



CITY OF DOVER

PLANNING TECHNICAL REVIEW COMMITTEE –AGENDA

Meeting Type: Regular Meeting
Meeting Location: Council Conference Room – City Hall, Dover NH
Meeting Date: **Thursday, April 1, 2021**
Meeting Time: **10:30 AM**

1. 10:30 AM – 11:15 AM: Site Review for Macs Convenience Stores, LLC, Assessor's Map K, Lot 19C, zoned R-12, C, & IT, located at Dover Point Road. (Proposal is to construct a 5,358 sq.ft. convenience store with (6) vehicle refueling and (1) electric recharging stations). A related CUP application will also appear before the Planning Board. (P21-15)



CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – P20-68

Application Type: Site Plan Review
Applicant(s): 33 Littleworth Road LLC
Owner(s): 33 Littleworth Road LLC
Location: 33 Littleworth Road (Assessor's Map G, Lot 6D)
Date: February 18, 2021

INTENT: To construct a 14x26' addition to the existing building and 60'x120' metal storage building

UNITS PROPOSED: N/A

AGENDA ITEM #: 1

ACREAGE: 2.3 acres

ZONING DISTRICT: IT

EXISTING LAND USE: Moore's Crane

PROPOSED LAND USE: Same as existing

SURROUNDING LAND USE: Industrial, Residential

ZBA ACTION: None

PERMITS REQUIRED:

-NHDOT Driveway

WAIVERS REQUESTED:

-Landscape Plan
-Architect's signature

ATTENDANCE:

Members:

Donna Benton, Planning
Christopher Parker, Zoning
Jim Maxfield, Inspection Services/Fire
Alan Dews, Engineering
Sgt. Marn Speidel, Police

Others:

Tobin Farwell, Applicant's Rep
Hadley Moore, Owner

Approval of the 2/11/2021 Minutes:

C.Parker made a motion to approve the February 11, 2021 minutes. Seconded by Sgt. Speidel. Vote: U/A

PLAN REVIEW:

Planning:

- Water Investment Fees if tied in
- Impact Fees
- Pay balance of application fees
- Revise application acreage and area
- Discuss use of accessory storage building
- Provide:
 - Letters to Serve from Unifil and Eversource
 - Waiver justifications
- Revise plan to:
 - Planning file number P20-68
 - Wetlands reviewed? Expand on note on EC sheet
 - Add owner's signatures
 - Add professional signature and stamps
 - Add provided lot coverage to Zoning note
 - Show dumpster and screening on site
 - Lighting plan needs to be on site plan and meet the lighting standards including uniformity ratio and be dark sky compliant
 - Add transit section to TIA
 - Show how the fire truck can turn around (not just back up)
 - Indicate what the extra line in middle of pavement is
 - Provide additional screening along G/28-1-D
 - Add refueling station on site plan
 - List any permits needed
 - Confirm all items on the checklist and notes are on plan set

Engineering Comments:

- Show more detail of the utility connections (only gas and electric are shown)
- Show existing water, sewer and other utilities
- Will there be sewer and water to the new buildings? Can sewer be brought up from down the private road?
- Show the lighting and landscaping on the plan set
- Drainage analysis for the site
- It seems there is proposed parking over the leachfield area. What is the condition of the leachfield?
- Fuel tank should be brought up to code.
- How do the cranes or large trucks turnaround to exist the site?
- Label contours
- Add more erosion control
- Add a pavement detail
- Add City details for each utility



CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – P20-68

Application Type: Site Plan Review
Applicant(s): 33 Littleworth Road LLC
Owner(s): 33 Littleworth Road LLC
Location: 33 Littleworth Road (Assessor's Map G, Lot 6D)
Date: February 18, 2021

Police Department Comments:

- Sheet C-1: Amend note 13 to remove the word "alarm". A security system shall be installed... (doesn't necessarily have to be alarmed if it meets other relevant security requirements)
- Sheet C-2: Are these existing Gas and Electric utilities coming in from Littleworth Road, or new proposed?
- Provide lighting plan for overall site, especially to property lines and residential abutters

Fire/Inspections Comments:

- Turning template shall indicate T1 mobility throughout the site.
- Indicate on the site plan vehicular/equipment throughout the site.
- Turning template indicates 16 x 36 addition whereas addition plans indicate 14x36. Clarify and edit as necessary
- Utilities shall maintain the required separation from one another -clarify design intent
- Site plan shall clearly indicate the paved area and gravel areas used as staging, laydown areas etc.
- Provide more detail regarding fueling dispenser area such as type, quantity etc.

Economic Development: N/A

Planning Board Comment:

- More landscaping needed

Next Steps:

Revise package to address these comments then come back for a second TRC then apply for Planning Board.

Adjournment:

C.Parker moved to adjourn the meeting at 11:10
Seconded by J.Maxfield. Vote:U/A



City of Dover, New Hampshire SITE REVIEW APPLICATION

[Revision Date: June 4, 2019]

Office Use Only

Project #: _____

Date Received: _____

Amount Paid: _____

Time Received: _____

APPLICANT AND OWNER INFORMATION

Name of Applicant: Macs Convenience Stores, LLC Telephone # 330-696-9715

Address of Applicant: 935 East Tallmadge Avenue Akron, OH 44310

E-Mail Address: sjpeet@circlek.com

Name of Property Owner (if different from applicant): SAME Telephone # _____

Address of Property Owner: _____

PROPERTY INFORMATION

Address of Property: Dover Point Road

Assessor's Map # K Lot(s) # 19C

Zoning District(s) C, IT, R-12 Overlay District(s) Conservation District

Size of Parcel: 91,443 sq. ft. 2.10 ac. Property Deed: Book 4114 Page: 608
4848 526

Existing Use of Property: Vacant

SITE PLAN INFORMATION

Describe Proposed Use: Vehicle Refueling & Charging Station with Convenience Store

Area of Parcel to be Developed: 65,870 sq. ft.

If Multi-family Residential, Specify Number of Units & Buildings Proposed: N/A

Number of Parking Spaces: Existing 0 Proposed 29

Highway Access (check where applicable): ☒ City Street ☐ State Highway

Number of Employees Total: 4 In Maximum Shift: 4

Disposition of Parcel:

Building Setbacks:

Building Footprint 5358 sq. ft.

Front Yard 164 ft.

Canopy Footprint 3698

Total Building Area 9056 sq. ft.

Rear Yard 67 ft.

Paved Area 28,885 sq. ft.

Side Yard: Right 52 ft. Left 50 ft.

City Water? ☒ Yes ☐ No How far is city water from the property? Pointe Place ROWCity Sewer? ☒ Yes ☐ No How far is city sewer from the property? Crosses Subject Parcel**BUILDING INFORMATION**Type of Building to be Built: Masonry & MortarHeight of Building: 25' Finished Floor Elevation: 66.2'Number of Seats (where applicable) N/AEstimated value of construction: \$600,000 Refuse removal: Public ☒ Private ☐ (circle one)**WAIVER REQUESTS**Site Review Regulations section(s) to be waived: NONE REQUESTEDJustification for waiver request(s) (*attach additional sheets as needed*):

SURVEYOR INFORMATIONName of Surveyor and Company (Licensed in N.H.) Kevin M. McEneaney, LLS
McEneaney Survey AssociatesAddress 24 Chestnut Street Dover, NH 03820 Telephone #: 603-742-0911Professional License #: Kevin M. McEneaney NH LLS #661 E-mail address: kevin@surveynh.com**ENGINEER INFORMATION**Name of Engineer and Company (Licensed in N.H.) Stephen J. Haight, P.E.
Civilworks New EnglandAddress P.O. Box 1166 Dover, NH 03821 Telephone #: 603-749-0443Professional License #: Stephen J. Haight, P.E.#7978 E-mail address: shaight@civilworksne.com**ARCHITECT INFORMATION**Name of Architect and Company (Licensed in N.H.) Susan Moore, Sr. Project Architect
CUPKOVIC Architecture, LLCAddress 6060 Rockside Woods Blvd., Ste 100 Cleveland, OH 44131 Telephone #: 216-524-8400

Professional License #: _____ E-mail address: _____

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) Roberta N. Woodburn
Woodburn & Company Landscape Architecture, LLC

Address 103 Kent Place Newmarket, NH 03857 Telephone #: 603-659-5949

Professional License #: Roberta N. Woodburn, E-mail address: robby@woodburnandcompany.com
WETLAND NH Licensed Architect #00002

~~SOIL~~ SCIENTIST INFORMATION

Wetland
Name of ~~Soil~~ Scientist and Company (Licensed in N.H.) Damon E. Burt, CWS
Fraggle Rock Environmental

Address 38 Garland Road Strafford, NH 03884 Telephone #: 603-969-5574

Professional License #: Damon E. Burt, NH CWS#163 E-mail address: frenvironmental@gmail.com

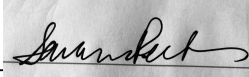
CONSERVATION EASEMENT HOLDER N/A

Name of Easement Holder: _____ Telephone # _____

Address Easement Holder: _____

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. Furthermore, I/we submit that the existing conditions sheet of the plan represents the lot in question, and that no alteration of the site shall take place during Planning Board review up to and including the pre-construction meeting. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

X Signature of Property Owner: _____  Date: 2/26/21

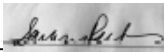
Signature of Applicant (if different from owner): _____ Date: _____

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I, and my successors, hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction phase and occupancy phase. It is understood that these individuals must use all

X reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____  Date: 2/26/21

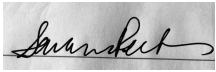
AUTHORIZATION TO COMPLETE THE PROJECT ON SUBJECT PROPERTY

I, and my successors, hereby the City of Dover or its assigns to enter my property for the purpose of completing the site work as required by the approved plan should the letter or credit or other surety be

X called. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

if different from owner

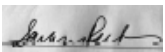
Signature of Property Owner: _____ Date: _____

Signature of Applicant (): _____ Date: 2/26/21

CERTIFICATION OF FEES

Additionally, should the property be in "Current Use" it will be subject to the Land Use Change Tax.

X I, and my successors, hereby certify that I understand that the City of Dover collects impact fees, utility investment fees and inspection fees for projects developed in Dover. Said fees must be paid before a Certificate of Occupancy can be obtained for a structure, unless a different payment schedule is agreed to by the applicant and the City prior to approvals being issued by the Dover Planning Board.

Signature of Property Owner: _____  Date: 2/26/21

Signature of Applicant (_____): same as owner Date: _____

PLANNING BOARD FEE SCHEDULE

(Revised September 17, 2020)

Below are the fees associated with plan review and are subject to a nonrefundable application fee to cover administrative expenses. Please complete the information below and provide payment with your application submittal. **Plan review fees shall be paid prior to technical review committee (TRC) being scheduled.** For plans not requiring TRC review, **fees are due 21 days prior** to the Planning Board meeting. Staff will coordinate abutter/notice fees, which will be invoiced and must be paid 28 hours before the Planning Board meeting for an application to be heard. Fees shall be paid by cash or check made payable to "City of Dover".

A. Plan Review Fees

1. Application fee for the following (SELECT ALL THAT APPLY):

- ☐ SUBDIVISION Application fee \$200.00 + \$150.00 x # _____ new lots created = \$ _____
 - ☐ LOT LINE ADJUSTMENT Application fee \$200.00 + \$100.00 X # _____ of lots involved = \$ _____
 - ☐ TRANSFER OF DEVELOPMENT RIGHTS Application fee \$200.00 = \$ _____
 - ☐ SITE REVIEW – RESIDENTIAL Application fee \$200.00+ \$100.00 x # _____ per dwelling unit = \$ _____
 - ☒ SITE REVIEW – NON-RESIDENTIAL Application fee \$200.00 + (not to exceed \$10,000) \$ 200.00
 - ☐ New construction \$.15 sq. ft. x # 9056 sq. ft.= \$ 1358.40
 - ☐ Additions (new floor space) \$.10 per sq. ft. x # _____ sq. ft.= \$ _____
 - ☐ MOTEL/HOTEL \$35.00 x # _____ per lodging unit= \$ _____
 - ☐ CHANGE OF USE Application fee \$200.00 + (not to exceed \$5,000)
 - ☐ Existing floor spaces \$.10 per sq. ft. x # _____ sq. ft. = \$ _____
 - ☒ CONDITIONAL USE PERMIT Application fee \$200.00 x # 1 per Application = \$ 200.00
 - ☐ GRAVEL PIT/ EXCAVATIONS
 - ☐ Application fee \$50.00= \$ _____
 - ☐ Permit fee \$75.00= \$ _____
 - ☐ EXTENSIONS/AMENDMENTS/WAIVERS FOR AN APPROVED PLAN Application fee \$200.00 = \$ _____
 - ☐ REQUEST FOR REZONING Application fee \$200.00 = \$ _____
 - ☐ DRIVEWAY WAIVER Application fee \$200.00 = \$ _____
- SUB TOTAL=** \$ 1758.40

AND

- 2. TOTAL IMPERVIOUS PAVED AREA** (for new development, roadways or additions to existing parking lots, (not to exceed \$10,000)) Application fee \$200.00 + \$.07 sq. ft. x # 28,885 = \$ 2021.95

TOTAL PLAN REVIEW FEE= \$ 3780.35

B. Abutter Notification/Mailing Labels - this office will create and print the abutter list and provide labels in triplicate for each abutter. The applicant/owner will need to review the list and provide to this office the engineer, architect, licensed land surveyor (LLS), licensed landscape architect (LLA) and/or soil scientist whose professional seal appears on the plan with names and addresses for notices.

- ☐ Applicant & Owner, engineer, architect, LLS, LLA and/or soil scientist
 - ☐ Certified letters fee # _____ of x \$8.00= \$ _____
- ☐ Certified letters fee: # of abutters _____ X \$8.00= \$ _____
- ☐ First Class Mail fee (for individual owner of units within a condominium or other collective form of ownership): # of abutters _____ X \$1.00= \$ _____
- ☐ Creating/Printing Abutter Labels in triplicate per sheet _____ x \$10.00= \$ _____

SUB TOTAL= \$ _____

C. Foster's newspaper public notice fee \$100.00 x # _____ applications = \$ _____

TOTAL NOTICE FEE= \$ _____

The above amount must be paid 28 hours prior to the Planning Board meeting, to be heard.



City of Dover, New Hampshire SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

This site plan review checklist, as required by Chapter 153-6-B(2), should be completed by the applicant. It is intended to assist the applicant in the planning process of preparing a Site Plan Review application for Planning Board action. The size of the project will determine the types of information required for review, therefore, a **pre-application conference** with the Planning Department to determine the list of items that must be completed is strongly encouraged.

The first step would be to appear before the Technical Review Committee, to apply, eight (8) folded copies of the site plan with scale of not less than 1"=50' or 1"=100' for larger site plans, need to be provided, along with payment of plan review fees.

Two weeks prior to Planning Board, three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and materials, including response to TRC comments, will be due. Abutter/Notice Fees will be invoiced and need to be paid 28 hours prior to the Planning Board meeting.

The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all site plan review requirements. Please refer to the Site Plan Review Regulations for full details.

APPLICANT: Macs Convenience Stores, LLC File Number: P21-

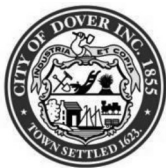
PROJECT TITLE: Vehicle Refueling & Charging Station with Convenience Store

PROPERTY LOCATION: Dover Point Road Tax Map: K Lot: 19C

	Where/How Provided	Reviewed
1. Completed and signed Application form	ATTACHED	
2. Plan Review Fees are provided	ATTACHED	
3. Electronic copy of the engineered/surveyed plan layout	VIA EMAIL	
4. Electronic copy of supplementary materials and application	VIA EMAIL	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)	ATTACHED/STANDARD	
6. Waiver requests to the Site Plan Review Regulations, with written justification	NONE REQUIRED	
7. Conditional Use Permit applications	ATTACHED	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	INCLUDED IN PLAN SET	
9. A colored architectural plan showing all sides of buildings	INCLUDED IN PLAN SET	
10. Folded copies of site plan w/scale of not less than 1"=50' or 1"=100' for larger site plans, for TRC. Plans shall contain the following items as appropriate:	8 SETS FOR TRC	
Location map at appropriate scale	SHOWN ON PLAN SHEETS 2,3,5,6,7,8	
Proposed Project name and title and Planning File #	SHOWN ON PLAN SHEETS 2,3,5,6,7,8, 17, 20	
Date, north arrow and scale	SHOWN ON PLAN SHEETS 2,3,5,6,7,8, 17, 20	
Names of all abutting property owners	SHOWN ON PLAN SHEETS 2, 3, 5	
Name and address of owners and/or applicants	SHOWN ON PLAN SHEETS 1 - 20	
Signature & stamp of NH licensed land surveyor and/or engineer	PROVIDED UPON APPROVALS	
Zoning District boundaries, including any special or overlay districts	SHOWN ON PLAN SHEETS 2,5,6,7,8	
Location of Conservation District areas	SHOWN ON PLAN SHEETS 2,5,6,7,8	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	SHOWN ON PLAN SHEETS 2,5,6,7,8	
Location and widths of existing & proposed easements & right of ways	SHOWN ON PLAN SHEETS 2, 5, 6, 7, 8	
Location and width of existing and proposed access/egress ways	SHOWN ON PLAN SHEETS 2, 5, 6, 7, 8	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	SHOWN ON PLAN SHEET 6	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	SHOWN ON PLAN SHEET 2	
Existing and proposed topographic information at two foot intervals	SHOWN ON PLAN SHEET 2	
Existing and proposed buildings and structure locations	SHOWN ON PLAN SHEETS 5, 6, 7, 8	
Minimum building setbacks or build to lines on all lots	SHOWN ON PLAN SHEETS 5, 6, 7, 8	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	SHOWN ON PLAN SHEETS 2, 5, 6, 7, 8	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	SHOWN ON PLAN SHEETS 2, 6, 8, 16	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	N/A	
Existing and proposed stormwater lines and facilities	SHOWN ON PLAN SHEETS 2, 6, 7	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	SHOWN ON PLAN SHEETS 17, 18	
Location of Flood Hazard Zone	N/A	
Location of all bodies of water and watercourses	N/A	
Location of wetlands and buffers	SHOWN ON PLAN SHEETS 2, 5, 6, 7, 8	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	SHOWN ON PLAN SHEET 3	
Existing natural features and/or significant vegetation on property	SHOWN ON PLAN SHEETS 2, 5, 6, 7, 8	
Depict existing contours up to 100 ft. beyond project limits	SHOWN ON PLAN SHEETS 2, 7	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	SHOWN ON PLAN SHEET 19	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	SHOWN ON PLAN SHEET 6	
Location, material and size of existing and proposed pavement area	SHOWN ON PLAN SHEETS 2, 5, 6	
Location of proposed fire lanes	SHOWN ON PLAN SHEET 6	
Specify finished floor elevations of buildings	SHOWN ON PLAN SHEET 7, 8	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	SHOWN ON PLAN SHEETS 6, 11	
Depict all service, storage, loading bays and utility areas	SHOWN ON PLAN SHEETS 6, 11	
All applicable Dover Common Site Plan notes	SHOWN ON PLAN SHEET 4	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	ATTACHED	
Stormwater Management System Operation and Maintenance Plan	ATTACHED	
Letter to Serve from Public and Private Utilities	PROVIDED FOR PREVIOUS APPLICATION SUBMITTALS	
Erosion and Sedimentation Control Plan	SHOWN ON PLAN SHEETS 7, 9, 10	
Landscape Operation and Maintenance Plan	ATTACHED	
Proposed restrictive covenants or homeowners association documents	N/A	
Dates and permit numbers of all required state and federal permits	SHOWN ON PLAN SHEET 4, SITE NOTE 36	
If wetland buffer, indicate placards locations, as applicable	TBD	
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs	N/A	
Location of proposed drive-in facilities	N/A	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required	ATTACHED	

REVIEWED BY: _____ DATE _____ TRC DATE _____



City of Dover, New Hampshire CONDITIONAL USE PERMIT APPLICATION

[Revision Date: October 19, 2020]

Office Use Only	Project #:	_____	Date Received:	_____
	Amount Paid:	_____	Time Received:	_____

APPLICANT AND OWNER INFORMATION

Name of Applicant: Macs Convenience Stores, LLC Telephone # 330-696-9715

Address of Applicant: 935 East Tallmadge Avenue Akron, OH 44310

E-Mail Address: sjpeet@circlek.com

Name of Property Owner (if different from applicant): SAME Telephone # _____

Address of Property Owner: _____

PROPERTY INFORMATION

Assessor's Map # K Lot(s) # 19C

Address of Property: Dover Point Road

Zoning District(s) C, R-12, IT Overlay District(s) Conservation District

Existing Use of Property: Vacant

CONDITIONAL USE PERMIT INFORMATION

Type of Conditional Use Permit (Check All That Apply):

- | | | |
|---|---|--|
| ☐ Conservation District | ☐ RCM Use Overlay District | ☐ Gateway District |
| ☐ Groundwater Protection | ☐ Off-Street Parking and Loading | ☐ Alternative Treatment Center |
| ☒ Wetland Protection District | ☐ Central Business District | ☐ Heritage Residential District |

Describe Proposed Use or Activity That Requires Conditional Use Permit and Describe Any Impacts:

To allow disturbance of 967 s.f. within the Wetland Buffer during site construction. The disturbance would be for grading activity associated with the proposed building and stormwater drainage structures. See Site Plan, sheet 7, Impact Area A (627 s.f.) and Impact Area B (340 s.f.). No structures are proposed within the buffer.

List Any Associated State or Federal Permits That Have Been or Will Be Applied For and Indicate Their Status: NONE REQUIRED

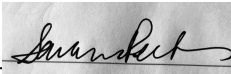
Name of Professional That Prepared Plans: Stephen J. Haight, P.E. - Civilworks New England

Address P.O. Box 1166 Dover, NH 03821 Telephone #: 603-749-0443

Professional License #: Stephen J. Haight, P.E.#7978 E-mail address: shaight@civilworksne.com

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

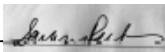
x Signature of Property Owner:  Date: 2/26/21

Signature of Applicant (if different from owner): _____ Date: _____

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I, and my successors, hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction phase and occupancy phase. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

x Signature of Property Owner:  Date: 2/26/21

CITY OF DOVER CONDITIONAL USE LIST OF ABUTTERS

Pursuant to RSA 676:4, the State Law of New Hampshire, the City of Dover is required to notify the applicant, abutters (including holders of conservation easements), and any professional whose seal is on the plan, of the public hearing by certified mail, return receipt requested. Staff will provide the abutter information, while the applicant must provide accurate contact information for the owner, applicant and professional agents representing the project.

Owner:

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS
K	19C	Macs Convenience Stores, LLC	935 East Tallmadge Avenue Akron, OH 44310

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Stephen J. Haight, P.E.	Civilworks New England	P.O. Box 1166 Dover, NH 03821
Kevin M. McEneaney, LLS	McEneaney Survey Associates	24 Chestnut Street Dover, NH 03820

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

PROJECT NARRATIVE
for
MAC'S CONVENIENCE STORES, LLC
CIRCLE K
30 Dover Point Road, Dover, NH
Tax Map K, Lots 19C
February 2021

PROJECT OVERVIEW

The project applicant is proposing to construct a +/- 5,358 SF commercial building with (6) refueling stations and canopy, including new driveway entrances along Dover Point Road and Point Place. The proposed site will include a new convenience store and refueling stations, (1) electric recharging station, public water and sewer connections, underground electric service, natural gas service and associated drainage improvements. A small portion (+/- 967 SF) of the work is within the 50' conservation district buffer but does not disturb any wetlands.

The project consists of the following general improvements:

- Remove existing portion of curbing and asphalt
- Construction of +/- 5,358 SF new convenience store, (6) vehicle refueling stations and +/- 3,698 SF canopy, and (1) electric vehicle recharge station.
- Construction of stormwater treatment structures, grading, and other drainage requirements
- Site utility construction
- Construction of (2) new entrances and internal access ways
- Stabilize remaining areas with loam and seed
- Special Exception Z18-18 was granted 3/21/19 to allow a refueling station in the B3 zone. The Zoning for this area has since been amended by the City to the C-Commercial District.

PROJECT LOCATION AND SITE CHARACTERISTICS

The project area consists of a parcel of land shown on Tax Map K as Lot 19C and is located within the C - Commercial and R-12 – Residential Districts. Lot K/19C contains +/- 2.10 acres and is currently undeveloped. The project proposes to develop the existing lot with access from Dover Point Road as well as Point Place.

DRIVEWAY AND PARKING LOT

There are two proposed driveway entrances. The Dover Point Road entrance will be 35' wide, and the Pointe Place entrance will be 40' wide with curbing, including a newly proposed sidewalk along Pointe Place. Lighting for the proposed parking lot and driveway will be per the Lighting Plan.

For the proposed development, the City of Dover parking maximums allow for the following:

Allowed:

- Retail $(5,358 \text{ SF}) / (275 \text{ SF}) = 19 \text{ Spaces Maximum}$
 - Total for Site = **19 Spaces Maximum (Surface)**
 - 10 additional spaces are allowable based on review and at discretion of the by Planning with the addition of the electric vehicle charging station.

Proposed:

- Proposed Retail = 17 Surface Spaces**
- Proposed Gas Island = 12 Surface Spaces
 - Total proposed = **29 Spaces (includes 2 Accessible Spaces)**
- ** (1) space is an electric vehicle recharge station

WETLAND SETBACK IMPACT TYPE

The project work requires a conditional use permit from the City of Dover. Approximately +/- 967 SF of non-tidal wetland buffer will be impacted. The total area of the 50' wetland buffer is 18,539 S.F. on the lot. The project does not impact bogs, marshes, sand dunes, tidal wetlands, cedar swamps, undisturbed tidal buffer zone, or involve any work within 50 feet of a salt marsh. The project is not located within 100 feet of prime wetlands.

DRAINAGE

The parcel is located at 30 Dover Point Road, Dover, NH. The site contains approximately 2.10 acres and is bounded on the west by Dover Point Road, the east by commercial development, and the north by residential and mixed use properties. The watershed of the parcel includes the project site. The project site consists of undeveloped land adjacent to Pointe Place. On site soils are a mix of Windsor Loamy Fine Sand, Windsor Loamy Sand, Suffield Silt Loam, and Buxton Silt Loam. The Windsor series soils are HSG A with the Suffield and Buxton series soils classified as HSG C. The proposed development of the site includes the demolition of some structures in the right-of-way, as well as the construction of a convenience store and refueling area with canopy. The project also includes the construction of two access points, parking for the commercial use of the site, utility upgrades, and drainage improvements including stormwater quality treatment using a rain garden, detention pond, and a closed stormwater conveyance system.

The post development watershed is modeled utilizing the same point of analysis as the predevelopment watershed, allowing direct comparison of the peak runoff between the pre and post developed conditions (see drainage report).

The analysis indicates that the proposed development of the site will have negligible impact on the watershed leading to Varney Brook. Slight increases in runoff due to sidewalk and entrance improvements within the Point Place right-of-way are shown at the catch basin system within Pointe Place. However minimal these increases are, there is still additional pavement being removed outside of this analysis area where the existing cul-de-sac area is located which further mitigate any increases.

UTILITIES

The proposed project expects to connect to City of Dover water and sewer as well as Unitil for natural gas, and Eversource for electricity. Natural Gas lines are located within the Dover Point Road right-of-way which is the anticipated location for this connection. The existing site is undeveloped and will require new services. City of Dover water lines are located within the Dover Point Road and Pointe Place. There is an existing service connection from the 8" line in Pointe Place that is anticipated to be used. A sewer easement and gravity sewer line runs through the property which is the intended point of connection for the project. Buildings will be sprinkled and connections made per the City's Community Services Utility Division and Fire Department requirements and standards. Underground electric for the site is to be provided by the existing electric lines located along Dover Point Road.



Fraggle Rock Environmental
Damon E. Burt, CWS, CPESC
38 Garland Road, Strafford NH 03884
603-969-5574
FRenvironmental@gmail.com

Wetland Report

March 1, 2021

Circle K and Seabring Lots
Dover Point Road/Point Place
Dover NH

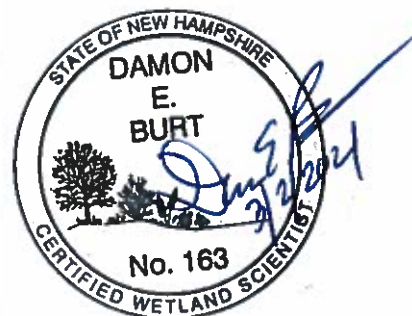
Fraggle Rock Environmental performed wetlands delineation on January 14, 2021. Wetland Flags A1 – A26; B1 – B32: Wetlands were delineated according to the following standards:

Wetland Delineation Standards

- Corps of Engineers Wetland Delineation Manual, Technical Report 4-87-1, (January, 1987)
- U.S. Army Corps of Engineers, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0, U.S. Army Engineer Research and Development Center, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199, January 2012, ERDC/EL TR-12-1
- Cowardin, Lewis M., Golet, Francis C. and LaRoe, Edward T, Classification of Wetlands and Deepwater Habitats of the United States, USFWS, Dept. of the Interior, Wash. D.C., 1979.
- Field Indicators of Hydric Soils in the United States A Guide for Identifying and Delineating Hydric Soils, Version 8.1, 2017 (Including corrections to version 8.0, 2016, on pages 21, 25, and 34)
- New England Hydric Soils Technical Committee. 2017 Version 4, Field Indicators for Identifying Hydric Soils in New England. New England Interstate Water Pollution Control Commission, Lowell, MA
- U.S. Army Corps of Engineers 2016. National Wetland Plant List/State List, Version 3.3

Sincerely,

Damon E. Burt, CWS, CPESC
Fraggle Rock Environmental Services
NH Certified Wetland Scientist
Certified Professional in Erosion and Sediment Control



Landscape Operation & Maintenance Plan For Circle K – Dover Point Road

Weekly Tasks

1. Mow and edge lawns if needed. Lawns to be cut to 3.5" height.
2. Prune back any shrubs overhanging curbs or sidewalks.
3. Prune back any groundcover overhanging curbs or sidewalks.
4. Remove litter and leaves from plants, planters, and parking lots.
5. Remove any broken or fallen branches from trees. Remove sucker growth from tree trunks.
6. Remove any weeds larger than 2 inches (5 cm) high or wide from planters. Weeds 2 inches (5 cm) and larger must be removed, not just killed.
7. Replace bark mulch which has been knocked or washed out of planters. Smooth mulch layer if it has been disturbed.
8. Replace decorative rock which has been knocked or washed out of drip strips. Smooth decorative rock surface if it has been disturbed.
9. Check plants for signs of stress, pests or disease. Request authorization to replace other dead or missing plants. Note: Maintenance contractor must request authorization to make replacements within one week of the damage becoming evident.
10. Sweep or blow clean all walkways, curbs, and gutters.
11. Treat for any signs of disease or pest infestation.
12. Complete any items required on the Monthly Checklist.
13. Hand water any plants that are dry and stressed.
14. Check the irrigation system (if there is a system). Make emergency repairs as needed or request authorization to make major repairs. Note: Maintenance contractor must request authorization for repairs within one week of the damage becoming evident.
15. Adjust the irrigation controllers for current water needs of plants.
16. **Gently prune shrubs at appropriate time of year based on species, for shape and form. DO NOT shear.**

Yearly Tasks

Early Spring

1. Prune any tree branches that interfere with public safety. Prune all parking lot and street trees yearly to encourage strong growth.
2. Apply granular fertilizer to shrubs beds and lawns. Be sure to make application prior to a moderate rainfall in drip-irrigated planters so the rain will wash the fertilizer in.
3. Submit receipts to owner's authorized representative as proof of fertilizer purchase.
4. Trim any perennial foliage left in the fall for winter interest to within six inches of the ground.
5. Add new mulch to planters where the mulch depth has been reduced to less than 2 inches (5 cm) thick. Mulch depth shall not exceed 2". Additional mulch not required where shrubs or groundcover completely hide the soil surface from view.
6. Where there is irrigation and after threat of frost is gone, flush out irrigation systems as needed and check for proper operation of each valve zone.

7. Clean or replace plugged sprinkler nozzles. Replace plugged drip emitters.
8. Replace irrigation controller program back-up batteries.

June:

No additional items

July:

No additional items

August:

No additional items

September:

1. Inventory all plant materials. Inventory shall include an exact count of all shrubs and trees, itemized by planter. Replace any dead or missing plants.

October:

1. Prepare irrigation system for winter. Make sure backflow preventer is well insulated or drained prior to first freeze. Blow out pipes using compressed air in areas where freezing could result in breakage.
2. Mow field areas.

November:

1. "WILT-PRUF" broadleaf evergreens when temperature permits.

December:

1. Prune any tree branches that interfere with public safety. Prune all parking lot and street trees yearly to encourage strong growth.

Stormwater Management System Inspection & Maintenance Plan

For

**CIRCLE K
MAP K, LOT 19**

**30 Dover Point Road
Dover, New Hampshire
Strafford County**

February, 2021

Prepared For:

MAC'S CONVENIENCE STORES, LLC
935 E Talmadge Ave
Akron, OH 44310

Prepared By:

CIVILWORKS NE
P.O. Box 1166
181 Watson Road
Dover, New Hampshire 03820

Introduction

Civilworks NE, has prepared the following Stormwater Management System Inspection & Maintenance Plan for Circle K, Dover, NH. The intent of this plan is to provide a list of procedures that document the inspection and maintenance requirements of the Stormwater Management System for this site.

The following inspection and maintenance program is necessary in order to keep the Stormwater Management System functioning properly. These measures will also help to minimize potential environmental impacts to the areas surrounding the developed site. By following the enclosed procedures, the property owners, and maintenance personnel will be able to maintain the functional design of the Stormwater Management System and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff while at the same time ensuring the recharge of groundwater resources through continued infiltration.

This plan also requires the Owner/Operator to prepare and implement a salt minimization plan to reduce salt usage on-site and ultimately within the watershed. This plan will allow the owner/operator to monitor and modify how much salt is needed, when it should be applied, where it needs to be applied, with the ultimate goal of reducing salt-use without compromising safety. It is expected that salt-use reduction will lead to long-term cost-savings as a result of purchasing less salt and reduced impacts on vegetation (e.g., landscaping) and corrosion of infrastructure .

The salt minimization plan should include the retention of a contractor who has completed the Green SnowPro Training course and obtained NHDES Salt Application Certification.

It is anticipated that this be a living document that will be updated at regular intervals (recommend updating annually in advance of the winter season in order to facilitate adjustments.

Owner

MAC'S CONVENIENCE STORES, LLC
935 E Talmadge Ave
Akron, OH 44310

In the event of a change in ownership, this Inspection and Maintenance Plan shall be transferred to the new party; transfer shall be documented to NH DES in writing.

Contact / Responsible Party

MAC'S CONVENIENCE STORES, LLC
935 E Talmadge Ave
Akron, OH 44310
Richard Lawrence
(330) 630-6300 x1830

The contact information for the Contact / Responsible Party shall be kept current; transfer shall be documented to NHDES in writing.

Management Company

MAC'S CONVENIENCE STORES, LLC
935 E Talmadge Ave
Akron, OH 44310

The contact information for the Management Party shall be kept current.

Inspection Schedule / Record Retention

Inspection frequency should, at a minimum, be in accordance with New Hampshire Stormwater Manual, Volume 2, latest edition, as updated by NHDES. See the Inspection and Maintenance Plan for frequency requirements. A copy of the completed Stormwater Management System's Inspection & Maintenance Log and Deicing Salt Quantity Use Log shall be maintained, kept on-site, and be made available to local, state, or federal regulators as applicable by law.

Stormwater Management System Components

The Stormwater Management System associated with the project is designed to mitigate both the quantity and quality of site-generated stormwater runoff and to recharge the underlying groundwater resources. As a result, its design includes the following elements:

- Culverts
- Raingarden
- Energy Dissipation Structures (Rip Rap)
- Catch Basins
- Pavement
- Outlet Structures
- Litter / Trash Removal

Structure callouts in () correlate to the design plans, a copy of which shall be maintained with this Inspection and Maintenance Plan.

Inspection and Maintenance Plan

By implementing the following procedures, the owners will be able to maintain the functional design of the Stormwater Management System and maximize the system's ability to remove sediment and other contaminants from site generated stormwater runoff and to effectively recharge the underlying groundwater resources.

CULVERTS:

- Inspect once per year.
- Inspect for clogging and sediment accumulation.
- Remove all debris immediately and sediment accumulations ≥ 2 inches.

RAINGARDEN:

- Inspection, by a **qualified professional**, of raingarden at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24 hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Embankments and spillways should be inspected by a **qualified professional** for settlement, erosion, seepage, animal burrows, woody vegetation, and other conditions that could degrade the embankment and reduce its stability for impounding water. Immediate corrective action should be implemented if any such conditions are found.
- Inlet and outlet pipes, inlet and outlet structures, energy dissipation structures or practices, and other structural appurtenances should be inspected by a **qualified professional**, and corrective action implemented (e.g., maintenance, repairs, or replacement) as indicated by such inspection.
- The bottoms, interior and exterior side slopes, and crest of earthen detention basins should be mowed, and the vegetation maintained in healthy condition, as appropriate to the function of the facility and type of vegetation.
- Vegetated embankments that serve as "berms" or "dams" that impound water should be mowed at least once annually to prevent the establishment of woody vegetation.
- Trash and debris should be removed from the pond and any inlet or outlet structures whenever observed.
- Accumulated sediment should be removed when it significantly affects pond capacity.

ENERGY DISSIPATION STRUCTURES (RIP RAP): As Applicable

- Inspect the outlet protection annually for damage and deterioration. Repair damages immediately.
- If stones become displaced from the riprap areas they should be replaced immediately and chinked in to assure stability. Add additional riprap as needed. Vegetation growing through the riprap should be eliminated at least yearly.

OUTLET STRUCTURE(S):

- Inspect once per year.
- Inspect for clogging and sediment accumulation.
- Remove all debris immediately and sediment accumulations ≥ 2 inches.

CATCH BASIN(S):

- Inspect once per year.
- Inspect for floatables, sediment accumulation, and hydrocarbons (oils and grease).
- Remove all floatables immediately and sediment accumulations ≥ 2 feet.
- Hydrocarbons shall be removed immediately by skimming, absorbent materials, or other methods and should be disposed of in accordance with applicable State and Federal regulations.

PAVEMENT:

- Minimize sanding.
- Minimize application of salt for ice control.
- Monitor periodically to ensure that the pavement surface drains effectively after storms.
- Clean periodically (1-2 times per year) using a sweeper or vacuum sweeper.

LITTER / TRASH REMOVAL:

- Routinely patrol site for litter pick up.

DE-ICING AGENTS

- To address the concerns associated with the application of chlorides and other deicing materials, NHDES recommends that the Owner/Operator develop a Road Salt and Deicing Minimization Plan for the parking lots and roadways. The plan should develop the policies that the development will keep in place to minimize salt and other deicer use after the project has been completed. The plan should include tracking the use of salt and other deicers for each storm event and compiling salt use data annually. (See Anti-icing Data Form in the appendix).
- Use sand as primary agent for driveway and access way safety during ice and snow conditions
- Minimize the use of salt during the winter
- Use de-icing or anti-caking agents, added to enhance performance and application characteristics of sand mixtures, only as necessary and at minimum application rates.
- Recommend using a certified Winter Operator (Green SnowPro Trained) for applying de-icing agents.
- Monitor weather and apply de-icing agents based on weather conditions and temperatures.

ANTI-ICING AND SALT MINIMIZATION

- Owner to develop a Road Salt and Deicing Minimization Plan
- Provide a written policy that the “Development” will keep in place to minimize salt and other deicer use after the project has been completed.
- Use the attached form to track the use of salt and other deicers for each storm event and compiling salt use data annually.

Inspection & Maintenance Table

System Component / BMP	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
Culverts	Annually	Check for sediment accumulation and clogging	≥ 2 in. sediment depth
Raingarden • Outlet Structure • Inlet/Outlet Piping • Embankments • Pond Sediment • Trash/Debris • Vegetation (Veg.)	Bi-Annually “ “ “ “ Periodically “ “ “ “	See Catch Basin (CB) Requirements (Req.) See Outlet Structure (OS) Req. Check for erosion, settlement, seepage, etc. Check for sediment accumulation in pond Check for trash (in pond and structures) • Maintain 95% veg. (pond & slopes) • Maintain healthy stand of veg.	See CB Req. See OS Req. Repair immediately ≥ 2 in. sediment Remove all trash/debris Restore veg. in-kind Mow when ≥ 6 in
Energy Dissipation (ED) Structures (RipRap)	Annually	Check for displaced stones Check for woody vegetation	Replace immediately Remove annually
Outlet Structure(s)	Annually	• Inspect once per year. • Inspect for clogging and sediment accumulation. • Remove all debris immediately and sediment accumulations ≥ 2 inches.	≥ 2 in. sediment Remove immediately
Catch Basins	Annually	• Check for sediment accumulation • Check for floatable contaminants	≥ 2 ft. sediment depth Remove all floatables
Pavement • Sanding • Salt Applications • Sweep/Vacuum • Trash/Debris	Limit use As Req. 1 - 2 x's Year Periodically	Minimize use to prevent tracking issues RECORD APPLICATION RATES Sweep or vacuum to prevent tracking issues Check for trash/debris	Sweep to prevent issues Minimize as Req. Sweep/Vac as needed Remove when noticed
Litter / Trash Removal	Periodically	Check for litter and trash	Remove when noticed

Inspection & Maintenance Checklist/Log

The following pages contain a blank copy of the Stormwater Management System's Inspection & Maintenance Log and a Deicing Salt Quantity Use Log. These forms are provided to assist the owners with the inspection and maintenance of the aforementioned Stormwater Management System.

Stormwater Management System's Inspection & Maintenance Log

Date of Inspection/Maintenance: _____ Inspector: _____

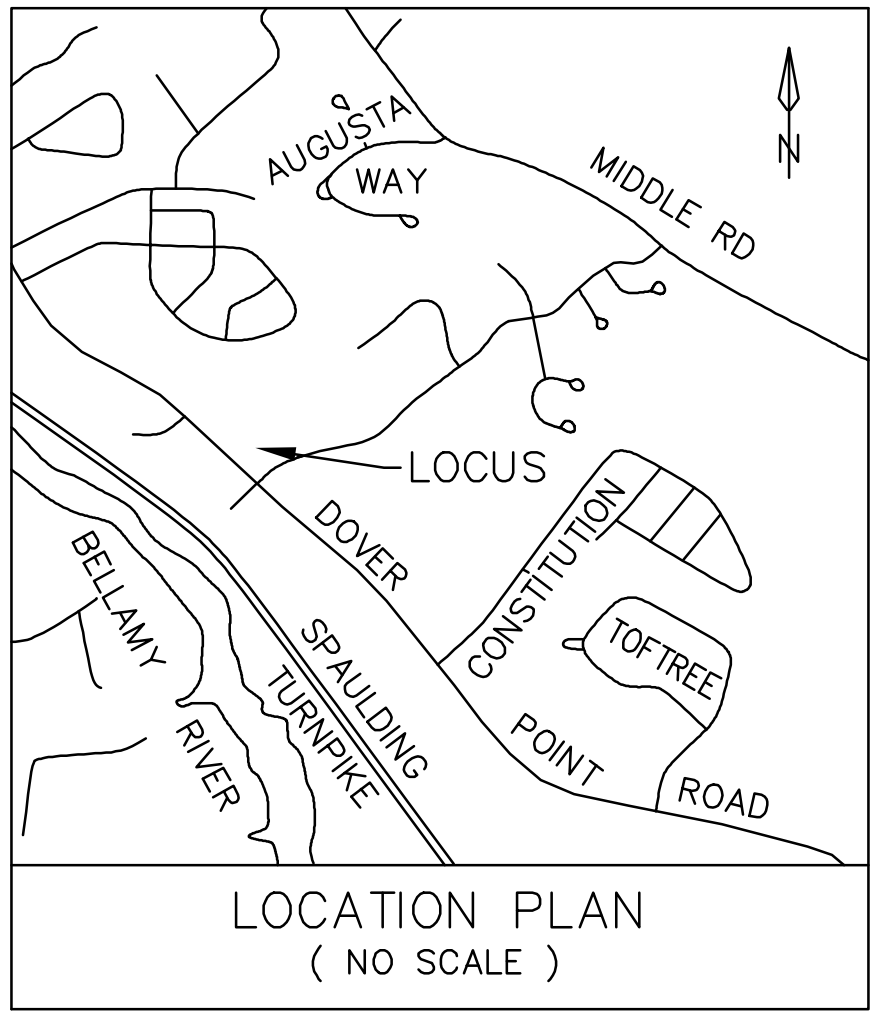
[illegible]

Deicing Salt Quantity Use Log

[illegible]

PROPOSED VEHICLE REFUELING & RECHARGING STATION & CONVENIENCE STORE

CIRCLE K #7264 DOVER
DOVER POINT ROAD
TAX MAP K, LOT 19C
DOVER, NEW HAMPSHIRE
MARCH 1, 2021



OWNER / APPLICANT:

MAC'S CONVENIENCE STORES, LLC
935 E TALLMADGE AVE
AKRON, OH 44310
TEL.: 330-696-9715

OWNER REPRESENTATIVE SIGNATURE

CIVIL ENGINEER:

CIVILWORKS NEW ENGLAND

CIVIL - WATERFRONT ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

SURVEYOR:

MCENEANEY SURVEY OF NEW ENGLAND
P.O. BOX 681
DOVER, NEW HAMPSHIRE 03820
TEL.: 603-742-0911

SOIL SCIENTIST:

DAMON BURT
FRAGGLE ROCK ENVIRONMENTAL
38 GARLAND ROAD
STRAFFORD, NH 03884
TEL.: 603-969-5574

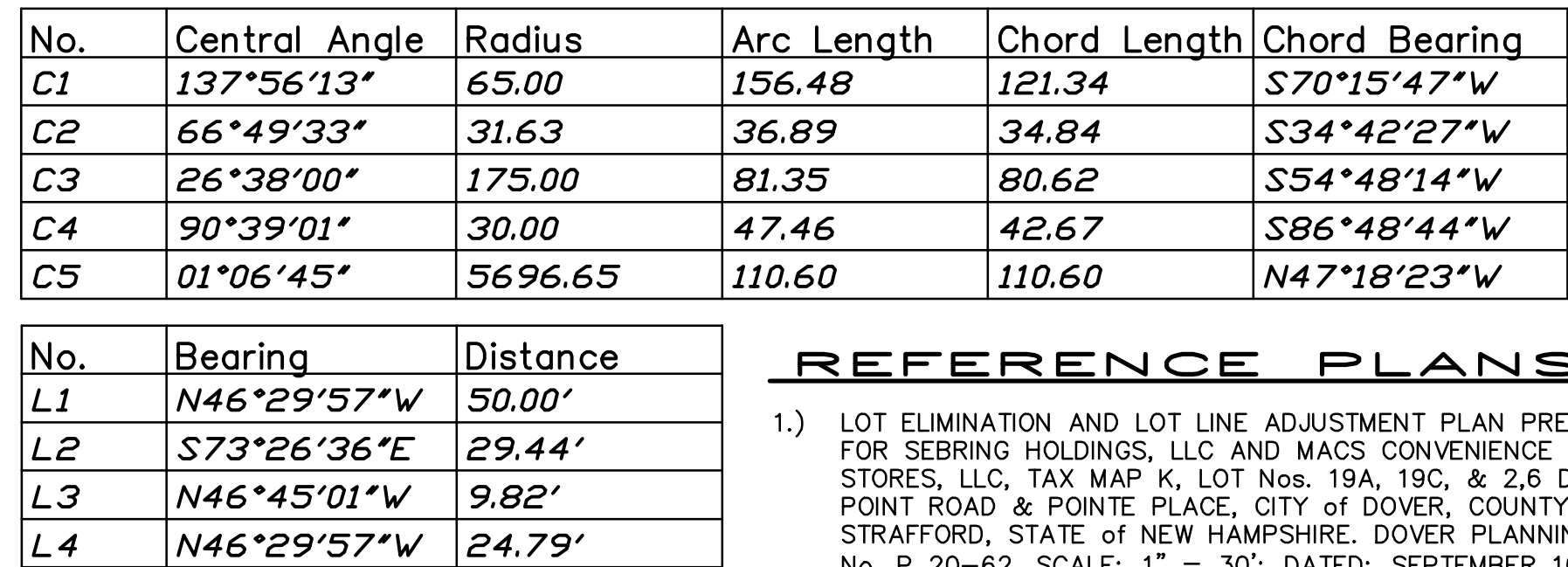
LANDSCAPE ARCHITECT:

WOODBURN & COMPANY LANDSCAPE ARCHITECTURE, LLC
103 KENT PLACE
NEWMARKET, NH 03857
TEL: 603-659-5949

INDEX

Cover Sheet	1
Existing Conditions Plan (by MSA)	2
Neighborhood Plan	3
Note Sheet	4
Demolition Plan	5
Site Plan	6
Grading, Drainage & Erosion Control Plan	7
Utility Plan	8
Erosion Control Notes	9
Erosion Control Detail Sheet	10
Detail Sheets	11-16
Lighting Plan	17
Lighting Details	18
Landscape Plan	19
Dover Ladder Truck Movement Plan	20
Streetscape Plan	-
Architectural Plans	-

SHEET NO.



