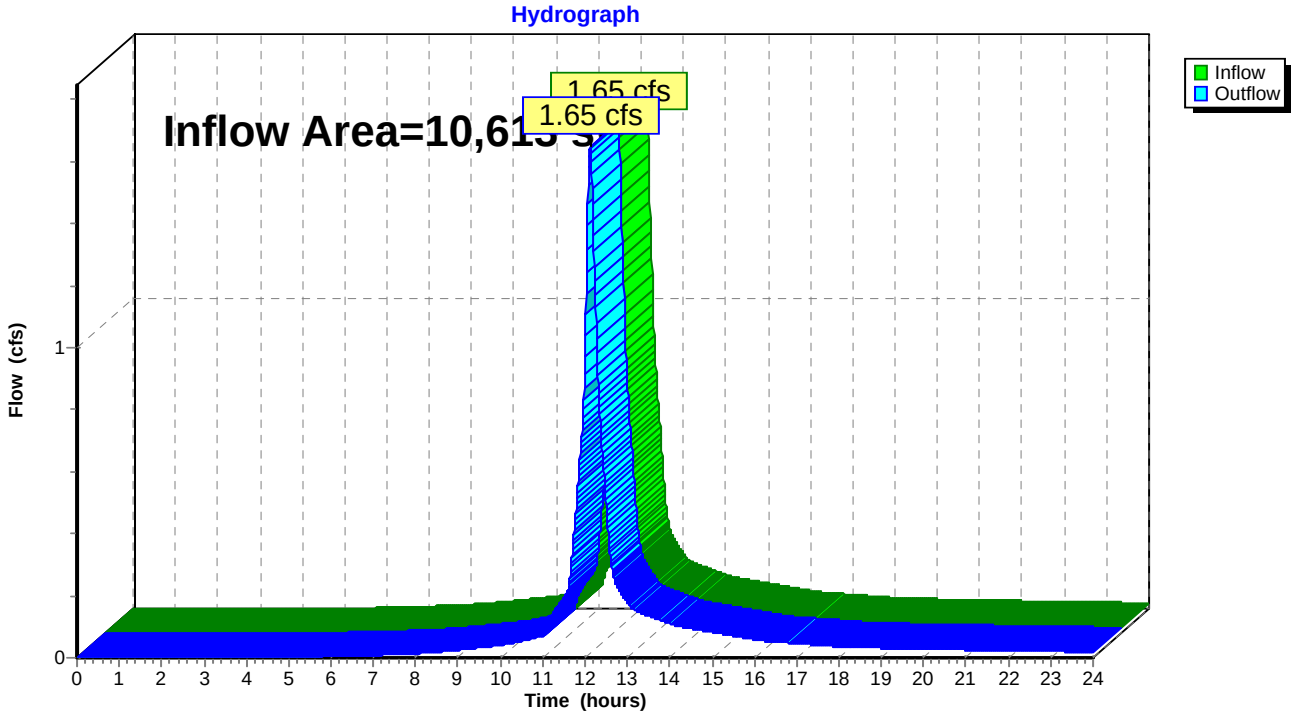
Summary for Reach 20R: PR

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10,613 sf, 37.72% Impervious, Inflow Depth > 6.64" for 100-Year event
Inflow = 1.65 cfs @ 12.12 hrs, Volume= 5,876 cf
Outflow = 1.65 cfs @ 12.12 hrs, Volume= 5,876 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 20R: PR



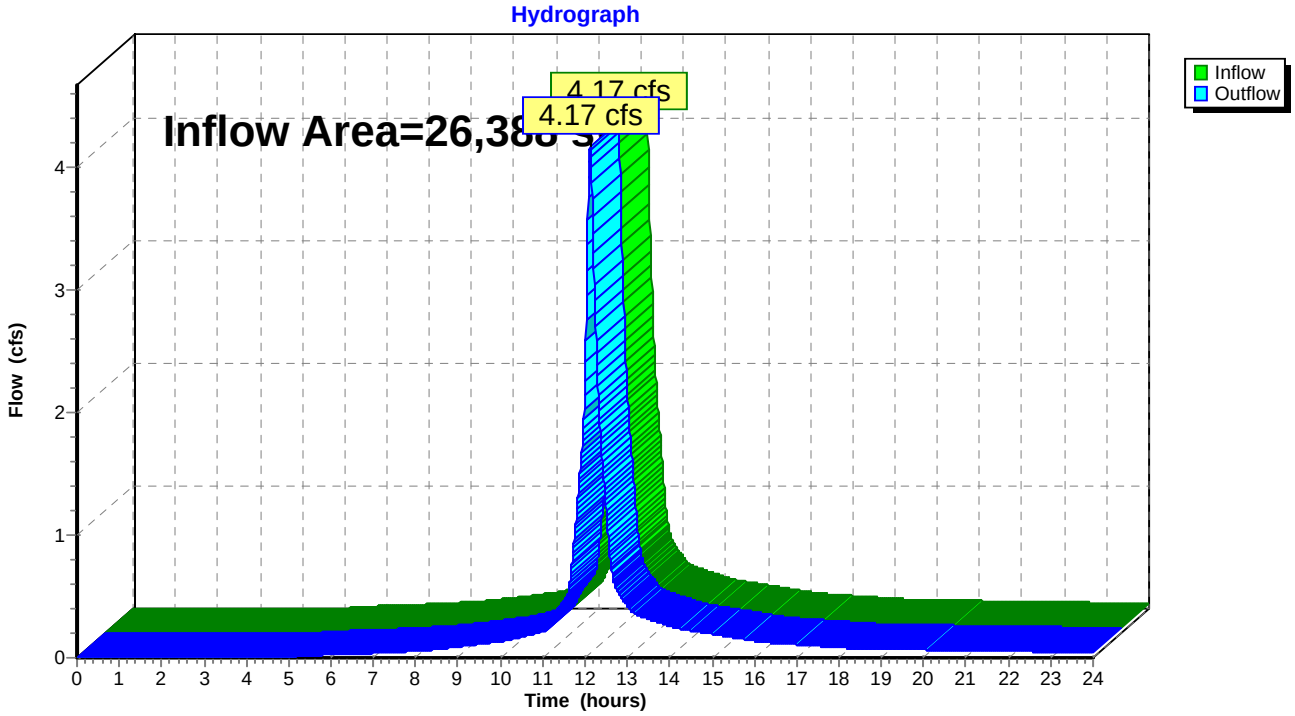
Summary for Reach 30R: TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 26,388 sf, 56.40% Impervious, Inflow Depth > 6.64" for 100-Year event
Inflow = 4.17 cfs @ 12.12 hrs, Volume= 14,606 cf
Outflow = 4.17 cfs @ 12.12 hrs, Volume= 14,606 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Reach 30R: TOTAL