EXIST. SMH "A"	EXISTING CITY CROSS-COUNTRY LINE
RIM ELEV:	= 60.62
INVERT IN:	= (8")
INVERT IN:	= 51.32 (12")
INVERT OUT:	= 51.30 (12")

EXIST. SMH "B"	EXISTING CITY CROSS-COUNTRY LINE
RIM ELEV:	= 59.34
INVERT IN:	= 48.74 (12")
INVERT OUT:	= 48.64 (12")

EXIST. SMH "C"	EXISTING CITY CROSS-COUNTRY LINE
RIM ELEV:	= 54.06
INVERT IN:	= 44.26 (12")
INVERT OUT:	= 44.16 (12")

EXIST. CB "A"	
RIM	= 61.38
INVERT OUT:	= 57.28 (CB "B")
SUMP	= 54.2
12" HDPE	
LENGTH:	= 29.8

EXIST. DMH "B"	
RIM	= 62.27
INVERT IN:	= 57.57 (CB "A")
INVERT IN:	= 57.7 (CB "B1")
INVERT OUT:	= 57.47 (CB "C")
SUMP	= 54.8
12" HDPE	
LENGTH:	= 173.0

EXIST. CB "C"	
RIM	= 58.46
INVERT IN:	= 54.06 (CB "B")
INVERT OUT:	= 53.96 (CB "D")
SUMP	= 51.0
12" HDPE	
LENGTH:	= 69.5

EXIST. CB "D"

RIM	=	56.96	
INVERT IN:	=	52.76	(CB "C")
INVERT OUT:	=	52.66	
SUMP	=	49.5	
12" HDPE			

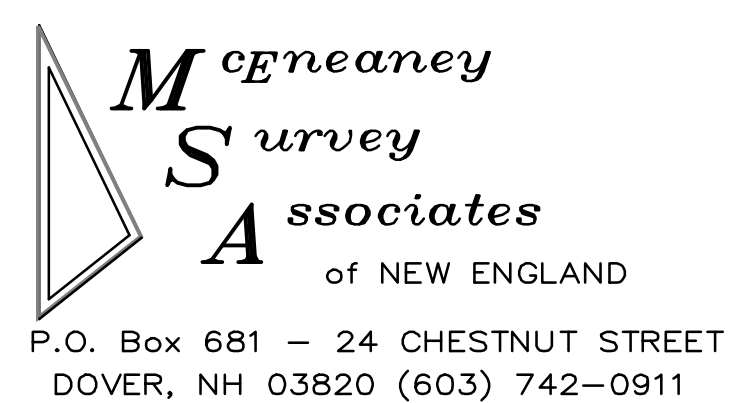
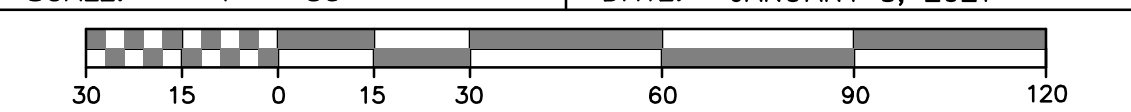
EXIST. CB "B1"
RIM = 61.55
INVERT OUT: = 57.0
SUMP = 54.8
12" HDPE

I.R. (set) O - IRON ROD W/ I.D. CAP (SET)
 o I.P. - IRON PIPE
 □ G.B. - GRANITE BOUND
 o I.R. - IRON ROD
 o I.R.(fnd) - IRON ROD (FOUND)
 D.H. - DRILL HOLE
 S.F. - SQUARE FEET
 Ac. - ACRE
 (TYP.) - TYPICAL
 ± - MORE OR LESS
 ø - DIAMETER
 S.C.R.D. - STRAFFORD COUNTY
 REGISTRY OF DEEDS
 -○- UP - UTILITY POLE
 --- - - - - EDGE OF WETLAND
 - - - - - EDGE OF PAVEMENT
 O.A. - OVERALL
 R.O.W. - RIGHT OF WAY
 ⊗ DMB - DRAIN MANHOLE
 □ CBH - CATCH BASIN
 ⊗ SMH - SEWER MANHOLE
 X HYD - FIRE HYDRANT
 W V - WATER GATE VALVE
 X - TREE
 ⊗ GV - GAS VALVE



- 1.) OWNERS OF RECORD: MACS CONVENIENCE STORES, LLC
935 EAST TALLMADGE AVENUE
AKRON, OHIO 44310
S.C.R.D. VOL. 4114, PAGE 608
S.C.R.D. VOL. 4848, PAGE 526
- 2.) K / 19C — DENOTES TAX MAP AND PARCEL NUMBER.
- 3.) ZONING DISTRICT IS R-12 (MEDIUM DENSITY RESIDENTIAL) AND THE C (COMMERCIAL DISTRICT) AND IT (INNOVATIVE TECHNOLOGY DISTRICT).
- 4.) DIMENSIONAL REQUIREMENTS:
- ZONE: R-12 — MEDIUM DENSITY RESIDENTIAL
- MINIMUM LOT SIZE = 12,000 S.F.
MAXIMUM LOT COVERAGE = 30 PERCENT
MINIMUM FRONTAGE = 100 FEET
- BUILDING REQUIREMENTS:
- FRONT BUILD TO = 15 FEET MIN.
= 25 FEET MAX.
SIDE SETBACK = 15 FEET
REAR SETBACK = 30 FEET
- ZONE: C — COMMERCIAL
- MINIMUM LOT SIZE = 20,000 S.F.
MAXIMUM LOT COVERAGE = 50 PERCENT
MINIMUM FRONTAGE = 125 FEET
- BUILDING REQUIREMENTS:
- FRONT = 30 FEET
SIDE SETBACK = 12 FEET
REAR SETBACK = 15 FEET
- ZONE: IT — INNOVATIVE TECHNOLOGY
- MINIMUM LOT SIZE = 2 ACRES
MAXIMUM LOT COVERAGE = 33 PERCENT
MINIMUM FRONTAGE = 200 FEET
- BUILDING REQUIREMENTS:
- FRONT BUILD TO = 50 FEET
SIDE SETBACK = 50 FEET
REAR SETBACK = 50 FEET
- 5.) PLAN INTENT: TO SHOW THE EXISTING SITE CONDITIONS AS OF THE DATE OF THIS PLAN.
- 6.) PARCEL AREA = 91,443 S.F. / 2.10 Ac.
- 7.) THE SUBJECT PARCEL IS LOCATED WITHIN AREAS DETERMINED TO BE OUTSIDE THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANEL 0340; SUFFIX E; MAP NUMBER 33017C0340E; EFFECTIVE DATE SEPTEMBER 30, 2015.
- 8.) BASIS OF BEARING IS THE CITY OF DOVER G.I.S. SYSTEM STATIONS TR 112 AND TR 113 WHICH WERE USED TO DETERMINE LOCATION, ORIENTATION. VERTICAL DATUM — NAVD 88.
- 9.) PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCNEANEY SURVEY ASSOCIATES, INC. DURING SEPTEMBER 2018 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.
- 10.) THIS PORTION OF THE CUL-DE-SAC IS TO BECOME PART OF PARCEL K / 19C WHEN THE (FKA THORNWOOD LANE), (NOW POINTE PLACE) RIGHT OF WAY IS CONTINUED. SEE REFERENCE PLAN #1.
- 11.) REFERENCE IS MADE TO AMENDED AND RESTATED RECIPROCAL EASEMENT AGREEMENT MADE BETWEEN SEBRING HOLDINGS, LLC AND MAC'S CONVENIENCE STORES LLC RECORDED AT S.C.R.D. IN BOOK 4848, PAGE 528, DATED DECEMBER 14, 2020. ALSO, REFERENCE IS MADE TO RECIPROCAL EASEMENT AGREEMENT MADE BETWEEN SEBRING HOLDINGS, LLC AND MAC'S CONVENIENCE STORES LLC RECORDED AT S.C.R.D. IN BOOK 4114, PAGE 610, DATED APRIL 4, 2013.
- 12.) WETLANDS FLAGGED LINE "A" SHOWN WERE DELINEATED BY DAMON E. BURT, N.H.C.W.S. #163 OF FRAGGLE ROCK ENVIRONMENTAL SERVICES ON JANUARY 14, 2021 IN ACCORDANCE WITH THE 1987 CORPS. OF ENGINEERS WETLANDS DELINEATION MANUAL AND LOCATED BY THIS OFFICE.

DOVER PLANNING FILE No.		P 21-__
DRAWN BY:	RJM	FILE: 1720\DWGS\21-1720
SCALE:	1" = 30'	DATE: JANUARY 5, 2021



SURVEYING – PLANNING – CONSULTING

NO.	DATE	DESCRIPTION	BY	CHK	
REVISIONS					
06-1720		EXIST. COND.			
PROJECT NO	TYPE		FIELDBOOK & PAGES		

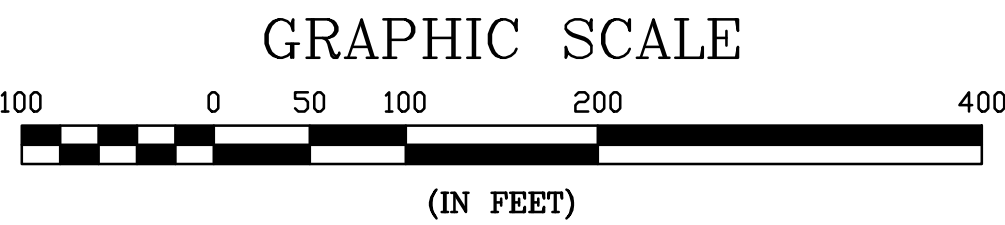


ABUTTERS LIST (WITHIN 200 FT)			
TAX MAP	LOT NO.	NAME & ADDRESS	
K 18-A	18-A	CITY OF DOVER 288 CENTRAL AVENUE DOVER, NH 03820	
K 26	19-A	SERBRING HOLDINGS LLC 340 CENTRAL AVENUE SUITE 202 DOVER, NH 03820	
K 19-B	19-B	JBACK REALTY LLC 34 DOVER POINT ROAD DOVER, NH	
K 19-C	19-C	MAC CONVENIENCE STORES LLC. 935 EAST TALLMADGE AVE AKRON, OH 44310	
K 26	26	CHRISTOPHER M WAYNE & CRISTINA WONG 26 DOVER POINT ROAD DOVER, NH 03820	
K 35	35	FOLLANSBEE MARILYN E TRUSTEE FOLLANSBEE MARILYN E REV TRUST OF 2011 25 DOVER POINT ROAD DOVER, NH 03820	
K 36	36	31 33 DOVER POINT ROAD CONDOMINIUM PAOLINI ROBERT TRUSTEE AND WILKINSON STE 15 BRIARWOOD LANE DOVER, NH 03820	
K 37	37	STF DEVELOPMENT CORP. 242 CENTRAL AVENUE DOVER, NH 03820	

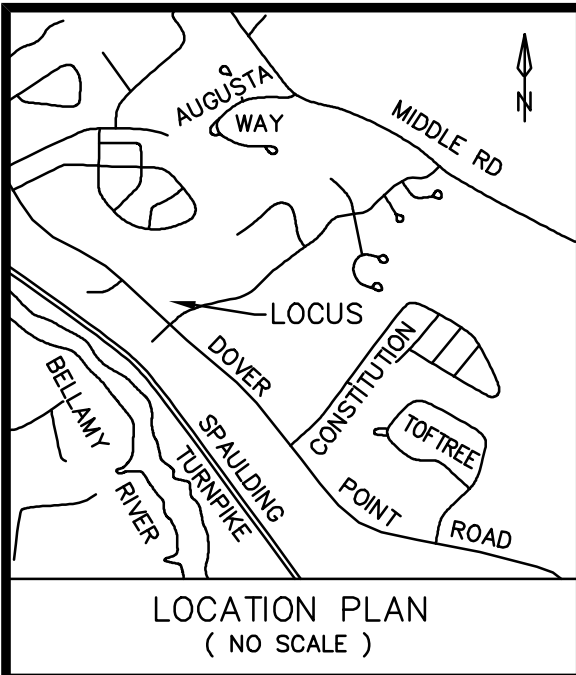
K

19-C

 TAX MAP
LOT NUMBER



CIRCLE K #7264 DOVER POINT ROAD & POINTE PLACE DOVER, NH		MAC CONVENIENCE STORES, LLC 935 EAST TALLMADGE AVENUE AKRON, OHIO 44310		NEIGHBORHOOD PLAN																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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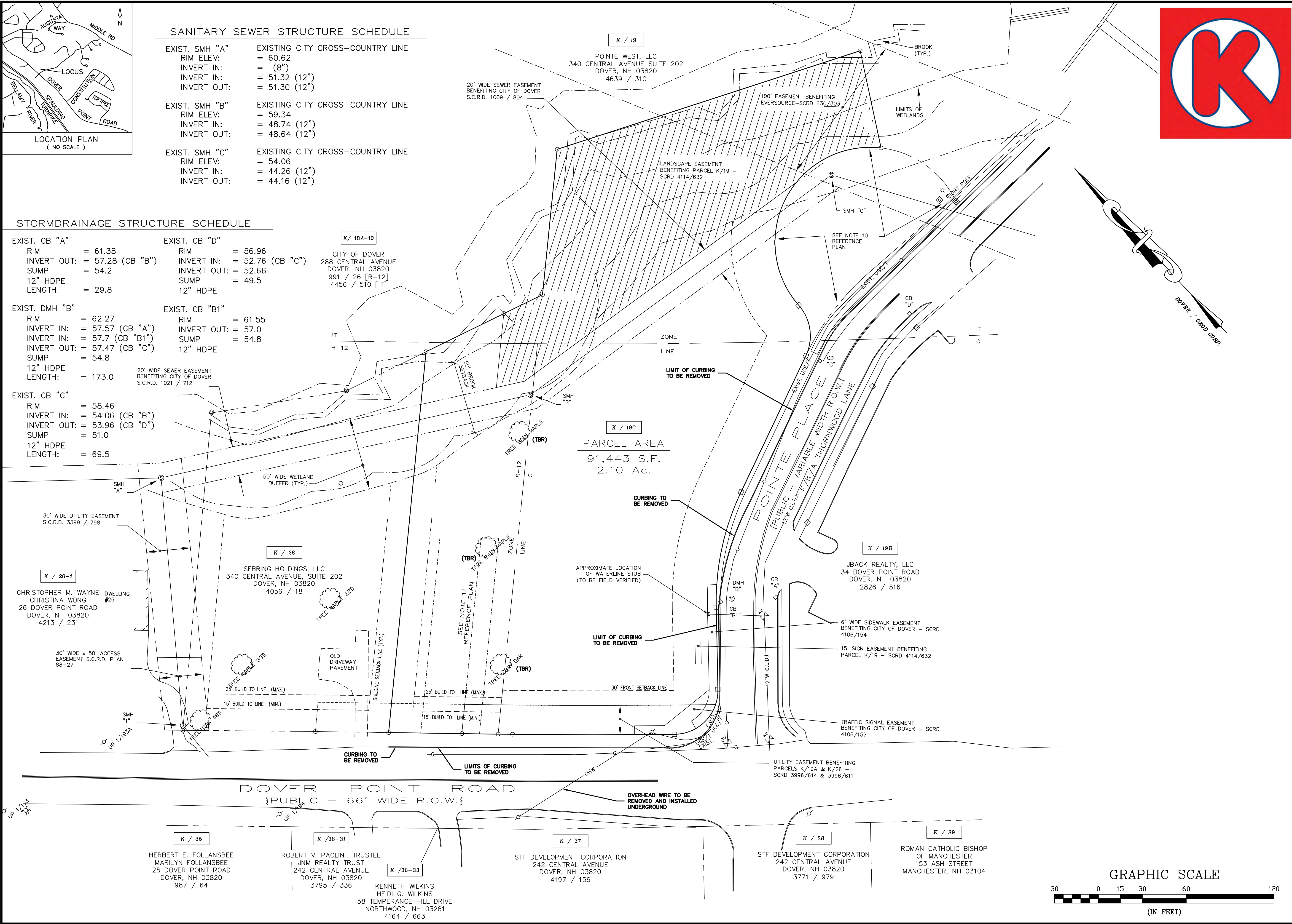


SANITARY SEWER STRUCTURE SCHEDULE

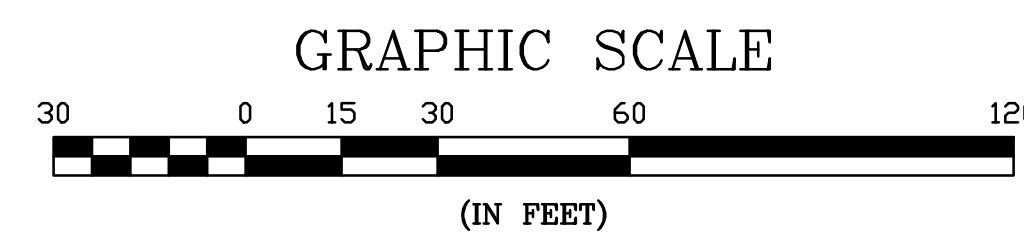
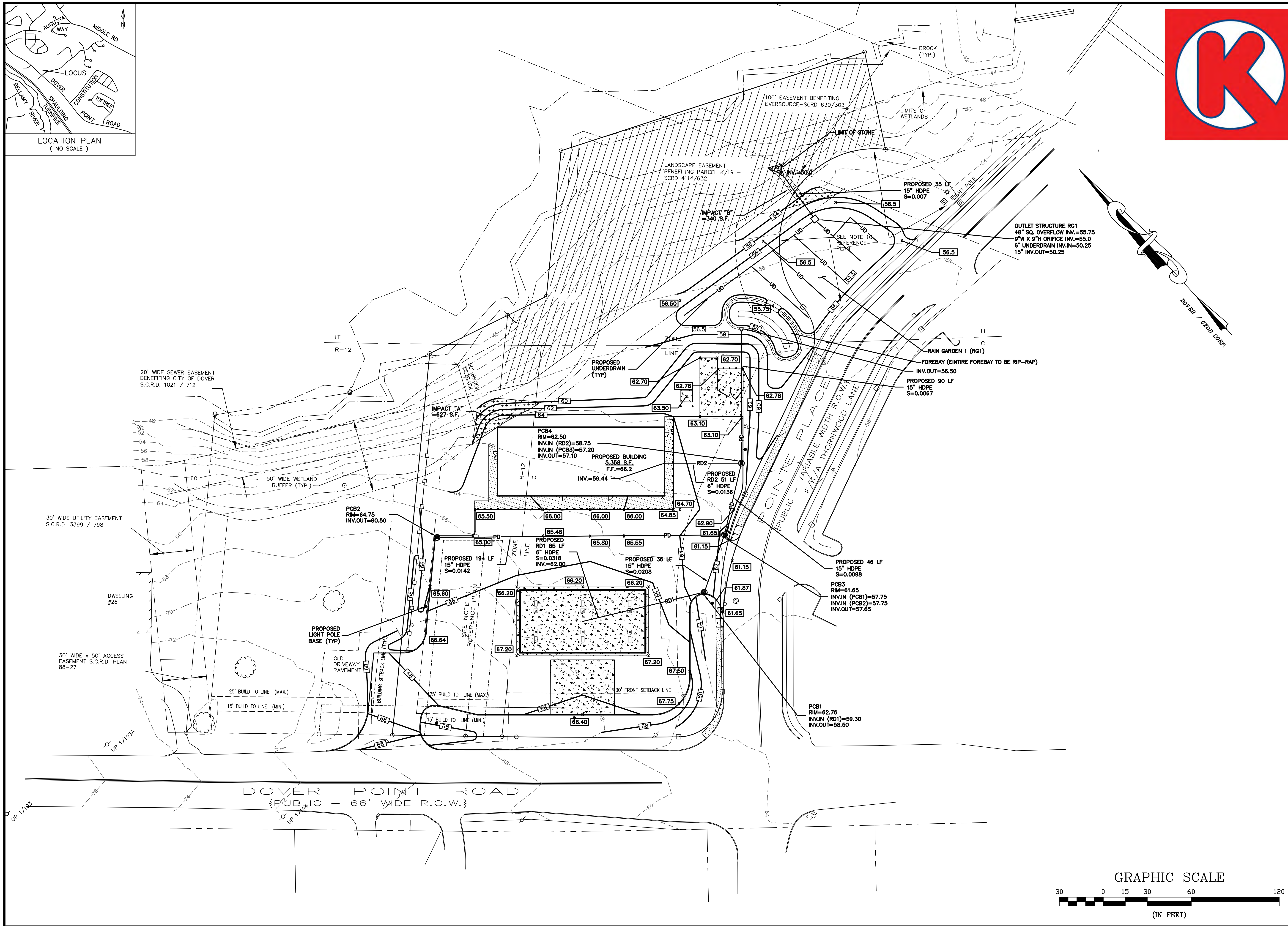
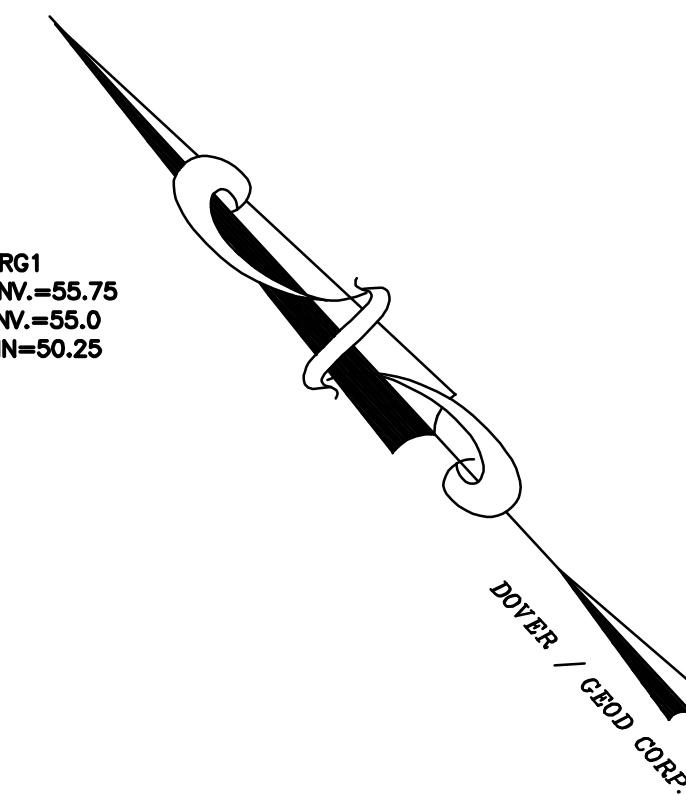
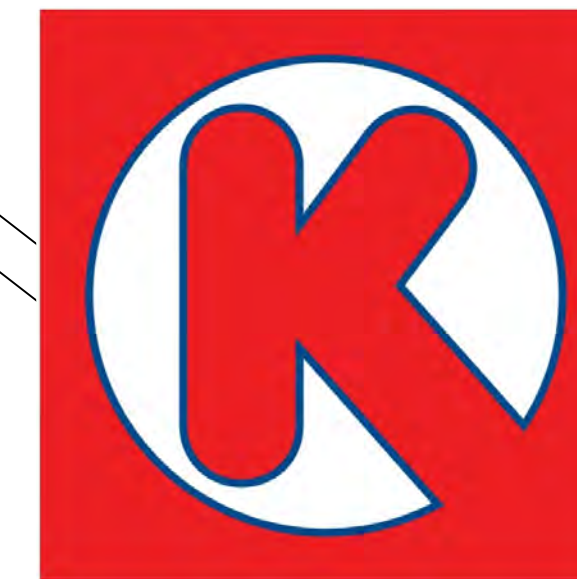
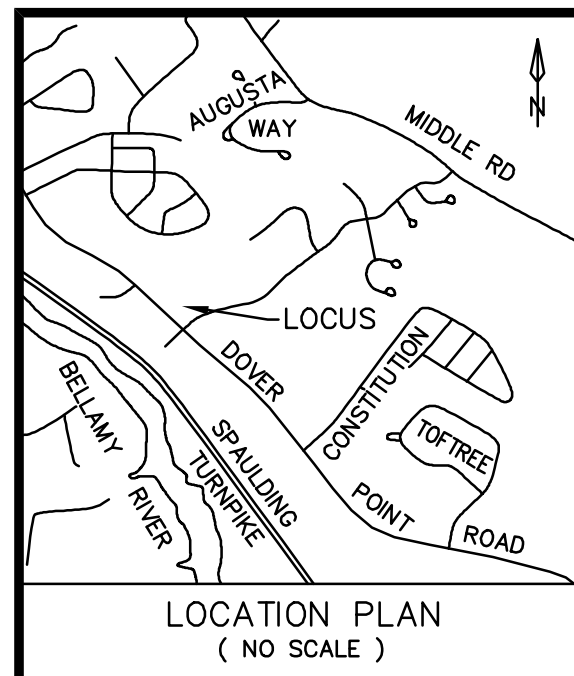
EXIST. SMH "A"	EXISTING CITY CROSS-COUNTRY LINE
RIM ELEV: = 60.62	
INVERT IN: = (8")	
INVERT IN: = 51.32 (12")	
INVERT OUT: = 51.30 (12")	
EXIST. SMH "B"	EXISTING CITY CROSS-COUNTRY LINE
RIM ELEV: = 59.34	
INVERT IN: = 48.74 (12")	
INVERT OUT: = 48.64 (12")	
EXIST. SMH "C"	EXISTING CITY CROSS-COUNTRY LINE
RIM ELEV: = 54.06	
INVERT IN: = 44.26 (12")	
INVERT OUT: = 44.16 (12")	

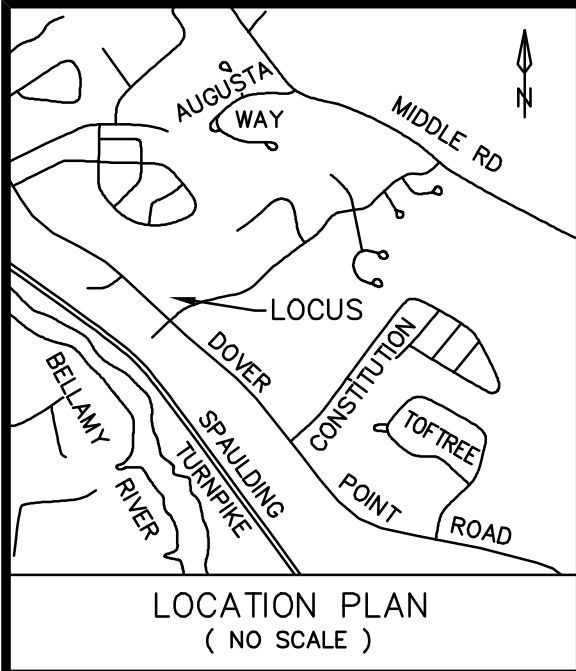
STORMDRAINAGE STRUCTURE SCHEDULE

EXIST. CB "A"	EXIST. CB "D"
RIM = 61.38	RIM = 56.96
INVERT OUT: = 57.28 (CB "B")	INVERT IN: = 52.76 (CB "C")
SUMP = 54.2	INVERT OUT: = 52.66
12" HDPE	SUMP = 49.5
LENGTH: = 29.8	12" HDPE
EXIST. DMH "B"	EXIST. CB "B1"
RIM = 62.27	RIM = 61.55
INVERT IN: = 57.57 (CB "A")	INVERT OUT: = 57.0
INVERT IN: = 57.7 (CB "B1")	SUMP = 54.8
INVERT OUT: = 57.47 (CB "C")	12" HDPE
SUMP = 54.8	
12" HDPE	
LENGTH: = 173.0	
EXIST. CB "C"	
RIM = 58.46	
INVERT IN: = 54.06 (CB "B")	
INVERT OUT: = 53.96 (CB "D")	
SUMP = 51.0	
12" HDPE	
LENGTH: = 69.5	



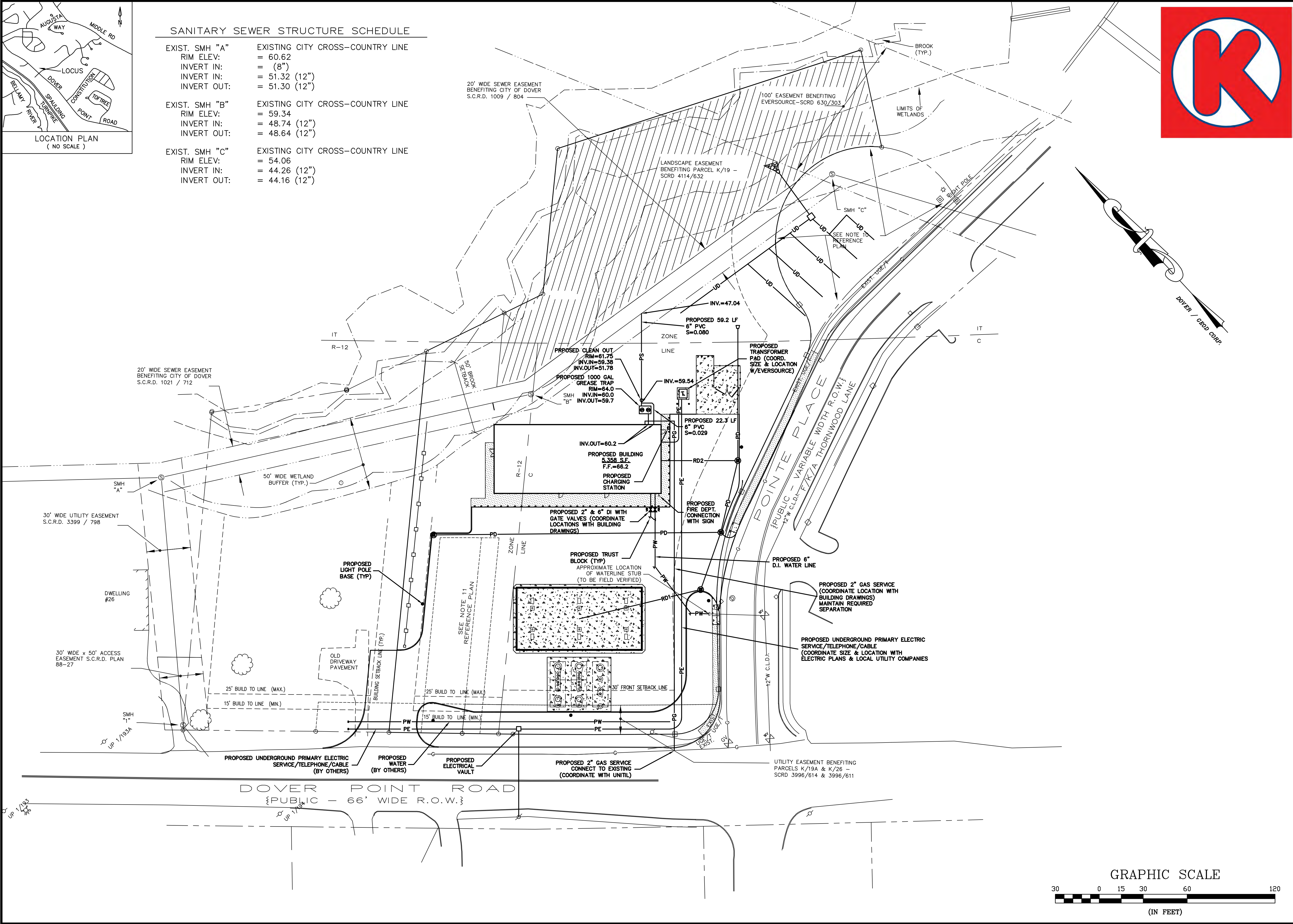
NOT FOR CONSTRUCTION FOR PERMIT USE ONLY				PLANNING FILE				CIVILWORKS NEW ENGLAND			
NO.:				P21-				18' Watson Road, PO Box 1166 Dover, New Hampshire 03821 603.745.0443			
DATE: 3-1-21				DRAWN BY: SRD				DESIGN BY: SRD			
SCALE: 1"=30'				APPROVED BY: JH				PROJECT NO: 1677			
NO.				NO.				NO.			
DATE				REVISION				DATE			
DEMOLITION PLAN				MAC CONVENIENCE STORES, LLC 985 EAST TALLMADGE AVENUE AKRON, OHIO 44310				CIRCLE K #7264 DOVER POINT ROAD & POINTE PLACE DOVER, NH			
5											

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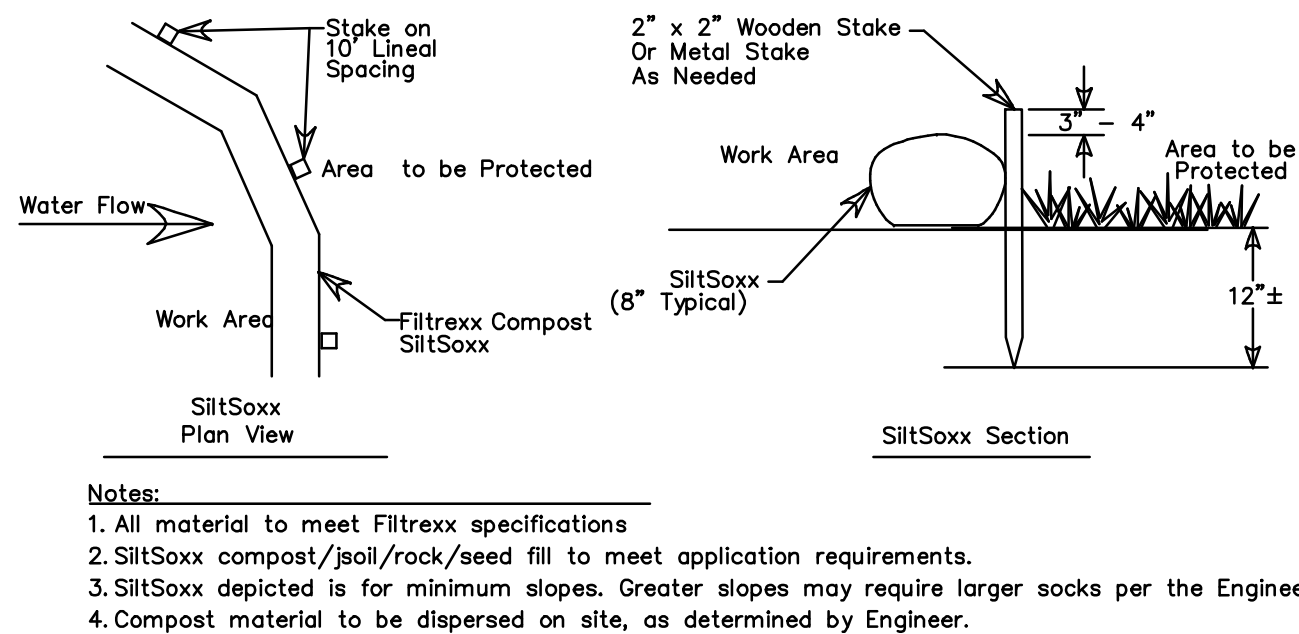
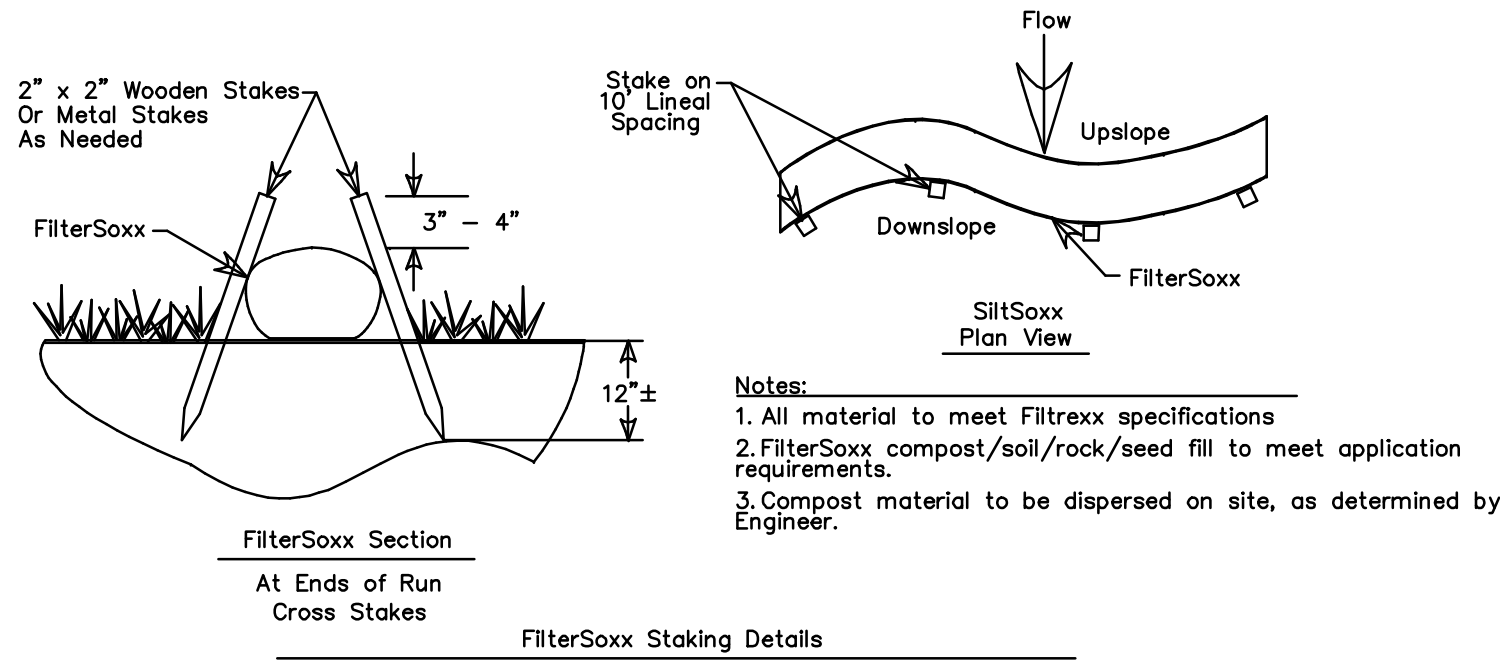
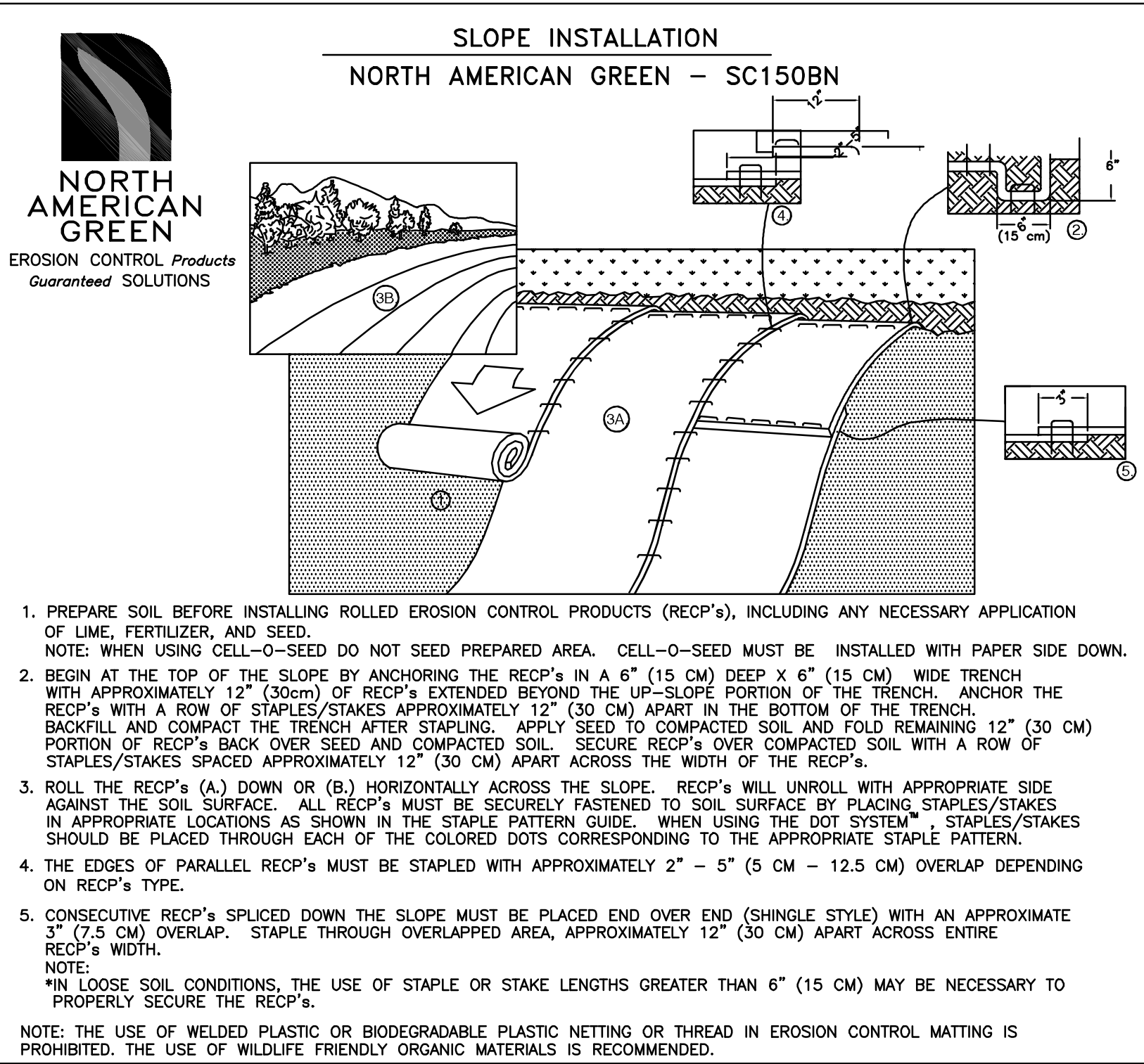


SANITARY SEWER STRUCTURE SCHEDULE

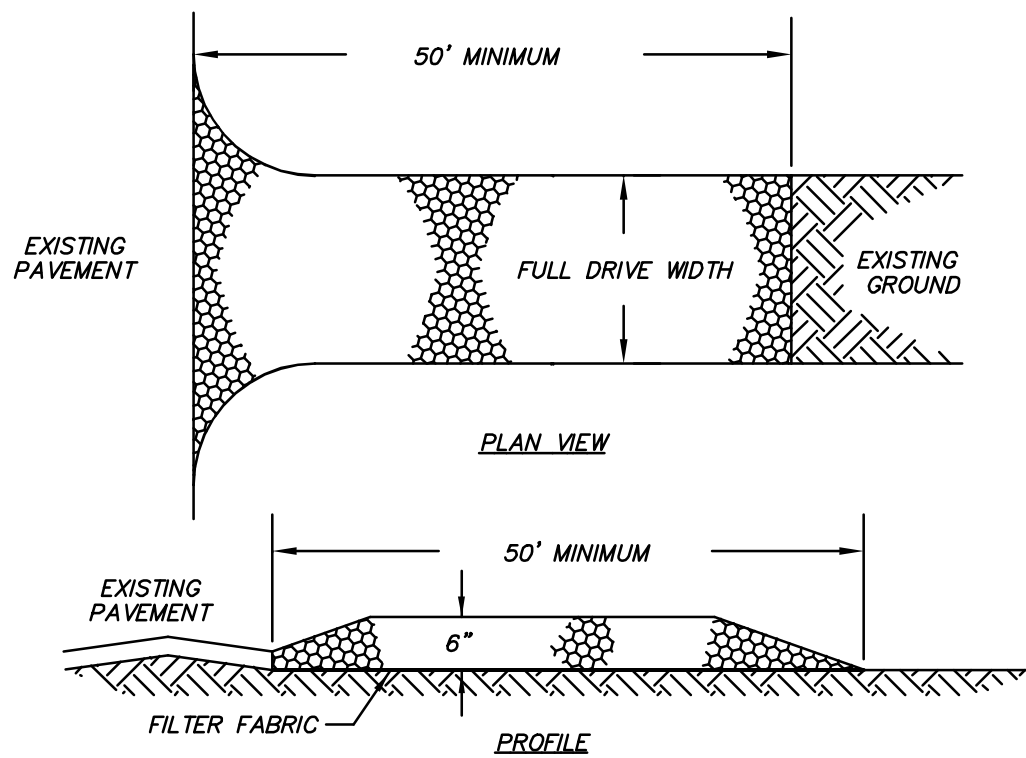
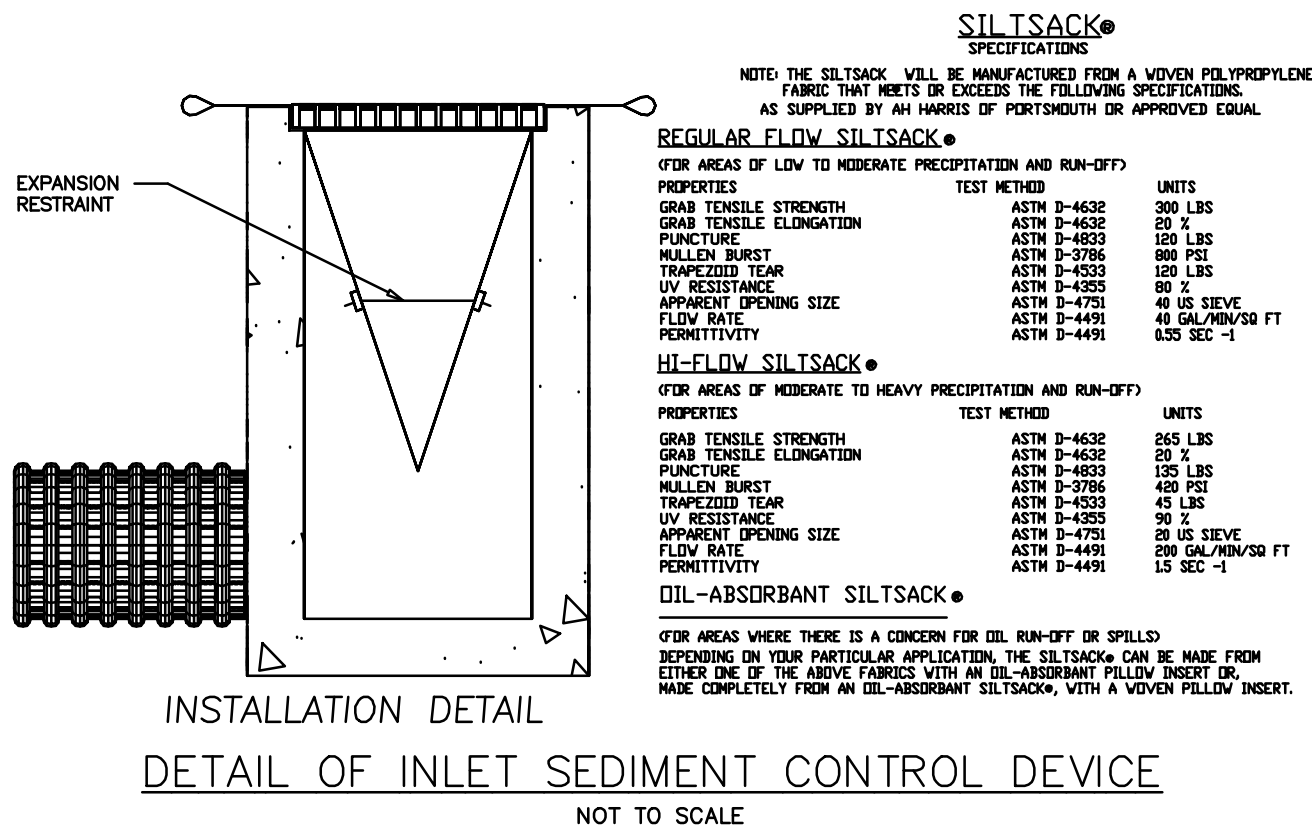
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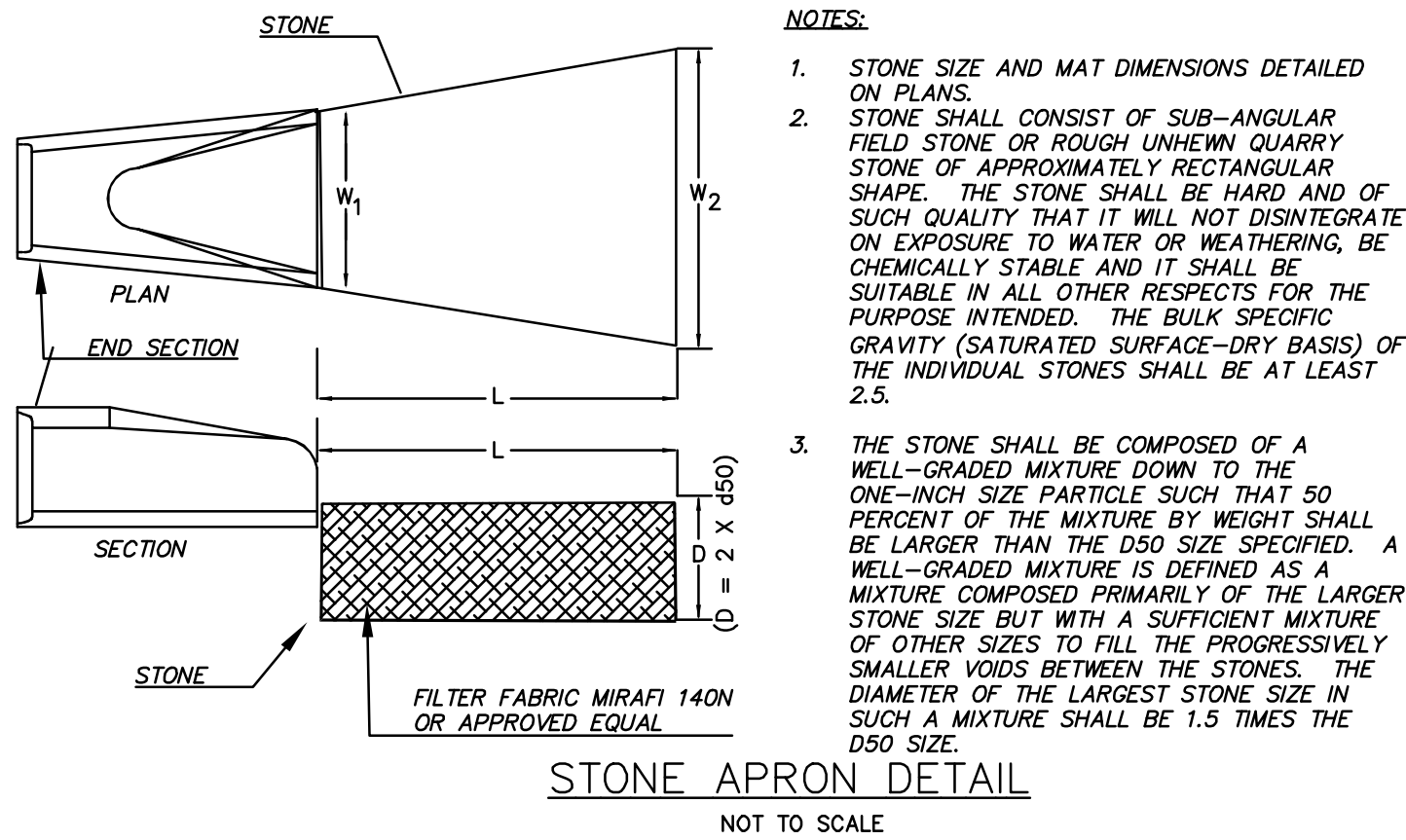
NOT FOR CONSTRUCTION FOR PERMIT USE ONLY		PLANNING FILE		NO.: P21-		CIVILWORKS NEW ENGLAND		18' Watson Road, PO Box 1166 Dover, New Hampshire 03821 603.745.0443	
DATE: 3-1-21	SCALE: 1"=30'	DRAWN BY: SRD	DESIGN BY: SRD	APPROVED BY: SRD	PROJECT NO: 1677	FILE: SITE.DWG	NO.	REVISION	DATE
UTILITY PLAN		MAC CONVENIENCE STORES, LLC 985 EAST TALLMADGE AVENUE AKRON, OHIO 44310		CIRCLE K #7264 DOVER POINT ROAD & POINTE PLACE DOVER, NH		8			



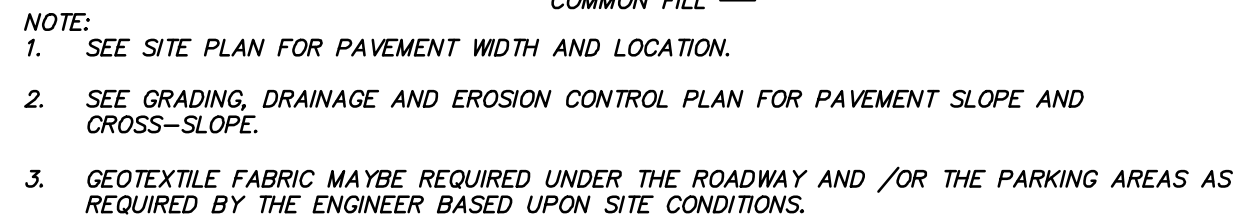
SILTSOXX DETAILS
NOT TO SCALE



- NOTES:
1. SEE EROSION CONTROL NOTES FOR MATERIAL, INSTALLATION AND MAINTENANCE REQUIREMENTS.