Summary for Pond 10P: Rain Garden

Inflow Area = 7,080 sf,100.00% Impervious, Inflow Depth > 8.05" for 100-Year event
Inflow = 1.32 cfs @ 12.08 hrs, Volume= 4,752 cf
Outflow = 1.25 cfs @ 12.09 hrs, Volume= 4,575 cf, Atten= 5%, Lag= 0.4 min
Discarded = 0.00 cfs @ 12.11 hrs, Volume= 24 cf
Primary = 1.24 cfs @ 12.11 hrs, Volume= 3,766 cf
Secondary = 0.20 cfs @ 12.04 hrs, Volume= 785 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.78' @ 12.11 hrs Surf.Area= 335 sf Storage= 257 cf

Plug-Flow detention time= 44.6 min calculated for 4,575 cf (96% of inflow)
Center-of-Mass det. time= 21.8 min (762.0 - 740.2)

Volume	Invert	Avail.Storage	Storage Description
#1	22.00'	265 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
22.00	12	0	0	12
23.00	156	70	70	159
23.80	342	194	265	350

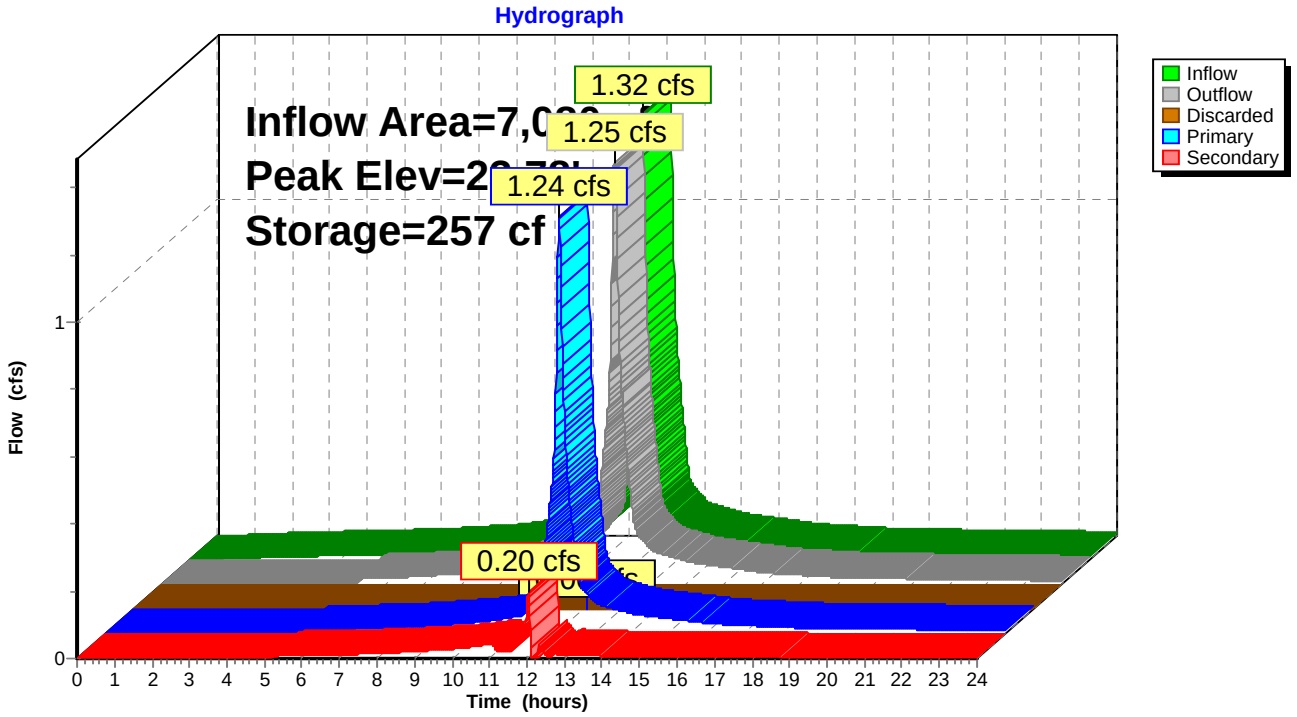
Device	Routing	Invert	Outlet Devices
#1	Discarded	22.00'	**0.050 in/hr Exfiltration over Surface area**
#2	Secondary	23.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	23.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=23.78' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=1.24 cfs @ 12.11 hrs HW=23.78' TW=0.00' (Dynamic Tailwater)
↑└**3=Orifice/Grate** (Weir Controls 1.24 cfs @ 1.72 fps)

Secondary OutFlow Max=0.06 cfs @ 12.04 hrs HW=23.71' TW=23.71' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 0.17 fps)

Pond 10P: Rain Garden



Summary for Pond 20P: Rain Garden

[80] Warning: Exceeded Pond 10P by 0.03' @ 12.19 hrs (0.28 cfs 149 cf)

Inflow Area = 2,880 sf,100.00% Impervious, Inflow Depth > 11.32" for 100-Year event
Inflow = 0.70 cfs @ 12.06 hrs, Volume= 2,718 cf
Outflow = 0.50 cfs @ 12.12 hrs, Volume= 1,887 cf, Atten= 28%, Lag= 3.3 min
Discarded = 0.00 cfs @ 12.12 hrs, Volume= 43 cf
Primary = 0.50 cfs @ 12.12 hrs, Volume= 1,845 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.78' @ 12.12 hrs Surf.Area= 637 sf Storage= 993 cf

Plug-Flow detention time= 196.3 min calculated for 1,887 cf (69% of inflow)
Center-of-Mass det. time= 98.2 min (821.1 - 722.9)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	1,140 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

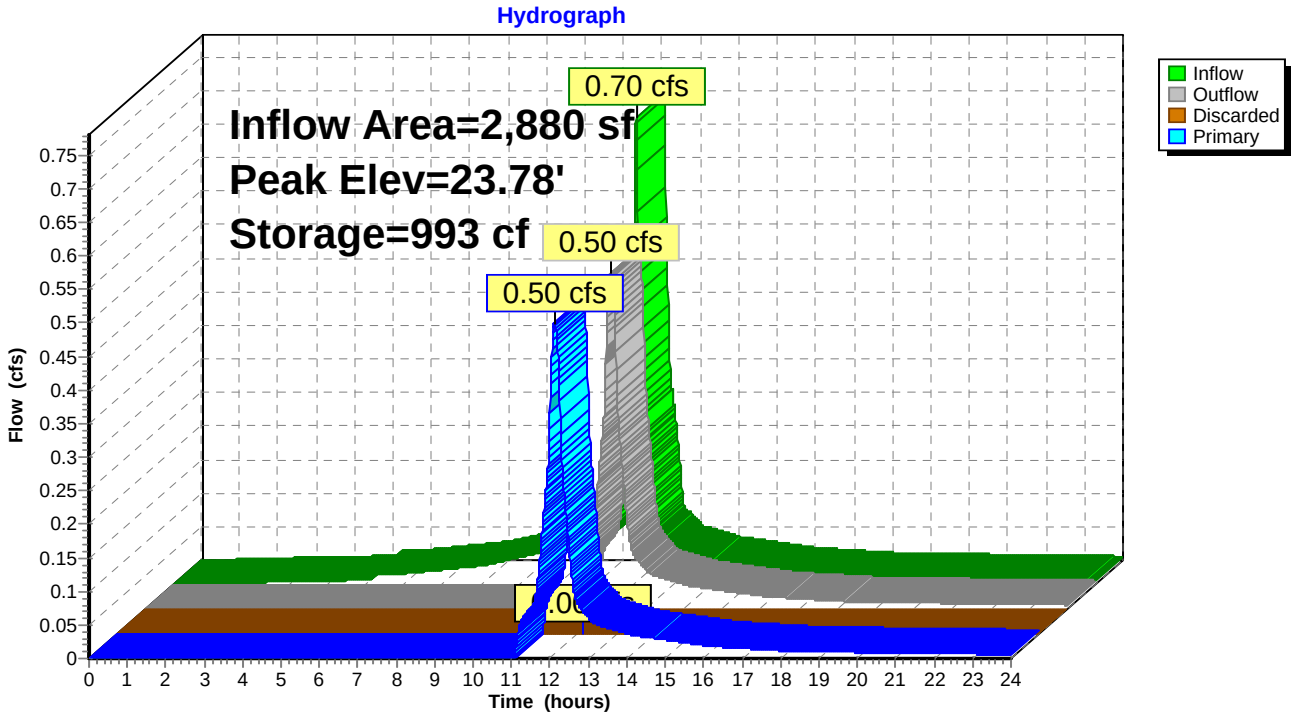
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
21.00	117	0	0	117
22.00	279	192	192	286
23.00	471	371	563	490
24.00	689	577	1,140	724

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.00'	**0.050 in/hr Exfiltration over Surface area**
#2	Primary	23.50'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=23.78' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.50 cfs @ 12.12 hrs HW=23.78' TW=0.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Orifice Controls 0.50 cfs @ 2.54 fps)

Pond 20P: Rain Garden



Appendix C

Operation & Maintenance Plan

STORMWATER MANAGEMENT
OPERATION AND MAINTENANCE PLAN

21 Malcom Hoyt Drive
Newburyport, Massachusetts

Date: July 29, 2022

The following Stormwater Management Operation and Maintenance (O&M) Plan has been prepared to operate and maintain the stormwater management system for the proposed 21 Malcom Hoyt Drive development.

Owner/Operator: Chart House Development, LLC
243 Middle Street, West Newbury, MA

Inspection and Maintenance Schedule

Personnel entrusted by the owner/operator with stormwater maintenance shall inspect the stormwater management system on a routine basis not less than once per month for the first 6 months of operation and semi-annually thereafter. Refer to the Design Plans for stormwater measure information. Inspection and maintenance shall be performed as follows:

1. Roof Drains shall be inspected quarterly for debris including leaves, trash, etc. and sediments. During the first year following project completion, roof drains shall be inspected after each major storm event (greater than 1.5"), and again 72 hours after storm to verify that they function as designed. After the first year of operation roof drain shall be inspected quarterly for debris including sediments, leaves, trash, etc. Debris, such as leaves and trash, shall be removed by hand. Sediments shall be swept and collected or vacuumed. The inspector shall note the date of the inspection along with the condition of the structure and amount of trash, debris and/or sediment.

2. Landscaped Areas shall be inspected and maintained on a monthly basis. Areas which may be subject to erosion will be stabilized and reseeded immediately. These operations will be performed as part of ongoing routine grounds maintenance operations, and shall be the responsibility of the Homeowners Association.

2. Street Sweeping of drives and parking areas shall be conducted bimonthly between the months of April and November. Removed sediment will be disposed off site by a qualified waste disposal contractor in accordance with state and federal regulations.

3. Rain Graden: Vegetation shall be inspected monthly for disease or pest problems. If treatment is warranted, a non-toxic approach is the only allowed method. Promptly replace any vegetation that is beyond treatment. During times of extended drought, inspect vegetation for signs of stress including wilting or spotted or brown leaves. Water as required. Bioretention areas shall be weeded at least twice a year as required. Inspect soil and repair eroded areas monthly. Re-plant void areas as needed. Remove litter and debris monthly. Remove and replace dead vegetation twice per year in spring and fall. Replace soil media if ponding is witnessed more than 48 hours after rainfall event, and remove any accumulated sediments. The Engineered Soil Mix for Bioretention Systems Designed to Exfiltrate should consist of the following mixture:

-40% sand
-20-30% topsoil
-30-40% compost

5. Sediment Forebay: Sediment forebays are to be cleaned at least once per year.

6. Snow Removal and Storage: During the winter months, snow shall be plowed from the roadway and not stored or piled in the rain garden or pocket wetland. Special care shall be taken to ensure that the building downspouts are kept clear of snow and that any rain and/or melt water can properly drain to prevent water ponding and freezing next to buildings. This should be accomplished using manual means.

Stormwater System Inspection Report

General Information			
Location: 23 Hale Street, Newburyport			
Date of Inspection		**Start/End Time**	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Purpose of Inspection			
Weather Information			
Has it rained since the last inspection? ❑Yes ❑No			
Weather at time of this inspection?			

Site-Specific Stormwater Devices

	Description	Installed and Operating Properly?	Corrective Action Needed	Date for Corrective Action/Responsible Person
1		❑Yes ❑No		
2		❑Yes ❑No		
3		❑Yes ❑No		
4		❑Yes ❑No		
5		❑Yes ❑No		
6		❑Yes ❑No		
7		❑Yes ❑No		
8		❑Yes ❑No		
9		❑Yes ❑No		

	Description	Installed and Operating Properly?	Corrective Action Needed	Date for Corrective Action/Responsible Person
10		❑Yes ❑No		

	Description	Installed and Operating Properly?	Corrective Action Needed	Date for Corrective Action/Responsible Person
11		❑Yes ❑No		
12		❑Yes ❑No		
13		❑Yes ❑No		
14		❑Yes ❑No		
15		❑Yes ❑No		
16		❑Yes ❑No		
17		❑Yes ❑No		
18		❑Yes ❑No		
19		❑Yes ❑No		
20		❑Yes ❑No		
21		❑Yes ❑No		
22		❑Yes ❑No		
23		❑Yes ❑No		
24		❑Yes ❑No		
25		❑Yes ❑No		
26		❑Yes ❑No		

	Description	Installed and Operating Properly?	Corrective Action Needed	Date for Corrective Action/Responsible Person
27		❑Yes ❑No		
28		❑Yes ❑No		
29		❑Yes ❑No		
30		❑Yes ❑No		

Overall Site Issues

	Description		Corrective Action	Date for Corrective Action/Responsible Person
1	Are all slopes properly stabilized?	❑Yes ❑No		
2	Are natural resource areas (e.g., streams, wetlands, etc.) being subjected to erosion?	❑Yes ❑No		
3	Are discharge points free of sediment deposits?	❑Yes ❑No		

Certification Statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print name: _____

Signature: _____

Date: _____

Appendix D

Figure 1 – Pre & Post Development Drainage Areas

HALE STREET
(PUBLIC–VARIABLE WIDTH)

MALCOLM HOYT DRIVE
(PRIVATE– 50' WIDE EASEMENT)

2S
1S
2R
1R

WETLAND FLAGS A10 AND A11 ARE AS PROVIDED BY HEC ON 6/20/22

0 20 50 100
SCALE: 1" = 20'