EROSION CONTROL DETAILS	NOT FOR CONSTRUCTION FOR PERMIT USE ONLY			
	PLANNING FILE			
	NO.: P-21-			
	CIVILWORKS NEW ENGLAND			
MAC CONVENIENCE STORES, LLC 995 EAST TALLMADGE AVENUE AKRON, OHIO 44310	18" Watson Road, PO Box 1166 Dover, New Hampshire 03821 603.748.0443			
	DATE: 3-1-21			
	SCALE: AS SHOWN			
	DRAWN BY: SRD			
CIRCLE K #7264 DOVER POINT ROAD & POINTE PLACE DOVER, NH	DESIGN BY: SRD			
	APPROVED BY: JH			
	PROJECT NO: 1677			
	FILE: SITE.DWG			
NO.		REVISION		DATE
APP'D				



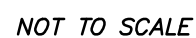
NOT TO SCALE



NOT TO SCALE



NOT TO SCALE



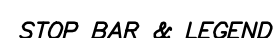
- | RADIUS FOR STONES
WITH SQUARE JOINTS | MAXIMUM
LENGTH |
|---|-------------------|
| 16'-28' | 1'-6" |
| 29'-41' | 2' |
| 42'-55' | 3' |
| 56'-68' | 4' |
| 69'-82' | 5' |
| 83'-96' | 6' |
| 97'-110' | 7' |
| OVER 110' | 8' |

NOT TO SCALE

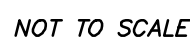


1. ALL WORDS AND SYMBOLS SHALL BE RETROREFLECTIVE WHITE AND SHALL CONFORM TO THE LATEST VERSION OF THE MUTCD.
2. MULTI-WORD MESSAGES SHALL READ "UP"; THAT IS, THE FIRST WORD SHALL BE NEAREST THE APPROACHING DRIVER.
3. THE WORD "ONLY" SHALL NOT BE USED WITH THROUGH OR COMBINATION ARROWS, AND SHALL NOT BE USED ADJACENT TO A BROKEN LANE LINE. A WORD/SYMBOL SHALL PRECEED THE WORD "ONLY".
4. COMBINATION ARROWS MAY BE COMPRISED OF 2 SINGLE ARROWS (e.g. TURN AND THROUGH ARROWS), HOWEVER, THE SHAFTS OF THE ARROWS SHALL COINCIDE AS SHOWN.
5. PREFORMED WORDS AND SYMBOLS SHALL BE PRE-CUT BY THE MANUFACTURER.
6. WRONG-WAY ARROWS SHALL NOT BE SUBSTITUTED FOR THROUGH ARROWS.

NOT TO SCALE



NOT TO SCALE

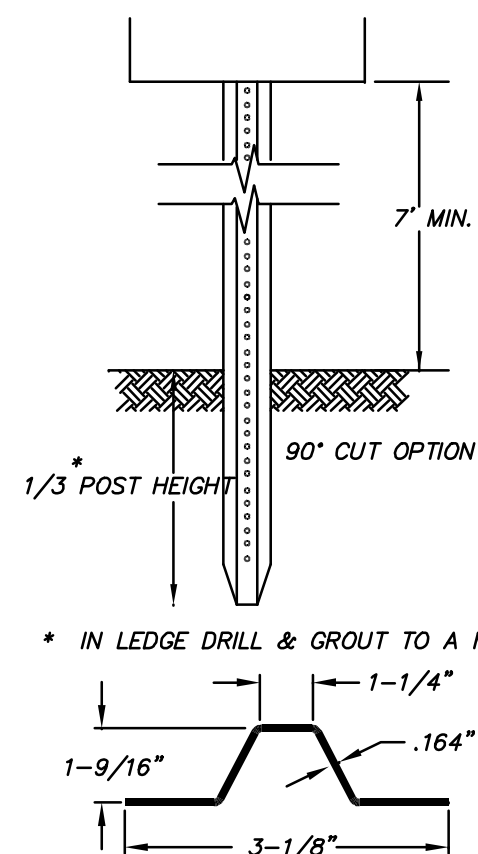
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**MAC CONVENIENCE STORES, LLC
935 EAST TALLMADGE AVENUE
AKRON, OHIO 44310**

**CIRCLE K #7264
DOVER POINT ROAD
POINTE PLACE
DOVER, NH**

11

DETAIL SHEET



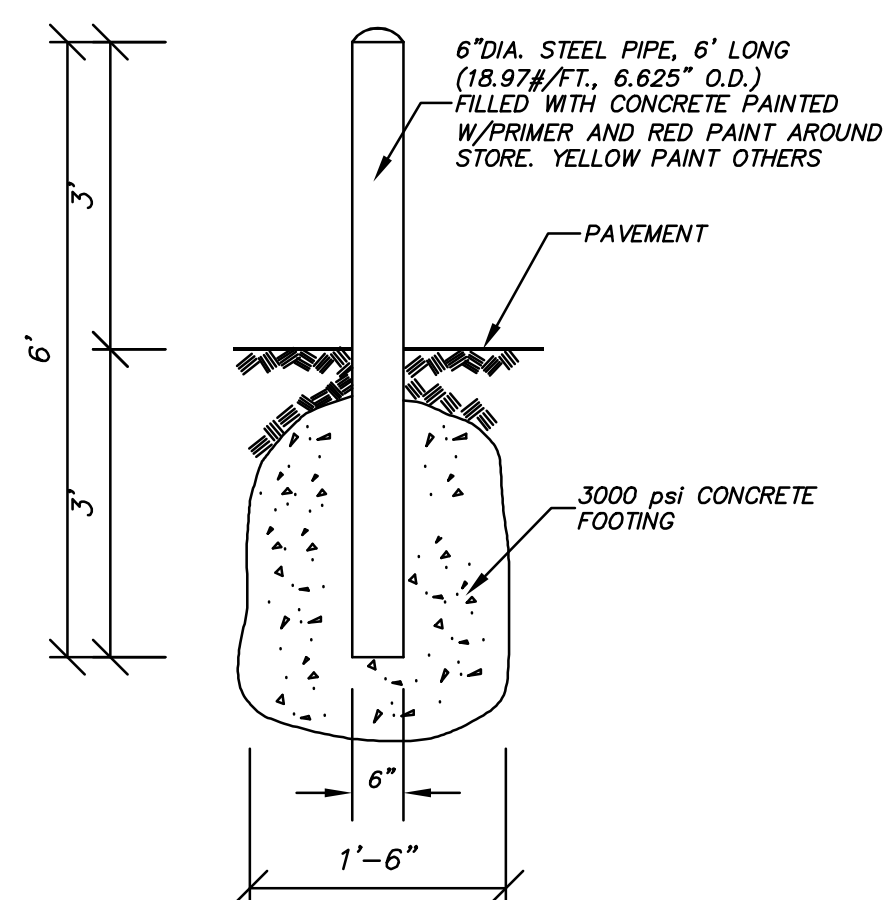
NOTE:

1. ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

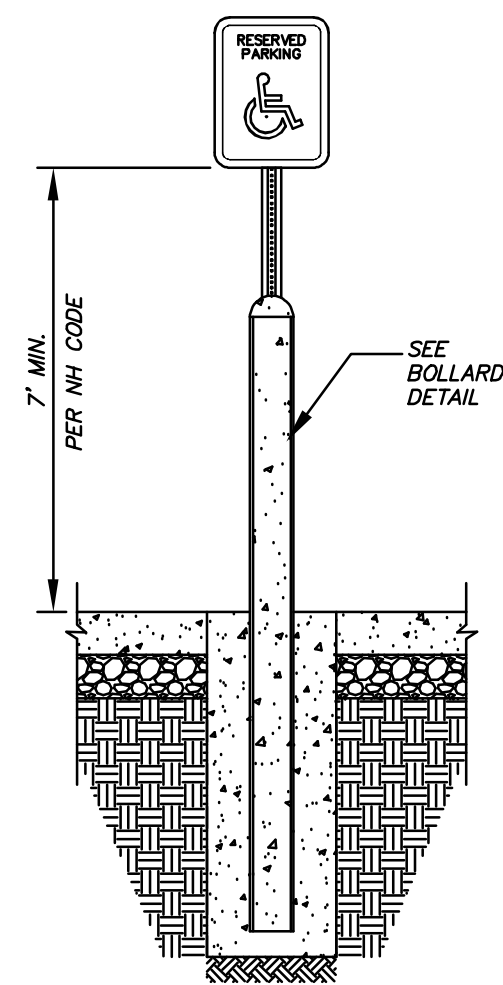
LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLE: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR
ASTM A-576 (GRADE 1070 - 1080)
FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED
MEDIUM GREEN

BAKED ON AIR DRIED, PAINT OF WEATHER RESISTANT QUALITY.
ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.

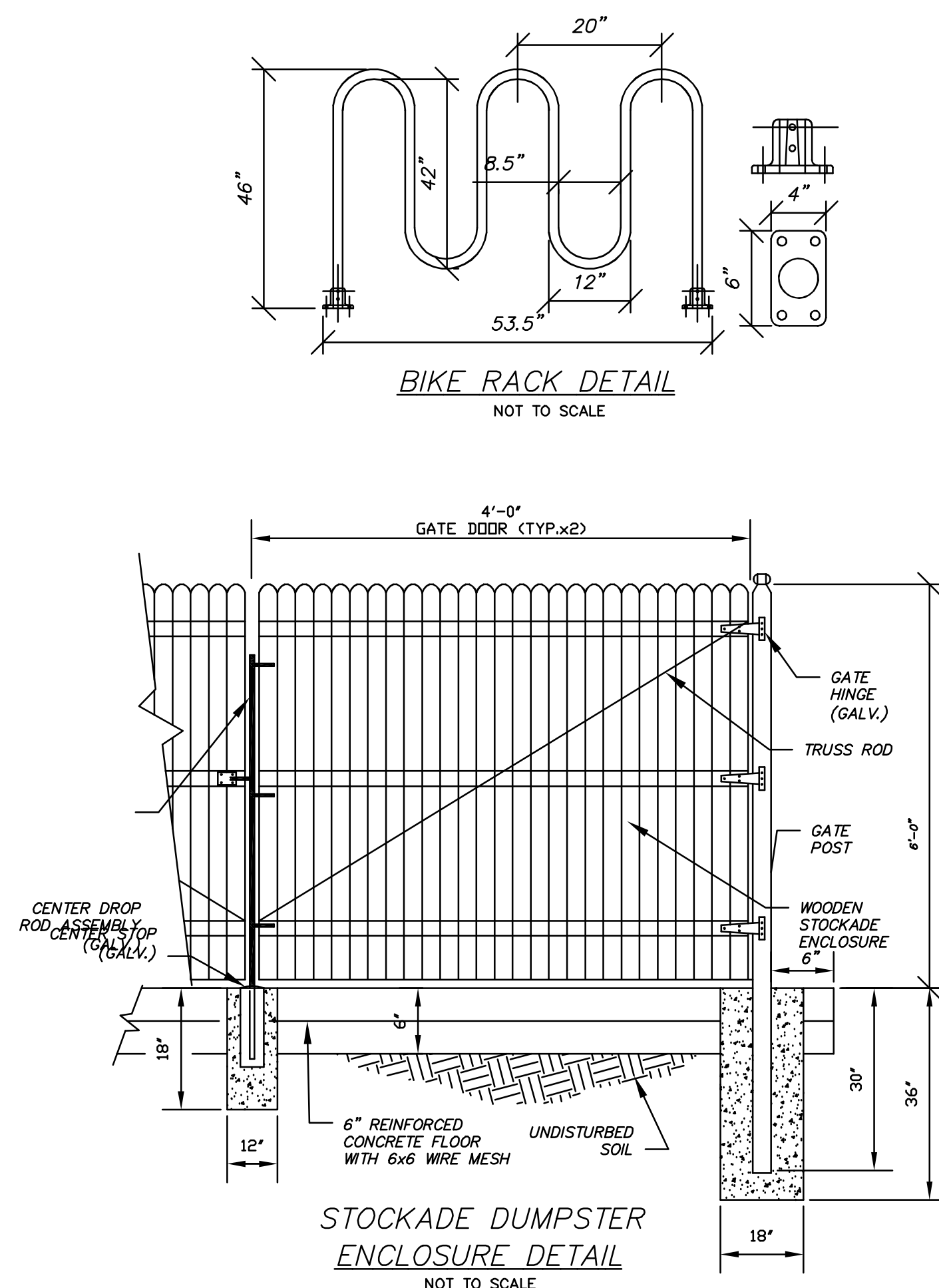
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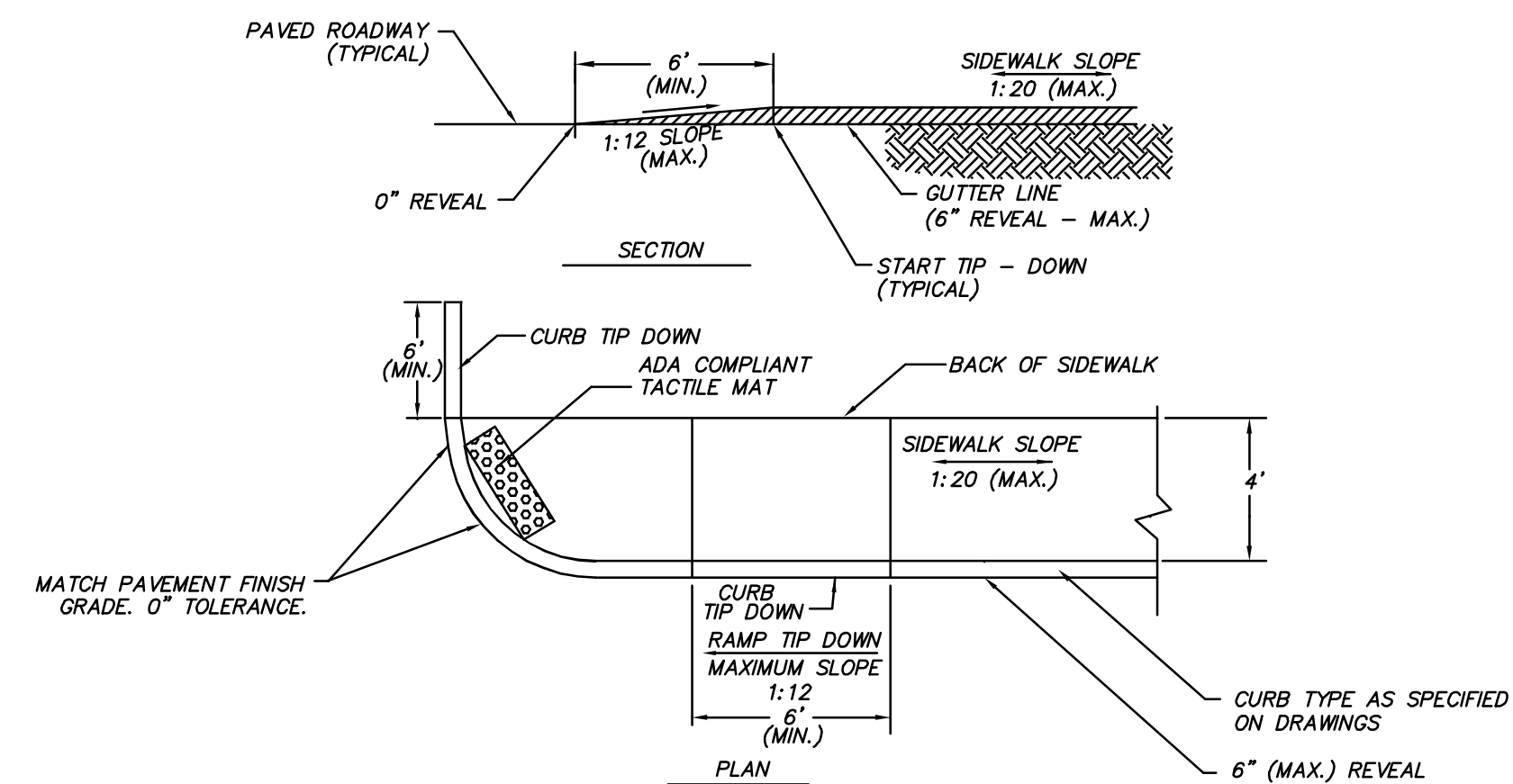
BOLLARD DETAIL
NOT TO SCALE



SIGN IN BOLLARD
NOT TO SCALE



STOCKADE DUMPSTER
ENCLOSURE DETAIL
NOT TO SCALE



SIDEWALK TIP DOWN RAMP
NOT TO SCALE



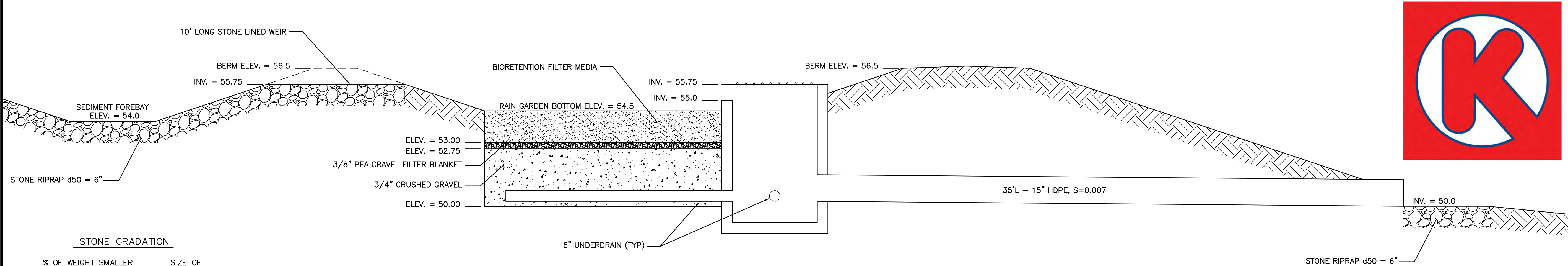
DETAIL SHEET

**CIRCLE K #7264
DOVER POINT ROAD &
POINTE PLACE
DOVER, NH**

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY
PLANNING FILE
NO.: P21-

DATE: 3-1-21			
SCALE: AS SHOWN			
DRAWN BY: SRD			
DESIGN BY: SRD			
APPROVED BY:SIH			
PROJECT NO:1677			
FILE: SITE.DWG	NO.	REVISION	APP'D DATE



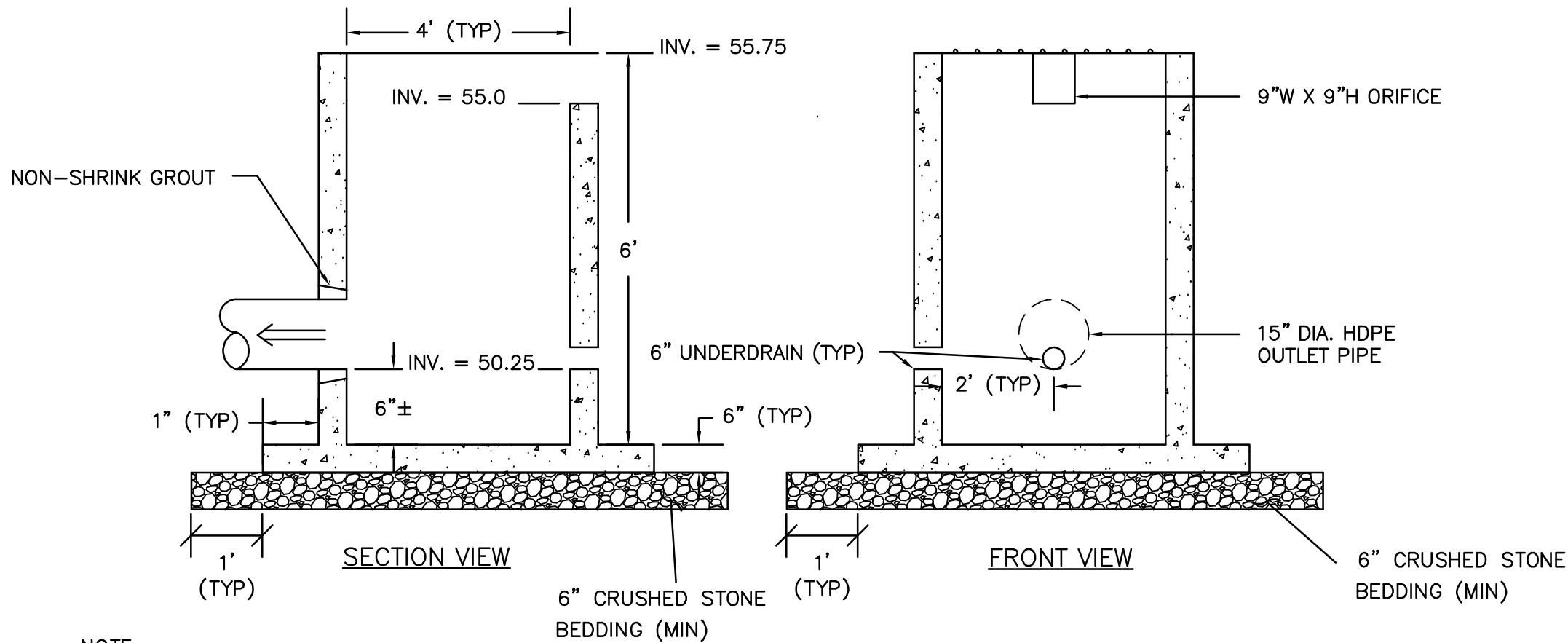
STONE GRADATION	
% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE
100	1.5 TO 2.0 D50
85	1.3 TO 1.8 D50
50	1.0 TO 1.5 D50
15	0.3 TO 0.5 D50

- NOTES:
- CONSTRUCT GRASSED OVERFLOW SPREADER EARLY DURING INITIAL CONSTRUCTION TO ESTABLISH TURF PRIOR TO CONSTRUCTION OF BIORETENTION SYSTEM.
 - DO NOT BEGIN CONSTRUCTION OF THE BIORETENTION AREA UNTIL LAWN AREA ON THE ENTIRE SITE AREA ESTABLISHED WITH AT LEAST 80 PERCENT TURF. FILTER ALL DRAIN INLETS IN THE SEDIMENT FOREBAYS TO PREVENT SILTATION INTO THE BIORETENTION AREA.
 - THE RAIN GARDEN SUBGRADE SHALL BE EXCAVATED TO THE DESIGN DEPTH PLUS TWO (2) INCHES. AT THAT DEPTH FOUR (4) INCHES OF COMPOST SHALL BE TILLED INTO THE EXISTING SOILS SUCH THAT THE SOILS ARE WELL MIXED.
 - DO NOT DRIVE CONSTRUCTION EQUIPMENT ON FILTER SUBGRADE NOR ON THE FILTER MATERIAL. INSTALL FILTER MATERIAL BY MEANS OF AN EXCAVATOR LOCATED ADJACENT TO THE FILTER AREA.
 - MATERIALS: CRUSHED STONE LAYER SHALL MEET NHDOT 304.4. STONE SHALL CONTAIN NO MORE THAN 5% FINES PASSING THE #200 SIEVE. TOPSOIL SHALL CONTAIN 15 TO 25% FINES PASSING THE #200 SIEVE. MULCH SHALL BE SHREDDED HARDWOOD, AGES IN A STOCKPILE OR STORED FOR AT LEAST 12 MONTH. NON-WOVEN GEOTEXTILE BE 4 TO 6 OZ. PER SQUARE YARD WITH A.O.S. OF #70 SIEVE OR LOWER, AND A MINIMUM FLOW RATE OF 125 GAL PER SQUARE FEET.
 - REFER TO LANDSCAPING DRAWINGS FOR GRASS SEED MIXES AND PLANTINGS. FERTILIZATION OF THE FILTER AREA SHALL BE AVOIDED UNLESS ABSOLUTELY NECESSARY TO ESTABLISH VEGETATION.
 - INITIAL ESTABLISHMENT: DURING THE FIRST 2-3 MONTHS OF ESTABLISHMENT WATER THE GARDEN ON A WEEKLY BASIS (TO SUPPLEMENT RAINFALL FOR TOTAL OF 1 INCH PER WEEK).
 - ANNUAL MAINTENANCE: IN THE SPRING OF EACH YEAR, ANY DEAD VEGETATION SHALL BE REMOVED TO ALLOW FOR NEW GROWTH, AND ANY ACCUMULATED SEDIMENT (NORMALLY AT THE ENTRANCE TO THE GARDEN) SHALL ALSO BE REMOVED. DURING THE GROWING SEASON THE RAIN GARDEN SHALL BE WEEDED TWO (2) TIMES AND ADDITIONAL HARDWOOD MULCH SHALL BE ADDED AS NEEDED TO ASSIST IN WEED SUPPRESSION. TURF AT FILTER SHALL BE MOWED NO MORE THAN 3 TIMES PER GROWING SEASON. IF WATER PONDS ON THE SURFACE FOR MORE THAN 24 HOURS DURING THE FIRST YEAR OR 72 HOURS THEREAFTER, THE FILTER SURFACE SHALL BE AERATED WITH DEEP TINES OR THE SURFACE REPLACED.
 - PLANTINGS SHALL BE NATIVE NON-INVASIVE SPECIES, SEE LANDSCAPE ARCHITECT DRAWINGS.

BIORETENTION FILTER MEDIA SPECIFICATIONS			
COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	GRADATION OF MATERIAL	
		SIEVE NO.	PERCENT BY WEIGHT PASSING STANDARD SIEVE
FILTER MEDIA OPTION A			
ASTM C-33 CONCRETE SAND	50 TO 55		
LOAMY SAND TOPSOIL, WITH FINES AS INDICATED	20 TO 30	200	15 TO 25
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	< 5
FILTER MEDIA OPTION B			
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	< 5
LOAMY COARSE SAND	70 TO 80	10	85 TO 100
		20	70 TO 100
		60	15 TO 40
		200	8 TO 15

BIORETENTION SYSTEM DETAIL (RAIN GARDEN 1)

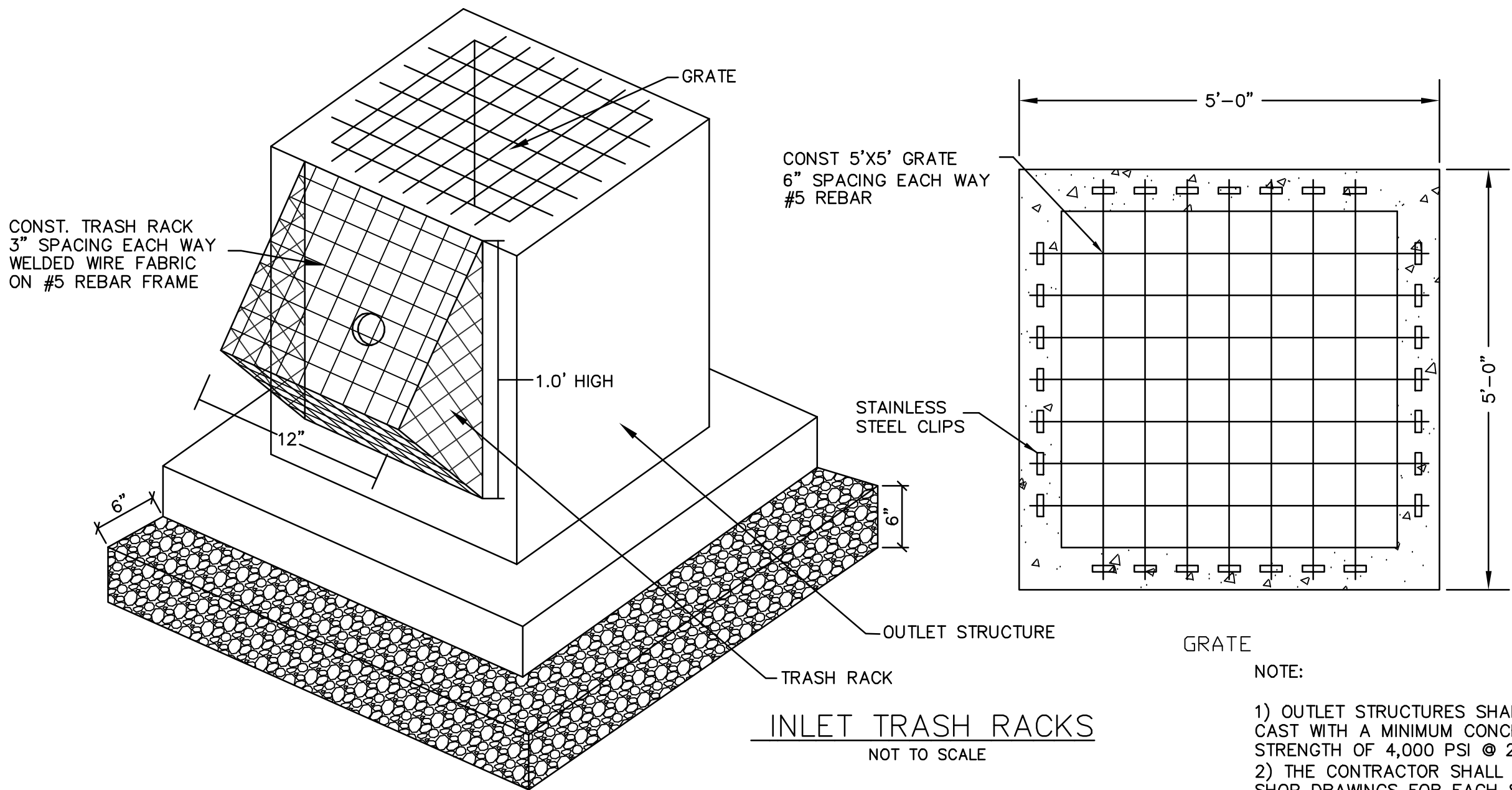
NOT TO SCALE



- NOTE:
- ALL OUTLET STRUCTURES SHALL BE PRE CAST WITH A MINIMUM CONCRETE STRENGTH OF 4,000 PSI @ 28 DAYS.
 - THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EACH STRUCTURE FOR REVIEW BY THE CITY.

OUTLET STRUCTURE RAIN GARDEN 1 DETAIL

NOT TO SCALE



- NOTE:
- OUTLET STRUCTURES SHALL BE PRE CAST WITH A MINIMUM CONCRETE STRENGTH OF 4,000 PSI @ 28 DAYS.
 - THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EACH STRUCTURE FOR REVIEW BY THE CITY.



NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE

NO.: P21-

CIVILWORKS NEW ENGLAND

CIVIL ENGINEERING

181 Watson Road, PO Box 1166

Dover, New Hampshire 03821

603.748.0443

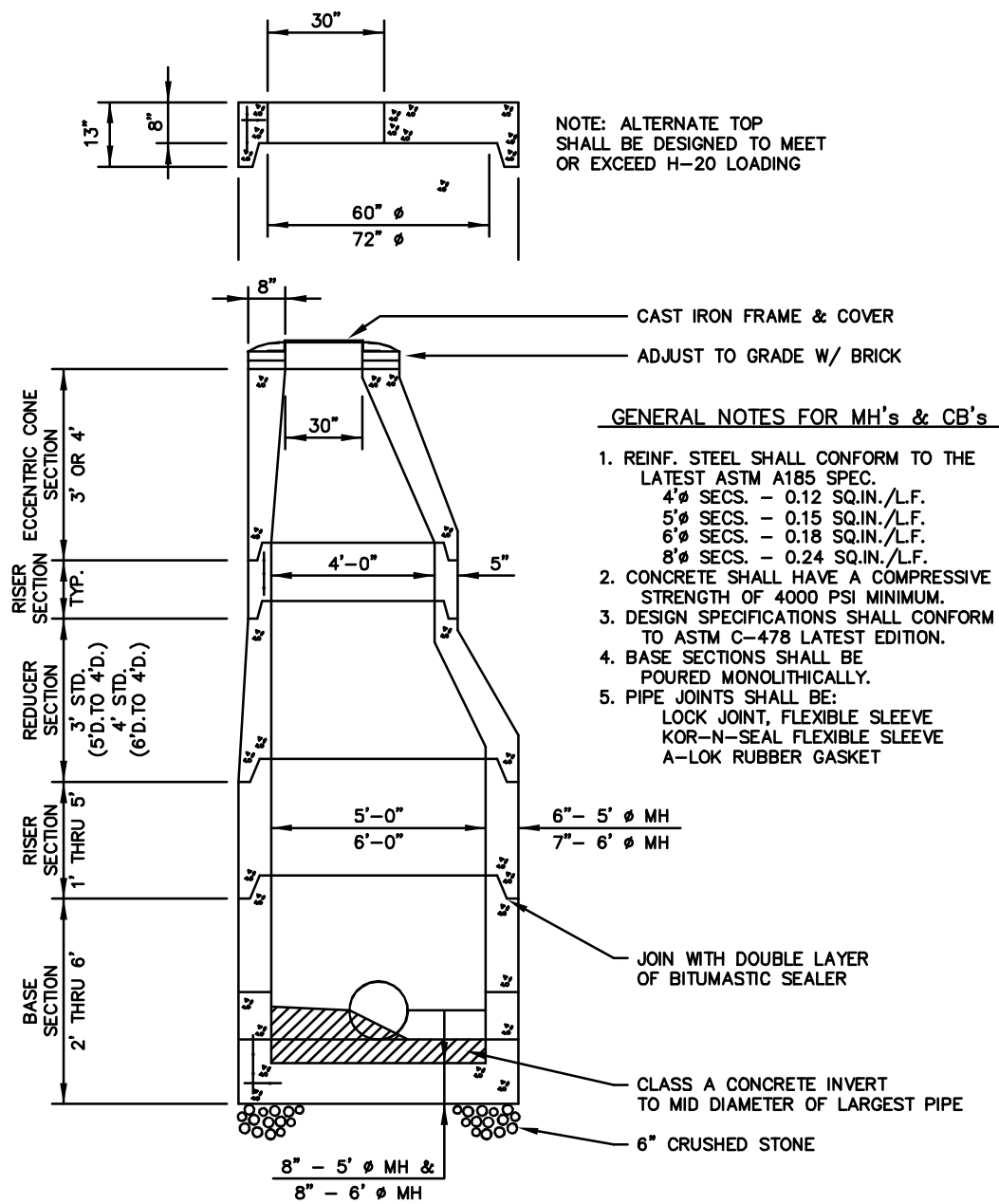
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DETAIL SHEET

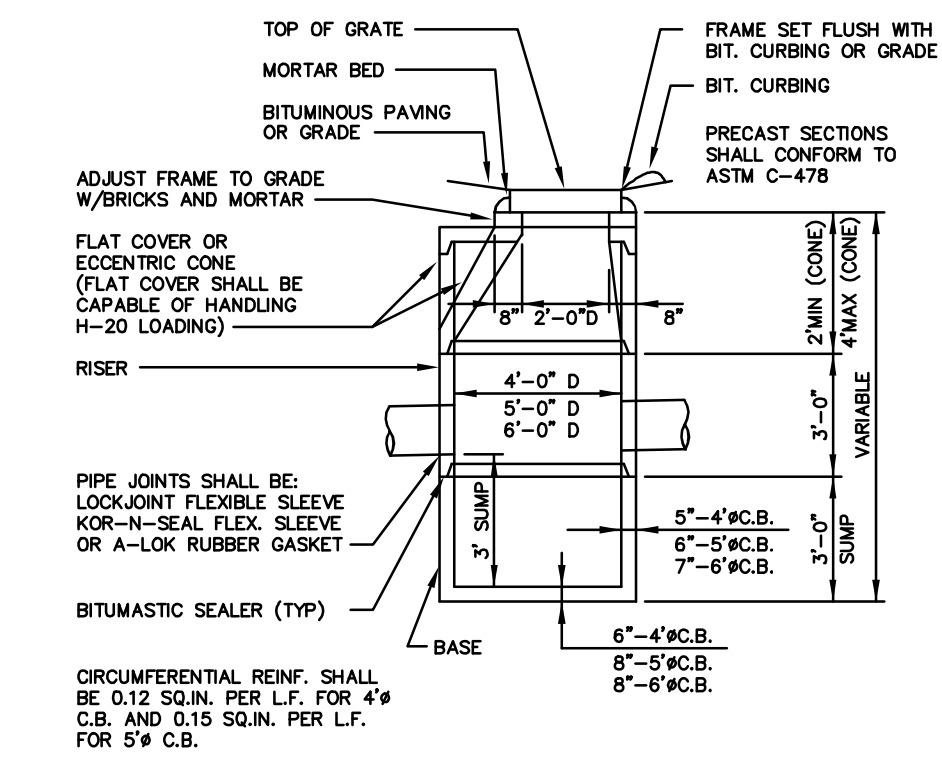
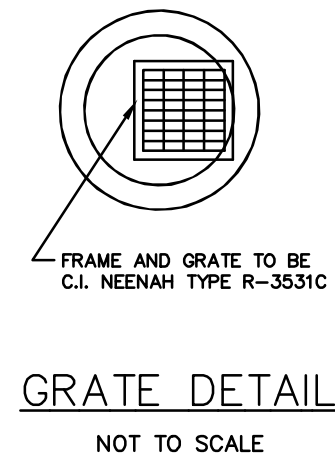
CIRCLE K #7264
DOVER POINT ROAD &
POINTE PLACE
DOVER, NH