NORTH

Design Consultants Inc.
Somerville - Quincy - Newburyport
www.dci-ma.com

OWNER
CHART HOUSE
DEVELOPMENT, LLC
234 MIDDLE ST
WEST NEWBURYPORT, MA
01985

PROJECT TEAM

21 MALCOLM HOYT ROAD
2-STORY BUILDING
& PARKING
NEWBURYPORT, MA

PROJECT INFO

REV	DESCRIPTION	DATE

STAMP:

EXISTING DRAINAGE PLAN

SHEET NAME:

D1

SHT NO:

DR BY: GS
CHK BY: SS
PROJ NO: 40874
DATE: 04/27/2022
SCALE: 1"=10'

P:\2022 Projects\40874.00 Newburyport 21 Hale St_Civil\Engineering_Civil\Drainage\40874_Eff.dwg

HALE STREET
(PUBLIC–VARIABLE WIDTH)

MALCOLM HOYT DRIVE
(PRIVATE– 50' WIDE EASEMENT)

40S
30S
10S
20S
20P
10P
20R
10R

25' NO DISTURB

WETLAND FLAGS A10 AND A11 ARE AS PROVIDED BY HEC ON 6/20/22

0 20 50 100
SCALE: 1" = 20'

NORTH

Design Consultants Inc.
Somerville - Quincy - Newburyport
www.dci-ma.com

OWNER
CHART HOUSE DEVELOPMENT, LLC
234 MIDDLE ST
WEST NEWBURYPORT, MA
01985

PROJECT TEAM

21 MALCOLM HOYT ROAD
2-STORY BUILDING & PARKING
NEWBURYPORT, MA

PROJECT INFO

REV	DESCRIPTION	DATE

STAMP:

PROPOSED DRAINAGE PLAN

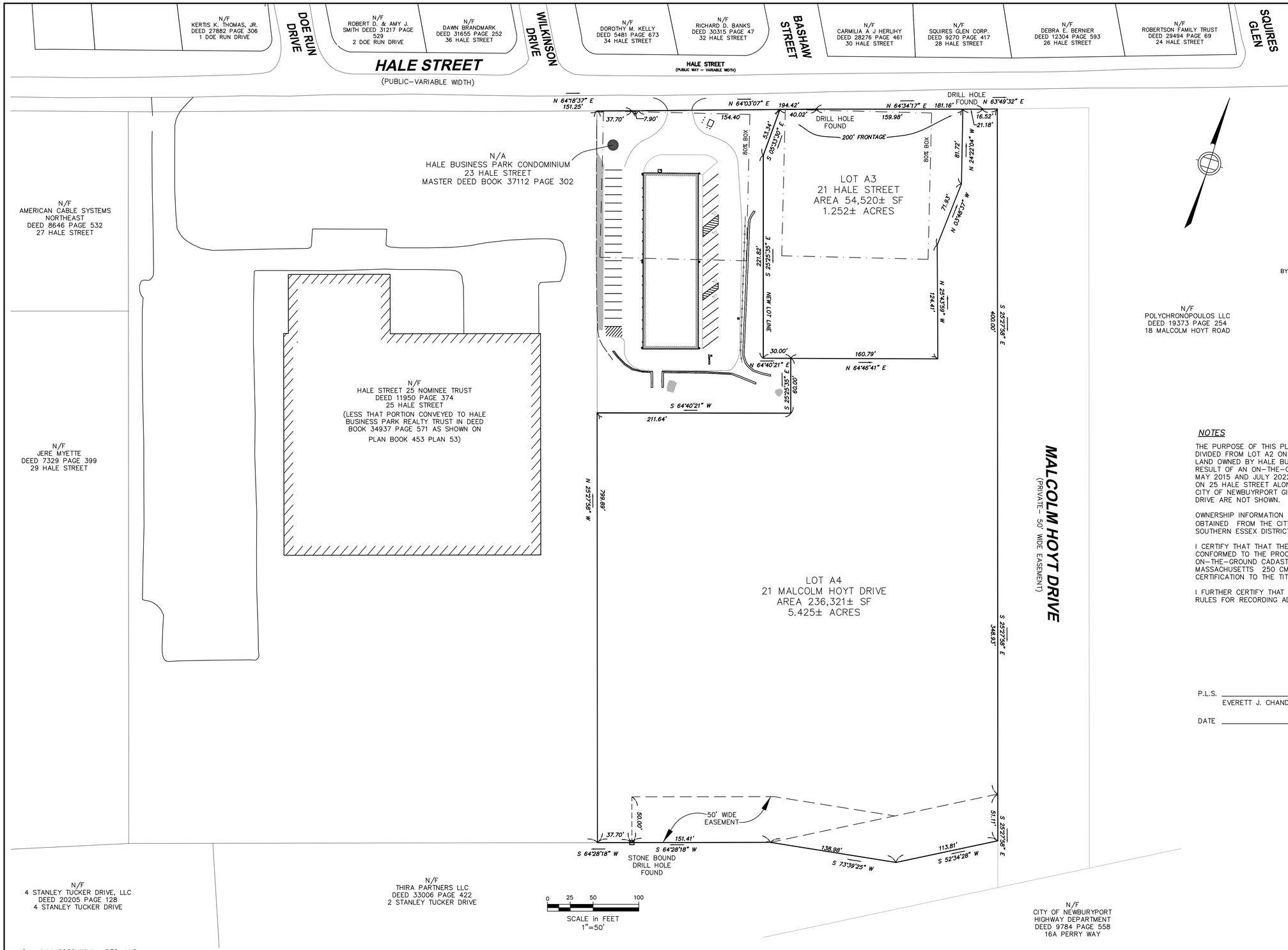
SHEET NAME:

D2

SHT NO:

DR BY: GS
CHK BY: SS
PROJ NO: 40874
DATE: 04/27/2022
SCALE: 1"=10'

P:\2022 Projects\40874.00 Newburyport 21 Hale St_Civil\Engineering_Civil\Drainage\40874_DR.dwg



RESERVED FOR REGISTERS USE ONLY

APPROVAL UNDER SUBDIVISION CONTROL LAW NOT REQUIRED.
CITY OF NEWBURYPORT PLANNING BOARD

BY: _____ DATE

_____ DATE

_____ DATE

_____ DATE

_____ DATE

THE PLANNING BOARD'S ENDORSEMENT OF THE PLAN AS NOT REQUIRING APPROVAL UNDER THE SUBDIVISION CONTROL LAW DOES NOT GIVE LOTS OR PARCELS ANY STANDING UNDER THE ZONING BY-LAW OF THE CITY OF NEWBURYPORT.

NOTES

THE PURPOSE OF THIS PLAN IS TO DEPICT NEW PARCELS A3 AND A4 AS BEING DIVIDED FROM LOT A2 ON PLAN RECORDED PLAN BOOK 468 PLAN 21, BEING LAND OWNED BY HALE BUSINESS PARK REALTY TRUST. THIS PLAN IS THE RESULT OF AN ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BETWEEN MAY 2015 AND JULY 2022. BUILDING FOOTPRINT AND PARKING LOT LOCATION ON 25 HALE STREET ALONG WITH THE EDGE OF ROAD HAVE BEEN TAKEN FROM CITY OF NEWBUYRPORT GIS DATA. LIMITS OF PAVEMENT FOR MALCOLM HOYT DRIVE ARE NOT SHOWN.

OWNERSHIP INFORMATION USED IN THE PREPARATION OF THIS PLAN WAS OBTAINED FROM THE CITY OF NEWBURYPORT ASSESSOR'S OFFICES AND SOUTHERN ESSEX DISTRICT REGISTRY OF DEEDS.

I CERTIFY THAT THAT THE SURVEY PERFORMED TO PREPARE THIS PLAN CONFORMED TO THE PROCEDURAL AND TECHNICAL STANDARDS FOR AN ON-THE-GROUND CADASTRAL SURVEY IN ACCORDANCE WITH COMMONWEALTH OF MASSACHUSETTS 250 CMR SECTION 6.01, AND THAT THIS IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN.

I FURTHER CERTIFY THAT THIS PLAN WAS PREPARED IN CONFORMANCE WITH THE RULES FOR RECORDING ADOPTED BY THE REGISTERS OF DEEDS.

P.L.S. _____
EVERETT J. CHANDLER, P.L.S. MASS. REGISTRATION NO. 41783

DATE _____

LOCUS TITLE INFORMATION

21 MALCOLM HOYT DRIVE

OWNER:	HALE BUSINESS PARK REALTY TRUST
DEED REFERENCE:	BOOK 34937 PAGE 566
ASSESSORS:	MAP 84 PARCEL 1D
PLAN REF:	PLAN BOOK 265 PLAN 9

PORTION OF 25 HALE STREET

OWNER:	HALE BUSINESS PARK REALTY TRUST
DEED REFERENCE:	BOOK 34937 PAGE 571
PLAN REF:	PLAN BOOK 453 PLAN 53

Winter GEC, LLC
44 MERRIMAC STREET
NEWBURYPORT, MA 01950
978-270-8626

SCALE:
HORIZ: 1"= 50'
VERT: _____

NO.	DATE	BY	REVISIONS

FIELD: EC/PFS
CALCS: EC
CHECKED: EJC
APPROVED: EJC

APPROVAL NOT REQUIRED
PLAN OF LAND

21 MALCOLM HOYT DRIVE

PLAN OF LAND IN
NEWBURYPORT, MA
SURVEYED FOR
HALE BUSINESS PARK REALTY TRUST

PROJECT NO.
2022-21MALCOLM

DATE: JUL 27, 2022

SHEET NO.
1 OF 1

EROSION CONTROL NOTES

THE PROJECT CONSISTS OF DEVELOPING A NEW 2,880 S.F., TWO-STORY INDUSTRIAL/OFFICE BUILDING FACILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EROSION CONTROL AND INSPECTIONS DURING THE CONSTRUCTION PERIOD.

THE EXISTING SITE IS PRESENTLY UNDEVELOPED. THE UNDERLYING SOILS CONSIST OF SANDY LOAM, SILT LOAM, SILTY CLAY & BEDROCK.

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 19,000 S.F.

SEQUENCE OF MAJOR ACTIVITIES

1. INSTALL EROSION CONTROLS. CLEAR AND GRUB SITE.
2. STRIP AND STOCKPILE TOPSOILS, LEDGE REMOVAL.
3. CONSTRUCT BUILDING AND UTILITIES.
4. CONSTRUCT PAVEMENT DRAINAGE SYSTEMS AND FINAL STABILIZATION OF SITE.
5. CONSTRUCT LANDSCAPING.
6. REMOVE EROSION CONTROLS.

EROSION AND SEDIMENT CONTROLS AND STABILIZATION PRACTICES

STABILIZATION: AN AREA SHALL BE CONSIDERED STABILIZED ONCE ONE OF THE FOLLOWING HAS OCCURRED:

- A. A MINIMUM OF 85% VEGETATIVE GROWTH HAS BEEN ESTABLISHED
- B. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED
- C. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES AND DISTURBED AREAS WHERE CONSTRUCTION ACTIVITY WILL NOT OCCUR FOR MORE THAN THIRTY (30) CALENDAR DAYS BY THE FOURTEENTH (14th) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 60 DAYS OF INITIAL DISTURBANCE. ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING GRADE. STABILIZATION MEASURES TO BE USED INCLUDE:

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT ALL EGRESSES TO THE SITE AND MAINTAINED

TIMING OF CONTROLS/MEASURES

AS INDICATED IN THE SEQUENCE OF MAJOR ACTIVITIES, THE EROSION CONTROL SHALL BE INSTALLED PRIOR TO COMMENCING ANY CLEARING OR GRADING OF THE SITE. STRUCTURAL CONTROLS SHALL BE INSTALLED CONCURRENTLY WITH THE APPLICABLE ACTIVITY. AREAS WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR MORE THAN THIRTY (30) DAYS WILL BE STABILIZED WITH A TEMPORARY SEED AND MULCH WITHIN FOURTEEN (14) DAYS OF THE LAST DISTURBANCE. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN AREA, SILT FENCES AND HAY BALE BARRIERS AND ANY EARTH/DIKES WILL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES OF EROSION

A. GENERAL- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING INSPECTIONS

ALL CONTROL MEASURES WILL BE INSPECTED DAILY.
A MAINTENANCE INSPECTION REPORT WILL BE MADE WEEKLY.
THE CONTRACTOR'S SITE SUPERINTENDENT WILL BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES, AND FILLING OUT THE INSPECTION AND MAINTENANCE REPORT.

STABILIZATION OF ALL SWALES, DITCHES AND PONDS IS REQUIRED PRIOR TO DIRECTING

ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER; IF A REPAIR IS NECESSARY, IT WILL BE INITIATED WITHIN 24 HOURS OF REPORT.

BUILT UP SEDIMENT WILL BE REMOVED FROM SILT FENCE OR HAY BALE BARRIERS WHEN IT HAS REACHED ONE THIRD THE HEIGHT OF THE FENCE OR BALE.

ALL DIVERSION DIKES WILL BE INSPECTED AND ANY BREACHES PROMPTLY REPAIRED.

TEMPORARY SEEDING AND PLANTING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND

DISTURBED CONTRIBUTING AREA SHOULD NOT EXCEED 0.25 ACRES PER 100 LINEAR FEET OF FILTER BARRIER.