MAC CONVENIENCE STORES, LLC
985 EAST TALLMADGE AVENUE
AKRON, OHIO 44310

13

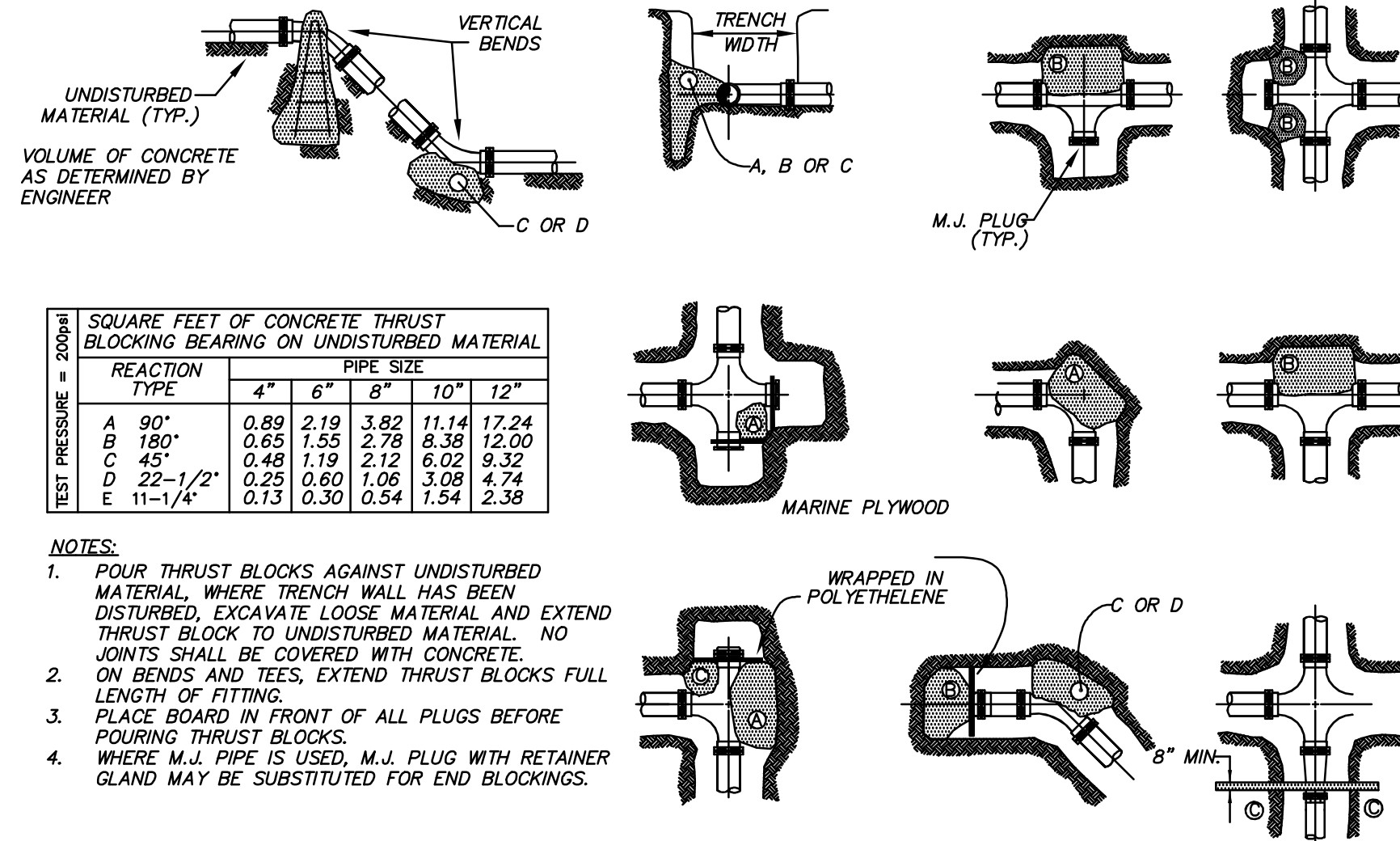


STANDARD 5 FT. & 6 FT. DIA. MANHOLES
NOT TO SCALE

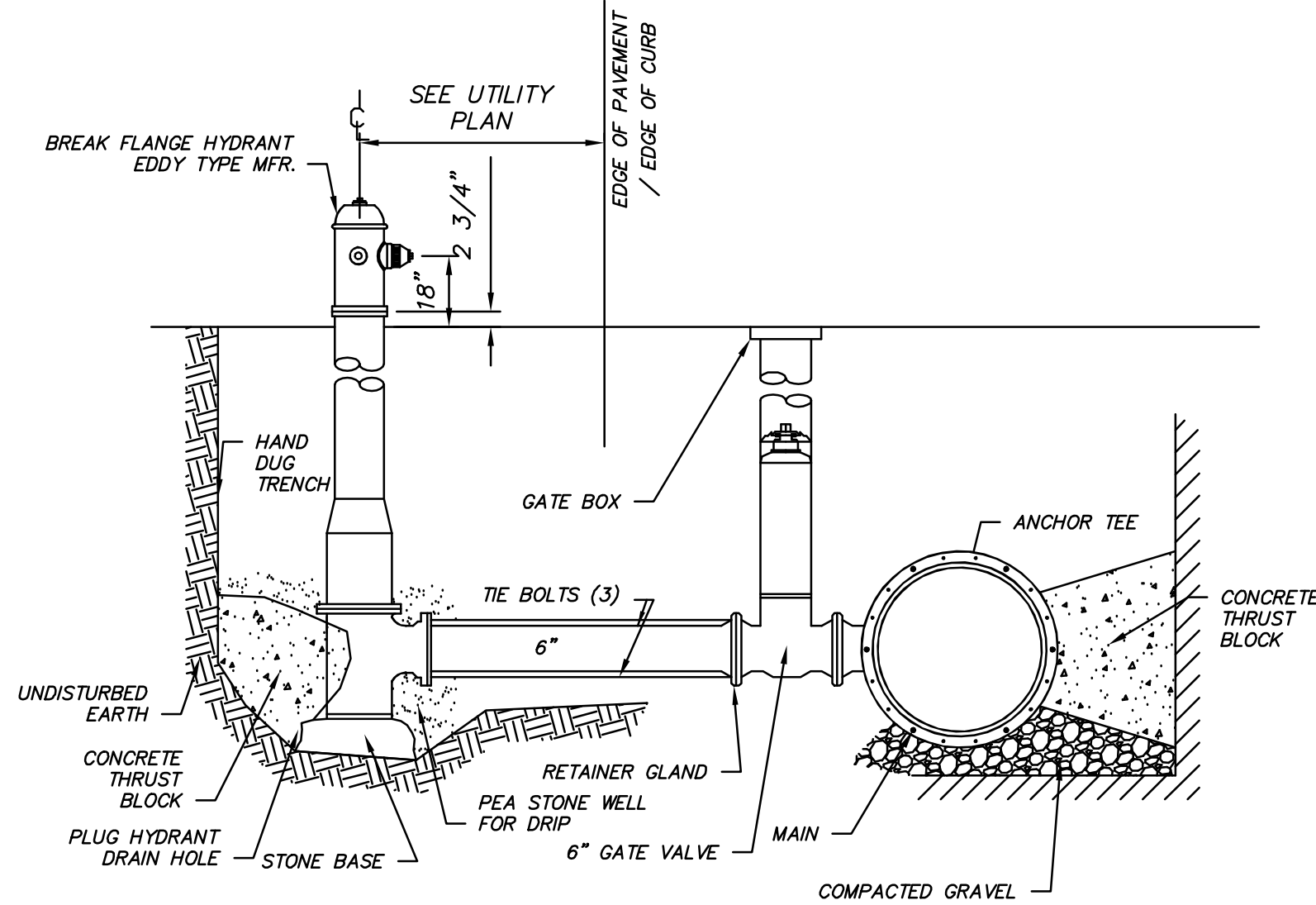


PRE-CAST REINFORCED CATCH BASIN
NOT TO SCALE

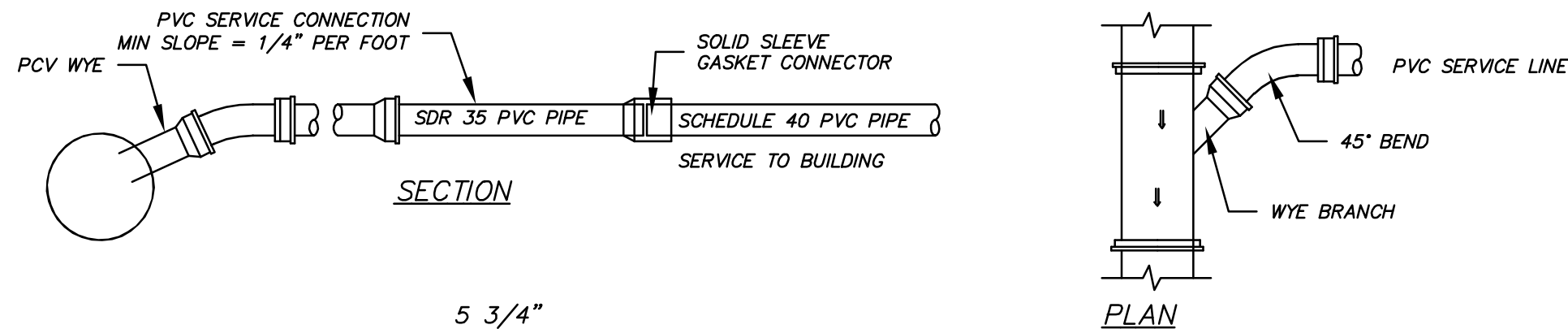
- SPECIFICATIONS**
- All construction shall conform with the State of New Hampshire Department of Transportation (NHDOT), "Standard Specifications for Road and Bridge Construction"; hereinafter referred to as the "Standard Specifications".
 - Storm drains shall be ADS N12 or approved equal, and shall be jointed with neoprene "O" rings.
 - Catch basins and manholes shall be pre-cast reinforced concrete designed by an engineer registered in New Hampshire, and able to withstand loadings of 8 tons (H20 Loading).
 - Manholes shall have cast iron frames and covers with 30" inside diameter openings. A 3-inch (minimum) letter "D" for drain shall be plainly cast into the center of each cover.
 - Catch basins and manholes shall be adjusted to grade with courses of brick. Maximum adjustment to grade shall be 12 inches. Frames shall be set on a full bed of mortar, true to grade and concentric with the masonry. All voids between the top of the structure and the bottom flange of the frame shall be completely filled to make a watertight fit. A ring of mortar at least one inch thick and pitched to shed water away from the frame, shall be placed over and around the outside of the bottom flange. The mortar shall extend to the outer edge of the masonry all around its circumference and shall be finished smooth. No visible leakage will be permitted.
 - Invert channels of sewer manholes shall be formed smoothly to the largest pipe radius. Changes in grade shall be formed smoothly and evenly. The floor of the structure outside the channels shall be sloped towards the channels at approximately 1/2 inch per foot. The floor at the channel shall match the crown of the largest pipe.
 - Trench construction will conform with Section 603.3.1 of the Standard Specifications (1974).
 - Wood sheeting or a suitable trench box shall be used to support the trench as necessary. If wood sheeting is used, it shall be driven at a distance of 1 foot from the outside diameter of the pipe to a depth 6 inches below the invert of the pipe. Wood sheeting shall be cut off and left in place to an elevation not less than 1 foot above the top of the pipe, but not greater than 3 feet below the finished grade.
 - Bedding shall conform with Section 603.3.2 of the Standard Specifications (1974).
 - Backfill material will conform with Section 603.3.5 of the Standard Specifications (1974) and, in addition, shall exclude debris, pieces of pavement, organic matter, top soil, all wet or soft muck, peat or clay, all excavated ledge material, frozen material, all rocks over 6 inches in largest dimension, or any material which, as determined by the Engineer, will not provide sufficient support or maintain the completed construction in a stable condition. Backfill shall not be placed on frozen or previously frozen material.
 - All backfill and bedding compaction shall meet the requirements of AASHTO T 99 Method C. Density shall be 95 percent. Compaction shall be 6 inch lifts for bedding and backfill to a plane 1 foot above the pipe and in 12 inch lifts thereafter by an approved mechanical compactor.
 - Should frozen material be encountered, it shall not be placed in the backfill nor shall backfill be placed upon frozen material. Previously frozen material shall be removed as required before new backfill is placed.
 - The Contractor shall be responsible for any damage to frames and grates during and from the time of removal from the existing structure to and during the time of resetting, and shall replace in kind any damaged frames or grates at no additional compensation.
 - All trenches will be covered and debris, including any rejected materials, shall be removed daily. Strict safety precautions shall be maintained at all times.
 - Location of utilities shown on the plans are approximate.
 - The Contractor shall, 48 hours prior to construction, notify the utility companies and have all utilities in the vicinity of the construction marked in the field.
 - After the utilities have been located and prior to construction, the Contractor with the Engineer, shall layout the proposed drainage system in the field and rectify any utility conflicts which may be found.
 - Any conflicts with utilities found during construction by the Contractor shall be immediately brought to the attention of the Engineer and the Utility Company and properly rectified.
 - The Contractor is responsible for the cost of repair for any utilities damaged during construction. The Contractor shall contact the Utility Company to repair any damages, however, the Contractor may make appropriate repairs with the Utility Company's permission.
 - Complete shop drawings for pipe, manholes, catch basins, frames, grates and covers shall be submitted in triplicate for approval by the Engineer prior to the start of construction. Each shop drawing shall be checked and initialed by the Contractor to indicate approval before it is submitted to the Engineer.
 - Shop drawings for flat concrete covers shall be stamped prior to submission for approval by a New Hampshire Registered Professional Engineer.
 - Brick masonry for setting frames and brick and mortar plugs shall conform to the Standard Specification Section 604.2.4.



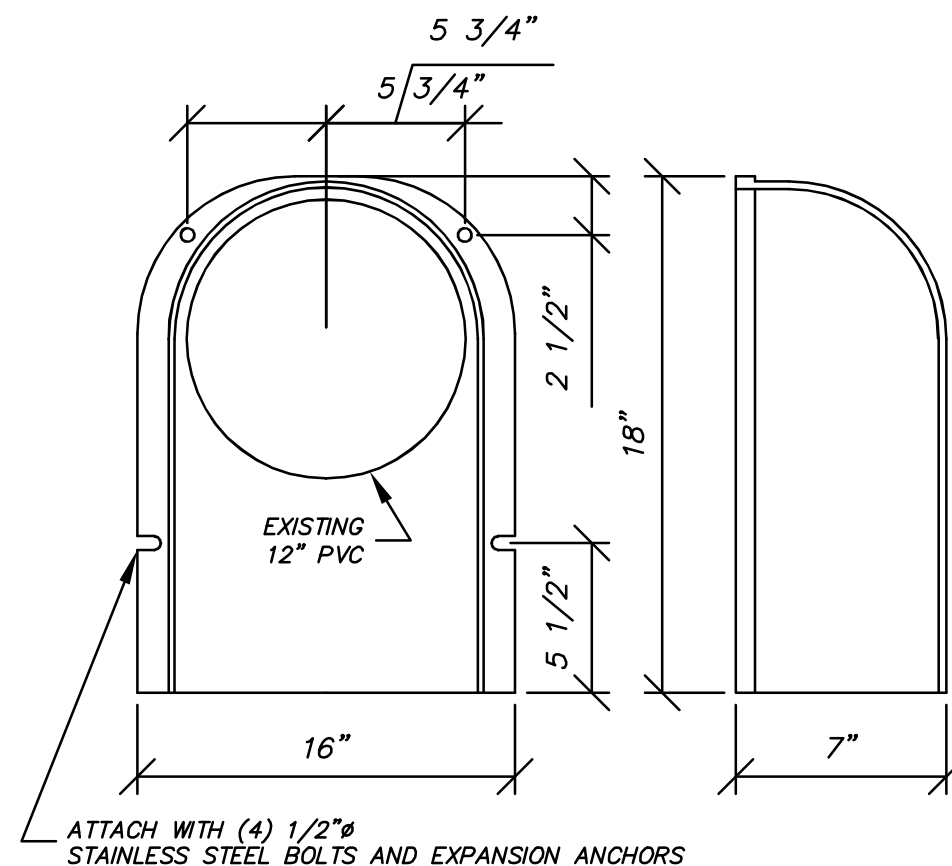
THRUST BLOCKING DETAIL
NOT TO SCALE



TYPICAL HYDRANT INSTALLATION
NOT TO SCALE



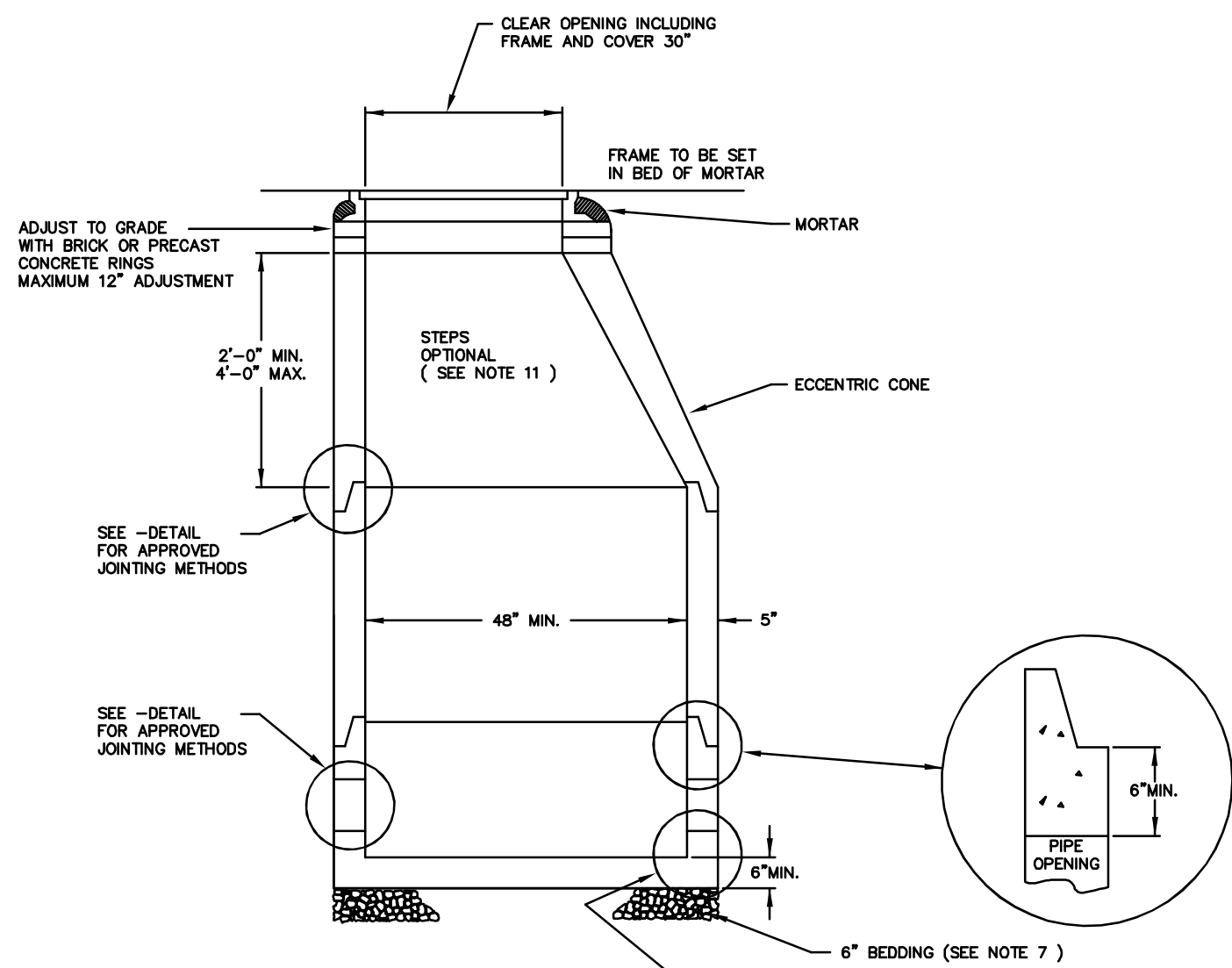
CITY OF DOVER
SEWER SERVICE
NOT TO SCALE



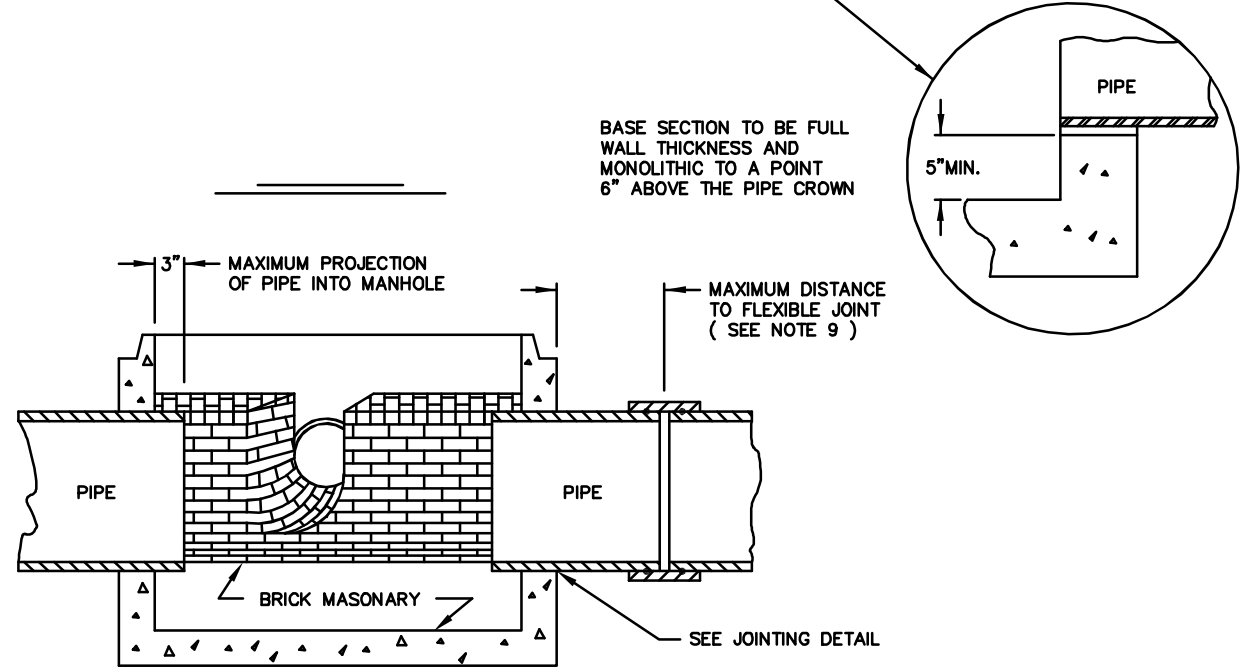
CATCH BASIN HOOD DETAIL
(NOT TO SCALE)



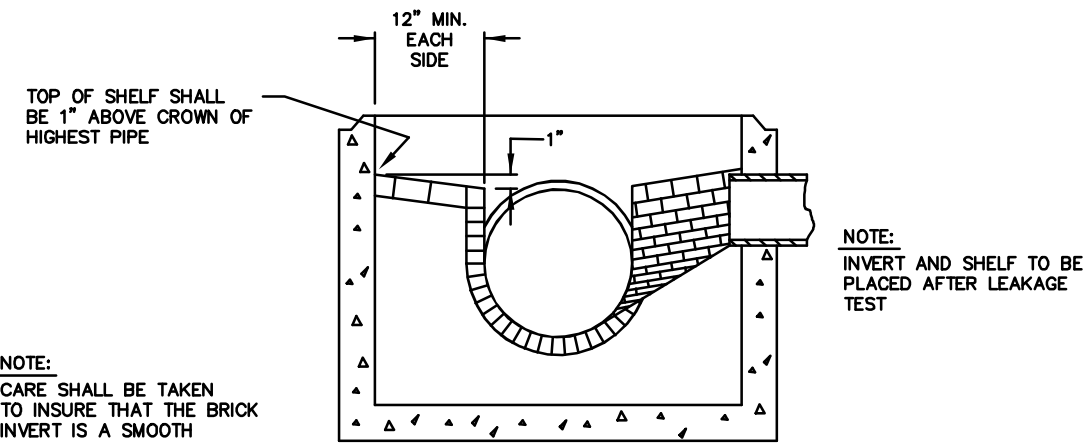
DETAIL SHEET	NOT FOR CONSTRUCTION FOR PERMIT USE ONLY				PLANNING FILE NO.: P-21-	CIVILWORKS NEW ENGLAND			
	DATE: 3-1-21	SCALE: AS SHOWN	DRAWN BY: SRD	DESIGN BY: SRD	APPROVED BY: SRD	PROJECT NO: 1677	FILE: SITE.DWG	NO.	DATE
MAC CONVENIENCE STORES, LLC 985 EAST TALLMADGE AVENUE AKRON, OHIO 44310				REVISION				APP'D	DATE
CIRCLE K #7264 DOVER POINT ROAD & POINTE PLACE DOVER, NH				14					



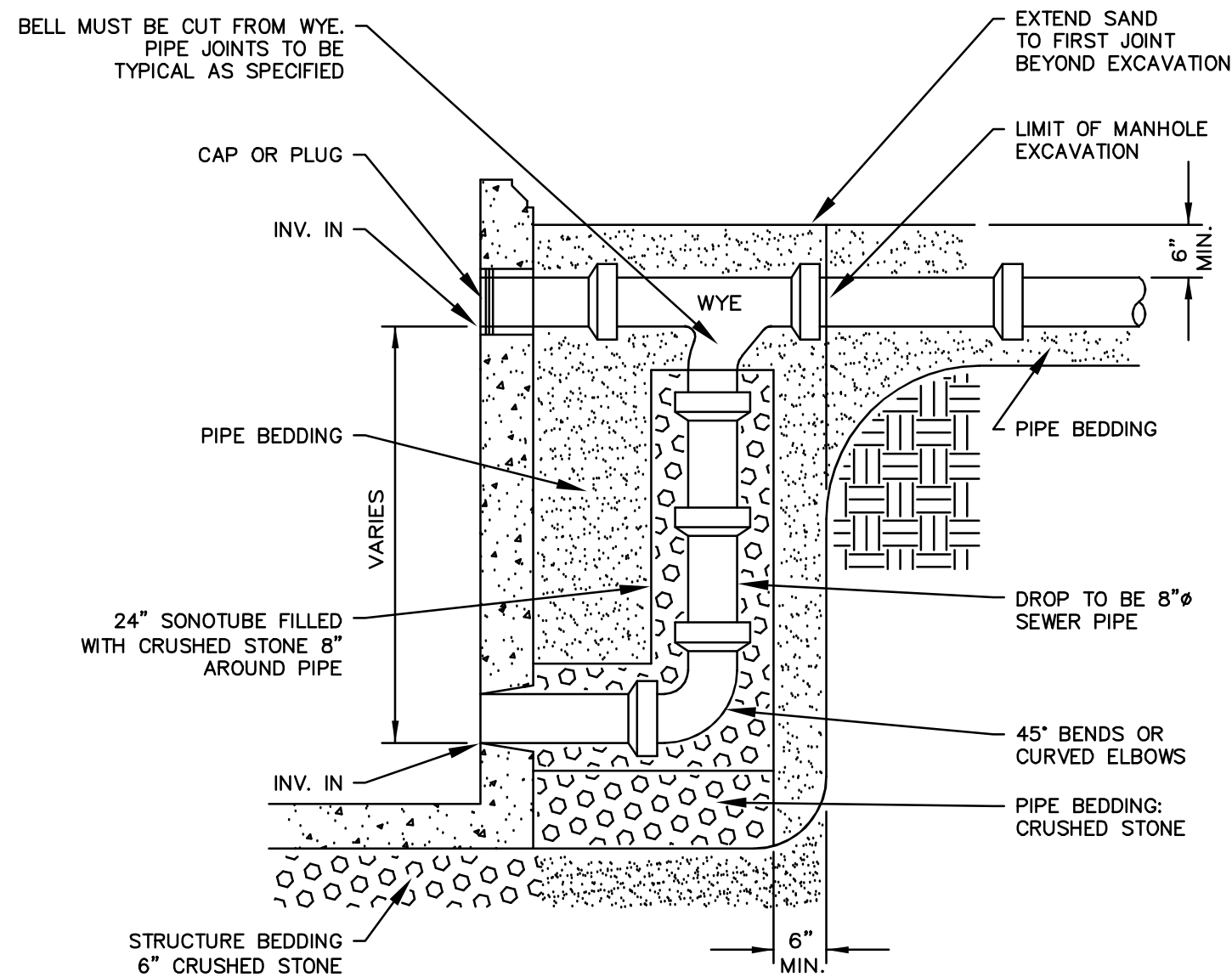
TYPICAL SECTION



SECTION A-A



SECTION B-B

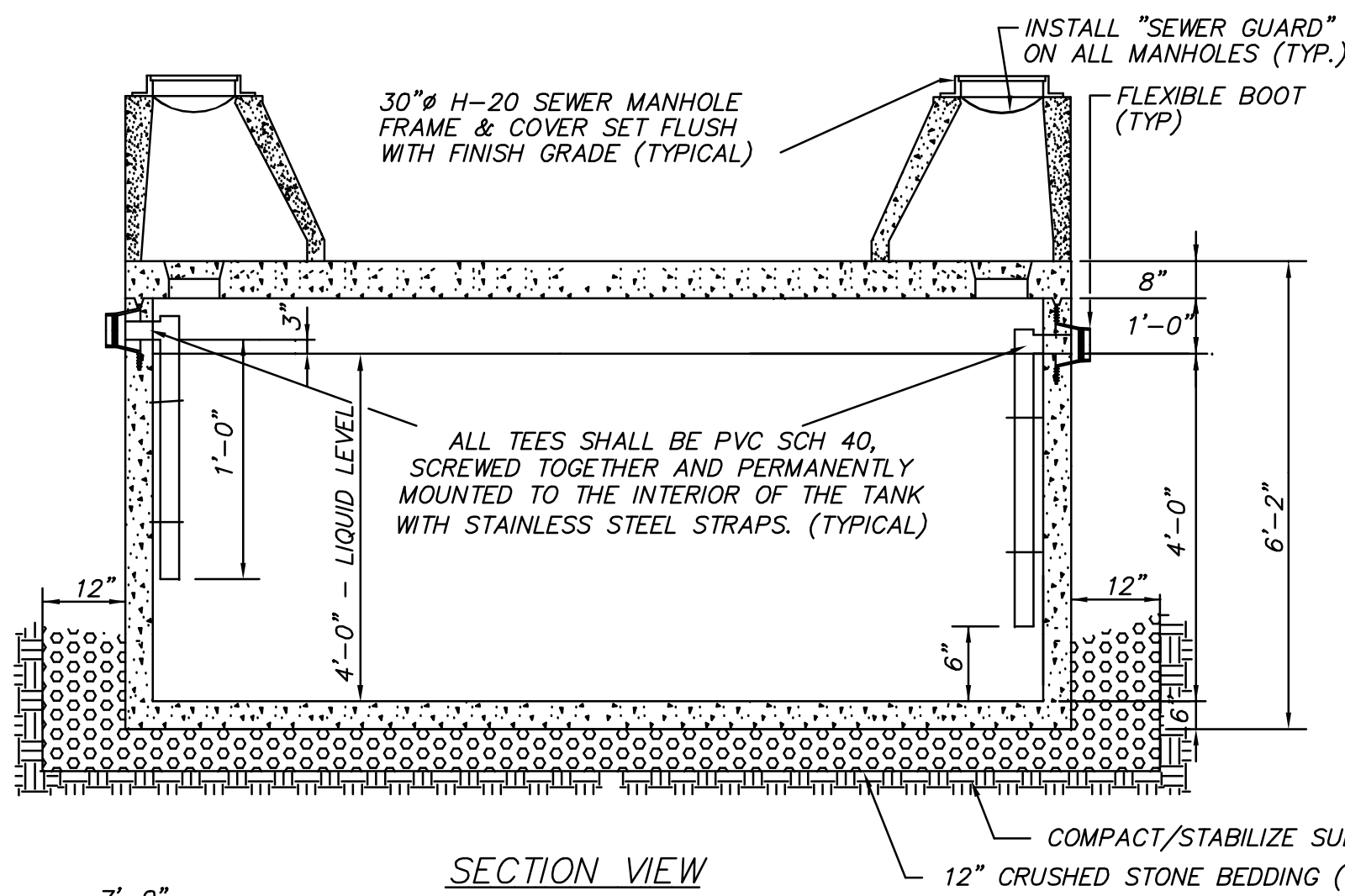


EXTERNAL DROP

NOTE: DIMENSIONS AND CONSTRUCTION OF DROP MANHOLE TO BE SIMILAR TO TYPICAL MANHOLE EXCEPT AS SHOWN

NOTES:

- IT IS THE INTENTION OF THE COMMISSION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAKPROOF QUALITIES CONSIDERED NECESSARY BY THE COMMISSION FOR THE INTENDED SERVICE SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES MAY BE AN ASSEMBLY OF PRECAST SECTIONS, WITH OR WITHOUT STEEL REINFORCEMENT, WITH ADEQUATE JOINTING, OR CONCRETE CAST MONOLITHICALLY IN PLACE WITH OR WITHOUT REINFORCEMENT, IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H-20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE. A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.
- BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED.
- PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478.
- LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS.
- INVERTS AND SHELVES. MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW. AT CHANGES IN DIRECTION, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.
- FRAMES AND COVERS. MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING A 3-INCH (MINIMUM HEIGHT) LETTER "S" FOR SEWER OR "D" FOR DRAINS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
- BEDDING. SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33 100% PASSING 1 INCH SCREEN 0-10% PASSING # 4 SIEVE 90-100% PASSING 3/4 INCH SCREEN 0- 5% PASSING # 8 SIEVE 20-55% PASSING 3/8 INCH SCREEN WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1 1/2 INCH TO 1/2 INCH SHALL BE USED.
- CONCRETE FOR DROP SUPPORT SHALL CONFORM TO THE REQUIREMENT FOR CLASS A (3000#) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATIONS AS FOLLOWS: CEMENT: 6.0 BAGS PER CUBIC YARD WATER: 5.75 GALLONS PER BAG CEMENT MAXIMUM SIZE OF AGGREGATE: 1 INCH 9.) FLEXIBLE JOINT. A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES: RCP & CI PIPE - ALL SIZES - 48" AC & VC PIPE - UP THROUGH 12" DIA -18" AC & VC PIPE - LARGER THAN 12" DIA - 36" DI PIPE - NONE REQUIRED PVC (ASTM 3034) - UP THROUGH 15" DIA. - NONE REQUIRED PVC (ASTM F 679) - LARGER THAN 15" DIA. - 48" - 60" PVC (ASTM F 789) - ALL SIZES - 48" - 60" ABS (ASTM D 2680) - ALL SIZES - SAME AS VC ABOVE - UNDER SEVERE CONDITIONS WHEN DIFFERENTIAL SETTING CANNOT BE CONTROLLED WITHIN NORMAL LIMITS, VARIATIONS IN THE STUB LENGTH MAY BE NECESSARY. OTHER PLASTIC PIPES SHALL BE REVIEWED ON A CASE BY CASE BASIS.
- SHALLOW MANHOLE. IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H-20 LOADS.
- MANHOLE STEPS. MAY BE PERMITTED UPON REQUEST BY THE OWNER AS SECONDARY ADDITIONAL SAFETY FEATURE SUPPLEMENTARY TO THE PRIMARY PORTABLE LADDER ENTRY AND WHEN INSTALLED UNDER THE FOLLOWING CONDITIONS:
 - THE STEPS SHALL BE MANUFACTURED OF 5/8 INCH ROUND STAINLESS STEEL OR FORGED ALUMINUM ALLOY. THEY SHALL BE SHAPED SO THAT THEY CANNOT BE PULLED OUT OF THE CONCRETE WALL IN WHICH THEY ARE EMBEDDED.
 - THE STEPS SHALL BE EMBEDDED IN THE CONCRETE BY THE MANUFACTURER DURING MANUFACTURE OR IMMEDIATELY FOLLOWING REMOVAL OF THE FORMS. SECURING THE STEPS WITH MORTAR IN DRILLED OR CAST HOLES, WILL NOT BE ACCEPTABLE.
 - THE STEPS SHALL BE OF THE DROP TYPE WITH A DEPRESSION SECTION FOR HANDHOLD, APPROXIMATELY 14" X 10" IN DIMENSION.



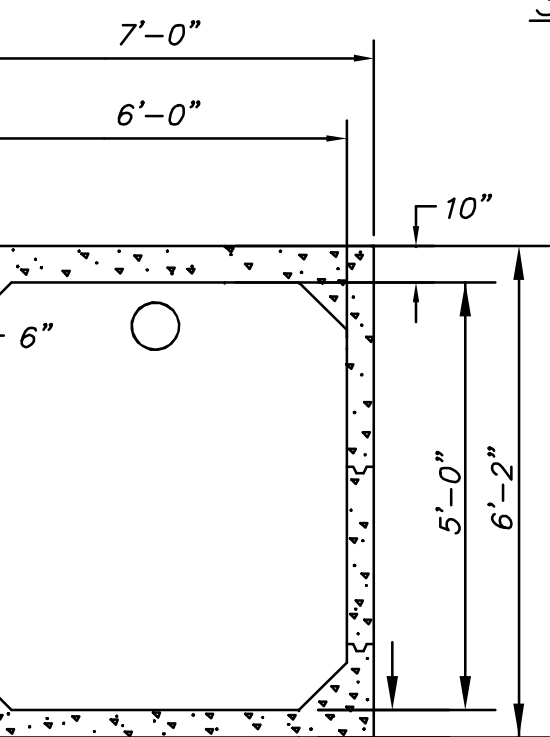
SECTION VIEW

FRAMES AND COVERS

(INCLUDING RAISED INSPECTION COVERS) MANHOLE FRAME AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30" CLEAR OPENING. A 3" (MINIMUM HEIGHT) WORD "SEWER" FOR SEWERS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER (LEBARON FOUNDRY, INC., CATALOG NO. LA 326. ADJUST COVER TO GRADE WITH BRICKS OR PRECAST CONCRETE RINGS - MAXIMUM 12" ADJUSTMENT.

GREASE TRAP TO BE MODEL GT6x6-1 AS MANUFACTURED BY ROTONDO & SONS, INC.

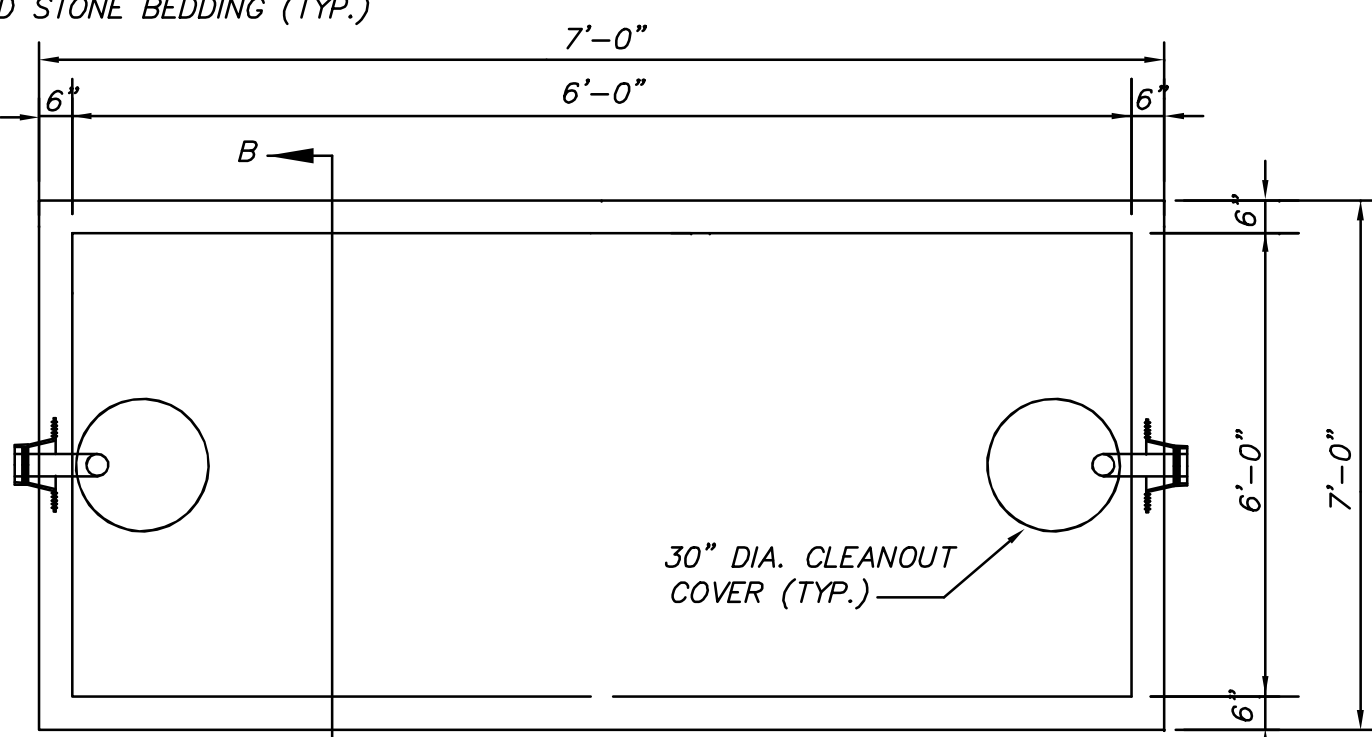
ALL COMPONENTS TO BE DESIGNED FOR AASHTO HS20-44 LOADING.



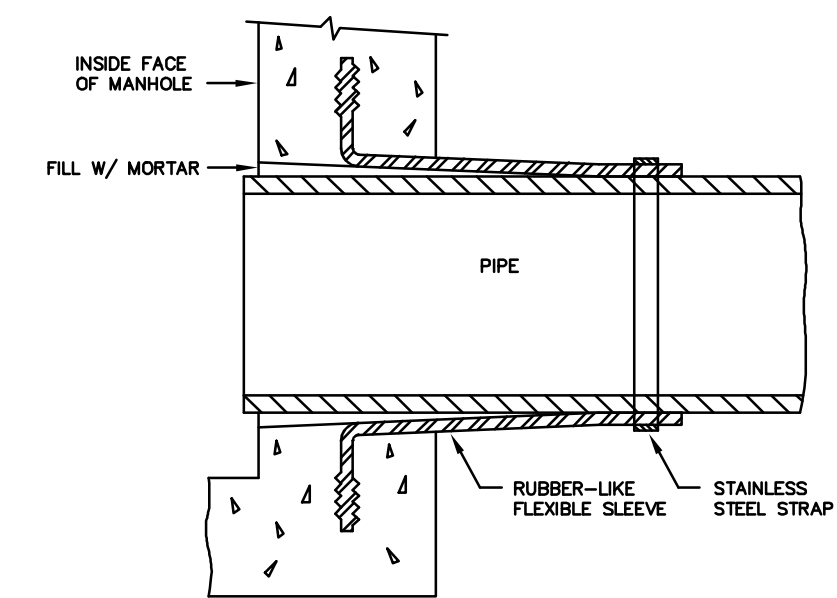
SECTION B-B

1000 GALLON GREASE TRAP

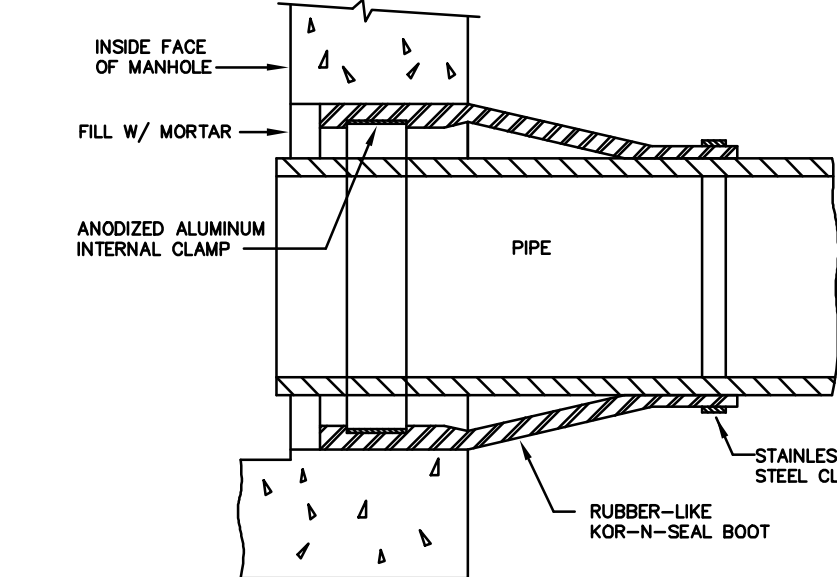
NOT TO SCALE



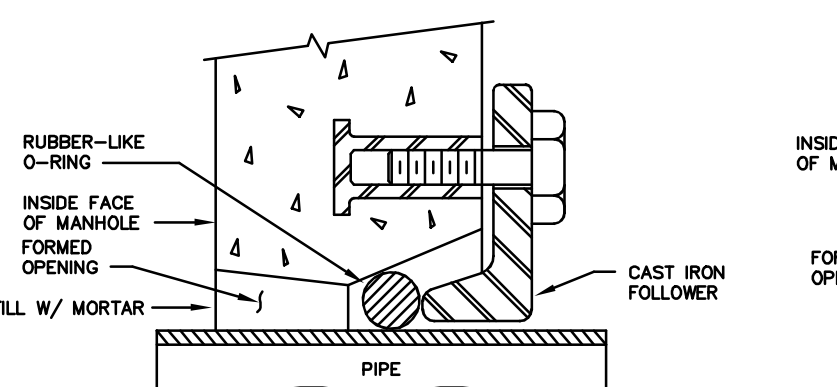
PLAN VIEW



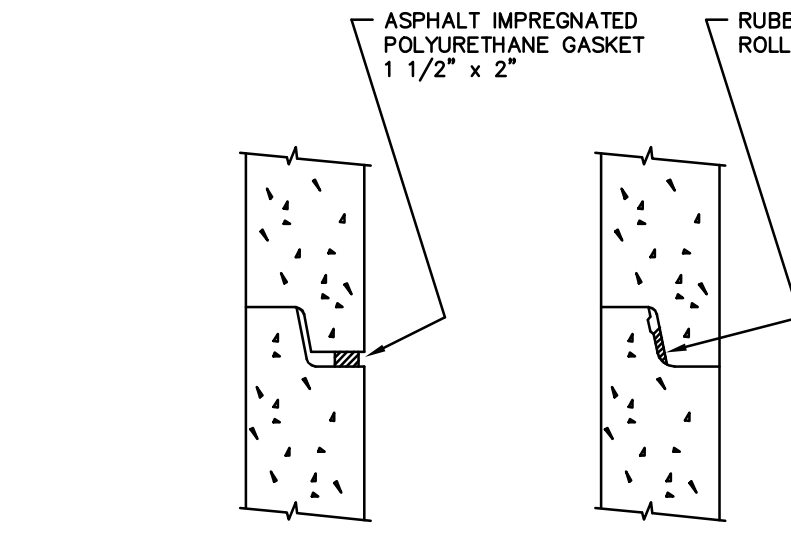
LOCK-JOINT FLEXIBLE MANHOLE SLEEVE (OR EQUAL)



KOR - N - SEAL JOINT SLEEVE (OR EQUAL)



RES-SEAL (OR EQUAL)



POLYTITE (OR EQUAL)

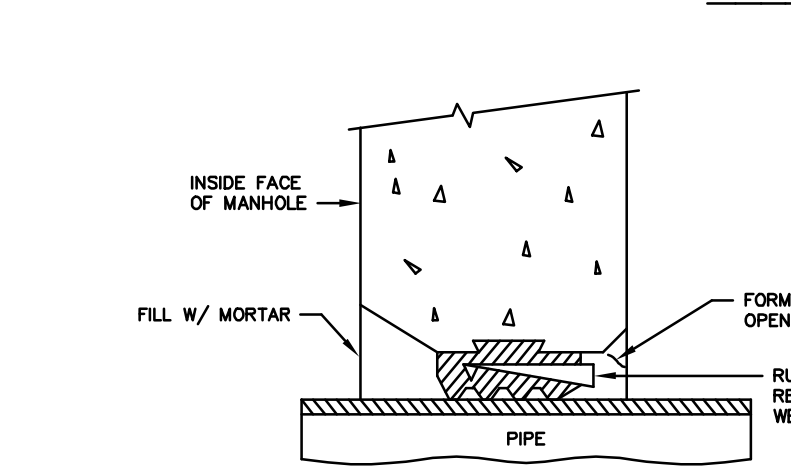
ROLL-N-LOK (OR EQUAL)

BITUMASTIC

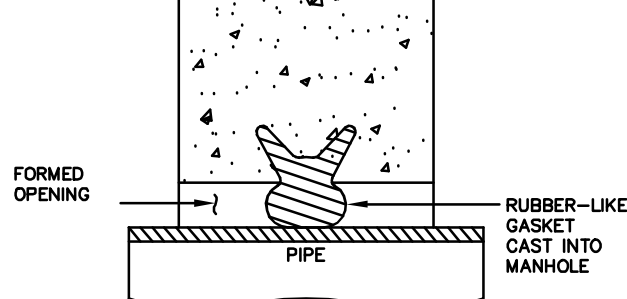
O-RING

NOTE: ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.

DETAIL - B



PRESS-WEDGE II (OR EQUAL)



A - LOK (OR EQUAL)

NOTE: ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS

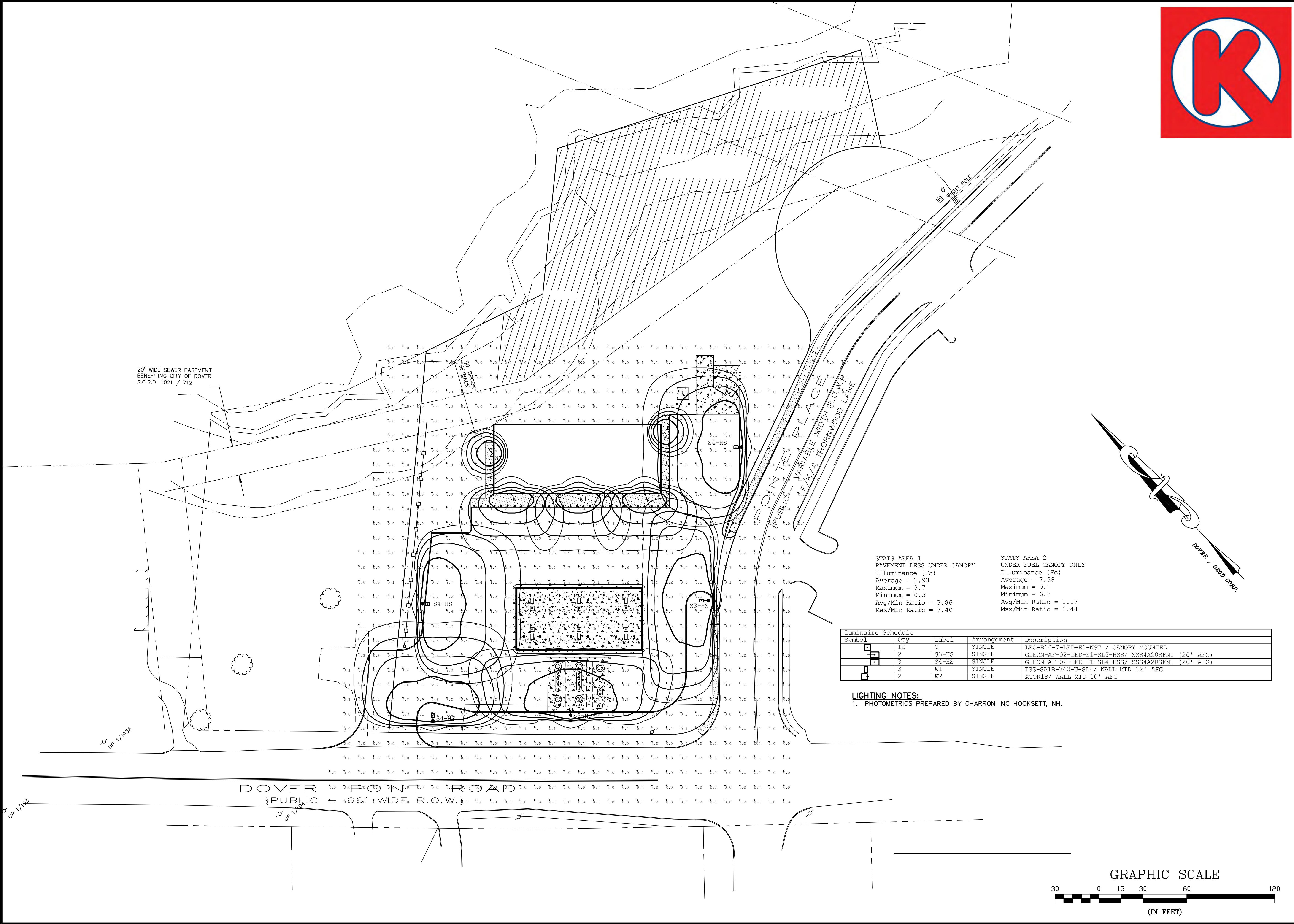
DETAIL - A

NOTES:

- HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF A TYPE APPROVED BY THE COMMISSION, WHICH TYPE SHALL, IN GENERAL, DEPEND FOR WATERTIGHTNESS UPON AN ELASTOMERIC OR MASTIC-LIKE GASKET.
- PIPE TO MANHOLE JOINTS SHALL BE ONLY AS APPROVED BY THE COMMISSION AND IN GENERAL, WILL DEPEND FOR WATERTIGHTNESS UPON EITHER AN APPROVED NON-SHRINKING MORTAR OR ELASTOMERIC SEALANT.
- FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY. APPROVED BITUMASTIC SEALANTS: RAM-NEK KENT SEAL NO. 2 EZ



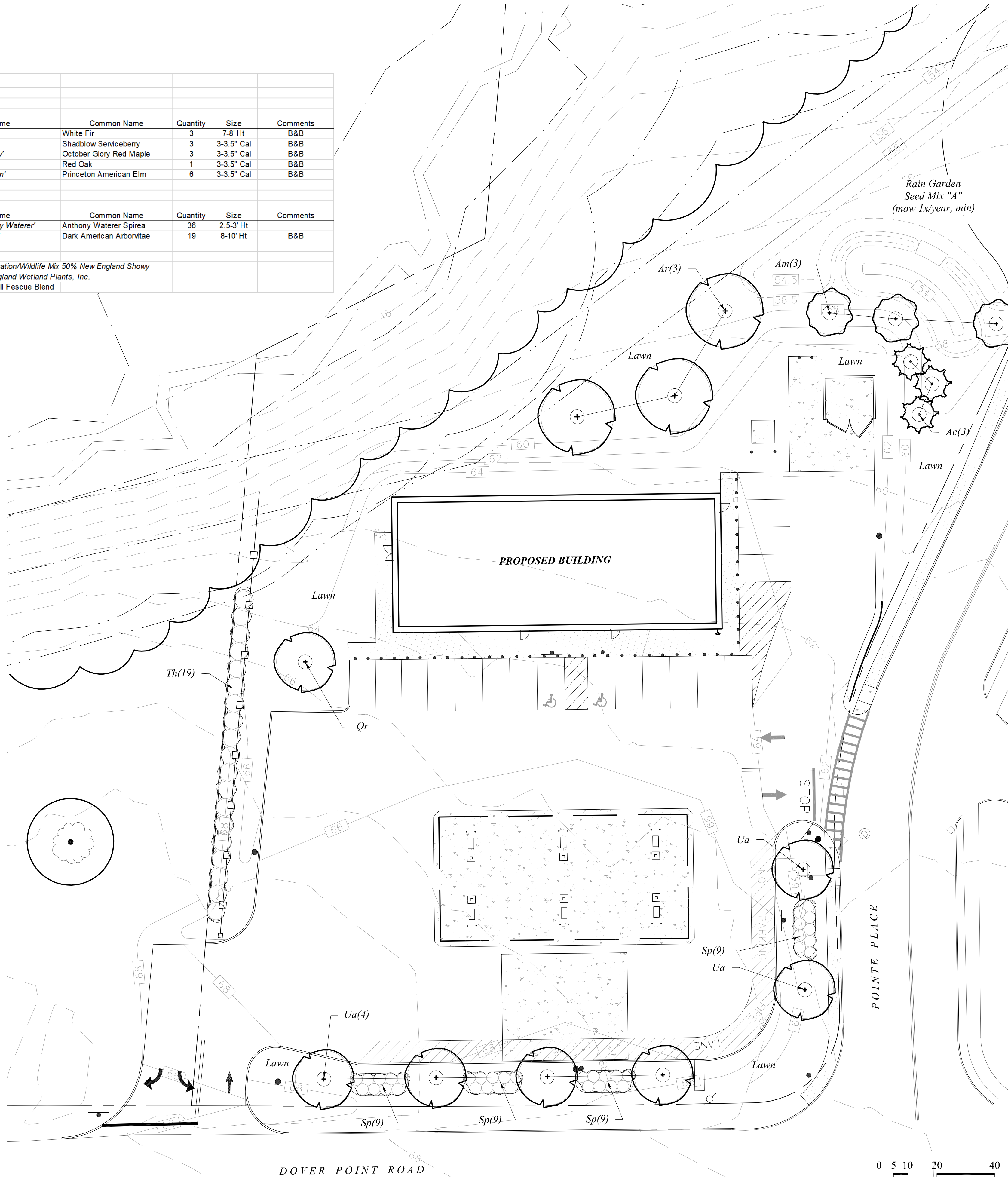
NOT FOR CONSTRUCTION FOR PERMIT USE ONLY				CIVILWORKS NEW ENGLAND			
PLANNING FILE NO.: P21-				18 Watson Road, PO Box 1166 Dover, New Hampshire 03821 603.748.0443			
DATE: 3-1-21	SCALE: AS SHOWN	DRAWN BY: SRD	DESIGN BY: SRD	APPROVED BY: SRD	PROJECT NO: 1677	FILE: SITE.DWG	NO.
DETAIL SHEET				MAC CONVENIENCE STORES, LLC 985 EAST TALLMADGE AVENUE AKRON, OHIO 44310			
CIRCLE K #7264 DOVER POINT ROAD & POINTE PLACE DOVER, NH				15			



NOT FOR CONSTRUCTION FOR PERMIT USE ONLY					PLANNING FILE					NO.: P21-					CIVILWORKS NEW ENGLAND					18' Watson Road, PO Box 1166 Dover, New Hampshire 03821 603.748.0443				
DATE: 3-1-21					SCALE: AS SHOWN					DRAWN BY: SRD					DESIGN BY: SRD					APPROVED BY: SRD				
PROJECT NO: 1677					FILE: SITE.DWG					NO.					REVISON					APP'D				
DATE					DATE					DATE					DATE					DATE				
LIGHTING PLAN					MAC CONVENIENCE STORES, LLC 935 EAST TALLMADGE AVENUE AKRON, OHIO 44310					CIRCLE K #7264 DOVER POINT ROAD & POINTE PLACE DOVER, NH					17									

Plant List

TREES					
Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Ac	<i>Abies concolor</i>	White Fir	3	7-8' Ht	B&B
Am	<i>Amelanchier canadensis</i>	Shadblow Serviceberry	3	3-3.5" Cal	B&B
Ar	<i>Acer rubrum</i> 'October Glory'	October Glory Red Maple	3	3-3.5" Cal	B&B
Qr	<i>Quercus rubra</i>	Red Oak	1	3-3.5" Cal	B&B
Ua	<i>Ulmus americana</i> 'Princeton'	Princeton American Elm	6	3-3.5" Cal	B&B
SHRUBS					
Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Sn	<i>Spiraea x bumalda</i> 'Anthony Waterer'	Anthony Waterer Spirea	36	2-5.3' Ht	
Th	<i>Thuja occidentalis</i> 'Techny'	Dark American Arborvitae	19	8-10' Ht	B&B
Seed Mix	50% New England Conservation/Wildlife Mix 50% New England Showy				
"A"	Wildflower Mix, by New England Wetland Plants, Inc.				
Lawn Areas	Pennington Smart Seed Tall Fescue Blend				



Do not heavily prune the tree at planting. Prune only cross-over limbs, co-dominant leaders, and broken or dead branches. Some interior twigs and lateral branches may be pruned; however, Do NOT remove the terminal buds of branches that extend to the edge of the crown.

Trees less than 3" in caliper shall be staked with three stakes per tree, spaced evenly around the trunk with 12 gauge wire. Plastic hose sections shall be used at attachment to trees. Each guy wire shall be flagged with a visual marker. 24" stakes or metal drive anchors shall be used to anchor the guy wires. Stakes shall be driven at least 12" outside the edge of the planting pit into stable soil. Remove all guying NO LATER than the end of the first growing season after planting.

Mark the north side of the tree in the nursery. Rotate the tree to face north at the site whenever possible.

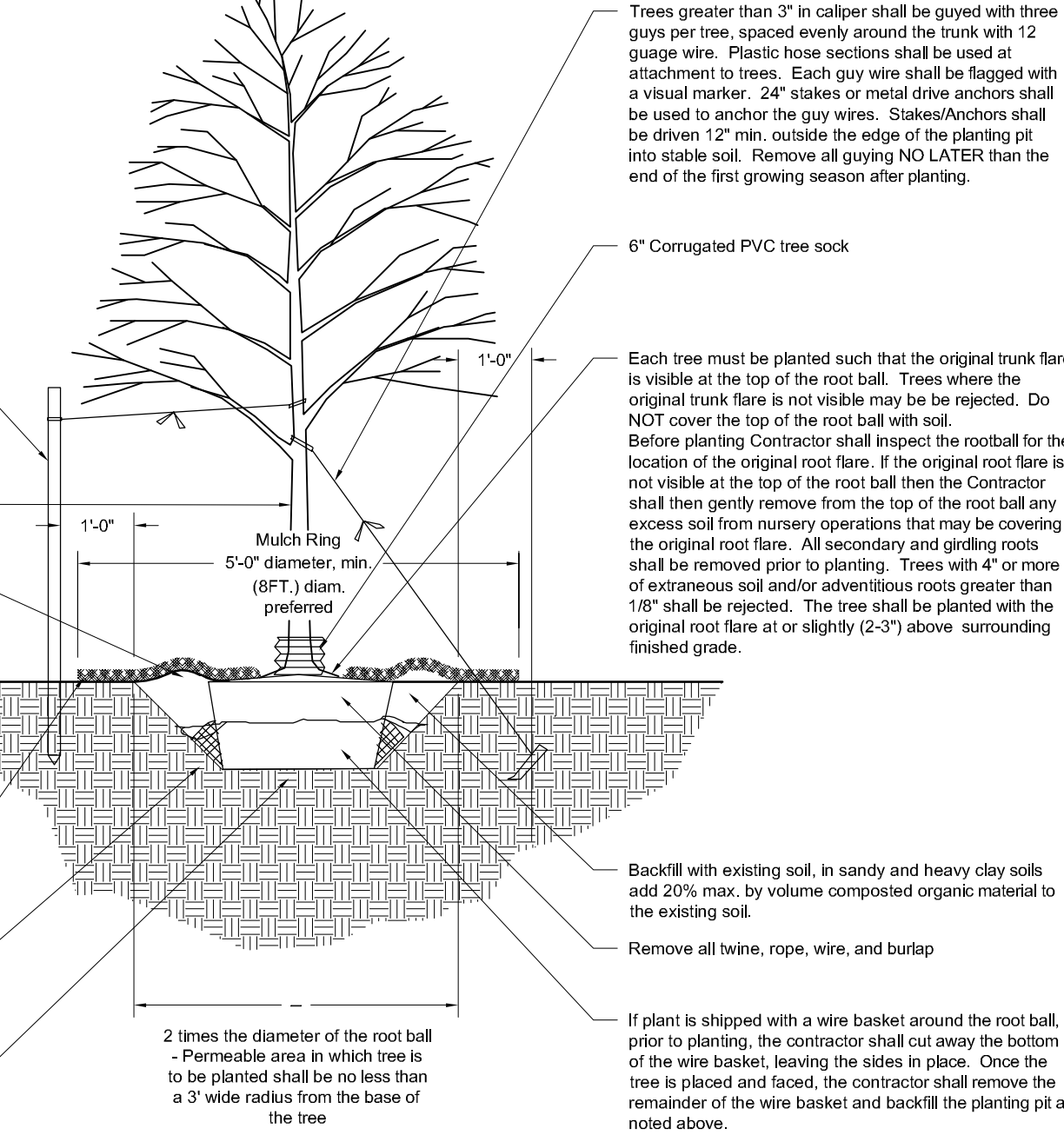
4 in. high earth saucer beyond edge of root ball

2 IN. max. Mulch. Do NOT place mulch in contact with tree trunk. Maintain the mulch weed-free for a minimum of three years after planting.

Tamp soil around root ball base firmly with foot pressure so that root ball does not shift.

Place root ball on unexcavated or tamped soil.

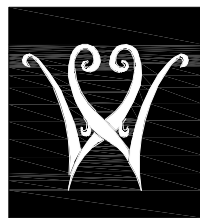
Permeable area in which tree is to be planted shall be no less than a 3' wide radius from the base of the tree



Tree Planting Detail

Landscape Notes

- Design is based on drawings by Civilworks New England and may require adjustment due to actual field conditions.
- The contractor shall follow best management practices during construction and shall take all means necessary to stabilize and protect the site from erosion.
- Erosion Control shall be in place prior to construction.
- Erosion Control to consist of Hay Bales and Erosion Control Fabric shall be staked in place between the work and Water bodies, Wetlands and/or drainage ways prior to any construction.
- The Contractor shall verify layout and grades and inform the Landscape Architect or Client's Representative of any discrepancies or changes in layout and/or grade relationships prior to construction.
- It is the contractor's responsibility to verify drawings provided are to the correct scale prior to any bid, estimate or installation. A graphic scale bar has been provided on each sheet for this purpose. If it is determined that the scale of the drawing is incorrect, the landscape architect will provide a set of drawings at the correct scale, at the request of the contractor.
- Trees to Remain within the construction zone shall be protected from damage for the duration of the project by snow fence or other suitable means of protection to be approved by Landscape Architect or Client's Representative. Snow fence shall be located at the drip line at a minimum and shall include any and all surface roots. Do not fill or mulch on the trunk flare. Do not disturb roots. In order to protect the integrity of the roots, branches, trunk and bark of the tree(s) no vehicles or construction equipment shall drive or park in or on the area within the drip line(s) of the tree(s). Do not store any refuse or construction materials or portalets within the tree protection area.
- Location, support, protection, and restoration of all existing utilities and appurtenances shall be the responsibility of the Contractor.
- The Contractor shall verify exact location and elevation of all utilities with the respective utility owners prior to construction. Call DIGSAFE at 1-888-344-7233.
- The Contractor shall procure any required permits prior to construction.
- Prior to any landscape construction activities Contractor shall test all existing loam and loam from off-site intended to be used for lawns and plant beds using a thorough sampling throughout the supply. Soil testing shall indicate levels of pH, nitrates, macro and micro nutrients, texture, soluble salts, and organic matter. Contractor shall provide Landscape Architect with test results and recommendations from the testing facility along with soil amendment plans as necessary for the proposed plantings to thrive. All loam to be used on site shall be amended as approved by the Landscape Architect prior to placement.
- Contractor shall notify landscape architect or owner's representative immediately if at any point during demolition or construction a site condition is discovered which may negatively impact the completed project. This includes, but is not limited to, unforeseen drainage problems, unknown subsurface conditions, and discrepancies between the plan and the site. If a contractor is aware of a potential issue, and does not bring it to the attention of the landscape architect or owner's representative immediately, they may be responsible for the labor and materials associated with correcting the problem.
- The Contractor shall furnish and plant all plants shown on the drawings and listed thereon. All plants shall be nursery-grown under climatic conditions similar to those in the locality of the project. Plants shall conform to the botanical names and standards of size, culture, and quality for the highest grades and standards as adopted by the American Association of Nurserymen, Inc. in the American Standard of Nursery Stock, American Standards Institute, Inc. 230 Southern Building, Washington, D.C. 20005.
- A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.
- All plants shall be legibly tagged with proper botanical name.
- The Contractor shall guarantee all plants for not less than one year from time of acceptance.
- Owner or Owner's Representative will inspect plants upon delivery for conformity to Specification requirements. Such approval shall not affect the right of inspection and rejection during or after the progress of the work. The Owner reserves the right to inspect and/or select all trees at the place of growth and reserves the right to approve a representative sample of each type of shrub, herbaceous perennial, annual, and ground cover at the place of growth. Such sample will serve as a minimum standard for all plants of the same species used in this work.
- No substitutions of plants may be made without prior approval of the Owner or the Owner's Representative for any reason.
- All landscaping shall be provided with either of the following
 - An underground sprinkling system
 - An outside hose attachment within 150 feet
- If an automatic irrigation system is installed, all irrigation valve boxes shall be located within planting bed areas.
- All disturbed areas will be dressed with 6" of topsoil and planted as noted on the plans or seeded except plant beds. Plant beds shall be prepared to a depth of 12" with 75% loam and 25% compost.
- Trees, ground cover, and shrub beds shall be mulched to a depth of 2" with one-year-old, well-composted, shredded native bark not longer than 4" in length and 1/2" in width, free of woodchips and sawdust. Mulch for ferns and herbaceous perennials shall be no longer than 1" in length. Trees in lawn areas shall be mulched in a 5' diameter min. saucer. Color of mulch shall be black.
- In no case shall mulch touch the stem of a plant nor shall mulch ever be more than 3" thick total (including previously applied mulch) over the root ball of any plant.
- Secondary lateral branches of deciduous trees overhanging vehicular and pedestrian travel ways shall be pruned up to a height of 6' to allow clear and safe passage of vehicles and pedestrians under tree canopy.
- Snow shall be stored a minimum of 5' from shrubs and trunks of trees.
- Landscape Architect is not responsible for the means and methods of the contractor.



woodburn
& company
LANDSCAPE ARCHITECTURE

103 Kent Place Newmarket, New Hampshire Phone: 603.659.5949

PLANNING FILE:

LANDSCAPE PLAN

PROJECT:

CIRCLE K
MAP K, LOT 19
30 DOVER POINT ROAD
DOVER, NH 03820

APPLICANT/OWNER OF RECORD:
MAC'S CONVENIENCE
STORES, LLC
985 E TALLMADGE AVE
AKRON, OH 44310

~PERMIT PLAN~
NOT FOR CONSTRUCTION

CIVILWORKS NEW ENGLAND

CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, NH 03820
(603) 749-0485

DATE: 2.16.2021

DATE: 3.1.2019

DATE: 2.16.2021

DATE: 3.1.2019

DATE: 2.16.2021

DATE: 3.1.2019

DATE: 2.16.2021

DATE: 3.1.2019

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DATE: 2.16.2021

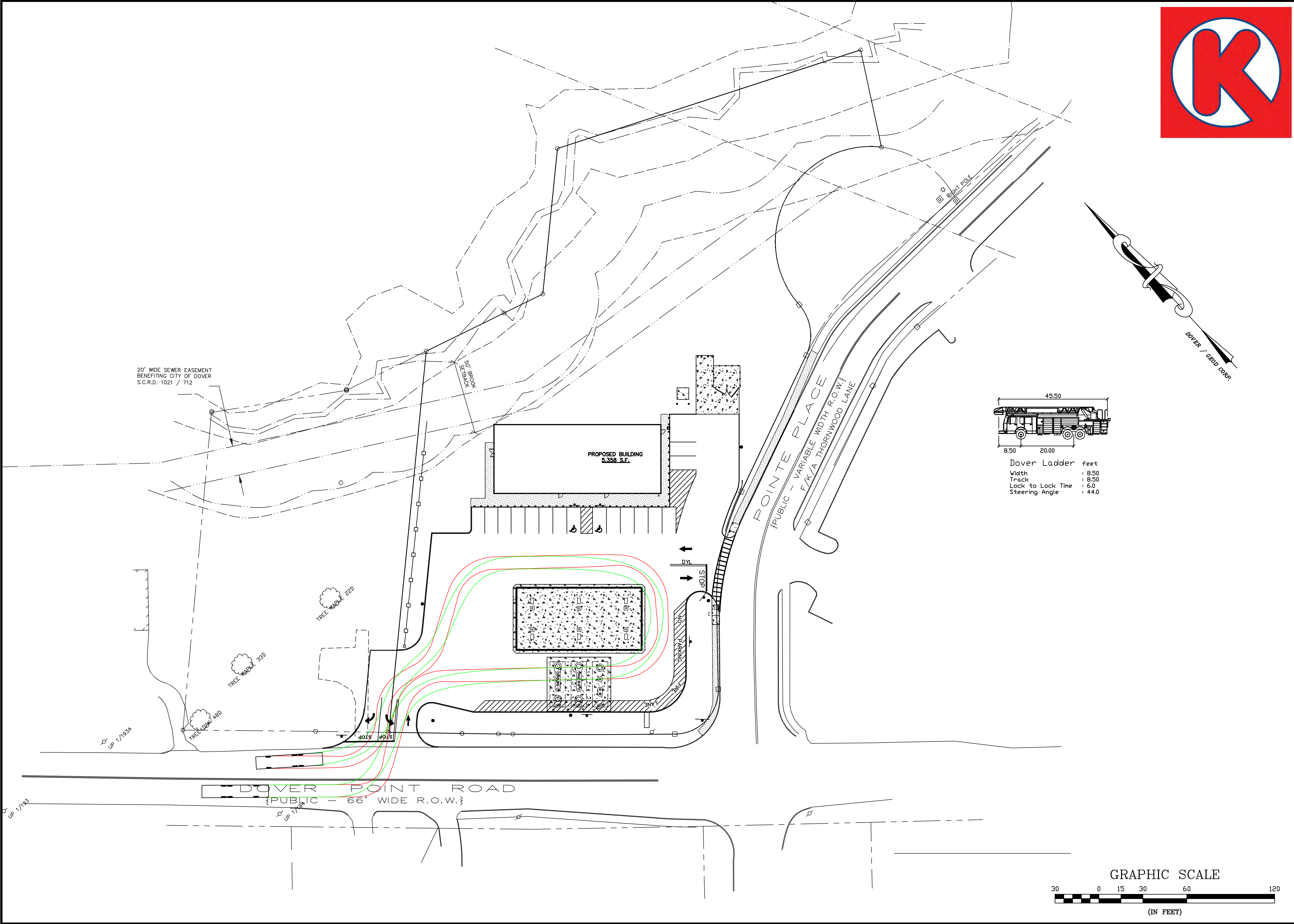
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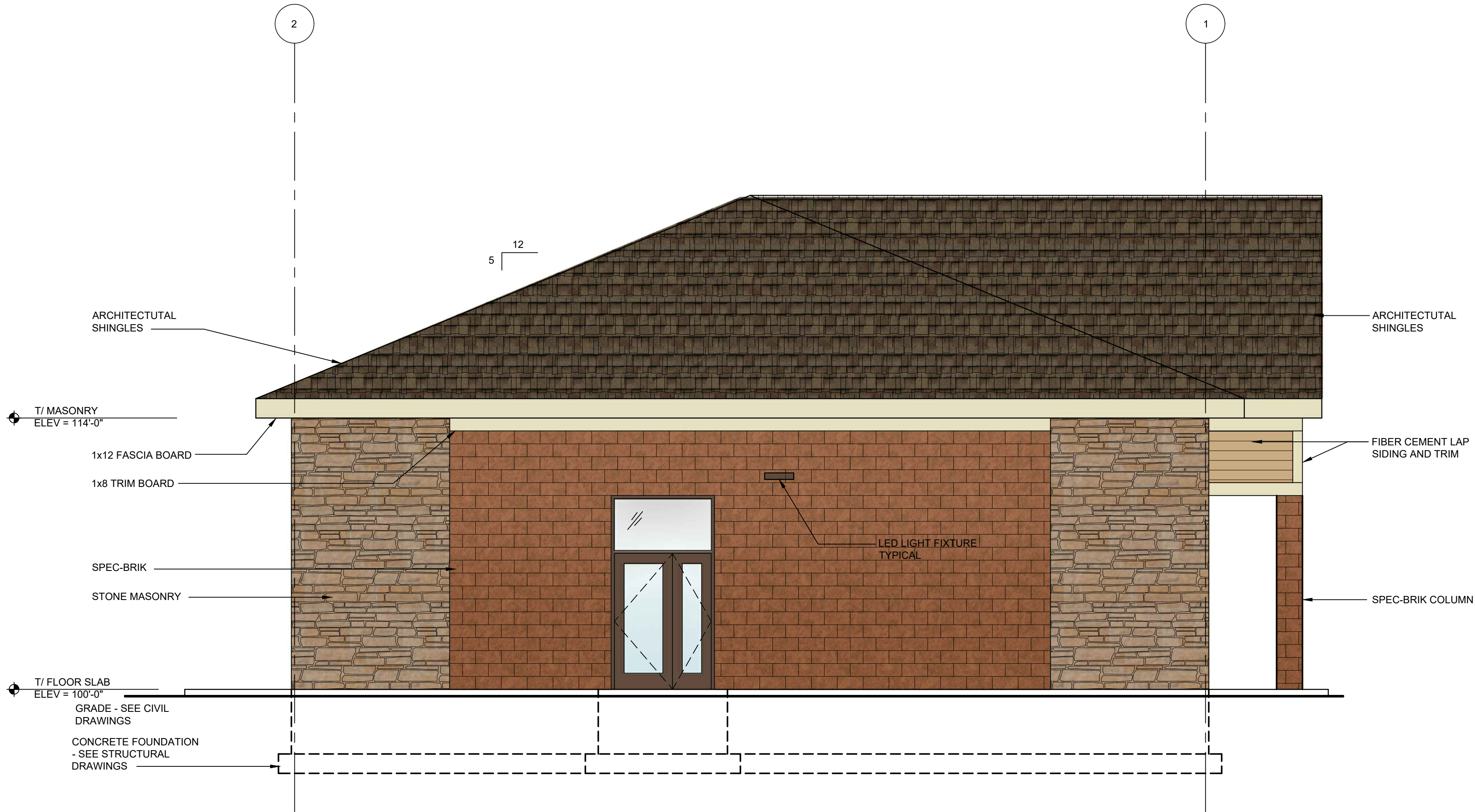


NOT FOR CONSTRUCTION FOR PERMIT USE ONLY				PLANNING FILE				CIVILWORKS NEW ENGLAND			
NO.:				P21-				18' Watson Road, PO Box 1166 Dover, New Hampshire 03821 603.748.0443			
DATE				NO.				DATE			
SCALE				DRAWN BY				DESIGN BY			
DATE				APPROVED BY				PROJECT NO.			
FILE				SITE DWG				NO.			
DOVER LADDER TRUCK MOVEMENT PLAN				MAC CONVENIENCE STORES, LLC 985 EAST TALLMADGE AVENUE AKRON, OHIO 44310				CIRCLE K #7264 DOVER POINT ROAD & POINTE PLACE DOVER, NH			
20											





Google Earth
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B WEST ELEVATION
A4-01 1/4" = 1'-0"



A SOUTH ELEVATION
A4-01 1/4" = 1'-0"

EXTERIOR FINISHES:

1. MASONRY & MORTAR

MANUFACTURER: OBERFEILDS
PRODUCT: SPEC-BRIK
COLOR: DIXON BLEND

MORTAR: CEMEX RICH COLOR BASF RHEOPEL MORTAR
ADMIXTURE W/ INTEGRAL WATER REPELLANT.
COLOR: 85-C KEYSTONE

2. STONE MASONRY

MANUFACTURER: DUTCH QUALITY STONE
PRODUCT: WEATHER LEDGE
COLOR: NATURAL BLEND
PATTERN: ASHLAR
PROVIDE CORNER RETURNS, STONE MASONRY BULLNOSE
TRIM AND SILLS

MORTAR: CEMEX RICH COLOR BASF RHEOPEL MORTAR
ADMIXTURE W/ INTEGRAL WATER REPELLANT.
COLOR: 10-C IVORY

3. PAINTED HOLLOW METAL DOORS AND FRAMES

MANUFACTURER: SHERWIN WILLIAMS
PAINT: (1) COAT SHERWIN-WILLIAMS PROCRYL
UNIVERSAL ACRYLIC PRIMER AND TWO (2) COATS
SHERWIN-WILLIAMS A-100 EXTERIOR ACRYLIC LATEX-SATIN
COLOR: SHERWIN-WILLIAMS SW6095 TOASTY

6. GLAZING

MANUFACTURER: OLDCASTLE BUILDING ENVELOPE
PRODUCT: PPG 1" INSULATING GLASS
SOLARBAN60 (2) CLEAR + CLEAR
CAVITY: 1/2" AIR FILL

7. STOREFRONT

MANUFACTURER: KAWNEER
PRODUCT: VG 4511/CENTER GLASS, THERMALLY BROKEN
FRAMING SYSTEMS WITH 1" INSULATED, TEMPERED
SAFETY GLASS.
COLOR: #40 DARK BRONZE ANODIZED, ARCHITECTURAL
CLASS 1

8. STOREFRONT DOORS

MANUFACTURER: KAWNEER OR APPROVED EQUAL
PRODUCT: 350 MEDIUM STILE ENTRANCE WITH 1"
INSULATED, TEMPERED SAFETY GLASS AND 10" BOTTOM
RAIL.
COLOR: #40 DARK BRONZE ANODIZED, ARCHITECTURAL
CLASS 1

9. FASCIA BOARD AND TRIM

MANUFACTURER: JAMES HARDIE
PRODUCT: HARDIETRIM BOARDS.
COLOR: NAVAJO BEIGE

10. LAP SIDING

MANUFACTURER: JAMES HARDIE
PRODUCT: HARDIEPLANK LAP SIDING SMOOTH.
COLOR: MATCH SERWIN-WILLIAMS SW6115 TOTALLY TAN

11. ROOF SHINGLES

MANUFACTURER: GAF
PRODUCT: TIMBERLINE NATURAL SHADOW ROOFING
SHINGLES
COLOR: BARKWOOD

GENERAL NOTES:

- TOP OF FLOOR SLAB ELEVATION 100'-0" = ACTUAL
ELEVATION xxx.xx' ABOVE SEA LEVEL. SEE CIVIL
DRAWINGS.
- CJ = CONTROL JOINT, REFER TO DETAIL 9/A9-05.

BUILDING MATERIAL CALCULATIONS:

FRONT ELEVATION (SOUTH)

TOTAL	1,837 S.F.	
STOREFRONT	433 S.F.	24%
STONE MASONRY	509 S.F.	28%
BRICK MASONRY	356 S.F.	19%
LAP SIDING	432 S.F.	24%
TRIM BOARD	107 S.F.	5%

SIDE ELEVATION (WEST)

TOTAL	682 S.F.	
STOREFRONT	53 S.F.	8%
STONE MASONRY	228 S.F.	33%
BRICK MASONRY	360 S.F.	53%
LAP SIDING	12 S.F.	2%
TRIM BOARD	29 S.F.	4%

REAR ELEVATION (NORTH)

TOTAL	1307 S.F.	
STONE MASONRY	226 S.F.	14%
BRICK MASONRY	1307 S.F.	82%
TRIM BOARD	65 S.F.	4%

SIDE ELEVATION (EAST)

TOTAL	682 S.F.	
DOOR	24 S.F.	4%
STONE MASONRY	204 S.F.	30%
BRICK MASONRY	421 S.F.	61%
LAP SIDING	12 S.F.	2%
TRIM BOARD	21 S.F.	3%

PROJECT
Circle K #7264 Dover
30 Dover Point Road
Dover, New Hampshire 03820
CLIENT
Circle K Great Lakes
935 East Tallmadge Ave
Akron, OH 44310

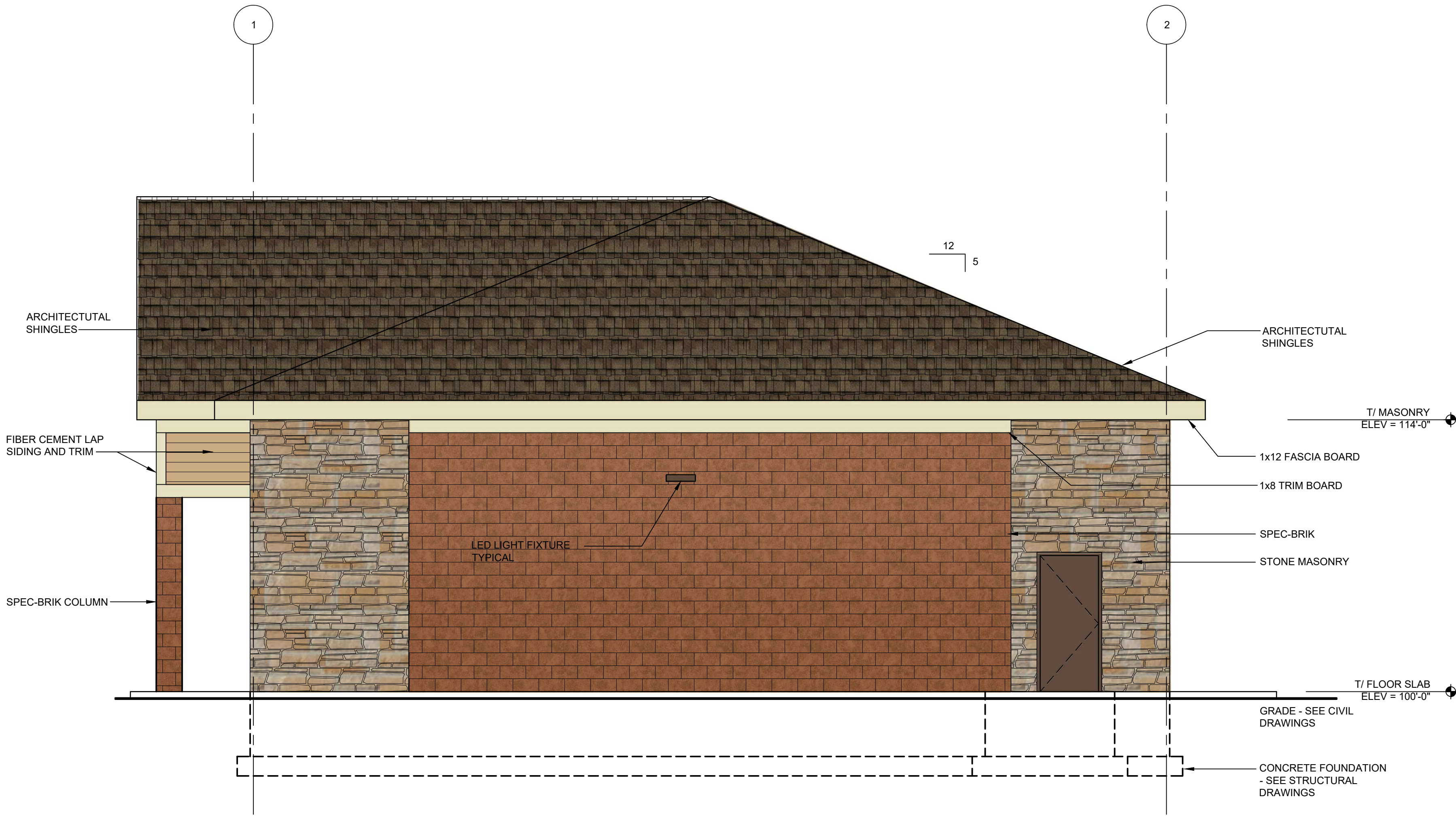
SEAL
CUPKOVIC architecture llc
216.524.8400 phone
216.524.8461 fax
www.cupkovic.com
info@cupkovic.com
8006 Puddles Woods Blvd
Cincinnati, Ohio 45241

NUMBER	DESCRIPTION	DATE
	CLIENT REVIEW - OPTION H	04-01-2019
	CLIENT REVIEW - OPTION J	01-22-2021

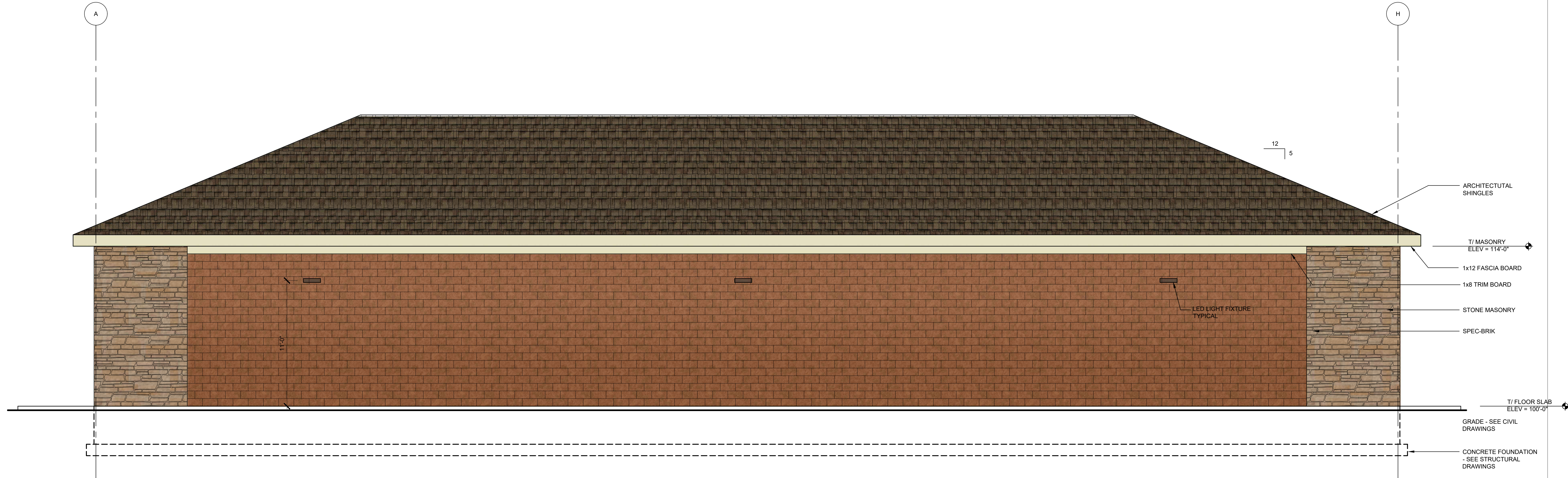
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	CLIENT REVIEW	05-10-2017
	CLIENT REVIEW	05-22-2017
	CLIENT REVIEW	05-24-2017
	CLIENT REVIEW	06-27-2017
	CLIENT REVIEW - OPTION E	11-19-2018
	CLIENT REVIEW - OPTION F	12-13-2018

DRAWING TITLE
**CIRCLE K #7264 DOVER
EXTERIOR ELEVATIONS
OPTION J**

DRAWN BY
BBM
SCALE
1/4" = 1'-0"
ISSUE DATE
-
JOB NUMBER
79-101
DRAWING NUMBER
A4-01



D
A4-02
EAST ELEVATION
1/4" = 1'-0"



C
A4-02
NORTH ELEVATION
1/4" = 1'-0"

EXTERIOR FINISHES:

- MASONRY & MORTAR**
MANUFACTURER: OBERFEILDS
PRODUCT: SPEC-BRIK
COLOR: DIXON BLEND

MORTAR: CEMEX RICH COLOR BASF RHEOPEL MORTAR
ADMIXTURE W/ INTEGRAL WATER REPELLANT.
COLOR: 55-C KEYSTONE
- STONE MASONRY**
MANUFACTURER: DUTCH QUALITY STONE
PRODUCT: WEATHER LEDGE
COLOR: NATURAL BLEND
PATTERN: ASHLAR
PROVIDE CORNER RETURNS, STONE MASONRY BULLNOSE TRIM AND SILLS

MORTAR: CEMEX RICH COLOR BASF RHEOPEL MORTAR
ADMIXTURE W/ INTEGRAL WATER REPELLANT.
COLOR: 10-C IVORY
- PAINTED HOLLOW METAL DOORS AND FRAMES**
MANUFACTURER: SHERWIN WILLIAMS
PAINT: (1) COAT SHERWIN-WILLIAMS PROCRYL UNIVERSAL ACRYLIC PRIMER AND TWO (2) COATS SHERWIN-WILLIAMS A-100 EXTERIOR ACRYLIC LATEX-SATIN
COLOR: SHERWIN-WILLIAMS SW6095 TOASTY
- GLAZING**
MANUFACTURER: OLDCASTLE BUILDING ENVELOPE
PRODUCT: PPG 1" INSULATING GLASS
SOLARBAN60 (2) CLEAR + CLEAR
CAVITY: 1/2" AIR FILL
- STOREFRONT**
MANUFACTURER: KAWNEER
PRODUCT: VG 451T/CENTER GLASS, THERMALLY BROKEN FRAMING SYSTEMS WITH 1" INSULATED, TEMPERED SAFETY GLASS.
COLOR: #40 DARK BRONZE ANODIZED, ARCHITECTURAL CLASS 1
- STOREFRONT DOORS**
MANUFACTURER: KAWNEER OR APPROVED EQUAL
PRODUCT: 350 MEDIUM STYLE ENTRANCE WITH 1" INSULATED, TEMPERED SAFETY GLASS AND 10" BOTTOM RAIL.
COLOR: #40 DARK BRONZE ANODIZED, ARCHITECTURAL CLASS 1
- FASCIA BOARD AND TRIM**
MANUFACTURER: JAMES HARDIE
PRODUCT: HARDIETRIM BOARDS.
COLOR: NAVAJO BEIGE
- LAP SIDING**
MANUFACTURER: JAMES HARDIE
PRODUCT: HARDIEPLANK LAP SIDING SMOOTH.
COLOR: MATCH SERWIN-WILLIAMS SW6115 TOTALLY TAN
- ROOF SHINGLES**
MANUFACTURER: GAF
PRODUCT: TIMBERLINE NATURAL SHADOW ROOFING SHINGLES
COLOR: BARKWOOD

GENERAL NOTES:

- TOP OF FLOOR SLAB ELEVATION 100'-0" = ACTUAL ELEVATION xxx.xx' ABOVE SEA LEVEL. SEE CIVIL DRAWINGS.
- CJ = CONTROL JOINT, REFER TO DETAIL 9/A9-05.