A. SHEET FLOW APPLICATIONS

1. BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE ON THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.
2. ALL BALES SHALL BE EITHER WIRE-BOUND OR STRING-TIED. BALES SHALL BE INSTALLED SO THAT BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES TO PREVENT DETERIORATION OF THE BINDINGS.
3. THE BARRIER SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED THE WIDTH OF A BALE AND THE LENGTH OF THE PROPOSED BARRIER TO A MINIMUM DEPTH OF FOUR (4) INCHES. AFTER THE BALES ARE STAKED AND CHINKED, THE EXCAVATED SOIL SHALL BE BACKFILLED AGAINST THE BARRIER. BACKFILL SOIL SHALL CONFORM TO THE GROUND LEVEL ON THE DOWNHILL SIDE AND SHALL BE BUILT UP TO FOUR (4) INCHES AGAINST THE UPHILL SIDE OF THE BARRIER. IDEALLY, BALES SHOULD BE PLACED TEN (10) FEET AWAY FROM THE TOE OF SLOPE.
4. EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST TWO (2) STAKES OR REBARS DRIVEN THROUGH THE BALE. THE FIRST SAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER. STAKES OR REBARS SHALL BE DRIVEN DEEP ENOUGH INTO THE GROUND TO SECURELY ANCHOR THE BALES.
5. THE GAPS BETWEEN BALES SHALL BE CHINKED (FILLED BY WEDGING) WITH STRAW/HAY TO PREVENT WATER FROM ESCAPING BETWEEN THE BALES.

3. SEQUENCE OF INSTALLATION

SEDIMENT BARRIERS SHALL BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM.

4. MAINTENANCE

A. STRAW/HAY BALE BARRIER AND SILT FENCE BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. THEY SHALL BE REPAIRED IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHALL BE REPLACED WITH A TEMPORARY CHECK DAM.

B. SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.

C. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE THIRD (1/3) THE HEIGHT OF THE BARRIER.

D. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

C. MULCHING

1. TIMING

IN ORDER FOR MULCH TO BE EFFECTIVE, IT MUST BE IN PLACE PRIOR TO MAJOR STORM EVENTS. THERE ARE TWO (2) TYPES OF STANDARDS WHICH SHALL BE USED TO ASSURE THIS.

A. APPLY MULCH PRIOR TO ANY STORM EVENT.

THIS IS APPLICABLE WHEN WORKING WITHIN 100 FEET OF WETLANDS. IT WILL BE NECESSARY TO CLOSELY MONITOR WEATHER PREDICTIONS, USUALLY BY CONTACTING THE NATIONAL WEATHER SERVICE IN CONCORD, TO HAVE ADEQUATE WARNING OF SIGNIFICANT STORMS.

B. REQUIRED MULCHING WITHIN A SPECIFIED TIME PERIOD.

THE TIME PERIOD CAN RANGE FROM 14 TO 21 DAYS OF INACTIVITY ON A AREA, THE LENGTH OF TIME VARYING WITH SITE CONDITIONS. PROFESSIONAL JUDGMENT SHALL BE USED TO EVALUATE THE INTERACTION OF SITE CONDITIONS (SOIL ERODIBILITY, SEASON OF YEAR, EXTENT OF DISTURBANCE, PROXIMITY TO SENSITIVE RESOURCES, ETC.) AND THE POTENTIAL IMPACT OF EROSION ON ADJACENT AREAS TO CHOOSE AN APPROPRIATE TIME RESTRICTION.

2. GUIDELINES FOR WINTER MULCH APPLICATION.

WHEN MULCH IS APPLIED TO PROVIDE PROTECTION OVER WINTER (PAST THE GROWING SEASON) IT SHALL BE AT A RATE OF 6,000 POUNDS OF HAY OR STRAW PER ACRE. A TACKIFIER MAY BE ADDED TO THE MULCH.

3. MAINTENANCE

ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED.

WASTE DISPOSAL

A. WASTE MATERIALS

ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN A DUMPSTER. NO CONSTRUCTION WASTE MATERIALS WILL BE BURIED ON SITE. ALL PERSONNEL WILL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.

B. HAZARDOUS WASTE

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER. SITE PERSONNEL WILL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.

C. SANITARY WASTE

ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

ADDITIONAL NOTES FOR WINTER CONSTRUCTION

A. ALL PROPOSED POST-DEVELOPMENT LANDSCAPED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY NOVEMBER 15TH, OR WHICH ARE DISTURBED AFTER NOVEMBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 4:1 AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE PLACEMENT OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR FROZEN GROUND.

B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY NOVEMBER 15TH, OR WHICH ARE DISTURBED AFTER NOVEMBER 15TH, SHALL BE STABILIZED WITH TONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.

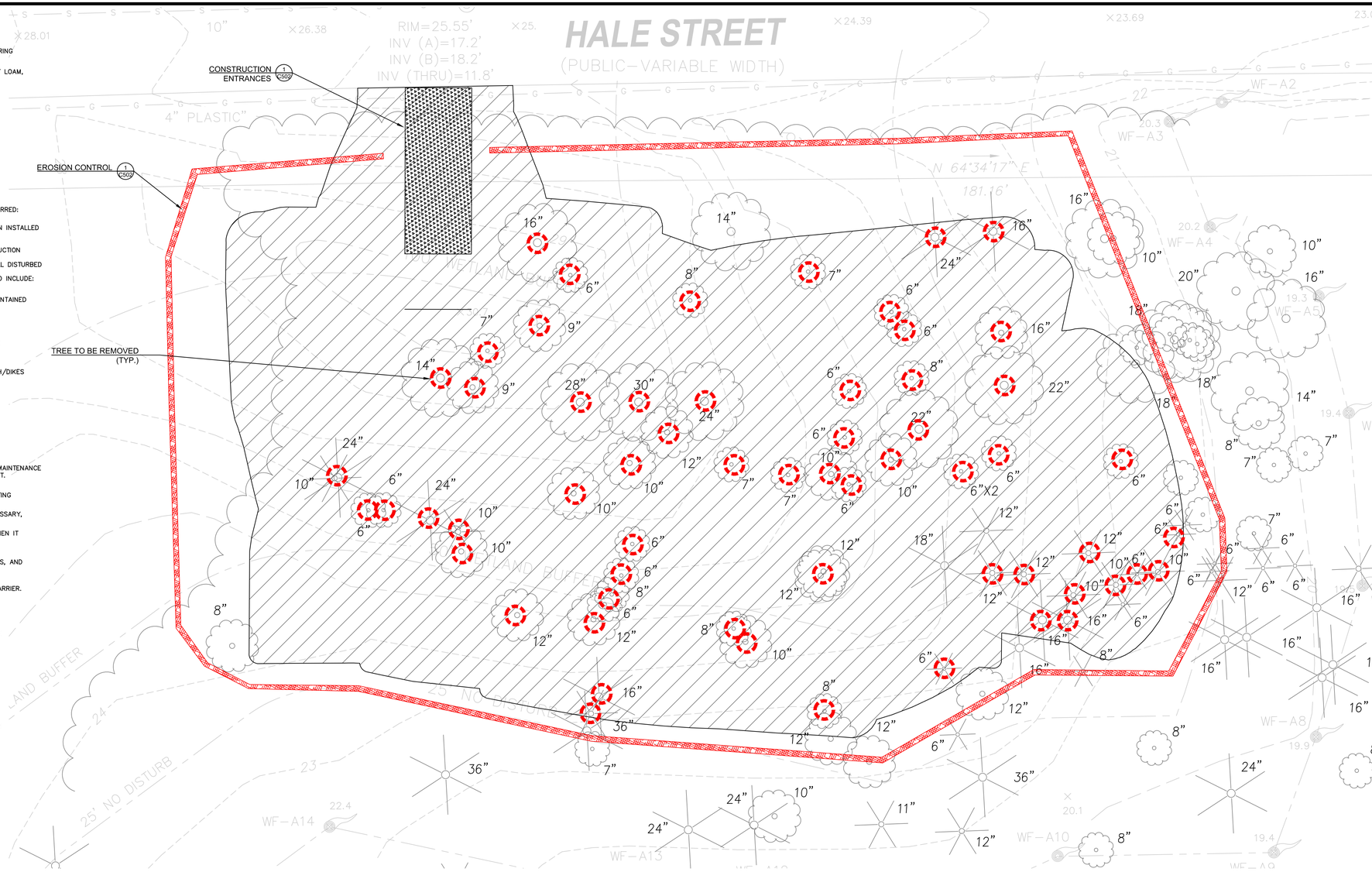
C. AFTER NOVEMBER 15TH, ALL TRAVEL SURFACES SHALL BE PROTECTED WITH A MINIMUM OF 3-INCHES OF CRUSHED GRAVE L OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOWFALL AFTER EACH STORM EVENT