BUILDING MATERIAL CALCULATIONS:

FRONT ELEVATION (SOUTH)

TOTAL	1,837 S.F.	
STOREFRONT	433 S.F.	24%
STONE MASONRY	509 S.F.	28%
BRICK MASONRY	366 S.F.	19%
LAP SIDING	432 S.F.	24%
TRIM BOARD	107 S.F.	5%

SIDE ELEVATION (WEST)

TOTAL	682 S.F.	
STOREFRONT	53 S.F.	8%
STONE MASONRY	228 S.F.	33%
BRICK MASONRY	360 S.F.	53%
LAP SIDING	12 S.F.	2%
TRIM BOARD	29 S.F.	4%

REAR ELEVATION (NORTH)

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BRICK MASONRY	1307 S.F.	82%
TRIM BOARD	65 S.F.	4%

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TOTAL	682 S.F.	
DOOR	24 S.F.	4%
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BRICK MASONRY	421 S.F.	61%
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TRIM BOARD	21 S.F.	3%

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Cleveland, Ohio 44131

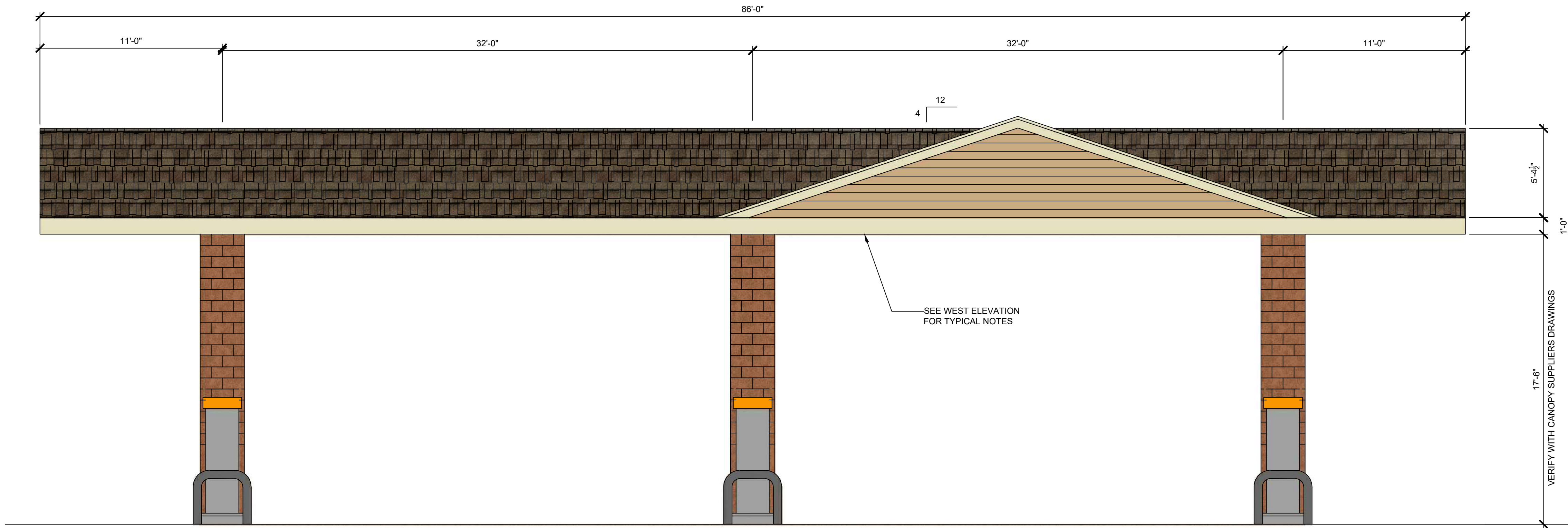
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	CLIENT REVIEW - OPTION J	01/20/2021

NUMBER	DESCRIPTION	DATE
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	CLIENT REVIEW	05-10-2017
	CLIENT REVIEW	05-22-2017
	CLIENT REVIEW	05-24-2017
	CLIENT REVIEW	06-27-2017
	CLIENT REVIEW - OPTION E	11-19-2018
	CLIENT REVIEW - OPTION F	12-13-2018

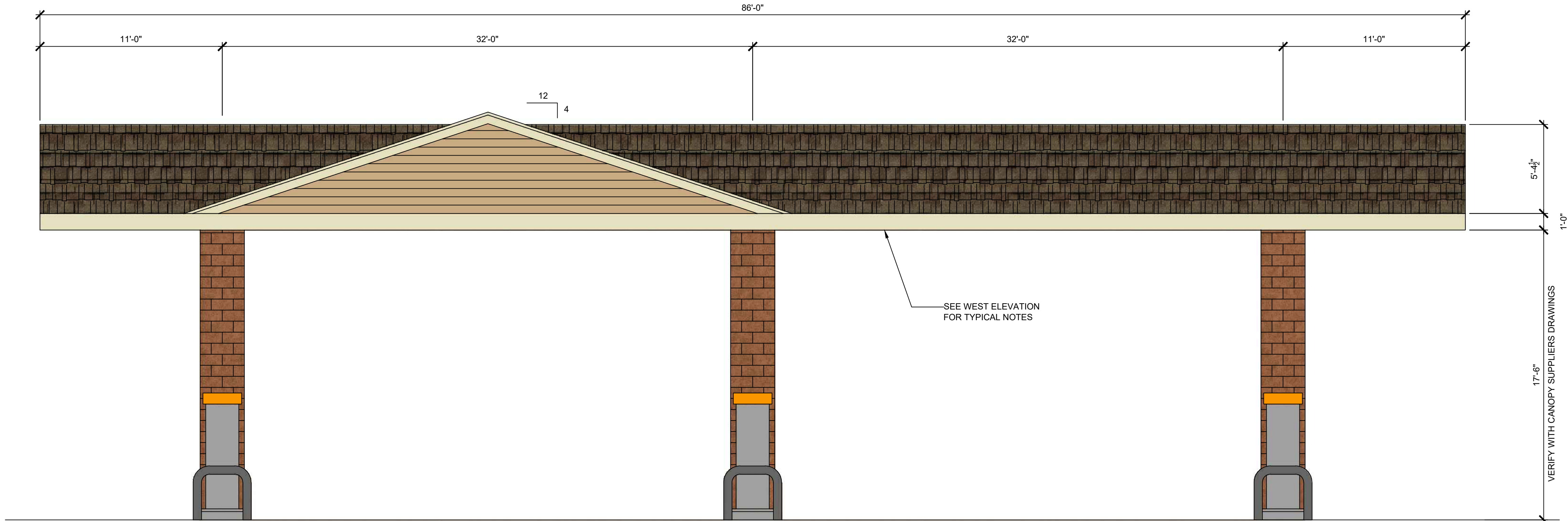
DRAWING TITLE
CIRCLE K #7264 DOVER
EXTERIOR ELEVATIONS
OPTION H

DRAWN BY
BBM
SCALE
1/4" = 1'-0"
ISSUE DATE
-
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79-101
DRAWING NUMBER

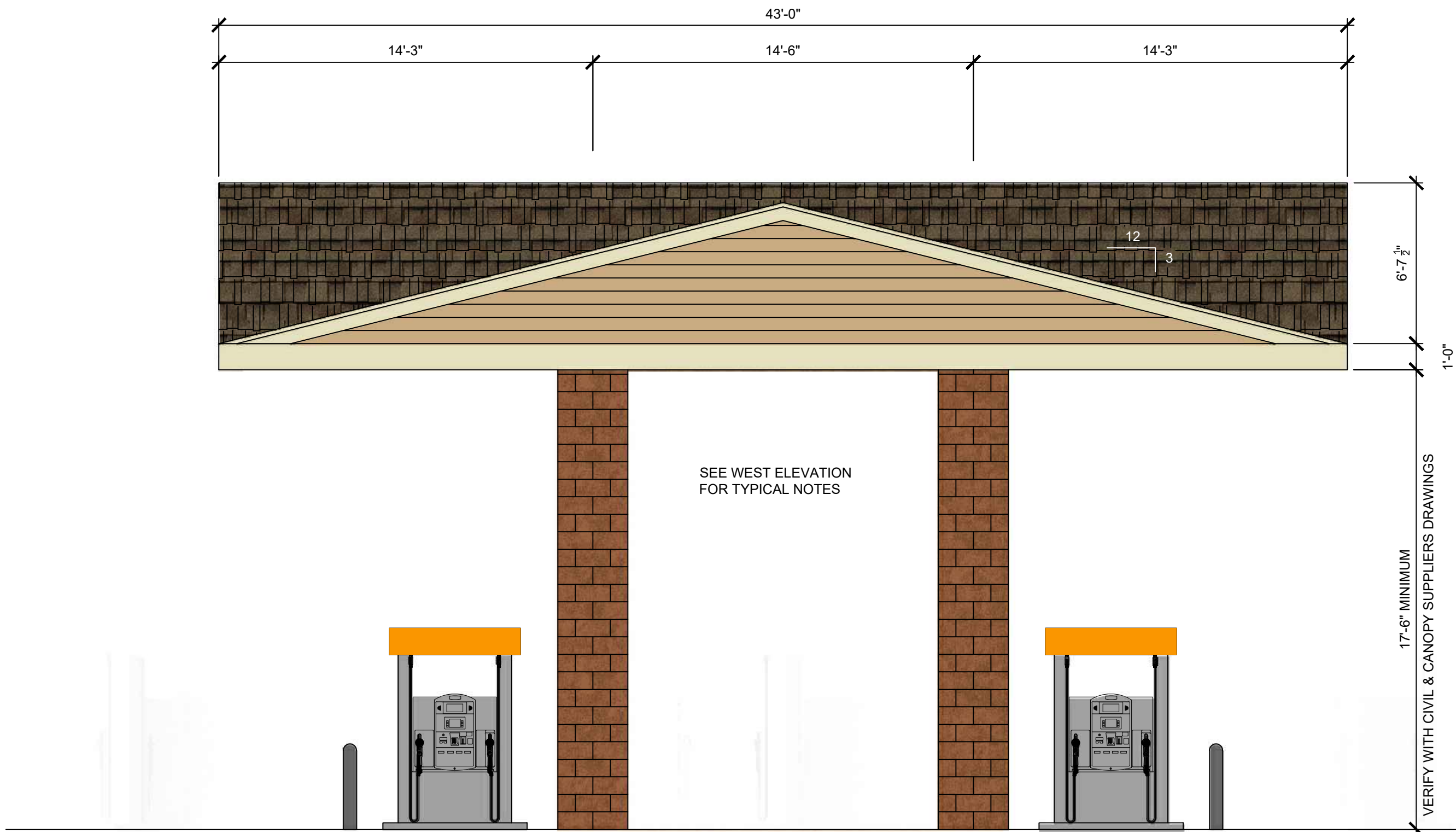
A4-02



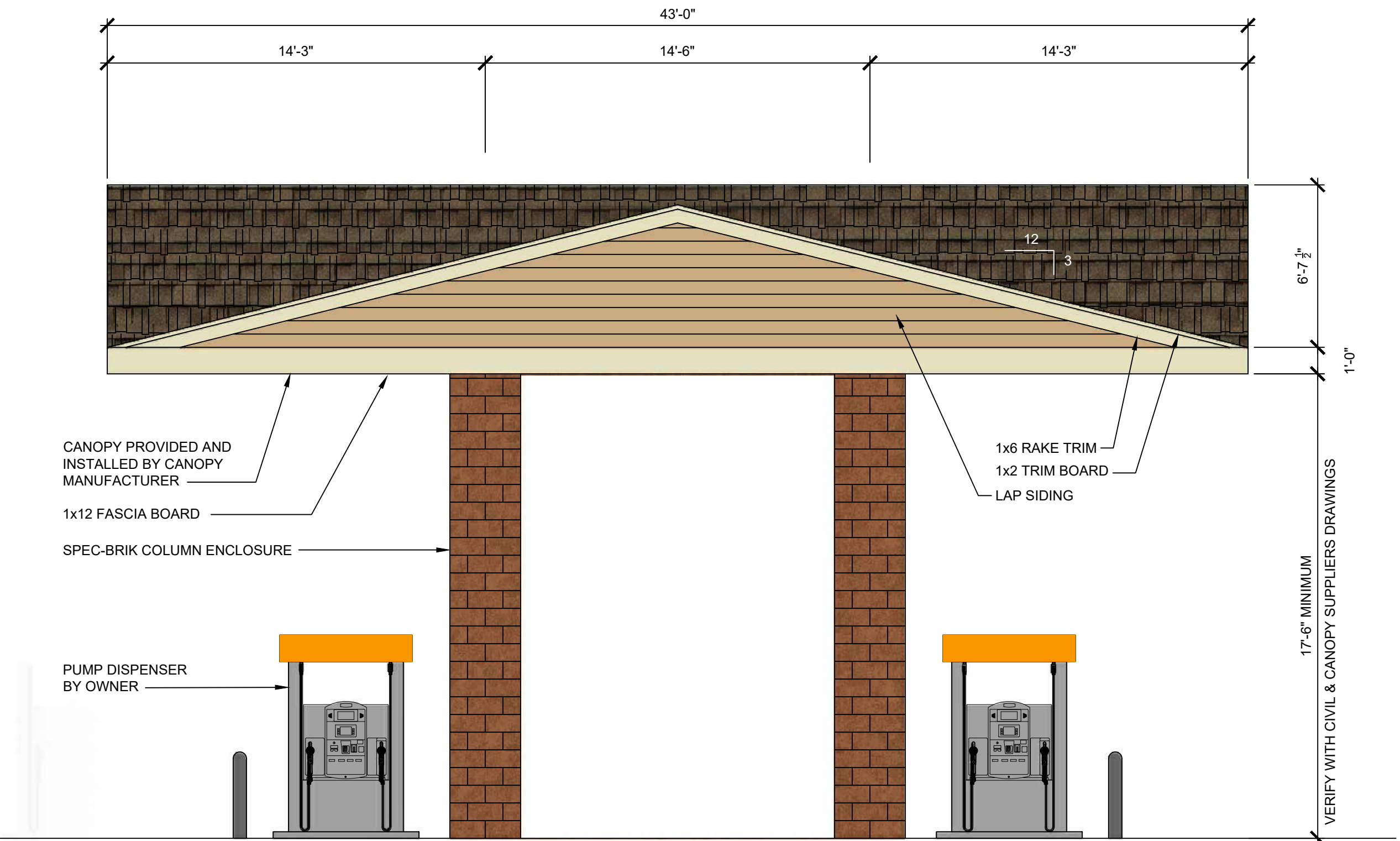
NORTH ELEVATION
1/4" = 1'-0"



SOUTH ELEVATION
1/4" = 1'-0"



EAST ELEVATION
1/4" = 1'-0"



WEST ELEVATION
1/4" = 1'-0"

GENERAL NOTES:

1. GAS CANOPY ELEVATIONS ISSUED FOR SIGN LOCATIONS AND FINISHES ONLY. SEE GAS CANOPY DRAWINGS FROM SUPPLIER FOR CONSTRUCTION INFORMATION.
2. SEE SHEET A9-04 FOR COLUMN ENCLOSURE DETAIL.

EXTERIOR FINISHES:

1. **MASONRY & MORTAR**
MANUFACTURER: OBERFEILDS
PRODUCT: SPEC-BRIK
COLOR: CONCORD BLEND

MORTAR: CEMEX RICH COLOR BASF RHEOPEL MORTAR
ADMIXTURE W/ INTEGRAL WATER REPELLANT.
COLOR: 55-C KEYSTONE
9. **FASCIA BOARD AND TRIM**
MANUFACTURER: JAMES HARDIE
PRODUCT: HARDIETIM BOARDS.
COLOR: NAVAJO BEIGE
10. **LAP SIDING**
MANUFACTURER: JAMES HARDIE
PRODUCT: HARDIPLAN LAP SIDING SMOOTH.
COLOR: TIMBERBARK
11. **ROOF SHINGLES**
MANUFACTURER: GAF
PRODUCT: TIMBERLINE NATURAL SHADOW ROOFING SHINGLES
COLOR: BARKWOOD

PAINTED BOLLARDS AND MISCELLANEOUS
MANUFACTURER: SHERWIN WILLIAMS
PRODUCT: PRO-INDUSTRIAL DTM ACRYLIC
PAINT: ONE (1) COAT SHERWIN-WILLIAMS PRIMER AS RECOMMENDED
TWO (2) COATS SHERWIN-WILLIAMS PRO-INDUSTRIAL DTM ACRYLIC
COLOR: B66W311KG OK GRAY

NUMBER	DESCRIPTION	DATE
	CLIENT REVIEW - OPTION J	01-22-2021

NUMBER	DESCRIPTION	DATE
	CLIENT REVIEW	04-10-2017
	CLIENT REVIEW	05-24-2017
	CLIENT REVIEW	06-27-2017
	CLIENT REVIEW - OPTION E	11-19-2018
	CLIENT REVIEW - OPTION F	12-14-2018
	CLIENT REVIEW - OPTION G	02-27-2019
	CLIENT REVIEW - OPTION H	04-02-2019

DRAINAGE ANALYSIS

for

Circle K, Map K - Lot 19

APRIL 2019

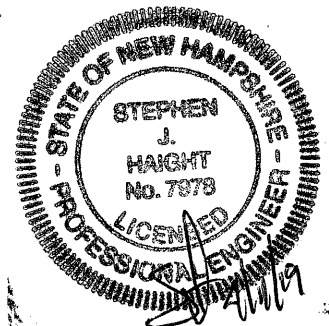
Prepared For:

MAC'S CONVENIENCE STORES, LLC
935 E Talmadge Ave
Akron, OH 44310

Prepared By:

Civilworks New England
181 Watson Road, P.O. Box 1166
Dover, NH 03820

Stephen J. Haight, PE



CONTENTS

- 1.0 INTRODUCTION
- 2.0 DRAINAGE ANALYSIS
 - 2.1 DRAINAGE DESIGN PARAMETERS
 - 2.1.1 Watersheds
 - 2.1.2 Soils
 - 2.1.3 Rainfall Data
 - 2.1.4 Runoff Curve Numbers
 - 2.2 EXISTING CONDITIONS
 - 2.2.1 Table A – Existing Conditions Hydrology
 - 2.3 DEVELOPED CONDITIONS
 - 2.3.1 Table B – Developed Conditions Hydrology
- 3.0 APPENDIX A – HYDROLOGIC CALCULATIONS
 - A-1 Existing Watersheds
 - 2-yr Summaries
 - 10-yr Storm Analysis
 - 25-yr Summaries
 - 50-yr Summaries
 - A-2 Developed Watersheds
 - 2-yr Summaries
 - 10-yr Storm Analysis
 - 25-yr Summaries
 - 50-yr Summaries
- 4.0 APPENDIX B – MAPS
 - B-1 Pre-Developed Conditions
 - B-2 Post-Developed Conditions

1.0 INTRODUCTION

This is a hydrologic analysis of the subject parcel, Tax Map K – Lot 19. The parcel is located at 30 Dover Point Road, Dover, NH. The site contains approximately 2.09 acres and is bounded on the west by Dover Point Road, the east by commercial development, and residential and mixed use properties to the north. The watershed of the parcel includes the project site. The project site consists of undeveloped land adjacent to Thornwood Lane. On site soils are a mix of Windsor Loamy Fine Sand, Windsor Loamy Sand, Suffield Silt Loam, and Buxton Silt Loam. The Windsor series soils are HSG A with the Suffield and Buxton series soils are classified as HSG C.

The existing conditions within the property and its watershed have been analyzed using analysis points to compare the pre-development runoff to post-development. The subject parcel is located along Dover Point Road and Thornwood Lane. The majority of the site slopes from south to north and into a wetland area. The site is broken down into 4 major sub-catchments in order to model the pre-development condition. The largest sub-catchment includes the majority of the central portion of the parcel, and includes mostly HSG A soils. This sub-catchment drains overland, directly into the wetland area. The other three sub-catchments are made up of the northern and roadside portions of the site. One sub-catchment is made up of the existing wetland and immediately surrounding areas. The other two small roadside areas which flow overland into the ROW and into existing catchbasins within Thornwood Lane.

The proposed development of the site includes the construction of a proposed gas station, fueling area, convenience store, entrances, and sidewalks along Thornwood Lane. The development also includes utility connections, and drainage improvements including the stormwater quality treatment structures of rain gardens and a supplementary detention pond.

The post development watershed is modeled utilizing the same point of analysis incorporated in the pre development conditions to allow direct comparison of the peak runoff between the pre and post developed conditions. The post development condition has been divided into twelve sub-catchments to accurately model the proposed development with the inclusion of a rain garden and a detention pond as well as the closed drainage system. Analysis point 1 discharges to the wetlands north of the site. Analysis point 2 is located at the existing CB "C" inlet, and analysis point 3 is located where existing CB "B" is before it is removed in construction.

The analysis indicates that the proposed development of the site will have negligible impact on the watershed. The Raingarden and Detention Pond mitigate the stormwater from the majority of the site. Negligible increases of a couple hundredths of a CFS for AP 1 & 3 can be discarded. There is minor increase along the road at analysis point 2. This is due in part to the improvements to the ROW including the sidewalk and commercial entrances. These increases should have minimal effect on the drainage system. It should be noted that the paved circle adjacent to the site to the north will be removed and the resulting decrease in impervious area has not been included in this analysis.

2.0 DRAINAGE ANALYSIS

A comprehensive hydrologic study of this site has been performed utilizing nationally recognized runoff estimating techniques developed by the USDA, Soil Conservation Services (SCS). The technique and runoff models are described in various SCS publications and references as follows:

“Stormwater Management and Erosion Sediment Control Handbook for Urban and Developing Areas in New Hampshire”

“New Hampshire Stormwater Manual Volume 2 - Post-Construction Best Management Practices Selection & Design”

“Civil Engineering Reference Manual, Fifth Edition”

“Open-Channel Hydraulics” Chow.

“Stormwater Modeling System” HydroCAD Ver. 10.0

2.1 DRAINAGE DESIGN PARAMETERS

A brief review of the procedures and parameters used in the drainage study follows:

2.1.1 Watersheds

The watershed and subcatchment areas were delineated using topographic and boundary data provided by McEneaney Survey Associates, Inc of Dover, NH.

2.1.2 Soils

Onsite soil information used to estimate the runoff curve numbers was provided by NRCC.

Hydrologic Drainage Class A: Windsor Loamy Fine Sand
Windsor Loamy Sand

Hydrologic Drainage Class C: Suffield Silt Loam
Buxton Silt Loam

2.1.3 Rainfall Data

Extreme precipitation estimate values from the Northeast Regional Climate Center (NRCC) were utilized in this analysis. As such, the analysis has been performed for the 2-year, 10-year, 25-year, and 50-year storm events with 3.16”, 4.77”, 6.03”, and 7.21” rainfall depths respectively. The raingarden and detention pond have been sized to accommodate the 50-yr storm event.

2.1.4 Runoff Curve Numbers

The SCS runoff curve numbers were used and are summarized within each subcatchment drainage summary in Appendix A.

2.2 EXISTING CONDITONS

For purposes of this analysis the subject parcel was analyzed as 4 sub-watershed areas that are all analyzed with the summing points as described above.

2.2.1 Table A – Existing Conditions (2, 10, 25, and 50-year storm events)

Watershed	Pre-Development Volume (af)	Pre Development Peak Flows (cfs)			
Discharge Point	<u>2-yr</u>	<u>2-yr</u>	<u>10-yr</u>	<u>25-yr</u>	<u>50-yr</u>
1	0.006	0.02	0.24	0.53	0.93
2	0.000	0.00	0.00	0.01	0.02
3	0.000	0.00	0.00	0.02	0.06

2.3 DEVELOPED CONDITIONS

The post development watershed was analyzed with 12 sub-watershed areas. Post development watersheds have the same summing points as the pre development analysis.

2.3.1 Table B – Developed Conditions (2, 10, 25, and 50-year storm events)

Watershed	Post-Development Volume (af)	Post Development Peak Flows (cfs)			
Discharge Point	<u>2-yr</u>	<u>2-yr</u>	<u>10-yr</u>	<u>25-yr</u>	<u>50-yr</u>
1	0.007	0.02	0.27	0.55	0.84
2	0.015	0.17	0.28	0.36	0.44
3	0.000	0.00	0.01	0.05	0.09

Comparison Chart

Watershed	Pre/Post-Development Volume (af)	Pre/Post Development Peak Flows (cfs)			
Discharge Point	<u>2-yr</u>	<u>2-yr</u>	<u>10-yr</u>	<u>25-yr</u>	<u>50-yr</u>
1	0.006/ 0.007	0.02/ 0.02	0.24/ 0.27	0.53/ 0.55	0.93/ 0.84
2	0.000/ 0.015	0.00/ 0.17	0.00/ 0.28	0.01/ 0.36	0.02/ 0.44
3	0.000/ 0.000	0.00/ 0.00	0.00/ 0.01	0.02/ 0.05	0.06/ 0.09

APPENDIX A

HYDROLOGIC CALCULATIONS

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.861 degrees West
Latitude	43.174 degrees North
Elevation	0 feet
Date/Time	Mon, 08 Apr 2019 11:12:07 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.03	1yr	0.70	0.98	1.20	1.55	2.00	2.61	2.87	1yr	2.31	2.76	3.16	3.88	4.46	1yr
2yr	0.32	0.49	0.61	0.81	1.02	1.29	2yr	0.88	1.17	1.50	1.92	2.45	3.16	3.51	2yr	2.79	3.37	3.87	4.60	5.24	2yr
5yr	0.37	0.57	0.72	0.96	1.23	1.58	5yr	1.06	1.45	1.85	2.39	3.08	3.99	4.50	5yr	3.53	4.32	4.94	5.82	6.58	5yr
10yr	0.40	0.63	0.80	1.09	1.42	1.85	10yr	1.23	1.70	2.18	2.83	3.67	4.77	5.43	10yr	4.22	5.22	5.96	6.95	7.82	10yr
25yr	0.46	0.74	0.94	1.30	1.72	2.27	25yr	1.49	2.10	2.70	3.54	4.62	6.03	6.96	25yr	5.34	6.70	7.62	8.80	9.83	25yr
50yr	0.52	0.83	1.06	1.49	2.00	2.67	50yr	1.73	2.46	3.19	4.20	5.51	7.21	8.41	50yr	6.38	8.09	9.19	10.52	11.70	50yr
100yr	0.58	0.94	1.21	1.71	2.32	3.13	100yr	2.01	2.90	3.75	4.97	6.56	8.62	10.17	100yr	7.63	9.78	11.08	12.58	13.92	100yr
200yr	0.64	1.05	1.36	1.96	2.70	3.68	200yr	2.33	3.41	4.44	5.91	7.82	10.32	12.29	200yr	9.13	11.82	13.36	15.05	16.58	200yr
500yr	0.76	1.24	1.62	2.36	3.31	4.55	500yr	2.85	4.23	5.51	7.40	9.86	13.08	15.80	500yr	11.58	15.20	17.12	19.09	20.89	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.60	0.74	0.89	1yr	0.64	0.87	0.92	1.27	1.60	2.16	2.46	1yr	1.91	2.37	2.86	3.31	3.99	1yr
2yr	0.31	0.49	0.60	0.81	1.00	1.18	2yr	0.86	1.16	1.36	1.83	2.36	3.04	3.40	2yr	2.69	3.27	3.75	4.47	5.04	2yr
5yr	0.35	0.54	0.67	0.91	1.16	1.40	5yr	1.00	1.37	1.61	2.15	2.77	3.72	4.13	5yr	3.29	3.97	4.62	5.42	6.12	5yr
10yr	0.38	0.59	0.73	1.02	1.31	1.60	10yr	1.13	1.56	1.81	2.44	3.12	4.28	4.79	10yr	3.79	4.60	5.33	6.26	7.04	10yr
25yr	0.43	0.66	0.82	1.18	1.55	1.90	25yr	1.33	1.86	2.11	2.83	3.64	4.87	5.80	25yr	4.31	5.58	6.49	7.58	8.46	25yr
50yr	0.48	0.73	0.91	1.30	1.75	2.18	50yr	1.51	2.13	2.35	3.18	4.08	5.54	6.69	50yr	4.90	6.43	7.53	8.75	9.71	50yr
100yr	0.53	0.81	1.01	1.46	2.00	2.49	100yr	1.73	2.44	2.63	3.56	4.55	6.29	7.71	100yr	5.57	7.41	8.74	10.11	11.14	100yr
200yr	0.59	0.89	1.13	1.63	2.27	2.85	200yr	1.96	2.79	2.93	3.98	5.06	7.13	8.89	200yr	6.31	8.55	10.14	11.69	12.81	200yr
500yr	0.69	1.02	1.31	1.91	2.72	3.42	500yr	2.34	3.35	3.40	4.60	5.86	8.40	10.72	500yr	7.43	10.30	12.33	14.18	15.35	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.71	0.87	1.08	1yr	0.75	1.06	1.24	1.74	2.22	2.90	3.09	1yr	2.57	2.97	3.46	4.25	4.85	1yr
2yr	0.33	0.51	0.63	0.85	1.05	1.25	2yr	0.90	1.22	1.48	1.96	2.51	3.31	3.63	2yr	2.93	3.49	4.01	4.76	5.48	2yr
5yr	0.39	0.61	0.75	1.03	1.31	1.59	5yr	1.13	1.55	1.86	2.51	3.21	4.25	4.86	5yr	3.77	4.68	5.28	6.24	7.01	5yr
10yr	0.46	0.70	0.87	1.22	1.57	1.93	10yr	1.36	1.88	2.24	3.06	3.88	5.23	6.07	10yr	4.63	5.84	6.67	7.67	8.56	10yr
25yr	0.56	0.85	1.05	1.50	1.98	2.49	25yr	1.71	2.43	2.89	3.99	4.99	7.21	8.16	25yr	6.38	7.85	8.92	10.10	11.16	25yr
50yr	0.64	0.98	1.22	1.75	2.36	3.01	50yr	2.04	2.94	3.51	4.87	6.07	8.93	10.23	50yr	7.90	9.83	11.15	12.42	13.65	50yr
100yr	0.75	1.13	1.42	2.05	2.82	3.64	100yr	2.43	3.56	4.26	5.96	7.40	11.06	12.82	100yr	9.79	12.32	13.91	15.31	16.70	100yr
200yr	0.87	1.31	1.66	2.41	3.36	4.42	200yr	2.90	4.32	5.18	7.30	9.00	13.74	16.08	200yr	12.16	15.46	17.39	18.85	20.47	200yr
500yr	1.07	1.59	2.04	2.97	4.22	5.68	500yr	3.65	5.56	6.70	9.57	11.69	18.32	21.71	500yr	16.22	20.87	23.37	24.85	26.79	500yr

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Select Product ? Extreme Precipitation Tables - HTML ? Extreme Precipitation Tables - Text/CSV ? Partial Duration Series - by Point ? Partial Duration Series - by Station ? Distribution Curves - Graphical ? Distribution Curves - Text/TBL ? Intensity Frequency Duration Graphs ? Precipitation Frequency Duration Graphs ? GIS Data Files ? Regional/State Maps ?	Select Location ? <i>Double-click the map to place a marker, or enter address or latitude/longitude.</i>		
			
	Locate by Address ? 30 dover point road, dov	Locate by Lat/Lon ? °N °W	Locate by State/County ?
	Select Options ?		
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	Submit		

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Northeast Regional Climate Center (NRCC)



Cornell University

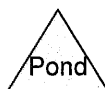
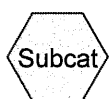
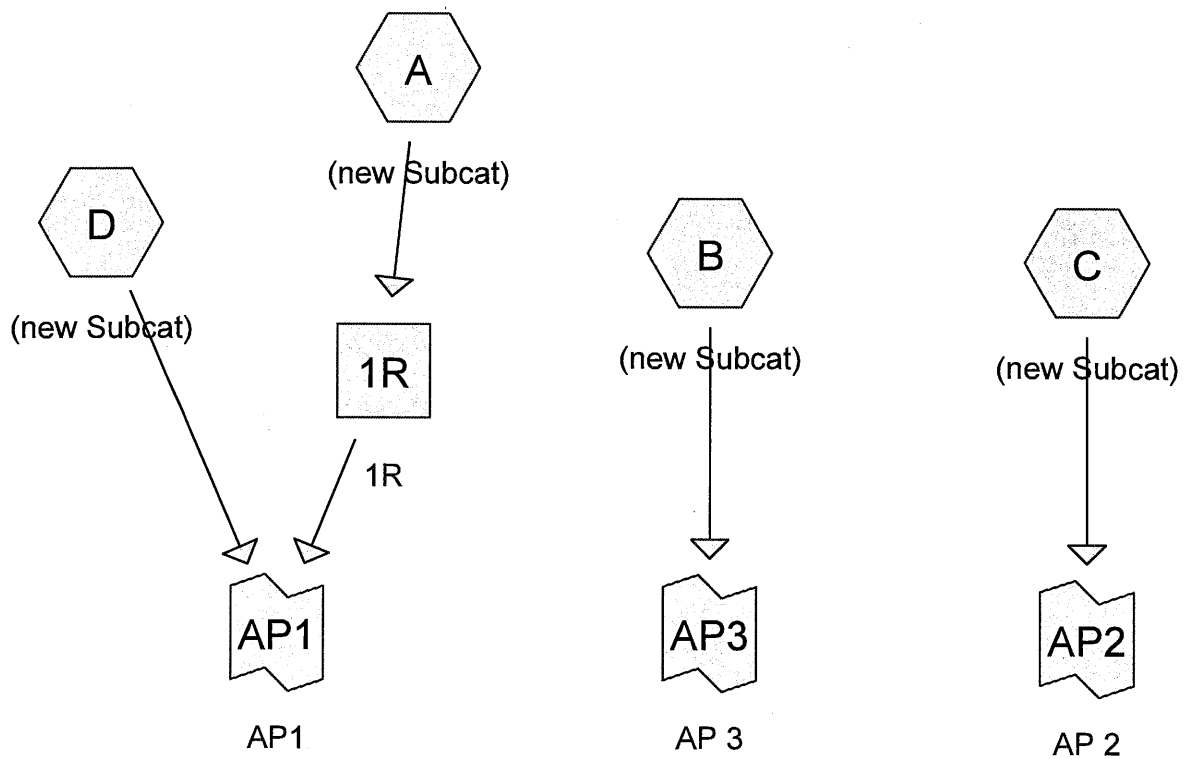
Natural Resources Conservation Service (NRCS)



Contact: precip@cornell.edu

A-1

EXISTING WATERSHEDS



Routing Diagram for 1677-Pre

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.702	39	>75% Grass cover, Good, HSG A (A, B, C, D)
0.206	74	>75% Grass cover, Good, HSG C (A, D)
1.908	43	TOTAL AREA

1677-Pre

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.702	HSG A	A, B, C, D
0.000	HSG B	
0.206	HSG C	A, D
0.000	HSG D	
0.000	Other	
1.908		TOTAL AREA

A - 1

NODE LISTING - 2-YR

1677-Pre

Circle-k 24-hr S1 2-yr 2-yr Rainfall=3.16"

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Page 4

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentA: (new Subcat)

Runoff Area=49,077 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=410' Tc=11.9 min CN=39 Runoff=0.00 cfs 0.000 af

SubcatchmentB: (new Subcat)

Runoff Area=8,695 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=262' Slope=0.0300 '/' Tc=7.7 min CN=39 Runoff=0.00 cfs 0.000 af

SubcatchmentC: (new Subcat)

Runoff Area=3,024 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=212' Tc=4.0 min CN=39 Runoff=0.00 cfs 0.000 af

SubcatchmentD: (new Subcat)

Runoff Area=22,313 sf 0.00% Impervious Runoff Depth>0.14"
Flow Length=138' Tc=5.0 min CN=53 Runoff=0.02 cfs 0.006 af

Reach 1R: 1R

Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Link AP1: AP1

Inflow=0.02 cfs 0.006 af
Primary=0.02 cfs 0.006 af

Link AP2: AP 2

Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link AP3: AP 3

Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Total Runoff Area = 1.908 ac Runoff Volume = 0.006 af Average Runoff Depth = 0.04"
100.00% Pervious = 1.908 ac 0.00% Impervious = 0.000 ac

A - 1

NODE LISTING - 10-YR

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A: (new Subcat)Runoff Area=49,077 sf 0.00% Impervious Runoff Depth>0.10"
Flow Length=410' Tc=11.9 min CN=39 Runoff=0.02 cfs 0.009 af**Subcatchment B: (new Subcat)**Runoff Area=8,695 sf 0.00% Impervious Runoff Depth>0.10"
Flow Length=262' Slope=0.0300 '/' Tc=7.7 min CN=39 Runoff=0.00 cfs 0.002 af**Subcatchment C: (new Subcat)**Runoff Area=3,024 sf 0.00% Impervious Runoff Depth>0.10"
Flow Length=212' Tc=4.0 min CN=39 Runoff=0.00 cfs 0.001 af**Subcatchment D: (new Subcat)**Runoff Area=22,313 sf 0.00% Impervious Runoff Depth>0.61"
Flow Length=138' Tc=5.0 min CN=53 Runoff=0.24 cfs 0.026 af**Reach 1R: 1R**Inflow=0.02 cfs 0.009 af
Outflow=0.02 cfs 0.009 af**Link AP1: AP1**Inflow=0.24 cfs 0.035 af
Primary=0.24 cfs 0.035 af**Link AP2: AP 2**Inflow=0.00 cfs 0.001 af
Primary=0.00 cfs 0.001 af**Link AP3: AP 3**Inflow=0.00 cfs 0.002 af
Primary=0.00 cfs 0.002 af**Total Runoff Area = 1.908 ac Runoff Volume = 0.037 af Average Runoff Depth = 0.24"**
100.00% Pervious = 1.908 ac 0.00% Impervious = 0.000 ac

A – 1

10-YR STORM SUMMARY

Summary for Subcatchment A: (new Subcat)

Runoff = 0.02 cfs @ 17.09 hrs, Volume= 0.009 af, Depth> 0.10"

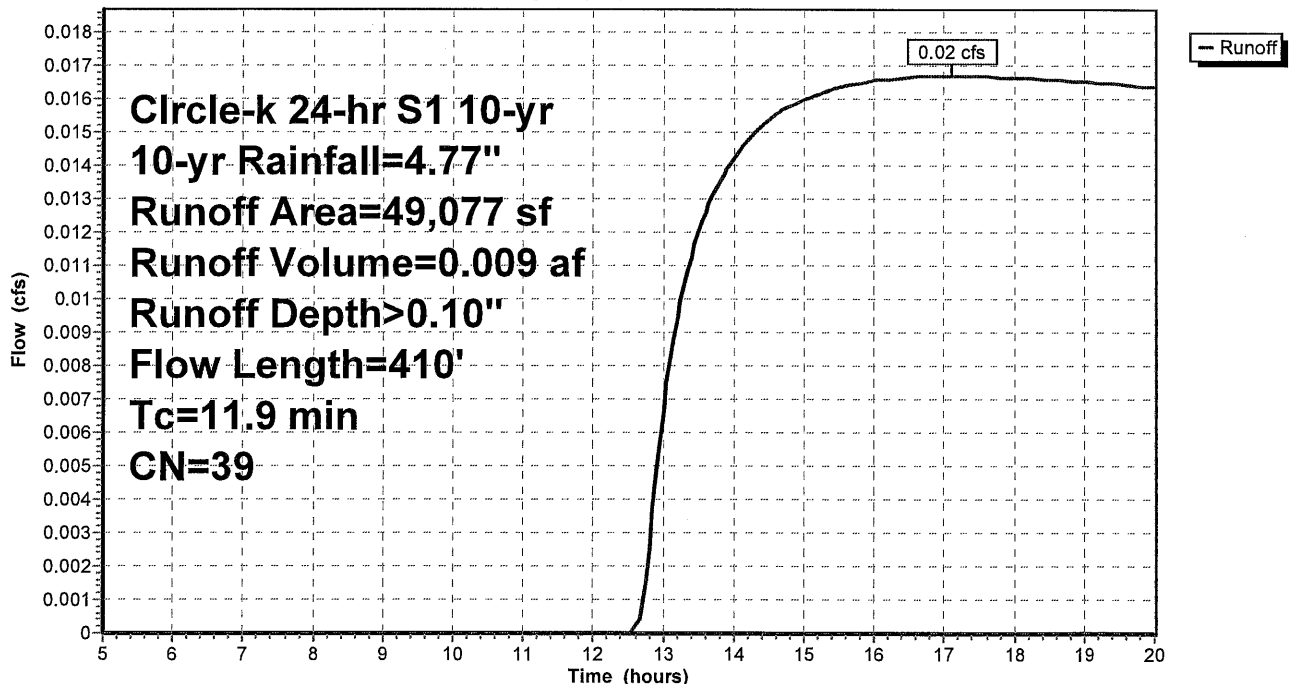
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
49,008	39	>75% Grass cover, Good, HSG A
69	74	>75% Grass cover, Good, HSG C
49,077	39	Weighted Average
49,077		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0100	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.16"
4.4	360	0.0380	1.36		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.9	410	Total			

Subcatchment A: (new Subcat)

Hydrograph



Summary for Subcatchment B: (new Subcat)

Runoff = 0.00 cfs @ 17.05 hrs, Volume= 0.002 af, Depth> 0.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

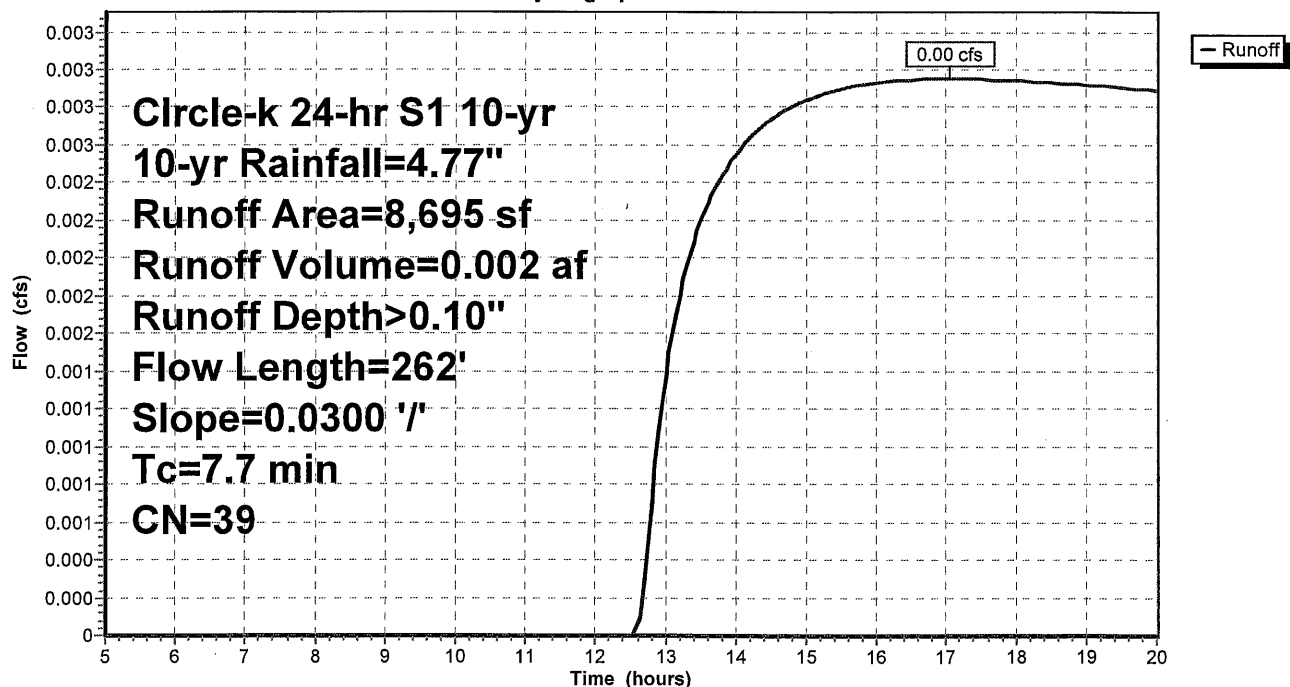
Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
8,695	39	>75% Grass cover, Good, HSG A
8,695		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	50	0.0300	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.16"
2.9	212	0.0300	1.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.7	262	Total			

Subcatchment B: (new Subcat)

Hydrograph



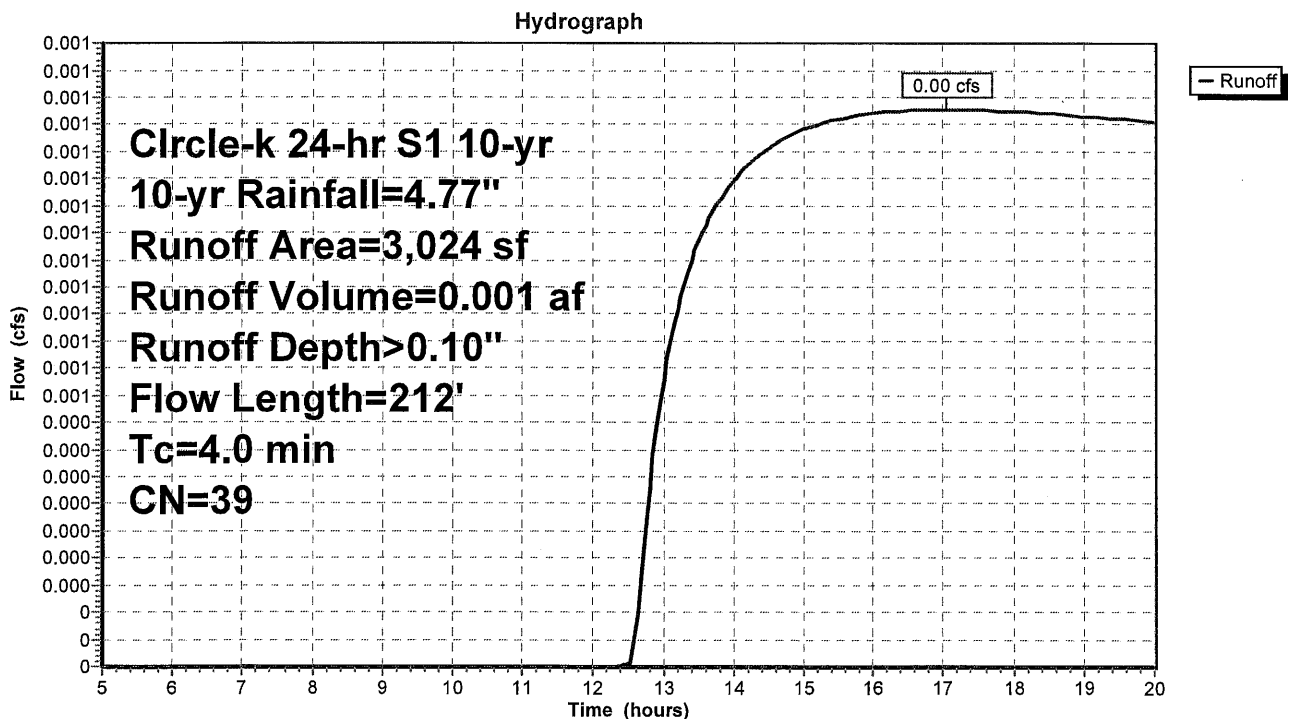
Summary for Subcatchment C: (new Subcat)

Runoff = 0.00 cfs @ 17.05 hrs, Volume= 0.001 af, Depth> 0.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
3,024	39	>75% Grass cover, Good, HSG A
3,024		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 3.16"
1.0	162	0.0185	2.76		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.0	212	Total			

Subcatchment C: (new Subcat)

Summary for Subcatchment D: (new Subcat)

Runoff = 0.24 cfs @ 12.05 hrs, Volume= 0.026 af, Depth> 0.61"

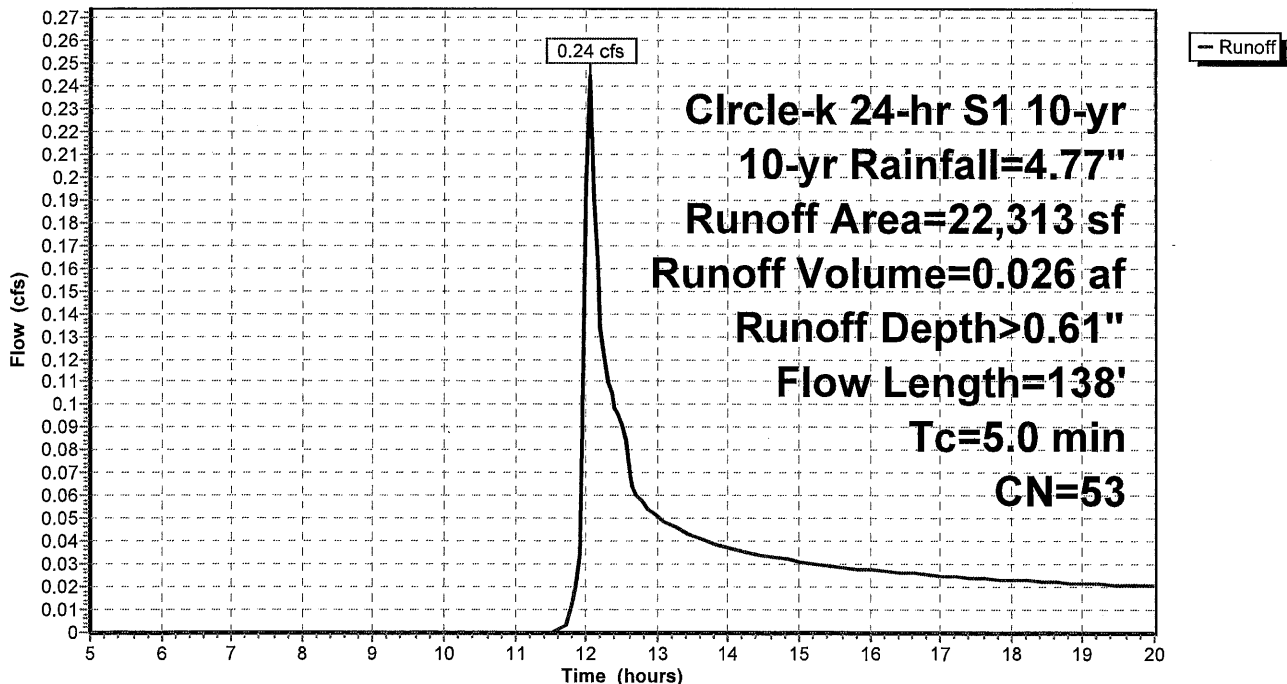
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
8,899	74	>75% Grass cover, Good, HSG C
13,414	39	>75% Grass cover, Good, HSG A
22,313	53	Weighted Average
22,313		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.16"
0.7	88	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.0	138	Total			

Subcatchment D: (new Subcat)

Hydrograph



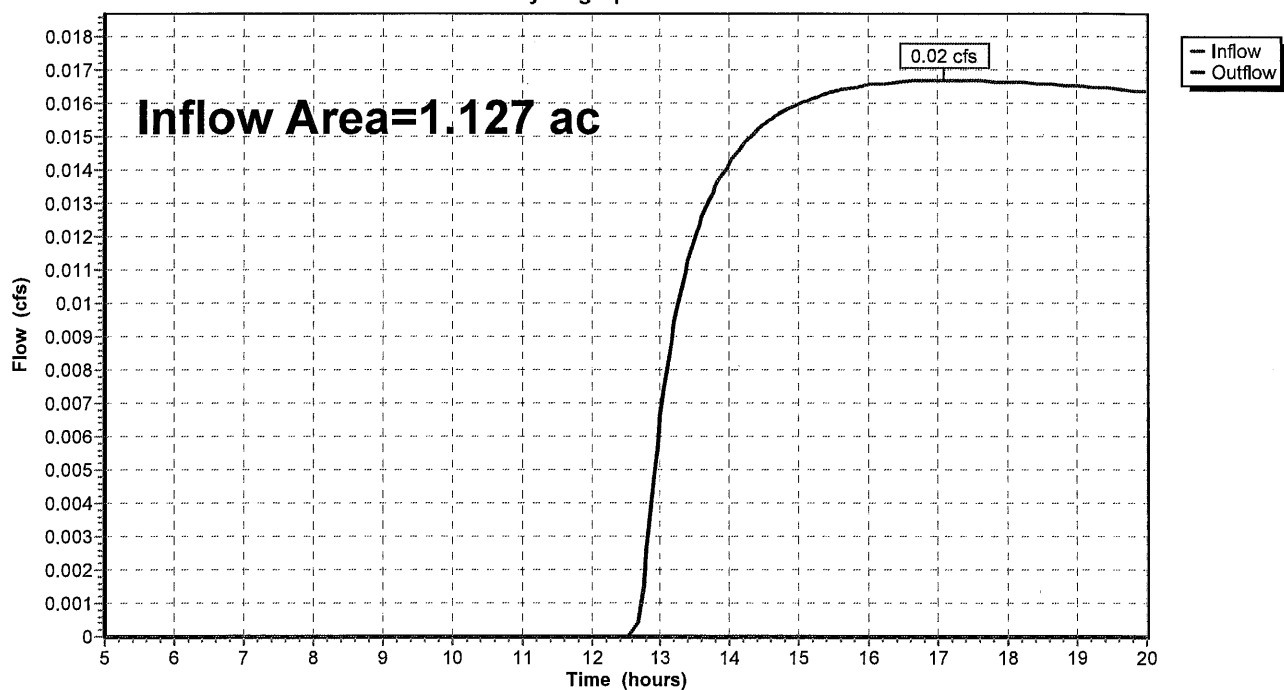
Summary for Reach 1R: 1R

Inflow Area = 1.127 ac, 0.00% Impervious, Inflow Depth > 0.10" for 10-yr event
Inflow = 0.02 cfs @ 17.09 hrs, Volume= 0.009 af
Outflow = 0.02 cfs @ 17.09 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 1R: 1R

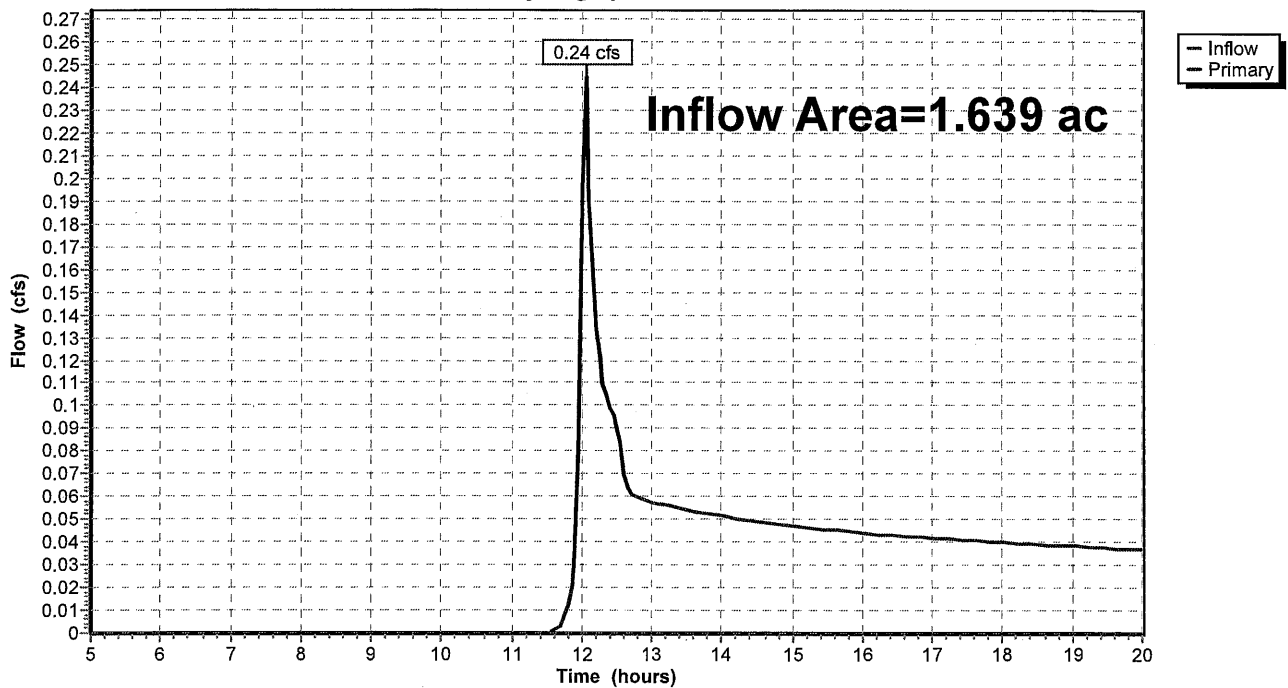
Hydrograph



Summary for Link AP1: AP1

Inflow Area = 1.639 ac, 0.00% Impervious, Inflow Depth > 0.26" for 10-yr event
Inflow = 0.24 cfs @ 12.05 hrs, Volume= 0.035 af
Primary = 0.24 cfs @ 12.05 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

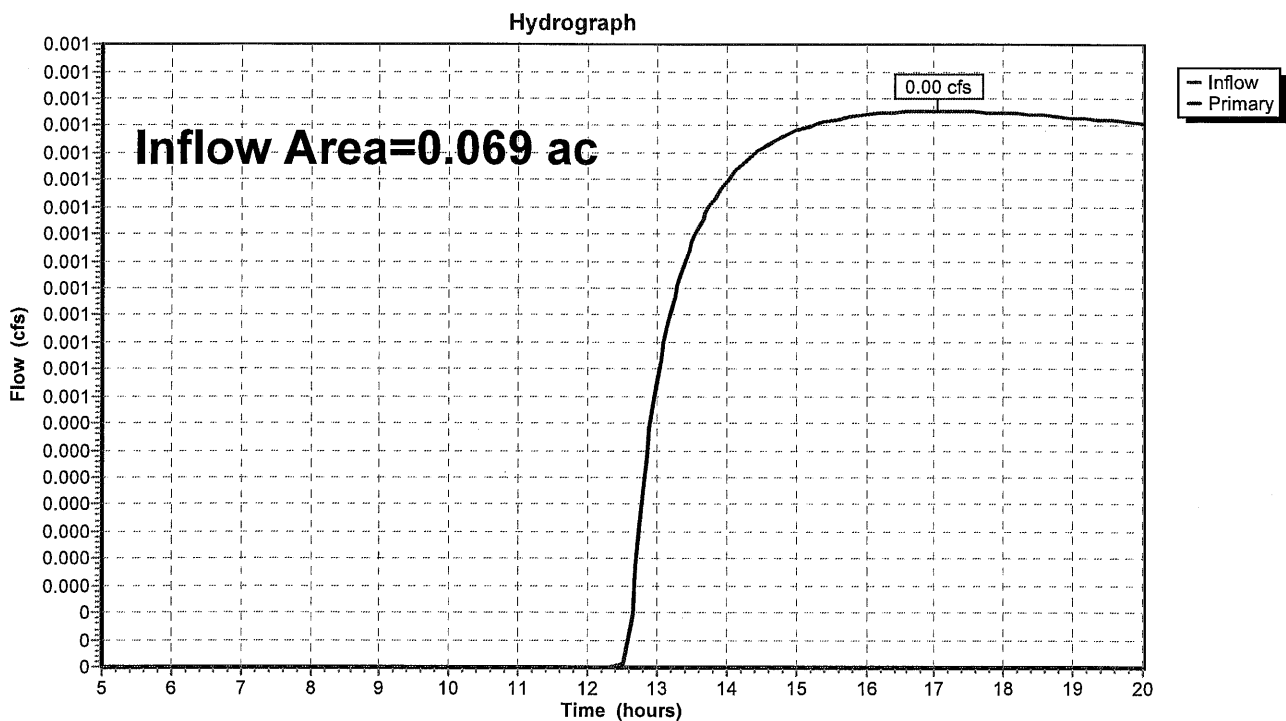
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP1: AP1**Hydrograph**

Summary for Link AP2: AP 2

Inflow Area = 0.069 ac, 0.00% Impervious, Inflow Depth > 0.10" for 10-yr event
Inflow = 0.00 cfs @ 17.05 hrs, Volume= 0.001 af
Primary = 0.00 cfs @ 17.05 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP2: AP 2

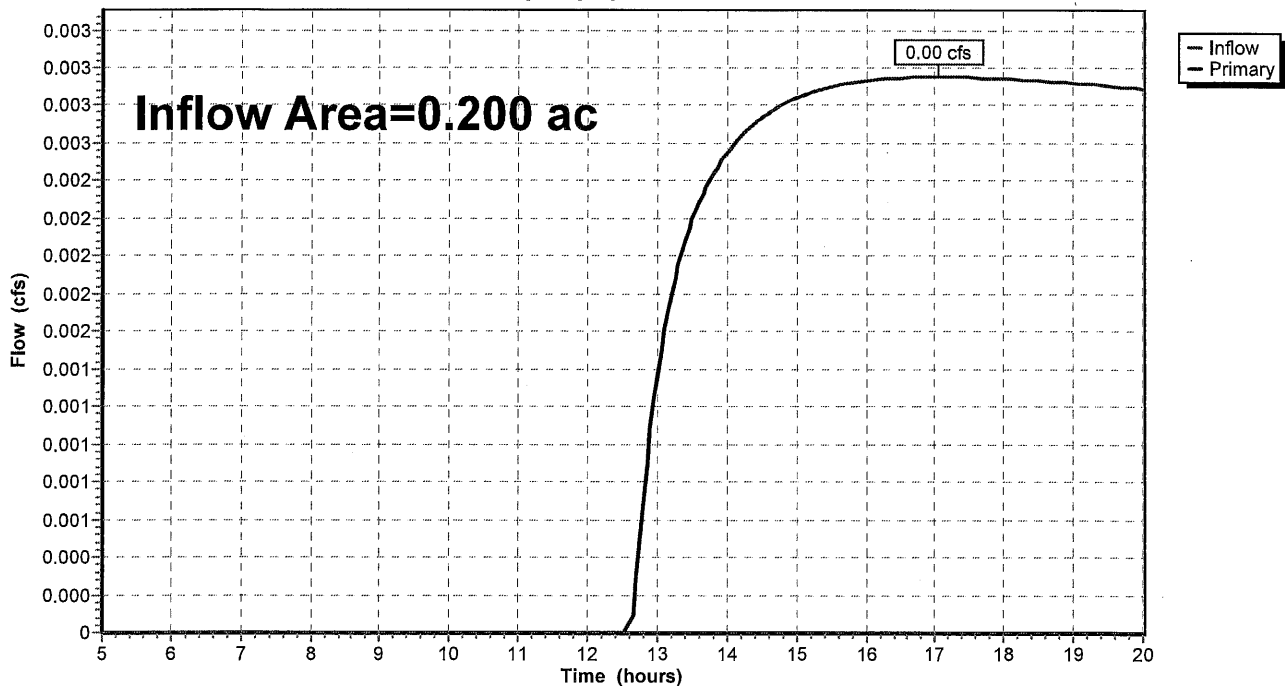
Summary for Link AP3: AP 3

Inflow Area = 0.200 ac, 0.00% Impervious, Inflow Depth > 0.10" for 10-yr event
Inflow = 0.00 cfs @ 17.05 hrs, Volume= 0.002 af
Primary = 0.00 cfs @ 17.05 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP3: AP 3

Hydrograph



A – 1

NODE LISTING – 25-YR

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A: (new Subcat)Runoff Area=49,077 sf 0.00% Impervious Runoff Depth>0.33"
Flow Length=410' Tc=11.9 min CN=39 Runoff=0.09 cfs 0.031 af**Subcatchment B: (new Subcat)**Runoff Area=8,695 sf 0.00% Impervious Runoff Depth>0.33"
Flow Length=262' Slope=0.0300 '/' Tc=7.7 min CN=39 Runoff=0.02 cfs 0.005 af**Subcatchment C: (new Subcat)**Runoff Area=3,024 sf 0.00% Impervious Runoff Depth>0.33"
Flow Length=212' Tc=4.0 min CN=39 Runoff=0.01 cfs 0.002 af**Subcatchment D: (new Subcat)**Runoff Area=22,313 sf 0.00% Impervious Runoff Depth>1.14"
Flow Length=138' Tc=5.0 min CN=53 Runoff=0.53 cfs 0.049 af**Reach 1R: 1R**Inflow=0.09 cfs 0.031 af
Outflow=0.09 cfs 0.031 af**Link AP1: AP1**Inflow=0.53 cfs 0.080 af
Primary=0.53 cfs 0.080 af**Link AP2: AP 2**Inflow=0.01 cfs 0.002 af
Primary=0.01 cfs 0.002 af**Link AP3: AP 3**Inflow=0.02 cfs 0.005 af
Primary=0.02 cfs 0.005 afTotal Runoff Area = 1.908 ac Runoff Volume = 0.087 af Average Runoff Depth = 0.55"
100.00% Pervious = 1.908 ac 0.00% Impervious = 0.000 ac

A – 1

NODE LISTING – 50-YR

1677-Pre*Circle-k 24-hr S1 50-yr 50-yr Rainfall=7.21"*

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Page 7

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

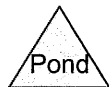
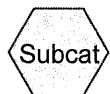
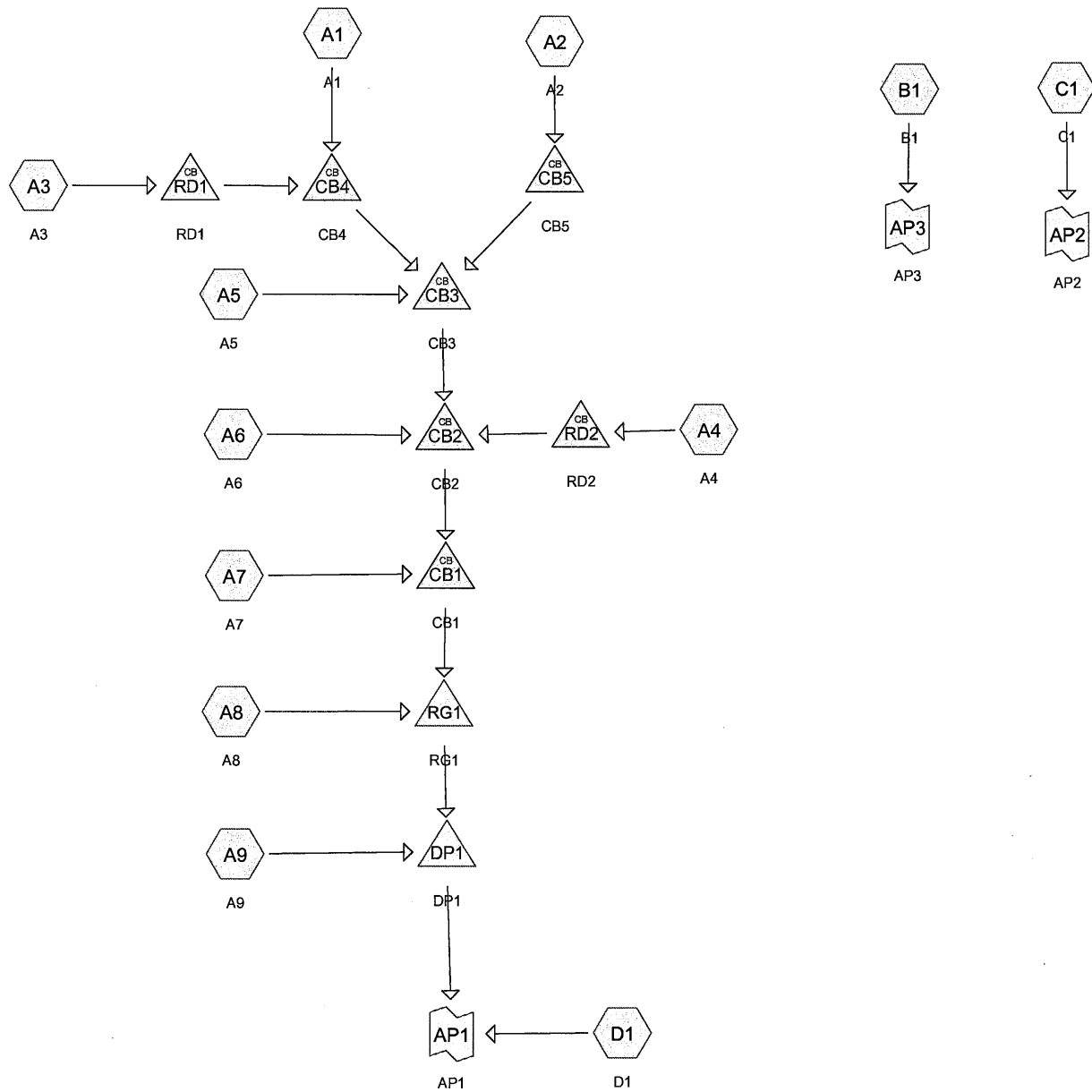
Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A: (new Subcat)Runoff Area=49,077 sf 0.00% Impervious Runoff Depth>0.64"
Flow Length=410' Tc=11.9 min CN=39 Runoff=0.28 cfs 0.061 af**Subcatchment B: (new Subcat)**Runoff Area=8,695 sf 0.00% Impervious Runoff Depth>0.65"
Flow Length=262' Slope=0.0300 '/' Tc=7.7 min CN=39 Runoff=0.06 cfs 0.011 af**Subcatchment C: (new Subcat)**Runoff Area=3,024 sf 0.00% Impervious Runoff Depth>0.65"
Flow Length=212' Tc=4.0 min CN=39 Runoff=0.02 cfs 0.004 af**Subcatchment D: (new Subcat)**Runoff Area=22,313 sf 0.00% Impervious Runoff Depth>1.74"
Flow Length=138' Tc=5.0 min CN=53 Runoff=0.83 cfs 0.074 af**Reach 1R: 1R**Inflow=0.28 cfs 0.061 af
Outflow=0.28 cfs 0.061 af**Link AP1: AP1**Inflow=0.93 cfs 0.135 af
Primary=0.93 cfs 0.135 af**Link AP2: AP 2**Inflow=0.02 cfs 0.004 af
Primary=0.02 cfs 0.004 af**Link AP3: AP 3**Inflow=0.06 cfs 0.011 af
Primary=0.06 cfs 0.011 af**Total Runoff Area = 1.908 ac Runoff Volume = 0.149 af Average Runoff Depth = 0.94"**
100.00% Pervious = 1.908 ac 0.00% Impervious = 0.000 ac

A-2

DEVELOPED WATERSHEDS



Routing Diagram for 1677-Post

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.722	39	>75% Grass cover, Good, HSG A (A1, A2, A7, A8, A9, B1, C1, D1)
0.204	74	>75% Grass cover, Good, HSG C (D1)
0.775	98	Paved parking, HSG A (A1, A2, A5, A6, A7, B1, C1, D1)
0.122	98	Roofs, HSG A (A4)
0.085	98	Unconnected roofs, HSG A (A3)
1.908	73	TOTAL AREA

1677-Post

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.704	HSG A	A1, A2, A3, A4, A5, A6, A7, A8, A9, B1, C1, D1
0.000	HSG B	
0.204	HSG C	
0.000	HSG D	
0.000	Other	D1
1.908		TOTAL AREA

A – 2

NODE LISTING – 2-YR

1677-Post

Circle-k 24-hr S1 2-yr 2-yr Rainfall=3.16"

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Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points x 3

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1Runoff Area=14,305 sf 82.00% Impervious Runoff Depth>1.69"
Flow Length=158' Tc=2.4 min CN=87 Runoff=0.80 cfs 0.046 af**Subcatchment A2: A2**Runoff Area=7,881 sf 69.17% Impervious Runoff Depth>1.21"
Flow Length=226' Tc=7.0 min CN=80 Runoff=0.26 cfs 0.018 af**Subcatchment A3: A3**Runoff Area=3,695 sf 100.00% Impervious Runoff Depth>2.72"
Flow Length=75' Slope=0.0050 '/' Tc=1.7 min CN=98 Runoff=0.29 cfs 0.019 af**Subcatchment A4: A4**Runoff Area=5,328 sf 100.00% Impervious Runoff Depth>2.72"
Flow Length=114' Slope=0.0050 '/' Tc=2.4 min CN=98 Runoff=0.42 cfs 0.028 af**Subcatchment A5: A5**Runoff Area=6,121 sf 100.00% Impervious Runoff Depth>2.72"
Flow Length=101' Tc=1.1 min CN=98 Runoff=0.50 cfs 0.032 af**Subcatchment A6: A6**Runoff Area=1,550 sf 100.00% Impervious Runoff Depth>2.72"
Flow Length=89' Tc=0.8 min CN=98 Runoff=0.13 cfs 0.008 af**Subcatchment A7: A7**Runoff Area=6,295 sf 85.50% Impervious Runoff Depth>1.85"
Flow Length=103' Tc=0.6 min CN=89 Runoff=0.39 cfs 0.022 af**Subcatchment A8: A8**Runoff Area=4,003 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=29' Slope=0.2000 '/' Tc=1.5 min CN=39 Runoff=0.00 cfs 0.000 af**Subcatchment A9: A9**Runoff Area=4,394 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=55' Slope=0.2000 '/' Tc=2.4 min CN=39 Runoff=0.00 cfs 0.000 af**Subcatchment B1: B1**Runoff Area=4,270 sf 12.04% Impervious Runoff Depth>0.03"
Flow Length=153' Tc=4.9 min CN=46 Runoff=0.00 cfs 0.000 af**Subcatchment C1: C1**Runoff Area=3,696 sf 73.27% Impervious Runoff Depth>1.34"
Flow Length=200' Tc=1.3 min CN=82 Runoff=0.17 cfs 0.009 af**Subcatchment D1: D1**Runoff Area=21,569 sf 1.31% Impervious Runoff Depth>0.16"
Flow Length=154' Tc=5.2 min CN=54 Runoff=0.02 cfs 0.007 af**Pond CB1: CB1**Peak Elev=57.49' Inflow=2.61 cfs 0.174 af
18.0" Round Culvert n=0.013 L=14.0' S=0.0071 '/' Outflow=2.61 cfs 0.174 af**Pond CB2: CB2**Peak Elev=57.91' Inflow=2.26 cfs 0.151 af
15.0" Round Culvert n=0.013 L=53.6' S=0.0138 '/' Outflow=2.26 cfs 0.151 af**Pond CB3: CB3**Peak Elev=59.37' Inflow=1.73 cfs 0.116 af
15.0" Round Culvert n=0.013 L=74.9' S=0.0051 '/' Outflow=1.73 cfs 0.116 af**Pond CB4: CB4**Peak Elev=60.27' Inflow=1.09 cfs 0.066 af
12.0" Round Culvert n=0.013 L=193.0' S=0.0046 '/' Outflow=1.09 cfs 0.066 af

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Page 5

Pond CB5: CB5

Peak Elev=59.44' Inflow=0.26 cfs 0.018 af
12.0" Round Culvert n=0.013 L=40.0' S=0.0065 '/' Outflow=0.26 cfs 0.018 af

Pond DP1: DP1

Peak Elev=54.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond RD1: RD1

Peak Elev=60.94' Inflow=0.29 cfs 0.019 af
8.0" Round Culvert n=0.013 L=82.0' S=0.0110 '/' Outflow=0.29 cfs 0.019 af

Pond RD2: RD2

Peak Elev=59.61' Inflow=0.42 cfs 0.028 af
8.0" Round Culvert n=0.013 L=57.4' S=0.0174 '/' Outflow=0.42 cfs 0.028 af

Pond RG1: RG1

Peak Elev=57.49' Storage=3,127 cf Inflow=2.61 cfs 0.174 af
Discarded=0.15 cfs 0.130 af Primary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.130 af

Link AP1: AP1

Inflow=0.02 cfs 0.007 af
Primary=0.02 cfs 0.007 af

Link AP2: AP2

Inflow=0.17 cfs 0.009 af
Primary=0.17 cfs 0.009 af

Link AP3: AP3

Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Total Runoff Area = 1.908 ac Runoff Volume = 0.190 af Average Runoff Depth = 1.19"
48.55% Pervious = 0.926 ac 51.45% Impervious = 0.982 ac

A – 2

NODE LISTING – 10-YR

1677-Post

Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

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Page 6

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points x 3

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1	Runoff Area=14,305 sf 82.00% Impervious Runoff Depth>3.03" Flow Length=158' Tc=2.4 min CN=87 Runoff=1.21 cfs 0.083 af
Subcatchment A2: A2	Runoff Area=7,881 sf 69.17% Impervious Runoff Depth>2.39" Flow Length=226' Tc=7.0 min CN=80 Runoff=0.44 cfs 0.036 af
Subcatchment A3: A3	Runoff Area=3,695 sf 100.00% Impervious Runoff Depth>4.19" Flow Length=75' Slope=0.0050 '/' Tc=1.7 min CN=98 Runoff=0.38 cfs 0.030 af
Subcatchment A4: A4	Runoff Area=5,328 sf 100.00% Impervious Runoff Depth>4.19" Flow Length=114' Slope=0.0050 '/' Tc=2.4 min CN=98 Runoff=0.54 cfs 0.043 af
Subcatchment A5: A5	Runoff Area=6,121 sf 100.00% Impervious Runoff Depth>4.19" Flow Length=101' Tc=1.1 min CN=98 Runoff=0.65 cfs 0.049 af
Subcatchment A6: A6	Runoff Area=1,550 sf 100.00% Impervious Runoff Depth>4.19" Flow Length=89' Tc=0.8 min CN=98 Runoff=0.16 cfs 0.012 af
Subcatchment A7: A7	Runoff Area=6,295 sf 85.50% Impervious Runoff Depth>3.23" Flow Length=103' Tc=0.6 min CN=89 Runoff=0.57 cfs 0.039 af
Subcatchment A8: A8	Runoff Area=4,003 sf 0.00% Impervious Runoff Depth>0.10" Flow Length=29' Slope=0.2000 '/' Tc=1.5 min CN=39 Runoff=0.00 cfs 0.001 af
Subcatchment A9: A9	Runoff Area=4,394 sf 0.00% Impervious Runoff Depth>0.10" Flow Length=55' Slope=0.2000 '/' Tc=2.4 min CN=39 Runoff=0.00 cfs 0.001 af
Subcatchment B1: B1	Runoff Area=4,270 sf 12.04% Impervious Runoff Depth>0.31" Flow Length=153' Tc=4.9 min CN=46 Runoff=0.01 cfs 0.003 af
Subcatchment C1: C1	Runoff Area=3,696 sf 73.27% Impervious Runoff Depth>2.57" Flow Length=200' Tc=1.3 min CN=82 Runoff=0.28 cfs 0.018 af
Subcatchment D1: D1	Runoff Area=21,569 sf 1.31% Impervious Runoff Depth>0.66" Flow Length=154' Tc=5.2 min CN=54 Runoff=0.27 cfs 0.027 af
Pond CB1: CB1	Peak Elev=58.52' Inflow=3.70 cfs 0.292 af 18.0" Round Culvert n=0.013 L=14.0' S=0.0071 '/' Outflow=3.70 cfs 0.292 af
Pond CB2: CB2	Peak Elev=58.52' Inflow=3.19 cfs 0.253 af 15.0" Round Culvert n=0.013 L=53.6' S=0.0138 '/' Outflow=3.19 cfs 0.253 af
Pond CB3: CB3	Peak Elev=59.55' Inflow=2.50 cfs 0.198 af 15.0" Round Culvert n=0.013 L=74.9' S=0.0051 '/' Outflow=2.50 cfs 0.198 af
Pond CB4: CB4	Peak Elev=60.45' Inflow=1.59 cfs 0.113 af 12.0" Round Culvert n=0.013 L=193.0' S=0.0046 '/' Outflow=1.59 cfs 0.113 af

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Page 7

Pond CB5: CB5

Peak Elev=59.61' Inflow=0.44 cfs 0.036 af
12.0" Round Culvert n=0.013 L=40.0' S=0.0065 '/' Outflow=0.44 cfs 0.036 af

Pond DP1: DP1

Peak Elev=54.18' Storage=80 cf Inflow=0.08 cfs 0.006 af
Discarded=0.03 cfs 0.006 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.006 af

Pond RD1: RD1

Peak Elev=61.01' Inflow=0.38 cfs 0.030 af
8.0" Round Culvert n=0.013 L=82.0' S=0.0110 '/' Outflow=0.38 cfs 0.030 af

Pond RD2: RD2

Peak Elev=59.68' Inflow=0.54 cfs 0.043 af
8.0" Round Culvert n=0.013 L=57.4' S=0.0174 '/' Outflow=0.54 cfs 0.043 af

Pond RG1: RG1

Peak Elev=58.52' Storage=5,732 cf Inflow=3.70 cfs 0.293 af
Discarded=0.20 cfs 0.185 af Primary=0.08 cfs 0.005 af Outflow=0.28 cfs 0.190 af

Link AP1: AP1

Inflow=0.27 cfs 0.027 af
Primary=0.27 cfs 0.027 af

Link AP2: AP2

Inflow=0.28 cfs 0.018 af
Primary=0.28 cfs 0.018 af

Link AP3: AP3

Inflow=0.01 cfs 0.003 af
Primary=0.01 cfs 0.003 af

Total Runoff Area = 1.908 ac Runoff Volume = 0.341 af Average Runoff Depth = 2.15"
48.55% Pervious = 0.926 ac 51.45% Impervious = 0.982 ac

A – 2

10-YR STORM SUMMARY

Summary for Subcatchment A1: A1

Runoff = 1.21 cfs @ 11.99 hrs, Volume= 0.083 af, Depth> 3.03"

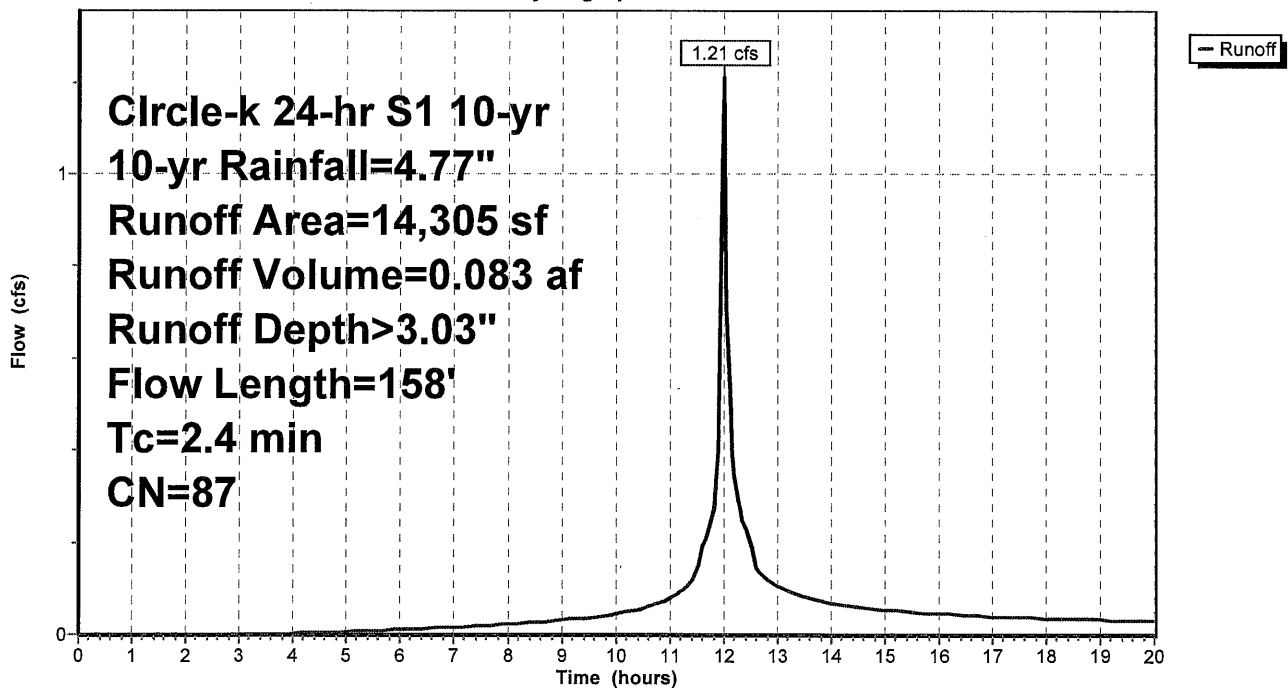
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
11,730	98	Paved parking, HSG A
2,575	39	>75% Grass cover, Good, HSG A
14,305	87	Weighted Average
2,575		18.00% Pervious Area
11,730		82.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	18	0.0550	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 3.16"
0.7	140	0.0280	3.40		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.4	158	Total			

Subcatchment A1: A1

Hydrograph



Summary for Subcatchment A2: A2

Runoff = 0.44 cfs @ 12.05 hrs, Volume= 0.036 af, Depth> 2.39"

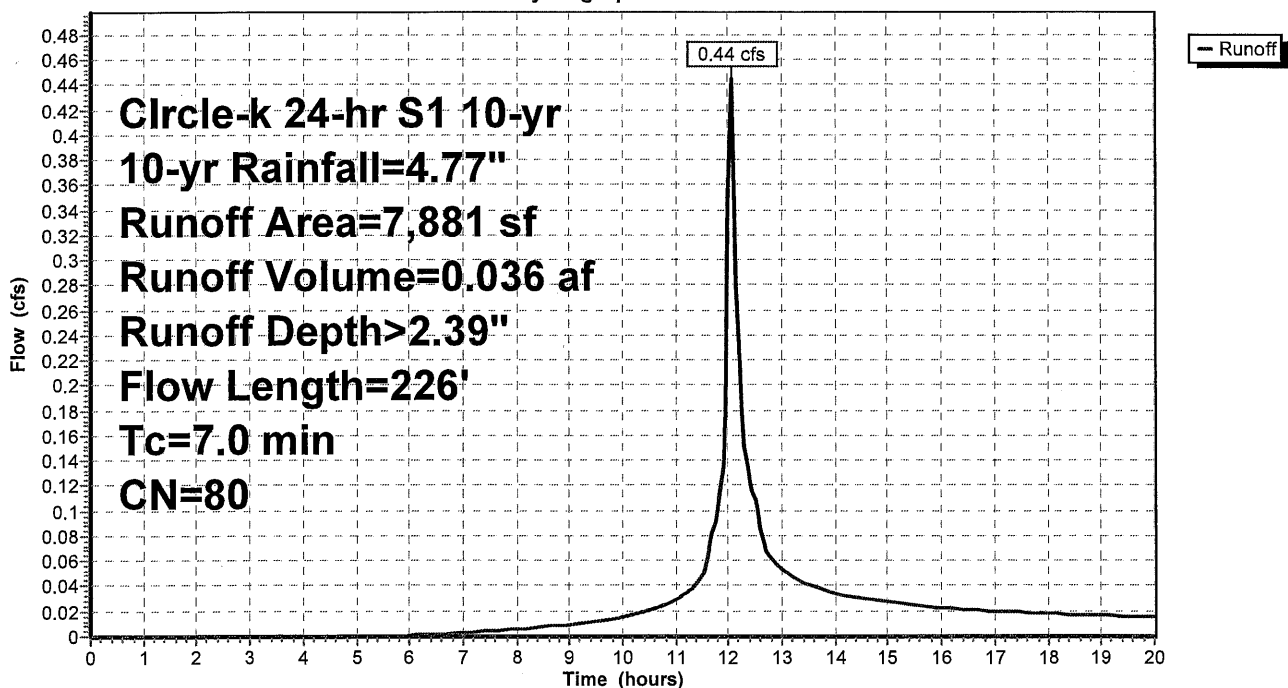
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
5,451	98	Paved parking, HSG A
2,430	39	>75% Grass cover, Good, HSG A
7,881	80	Weighted Average
2,430		30.83% Pervious Area
5,451		69.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.16"
0.7	40	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	136	0.0330	3.69		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.0	226	Total			

Subcatchment A2: A2

Hydrograph



Summary for Subcatchment A3: A3

Runoff = 0.38 cfs @ 11.98 hrs, Volume= 0.030 af, Depth> 4.19"

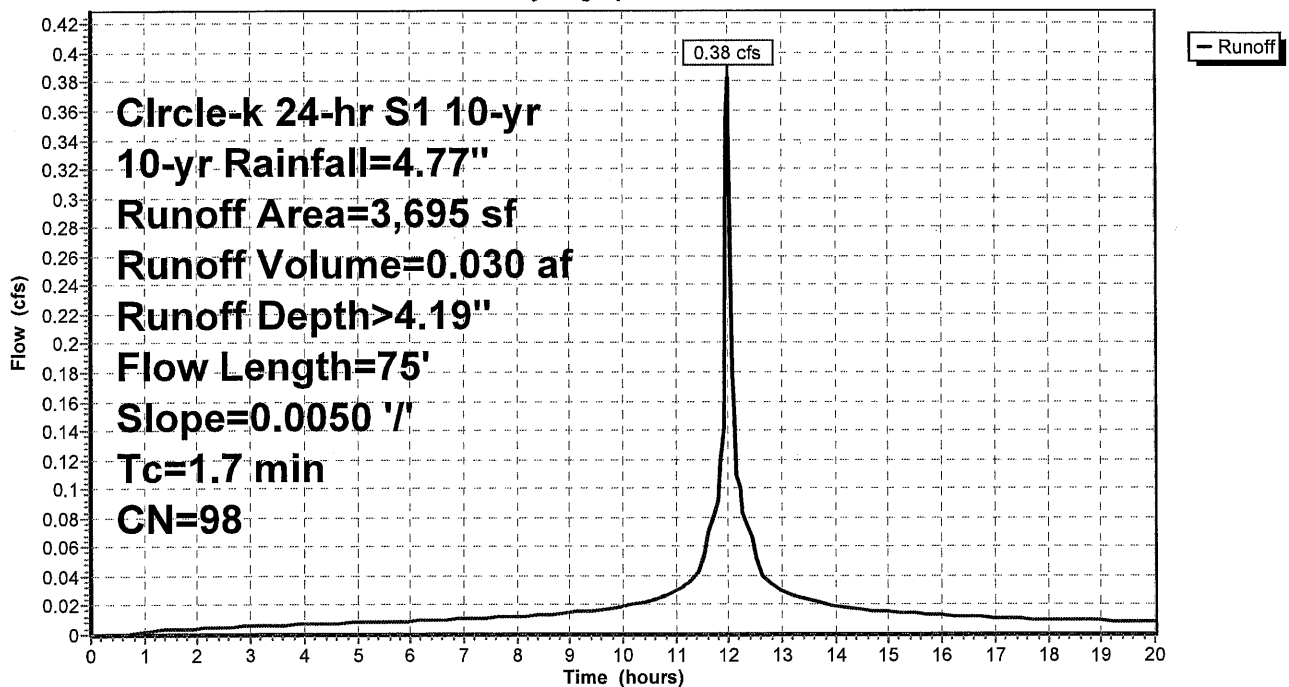
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
3,695	98	Unconnected roofs, HSG A
3,695		100.00% Impervious Area
3,695		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	75	0.0050	0.74		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.16"

Subcatchment A3: A3

Hydrograph



Summary for Subcatchment A4: A4

Runoff = 0.54 cfs @ 11.99 hrs, Volume= 0.043 af, Depth> 4.19"

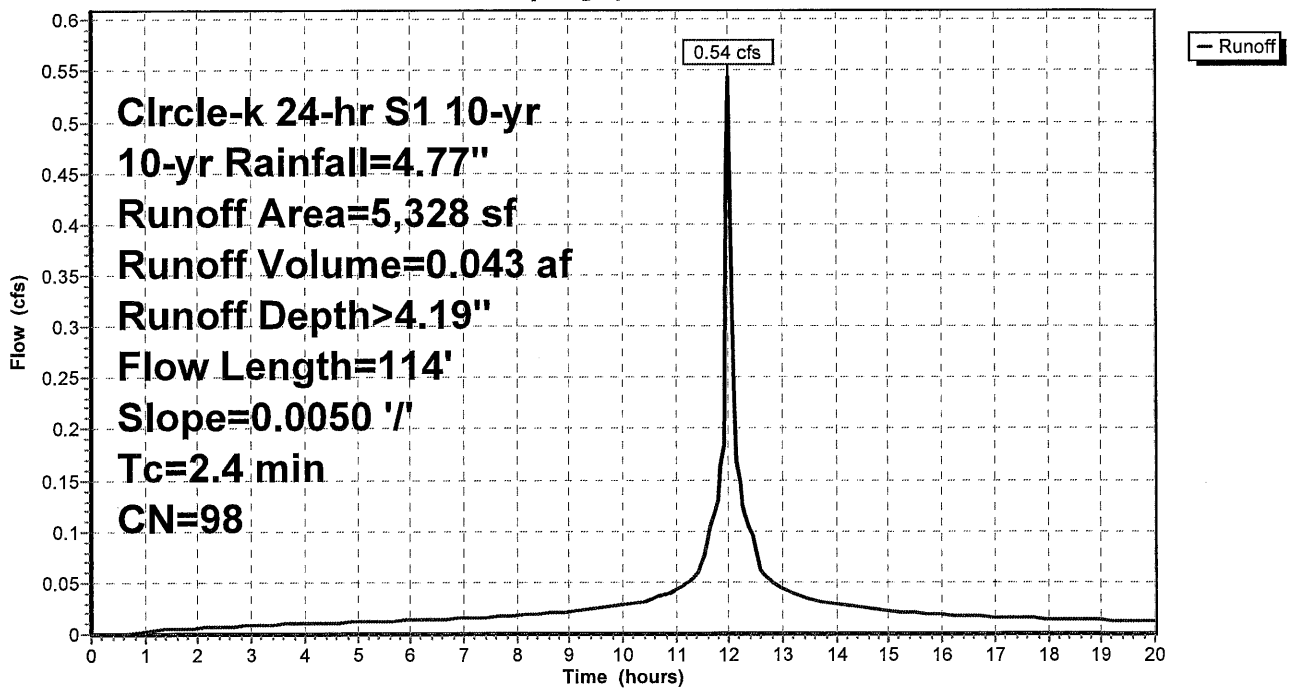
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
5,328	98	Roofs, HSG A
5,328		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	114	0.0050	0.81		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.16"

Subcatchment A4: A4

Hydrograph



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Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

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Summary for Subcatchment A5: A5

Runoff = 0.65 cfs @ 11.97 hrs, Volume= 0.049 af, Depth> 4.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

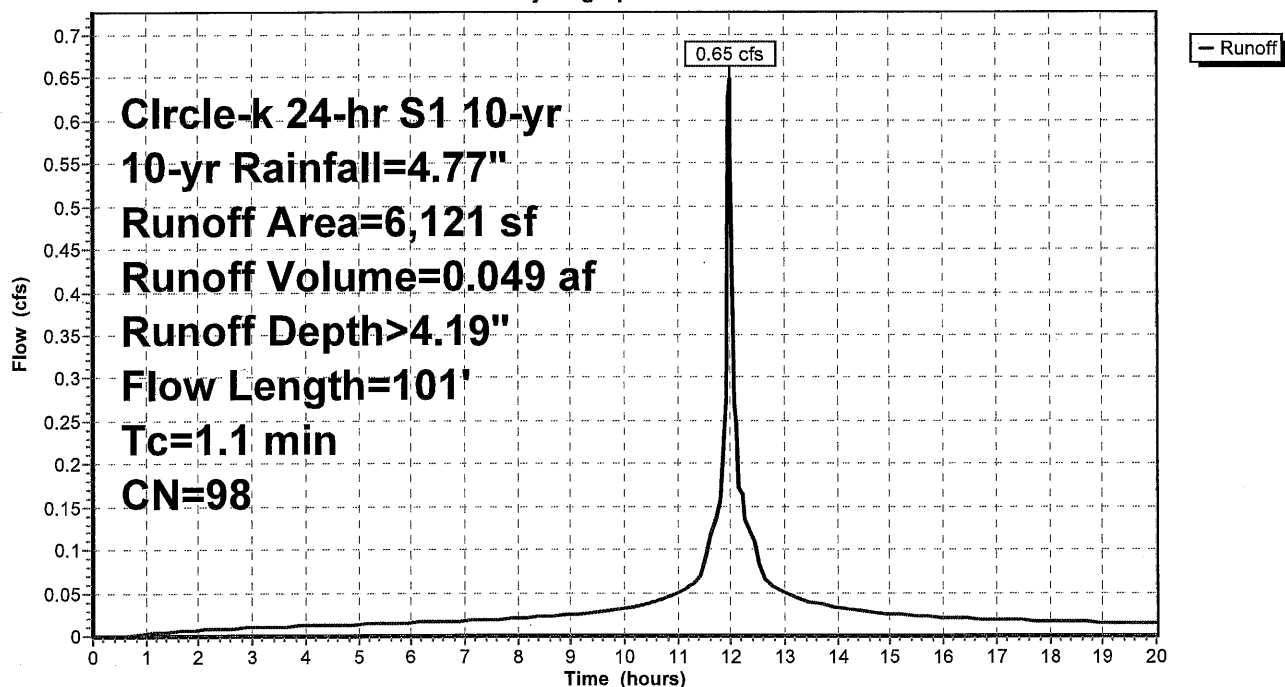
Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
6,121	98	Paved parking, HSG A
6,121		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.16"
0.2	51	0.0600	4.97		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.1	101	Total			

Subcatchment A5: A5

Hydrograph



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Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

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Summary for Subcatchment A6: A6

Runoff = 0.16 cfs @ 11.96 hrs, Volume= 0.012 af, Depth> 4.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

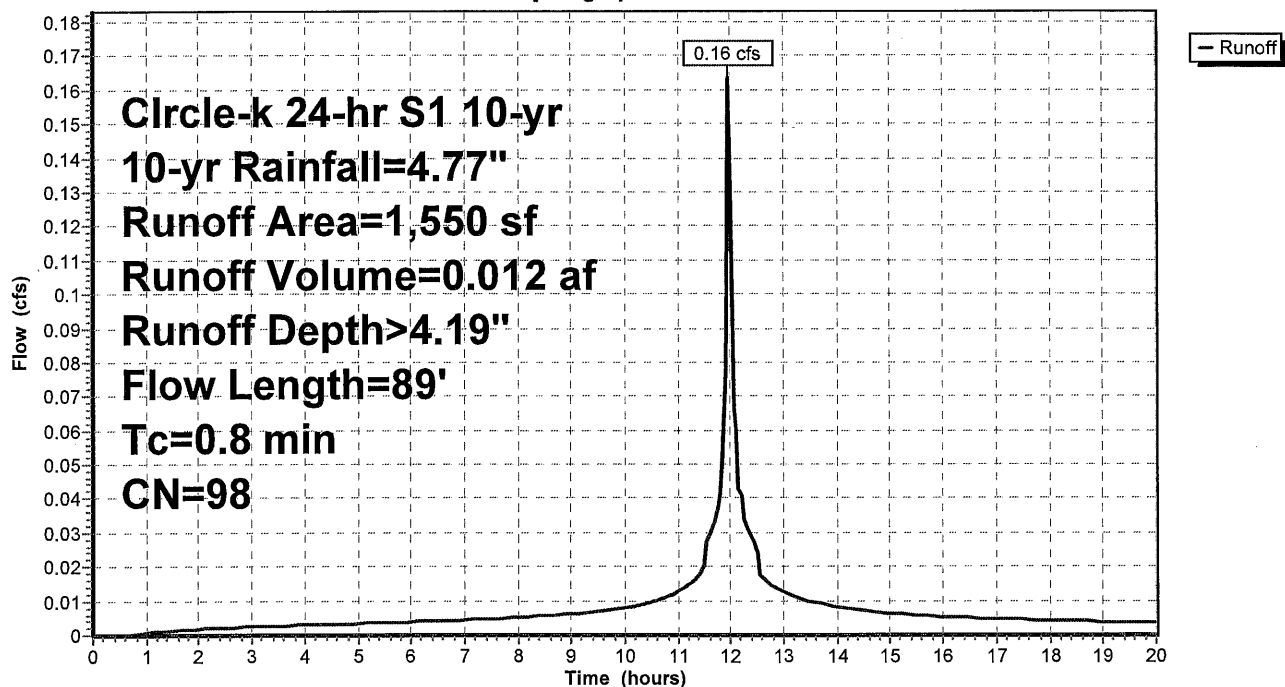
Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
1,550	98	Paved parking, HSG A
1,550		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.19		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.16"
0.1	39	0.0600	4.97		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.8	89	Total			

Subcatchment A6: A6

Hydrograph



Summary for Subcatchment A7: A7

Runoff = 0.57 cfs @ 11.96 hrs, Volume= 0.039 af, Depth> 3.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

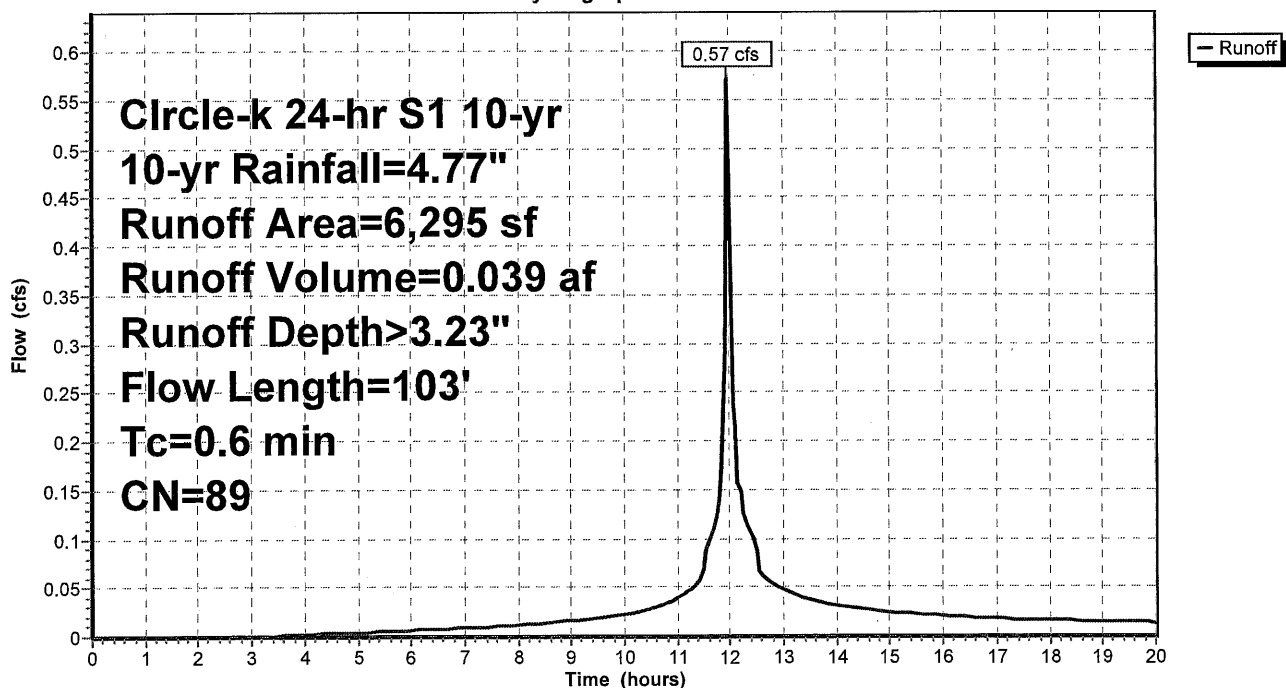
Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
5,382	98	Paved parking, HSG A
913	39	>75% Grass cover, Good, HSG A
6,295	89	Weighted Average
913		14.50% Pervious Area
5,382		85.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0460	1.66		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.16"
0.1	53	0.0920	6.16		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6	103	Total			