DUST CONTROL

A. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD. DUST CONTROL METHODS SHALL INCLUDE, BUT NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

ADDITIONAL NOTES FOR DRAINAGE INFILTRATION SYSTEMS

THE CONTRACTOR SHALL INSURE NO SEDIMENT ENTERS THE DRAINAGE BASINS DURING CONSTRUCTION. ADDITIONALLY NO SEDIMENT SHALL BE ALLOWED INTO THE DRAINAGE SYSTEM UPON COMPLETION OF THE SYSTEM. ALL SILTATION BARRIERS SHALL BE INSPECTED DAILY AND CLEANED AND MAINTAINED. SILTSACKS SHOULD BE REPLACED BI-WEEKLY OF AFTER ANY STORM EVENT IN EXCESS OF 0.5 INCHES. WATER QUALITY UNITS SHALL BE INSPECTED DAILY AND UNITS SHALL BE CLEANED IF ANY EVIDENCE OF SEDIMENT.



0 20 50 100

SCALE: 1" = 20'

NORTH

Design Consultants Inc.
Somerville - Quincy - Newburyport
www.dci-ma.com

OWNER
CHART HOUSE DEVELOPMENT, LLC
234 MIDDLE ST
WEST NEWBURYPORT, MA 01985

PROJECT TEAM

21 MALCOLM HOYT DRIVE
2-STORY BUILDING & PARKING
NEWBURYPORT, MA

PROJECT INFO

REV	DESCRIPTION	DATE

COMMONWEALTH OF MASSACHUSETTS
STEPHEN B. SAWYER
No. 36644
REGISTERED PROFESSIONAL ENGINEER

STAMP:

EROSION CONTROL PLAN

SHEET NAME:

C101

SHT NO:

DR BY:	GS
CHK BY:	SS
PROJ NO:	40874
DATE:	07/28/22
SCALE:	1"=10'

P:\2022 Projects\40874.00 Newburyport 21 Hale St_Civil\Engineering_Civil_DWG\40874_EROS_CNTL.dwg

HALE STREET
(PUBLIC–VARIABLE WIDTH)

WATER CONNECTION (3/C501)
SEWER CONNECTION (3/C501)
TRENCH (4/C501)
LANDSCAPE AREA PLANT WITH (NEW ENGLAND SEMI-SHADE GRASS AND FORBS MIX)
CONCRETE SIDEWALK (9/C501)
EASTERN RED CEDAR (TYP.-6) 1.5" MIN. DBH
TULIP TREE 1.5" MIN. DBH
TULIP TREE 1.5" MIN. DBH
FLOWERING DOGWOOD 1.5" MIN. DBH
STORM WATER FROM ROOF LEADER
72' x 40' 2-STORY BUILDING FFE=26.85
STORM WATER FROM ROOF LEADER
LIMIT OF WORK
RAIN GARDEN (7/C501) BOTTOM ELEV.=21.00 OVERFLOW RIM=23.50 (6")
RED MAPLE 1.5" MIN. DBH
FLARED END SECTION (FES) (6/C501) W/STONE PROTECTION INV=21.10
FLOWERING DOGWOOD (TYP.-8) 1.5" MIN. DBH
LIMIT OF WORK
SIDEWALK
100' WETLAND BUFFER
50' WETLAND BUFFER
52 LF 8" SDR35 S=0.01
25' DO NOT DISTURB
EROSION CONTROL
WINTERBERRY (TYP.-5) 1 GALLON MIN.
STONE SWALE
CRANBERRY BUSH (TYP.-5) 1 GALLON MIN.
BLUEBERRY (TYP.-5) 1 GALLON MIN.
RAIN GARDEN (7/C501) BOTTOM ELEV.=22.00 OVERFLOW RIM=23.50 (10") OVERFLOW RIM=23.20 (8")
FLARED END SECTION (FES) (6/C501) W/STONE PROTECTION INV=22.5 (10")
BITUMINOUS PAVEMENT (5/C501)
STONE SWALE
FLOWERING DOGWOOD 1.5" MIN. DBH
BLUEBERRY (TYP.-5) 1 GALLON MIN.
WINTERBERRY (TYP.-5) 1 GALLON MIN.
LIMIT OF BORDERING VEGETATED WETLAND
FUTURE LOT LINE
WETLAND FLAGS A10 AND A11 ARE AS PROVIDED BY HEC ON 6/20/22
MALCOLM HOYT DRIVE (PRIVATE– 50' WIDE EASEMENT)

0 20 50 100
SCALE: 1" = 20'

NORTH

Design Consultants Inc.
Somerville - Quincy - Newburyport
www.dci-ma.com

OWNER
CHART HOUSE DEVELOPMENT, LLC
234 MIDDLE ST
WEST NEWBURYPORT, MA 01985

PROJECT TEAM

21 MALCOLM HOYT DRIVE
2-STORY BUILDING & PARKING
NEWBURYPORT, MA

PROJECT INFO

REV	DESCRIPTION	DATE

COMMONWEALTH OF MASSACHUSETTS
STEPHEN B. SAUNDER
No. 34062
REGISTERED PROFESSIONAL ENGINEER
STAMP:

LAYOUT & MATERIALS PLAN

SHEET NAME:

C102

SHT NO:

DR BY: GS
CHK BY: SS
PROJ NO: 40874
DATE: 07/28/2022
SCALE: 1"=10'

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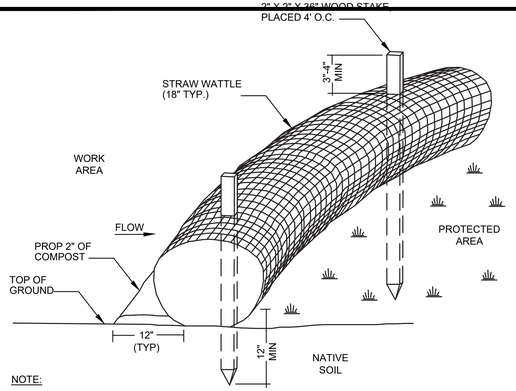
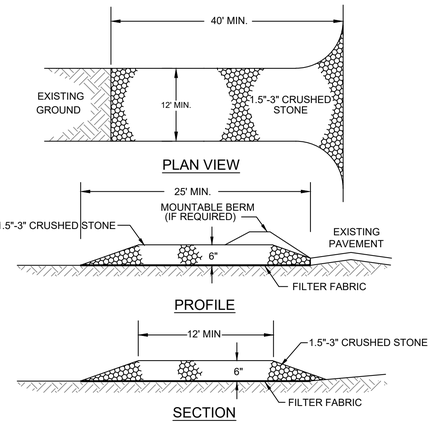


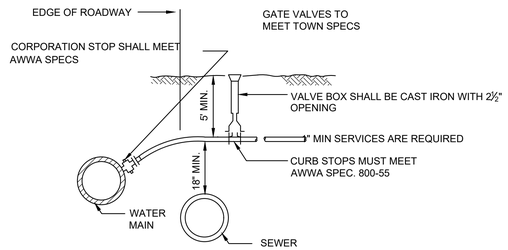
NOTE:

1. FILTER TUBE SHALL BE FILLED WITH STRAW AND PLACED AS ILLUSTRATED ON THE PROJECT PLANS.
2. STRAW WATTLES SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIRED AS NEEDED.
3. AT COMPLETION OF PROJECT, TUBES SHALL BE CUT OPEN AND STRAW SHALL BE DISPERSED ON SITE, AS DTERMINED BY THE ENGINEER.
4. THE EMPTY FILTER TUBE FABRIC SHALL BE COLLECTED AND DISPOSED OF PROPERLY.
5. FOR SLOPES 3:1 OR STEEPER, ADD SILTATION FENCE TO STRAW WATTLE.

1 STRAW WATTLE
NOT TO SCALE



2 CONSTRUCTION ENTRANCE
NOT TO SCALE

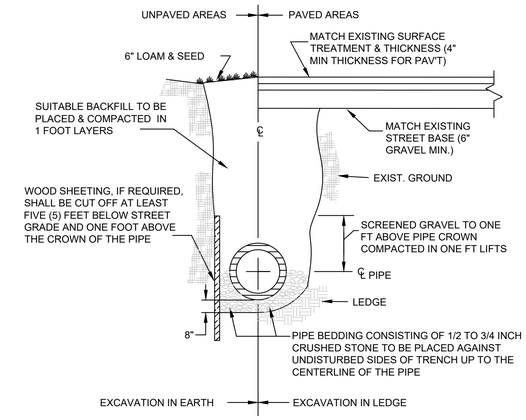


NOTES:

1. COPPER TUBING SHALL MEET AWWA SPEC. 76-CR TYPE K OR FEDERAL SPEC. WWT-799 TYPE K.

2. 1½" AND LARGER SERVICES ARE REQUIRED TO HAVE A SADDLE.

3 COPPER WATER SERVICE
NOT TO SCALE



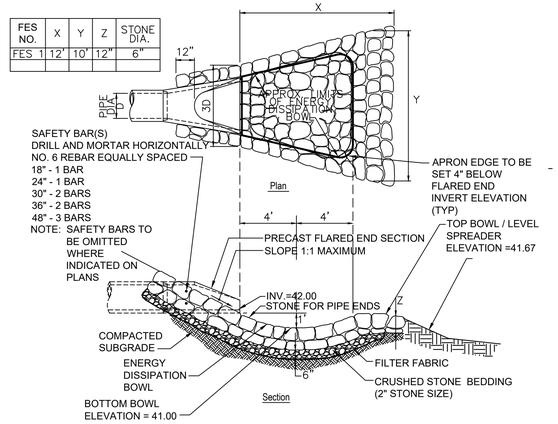
4 UTILITY TRENCH
NOT TO SCALE

NOTES:

1. SEE CONSTRUCTION PLAN FOR PAVEMENT, WIDTH, LOCATION AND SLOPES.

5 ROADWAY CROSS SECTION
NOT TO SCALE

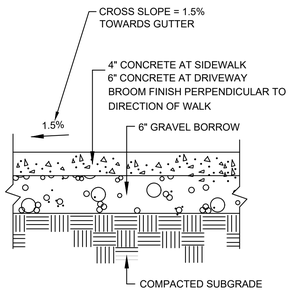
FES NO.	X	Y	Z	STONE DIA.
FES 1	12'	10'	12"	6"



6 FLARED END SECTION (FES)
NOT TO SCALE

NOTE:
BIORETENTION PLANTINGS TO CONSIST OF: BIRDSFOOT-TREFOIL, SWITCH GRASS, SPINDLE-TREE AND WINTERBERRY (OR OTHER APPROVED PLANTINGS FROM THE MASSACHUSETTS DEP STORMWATER HANDBOOK) IN QUANTITIES AND SPACING SPECIFIED BY PROJECT ENVIRONMENTAL CONSULTANT

7 RAIN GARDEN
NOT TO SCALE

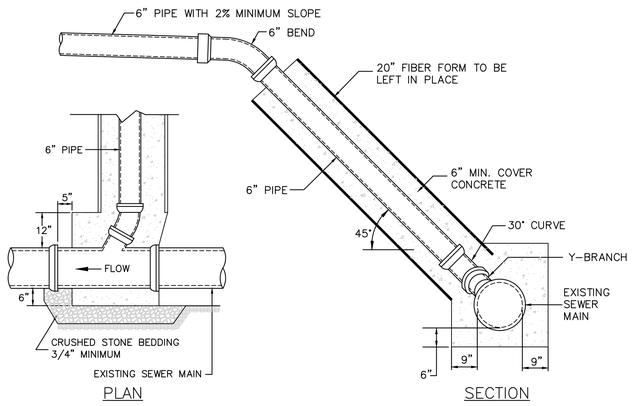


NOTES:

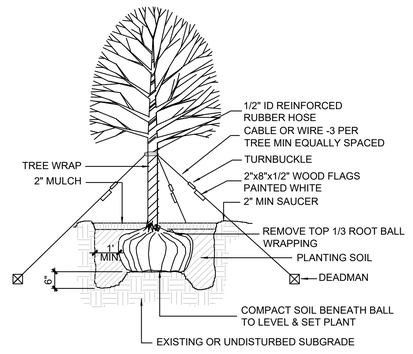
1. PROVIDE ½" CONSTRUCTION CONTROL JOINT WITH PREFORMED EXPANSION MATERIAL EVERY 20'-0" O.C. MAX.

2. PROVIDE A TOOLED DUMMY JOINT ¼"W x ½"D AS NEEDED TO PROVIDE SYMMETRY.

8 CONCRETE WALKWAY
NOT TO SCALE



9 SEWER CONNECTION
NOT TO SCALE



10 TREE PLANTING
NOT TO SCALE

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STEPHEN B. SAUNER
No. 39067
REGISTERED PROFESSIONAL ENGINEER
CIVIL

STAMP:

CIVIL DETAILS

SHEET NAME:

C103

SHT NO:

DR BY: GS
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