Subcatchment A7: A7

Hydrograph



Summary for Subcatchment A8: A8

Runoff = 0.00 cfs @ 16.90 hrs, Volume= 0.001 af, Depth> 0.10"

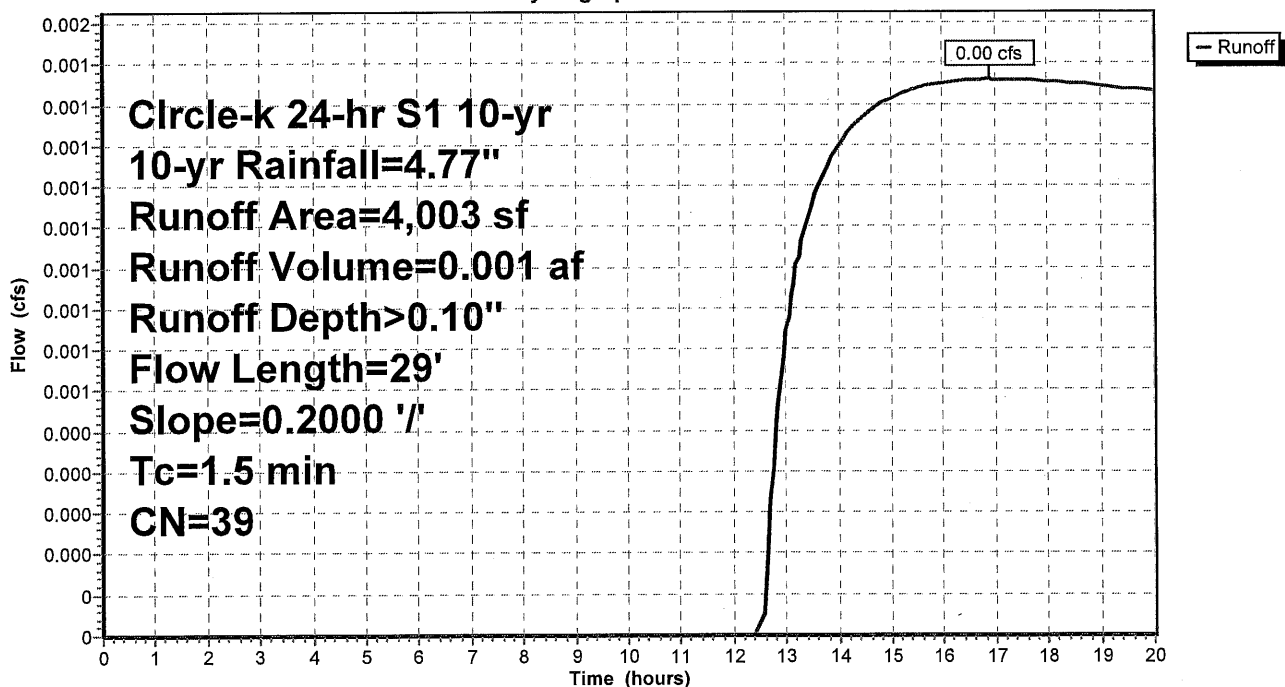
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

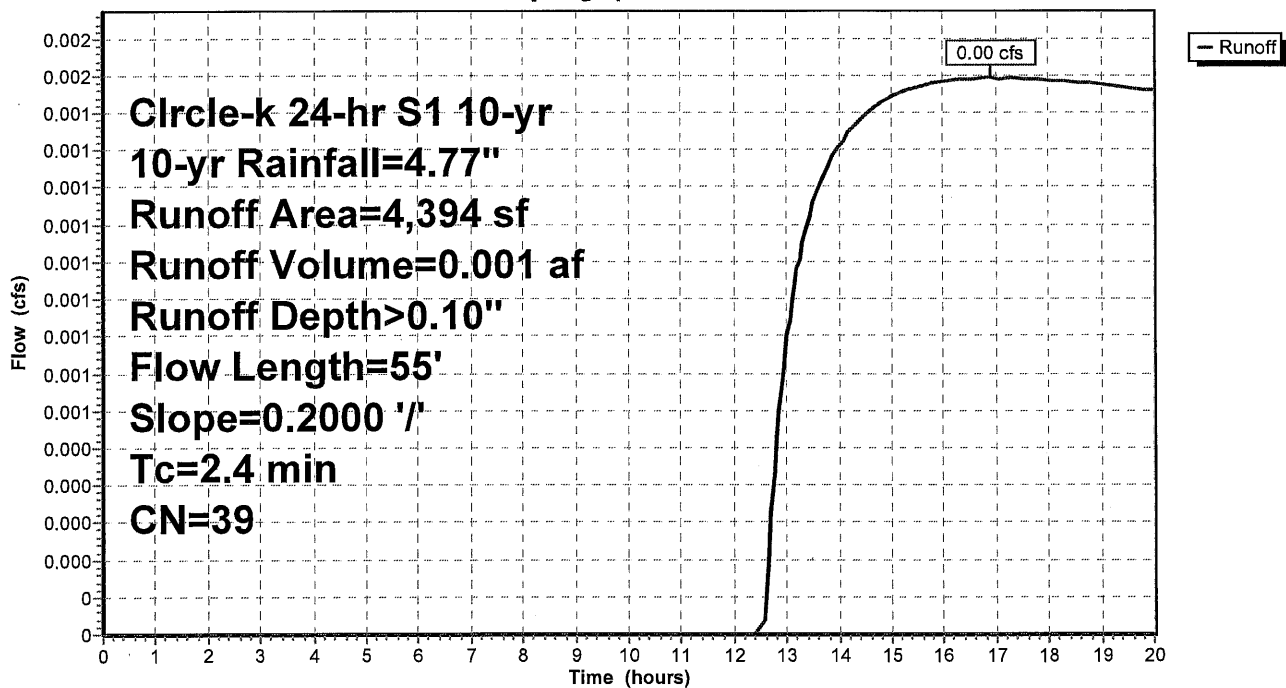
Area (sf)	CN	Description
4,003	39	>75% Grass cover, Good, HSG A
4,003		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	29	0.2000	0.33		Sheet Flow, Grass: Short n= 0.150 P2= 3.16"

Subcatchment A8: A8

Hydrograph





Summary for Subcatchment B1: B1

Runoff = 0.01 cfs @ 12.16 hrs, Volume= 0.003 af, Depth> 0.31"

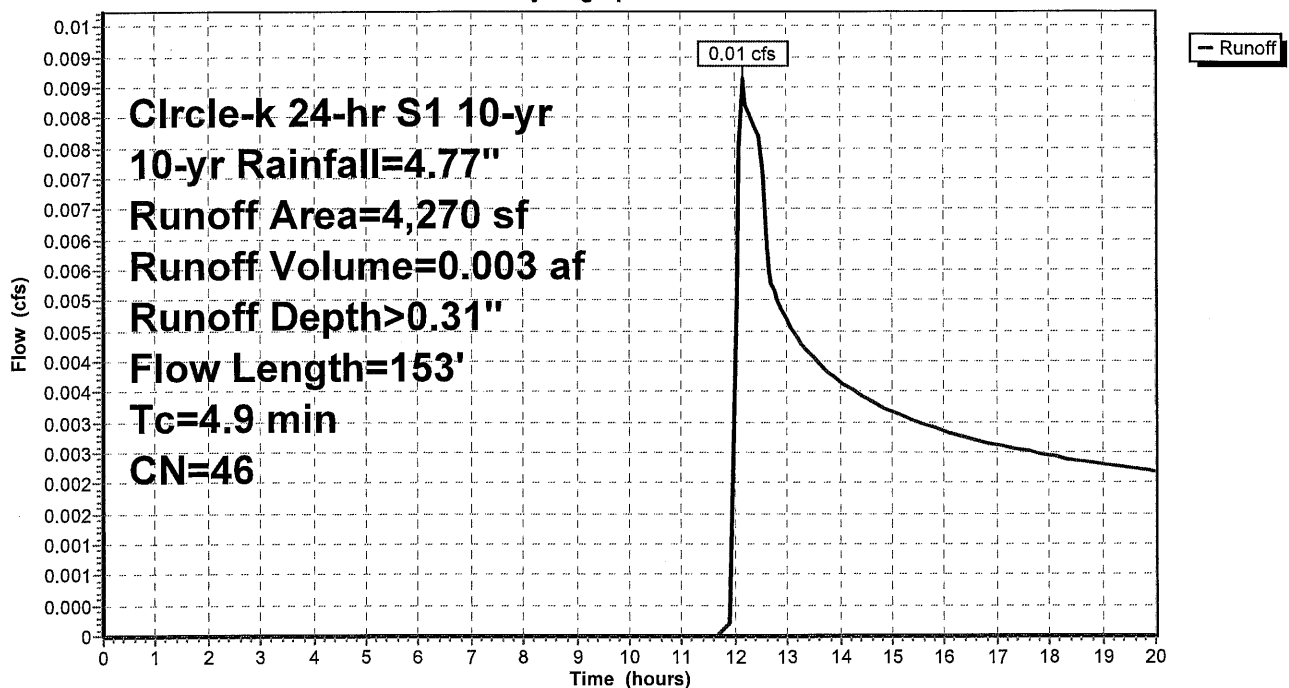
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
514	98	Paved parking, HSG A
3,756	39	>75% Grass cover, Good, HSG A
4,270	46	Weighted Average
3,756		87.96% Pervious Area
514		12.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.16"
0.2	26	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	77	0.0260	3.27		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.9	153	Total			

Subcatchment B1: B1

Hydrograph



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Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

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Page 11

Summary for Subcatchment C1: C1

Runoff = 0.28 cfs @ 11.97 hrs, Volume= 0.018 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

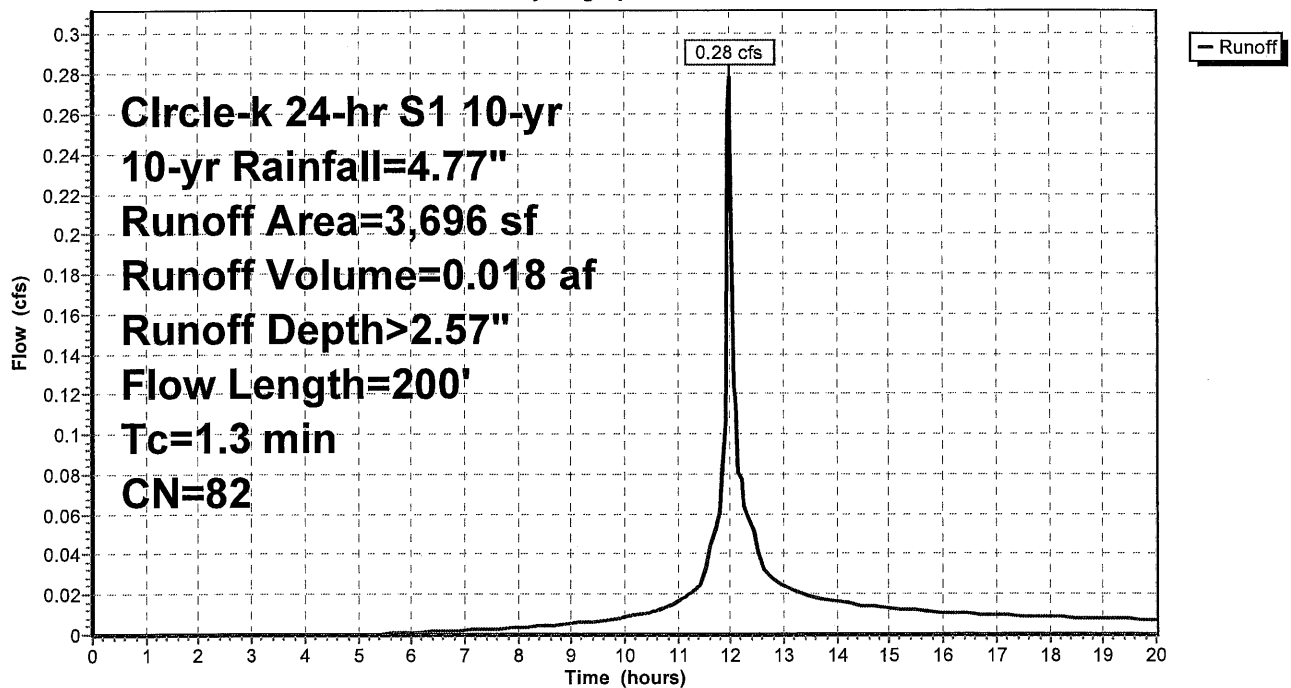
Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
2,708	98	Paved parking, HSG A
988	39	>75% Grass cover, Good, HSG A
3,696	82	Weighted Average
988		26.73% Pervious Area
2,708		73.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	65	0.0920	2.31		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.16"
0.8	135	0.0188	2.78		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.3	200	Total			

Subcatchment C1: C1

Hydrograph



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Page 12

Summary for Subcatchment D1: D1

Runoff = 0.27 cfs @ 12.05 hrs, Volume= 0.027 af, Depth> 0.66"

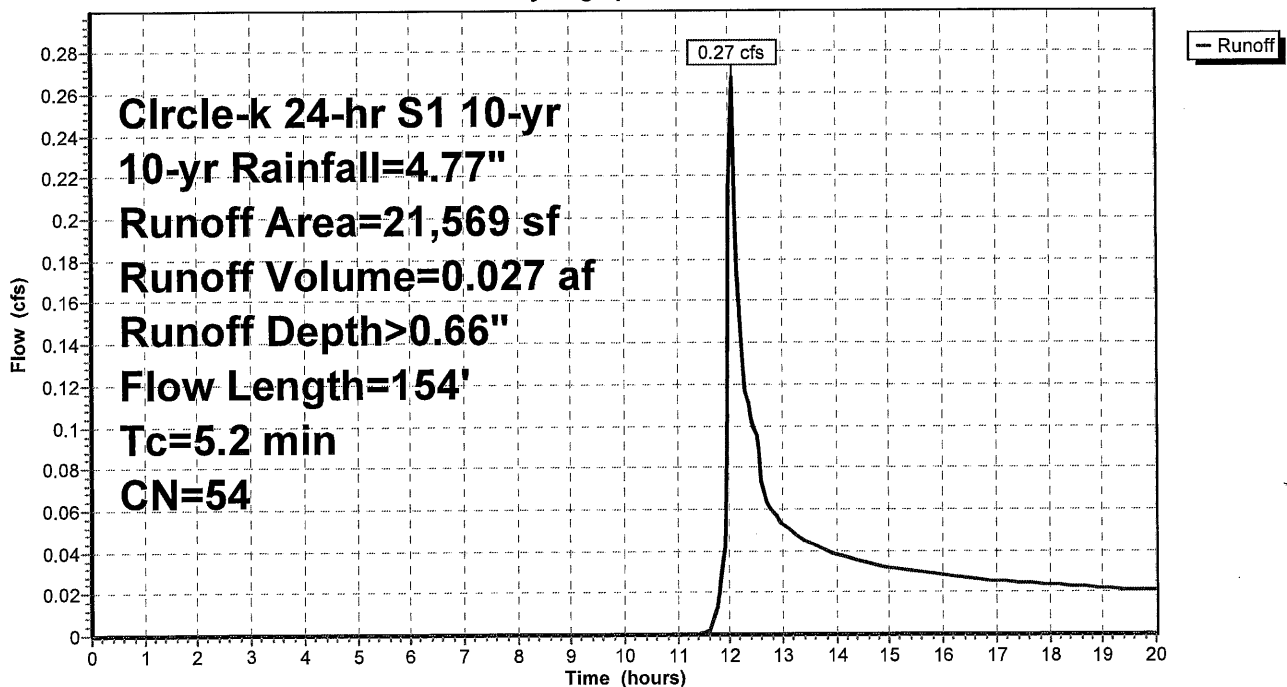
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

Area (sf)	CN	Description
8,899	74	>75% Grass cover, Good, HSG C
282	98	Paved parking, HSG A
12,388	39	>75% Grass cover, Good, HSG A
21,569	54	Weighted Average
21,287		98.69% Pervious Area
282		1.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.16"
0.9	104	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.2	154	Total			

Subcatchment D1: D1

Hydrograph



Summary for Pond CB1: CB1

Inflow Area = 1.037 ac, 86.90% Impervious, Inflow Depth > 3.38" for 10-yr event
 Inflow = 3.70 cfs @ 11.98 hrs, Volume= 0.292 af
 Outflow = 3.70 cfs @ 11.98 hrs, Volume= 0.292 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.70 cfs @ 11.98 hrs, Volume= 0.292 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 58.52' @ 13.40 hrs

Flood Elev= 59.30'

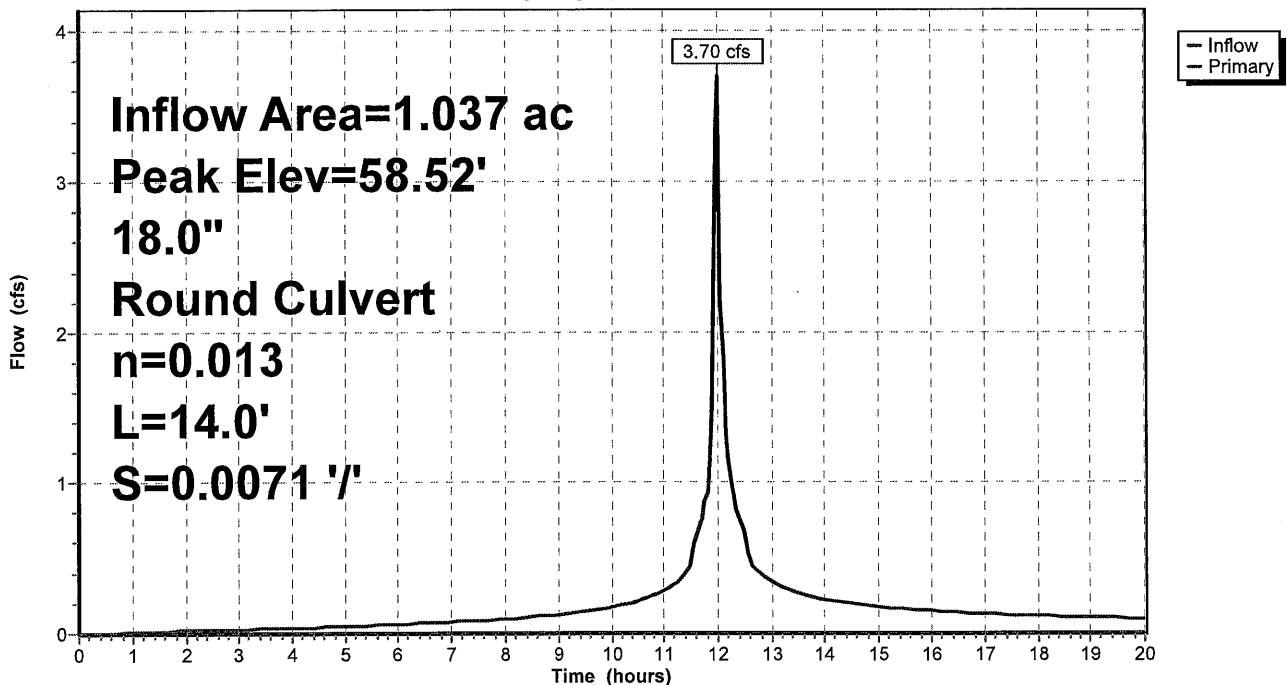
Device	Routing	Invert	Outlet Devices
#1	Primary	56.30'	18.0" Round Culvert L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.30' / 56.20' S= 0.0071 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=3.55 cfs @ 11.98 hrs HW=57.65' TW=57.44' (Dynamic Tailwater)

1=Culvert (Outlet Controls 3.55 cfs @ 2.80 fps)

Pond CB1: CB1

Hydrograph



Summary for Pond CB2: CB2

Inflow Area = 0.893 ac, 87.13% Impervious, Inflow Depth > 3.40" for 10-yr event
 Inflow = 3.19 cfs @ 11.99 hrs, Volume= 0.253 af
 Outflow = 3.19 cfs @ 11.99 hrs, Volume= 0.253 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.19 cfs @ 11.99 hrs, Volume= 0.253 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 58.52' @ 13.39 hrs

Flood Elev= 62.90'

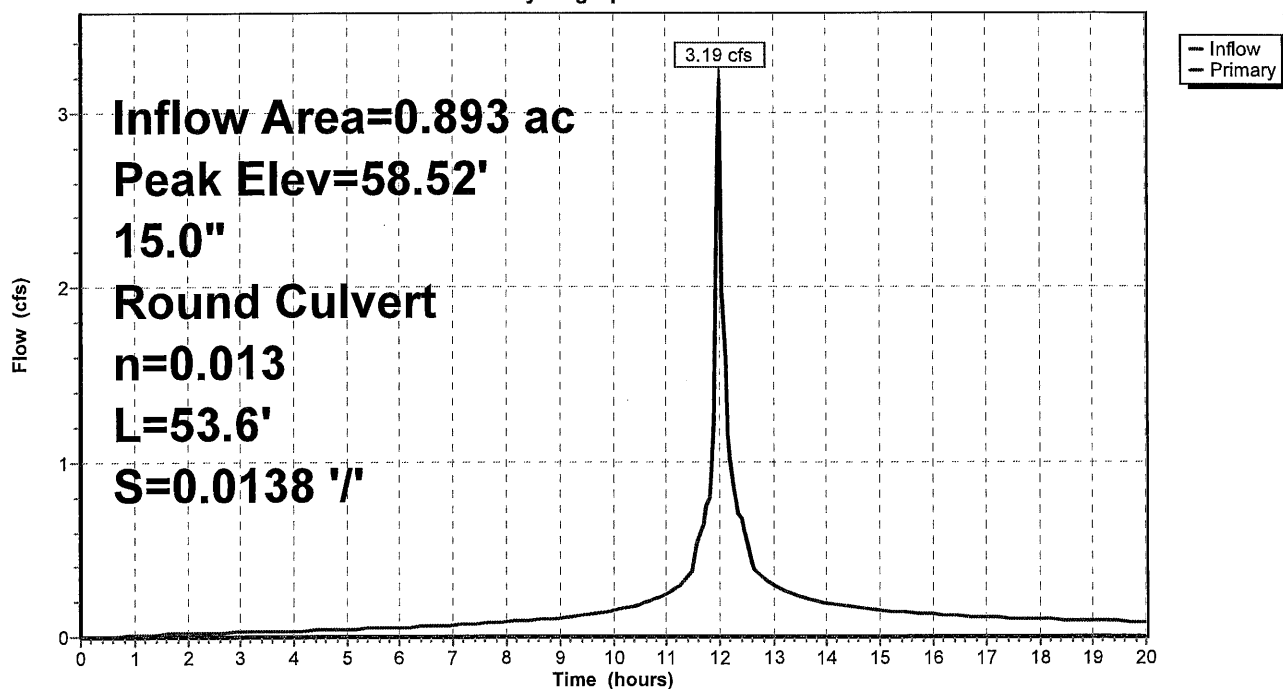
Device	Routing	Invert	Outlet Devices
#1	Primary	57.14'	15.0" Round Culvert L= 53.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 57.14' / 56.40' S= 0.0138 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.06 cfs @ 11.99 hrs HW=58.21' TW=57.67' (Dynamic Tailwater)

1=Culvert (Outlet Controls 3.06 cfs @ 3.69 fps)

Pond CB2: CB2

Hydrograph



Summary for Pond CB3: CB3

Inflow Area = 0.735 ac, 84.36% Impervious, Inflow Depth > 3.23" for 10-yr event
 Inflow = 2.50 cfs @ 11.99 hrs, Volume= 0.198 af
 Outflow = 2.50 cfs @ 11.99 hrs, Volume= 0.198 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.50 cfs @ 11.99 hrs, Volume= 0.198 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 59.55' @ 11.99 hrs

Flood Elev= 63.00'

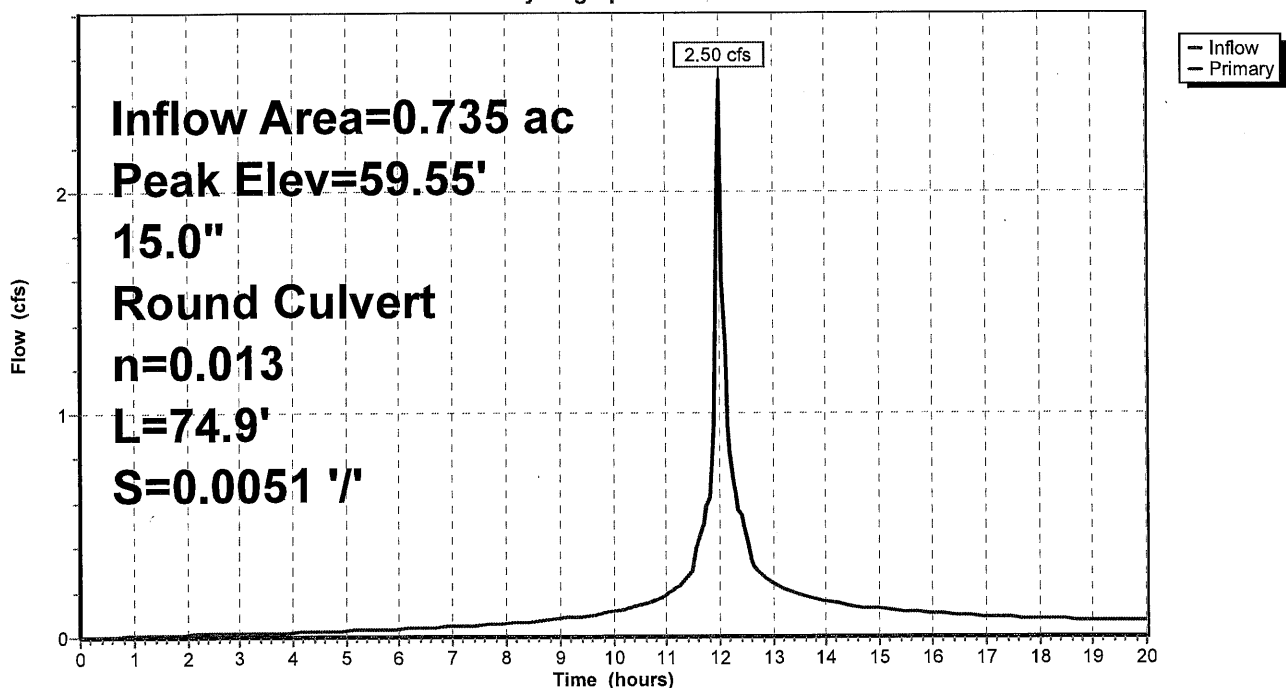
Device	Routing	Invert	Outlet Devices
#1	Primary	58.62'	15.0" Round Culvert L= 74.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.62' / 58.24' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.40 cfs @ 11.99 hrs HW=59.52' TW=58.21' (Dynamic Tailwater)

1=Culvert (Barrel Controls 2.40 cfs @ 3.53 fps)

Pond CB3: CB3

Hydrograph



Summary for Pond CB4: CB4

Inflow Area = 0.413 ac, 85.69% Impervious, Inflow Depth > 3.27" for 10-yr event
 Inflow = 1.59 cfs @ 11.99 hrs, Volume= 0.113 af
 Outflow = 1.59 cfs @ 11.99 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.59 cfs @ 11.99 hrs, Volume= 0.113 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 60.45' @ 11.99 hrs

Flood Elev= 65.60'

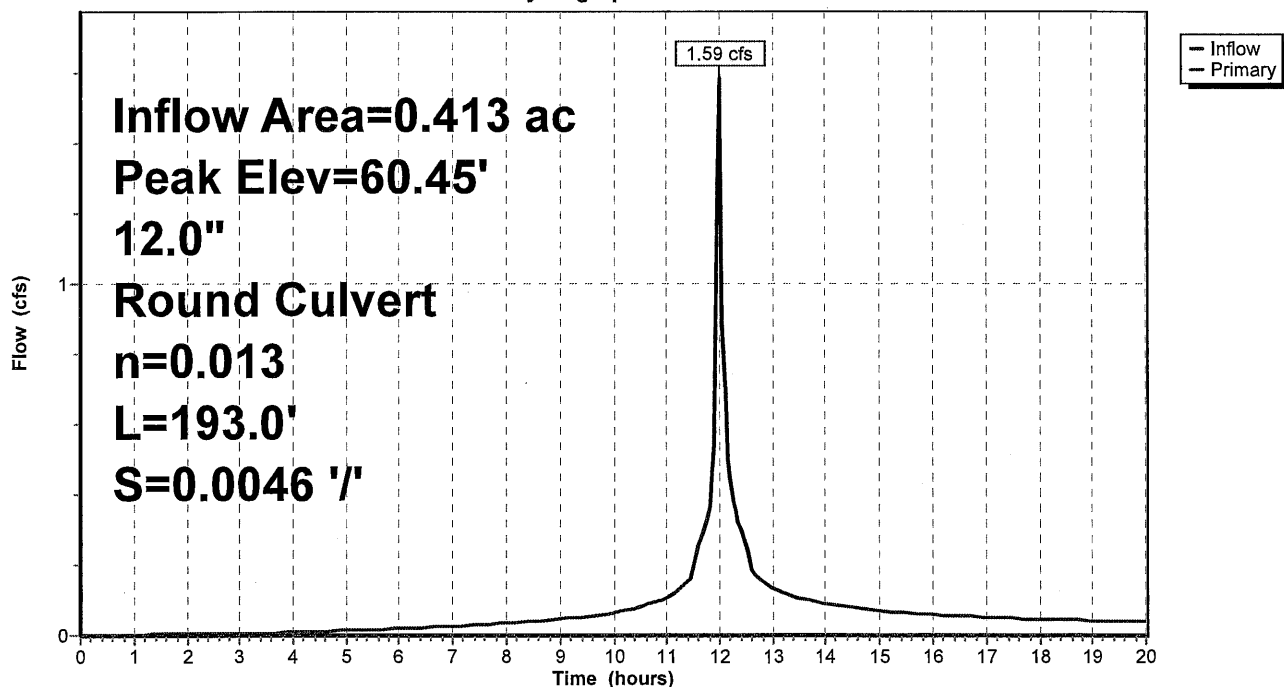
Device	Routing	Invert	Outlet Devices
#1	Primary	59.60'	12.0" Round Culvert L= 193.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 59.60' / 58.72' S= 0.0046 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.50 cfs @ 11.99 hrs HW=60.42' TW=59.52' (Dynamic Tailwater)

1=Culvert (Outlet Controls 1.50 cfs @ 2.95 fps)

Pond CB4: CB4

Hydrograph



Summary for Pond CB5: CB5

Inflow Area = 0.181 ac, 69.17% Impervious, Inflow Depth > 2.39" for 10-yr event
 Inflow = 0.44 cfs @ 12.05 hrs, Volume= 0.036 af
 Outflow = 0.44 cfs @ 12.05 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.44 cfs @ 12.05 hrs, Volume= 0.036 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 59.61' @ 12.00 hrs

Flood Elev= 63.80'

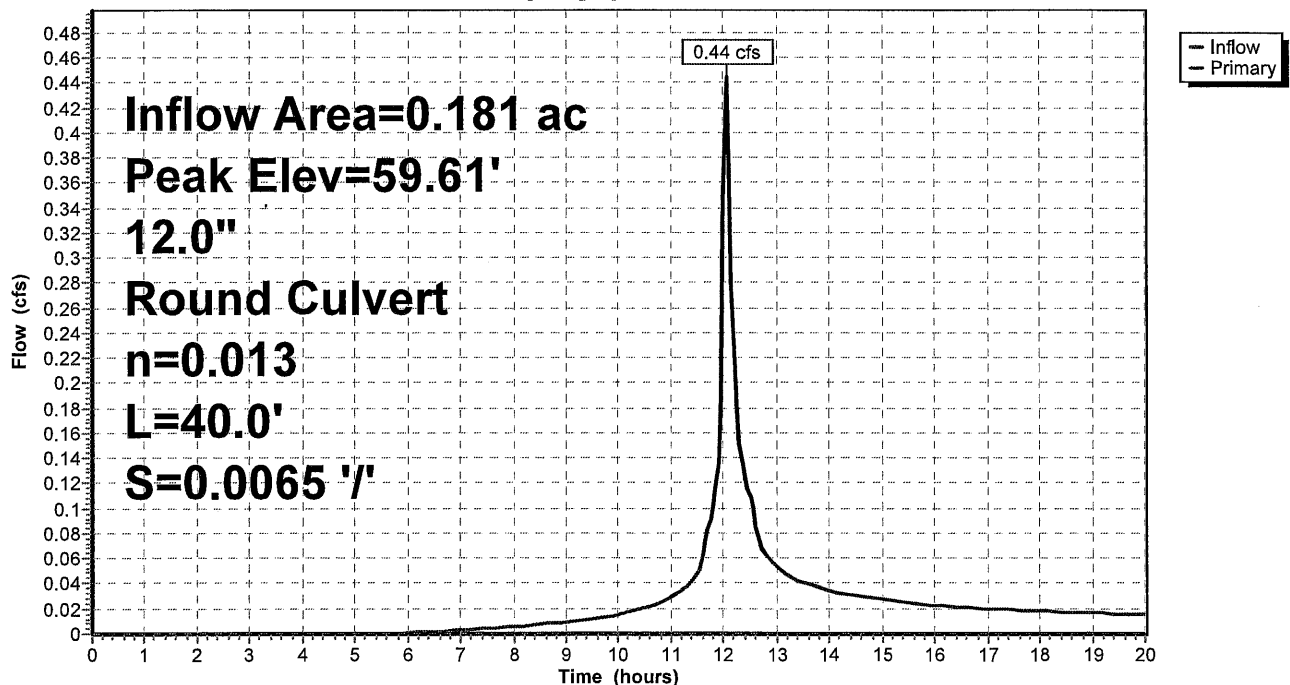
Device	Routing	Invert	Outlet Devices
#1	Primary	59.08'	12.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 59.08' / 58.82' S= 0.0065 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.44 cfs @ 12.05 hrs HW=59.52' TW=59.33' (Dynamic Tailwater)

1=Culvert (Outlet Controls 0.44 cfs @ 1.93 fps)

Pond CB5: CB5

Hydrograph



Summary for Pond DP1: DP1

Inflow Area = 1.230 ac, 73.28% Impervious, Inflow Depth > 0.05" for 10-yr event
 Inflow = 0.08 cfs @ 13.41 hrs, Volume= 0.006 af
 Outflow = 0.03 cfs @ 14.00 hrs, Volume= 0.006 af, Atten= 56%, Lag= 35.4 min
 Discarded = 0.03 cfs @ 14.00 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 54.18' @ 14.00 hrs Surf.Area= 491 sf Storage= 80 cf

Flood Elev= 59.00' Surf.Area= 3,701 sf Storage= 9,354 cf

Plug-Flow detention time= 22.9 min calculated for 0.006 af (100% of inflow)

Center-of-Mass det. time= 22.5 min (868.6 - 846.1)

Volume	Invert	Avail.Storage	Storage Description
#1	54.00'	9,354 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
54.00	412	0	0
55.00	862	637	637
56.00	1,456	1,159	1,796
57.00	2,125	1,791	3,587
58.00	2,868	2,497	6,083
58.50	3,257	1,531	7,614
59.00	3,701	1,740	9,354

Device	Routing	Invert	Outlet Devices
#1	Primary	54.00'	12.0" Round Culvert L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.00' / 48.50' S= 0.1447 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf
#2	Device 1	58.50'	36.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Discarded	54.00'	3.000 in/hr Exfiltration over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0.03 cfs @ 14.00 hrs HW=54.18' (Free Discharge)

↑**3=Exfiltration** (Exfiltration Controls 0.03 cfs)

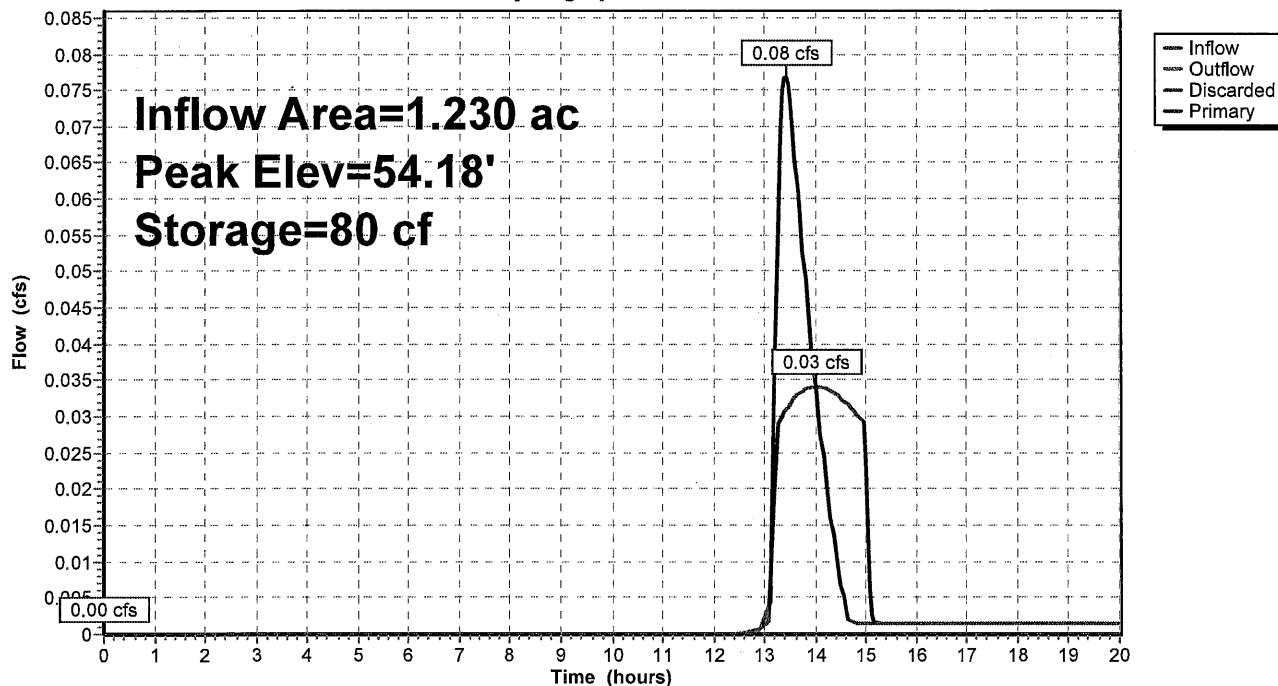
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=54.00' TW=0.00' (Dynamic Tailwater)

↑**1=Culvert** (Controls 0.00 cfs)

↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond DP1: DP1

Hydrograph



Summary for Pond RD1: RD1

Inflow Area = 0.085 ac, 100.00% Impervious, Inflow Depth > 4.19" for 10-yr event
 Inflow = 0.38 cfs @ 11.98 hrs, Volume= 0.030 af
 Outflow = 0.38 cfs @ 11.98 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.38 cfs @ 11.98 hrs, Volume= 0.030 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 61.01' @ 11.98 hrs

Flood Elev= 65.60'

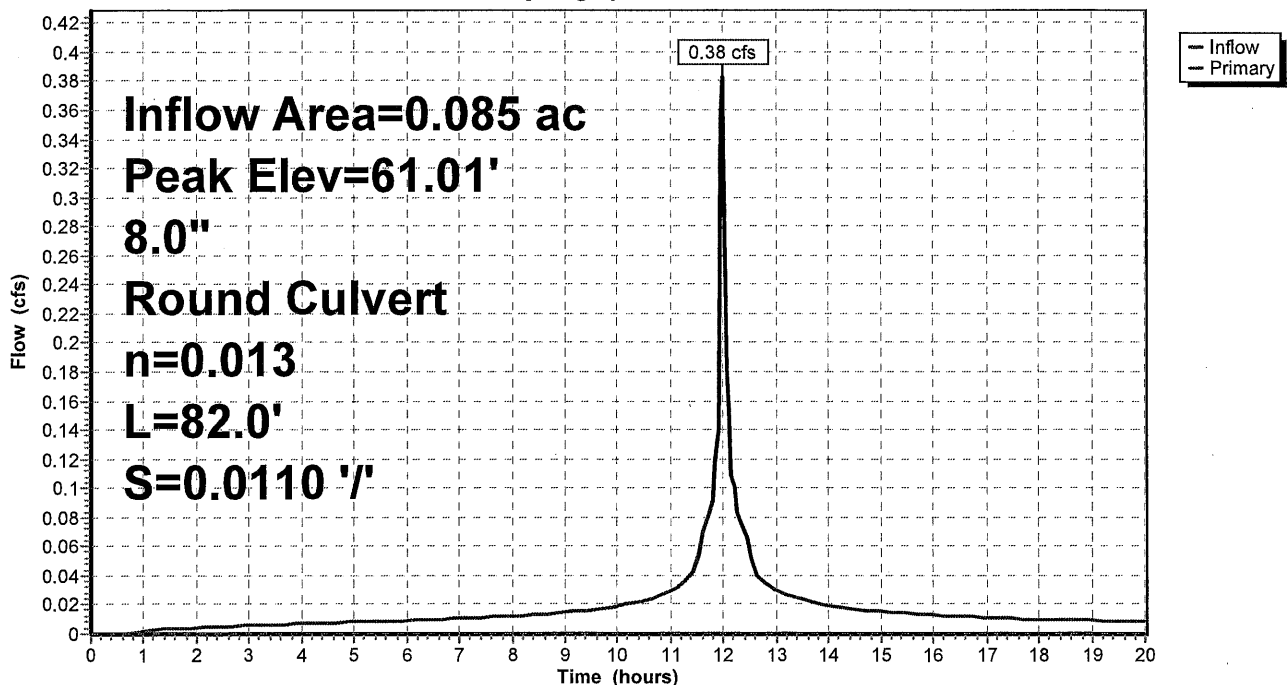
Device	Routing	Invert	Outlet Devices
#1	Primary	60.60'	8.0" Round Culvert L= 82.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 60.60' / 59.70' S= 0.0110 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.36 cfs @ 11.98 hrs HW=60.99' TW=60.41' (Dynamic Tailwater)

1=Culvert (Outlet Controls 0.36 cfs @ 2.42 fps)

Pond RD1: RD1

Hydrograph



Summary for Pond RD2: RD2

Inflow Area = 0.122 ac, 100.00% Impervious, Inflow Depth > 4.19" for 10-yr event
 Inflow = 0.54 cfs @ 11.99 hrs, Volume= 0.043 af
 Outflow = 0.54 cfs @ 11.99 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.54 cfs @ 11.99 hrs, Volume= 0.043 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 59.68' @ 11.99 hrs

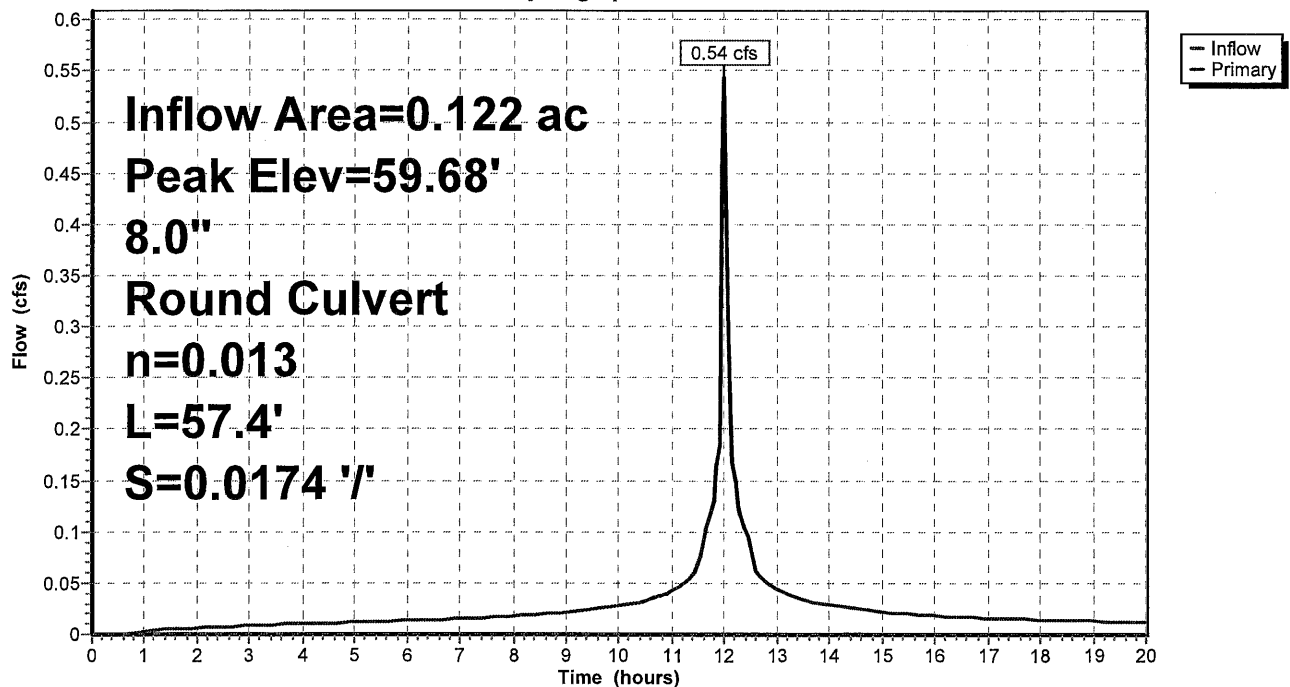
Flood Elev= 62.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	59.24'	8.0" Round Culvert L= 57.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 59.24' / 58.24' S= 0.0174 ' S= 0.0174 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.52 cfs @ 11.99 hrs HW=59.66' TW=58.21' (Dynamic Tailwater)
 1=Culvert (Inlet Controls 0.52 cfs @ 2.21 fps)

Pond RD2: RD2

Hydrograph



1677-Post

Circle-k 24-hr S1 10-yr 10-yr Rainfall=4.77"

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Page 22

Summary for Pond RG1: RG1

Inflow Area = 1.129 ac, 79.83% Impervious, Inflow Depth > 3.11" for 10-yr event
 Inflow = 3.70 cfs @ 11.98 hrs, Volume= 0.293 af
 Outflow = 0.28 cfs @ 13.41 hrs, Volume= 0.190 af, Atten= 92%, Lag= 85.4 min
 Discarded = 0.20 cfs @ 13.41 hrs, Volume= 0.185 af
 Primary = 0.08 cfs @ 13.41 hrs, Volume= 0.005 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 58.52' @ 13.41 hrs Surf.Area= 2,908 sf Storage= 5,732 cf

Flood Elev= 59.00' Surf.Area= 3,434 sf Storage= 7,267 cf

Plug-Flow detention time= 174.1 min calculated for 0.190 af (65% of inflow)

Center-of-Mass det. time= 71.5 min (811.8 - 740.4)

Volume	Invert	Avail.Storage	Storage Description
#1	53.10'	7,267 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
53.10	1,286	0.0	0	0
54.10	1,286	35.0	450	450
54.35	1,286	20.0	64	514
55.85	1,286	10.0	193	707
56.10	1,286	10.0	32	739
57.10	1,906	100.0	1,596	2,335
58.00	2,528	100.0	1,995	4,331
58.50	2,891	100.0	1,355	5,685
59.00	3,434	100.0	1,581	7,267

Device	Routing	Invert	Outlet Devices
#1	Primary	58.50'	16.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Discarded	53.10'	3.000 in/hr Exfiltration over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0.20 cfs @ 13.41 hrs HW=58.52' (Free Discharge)

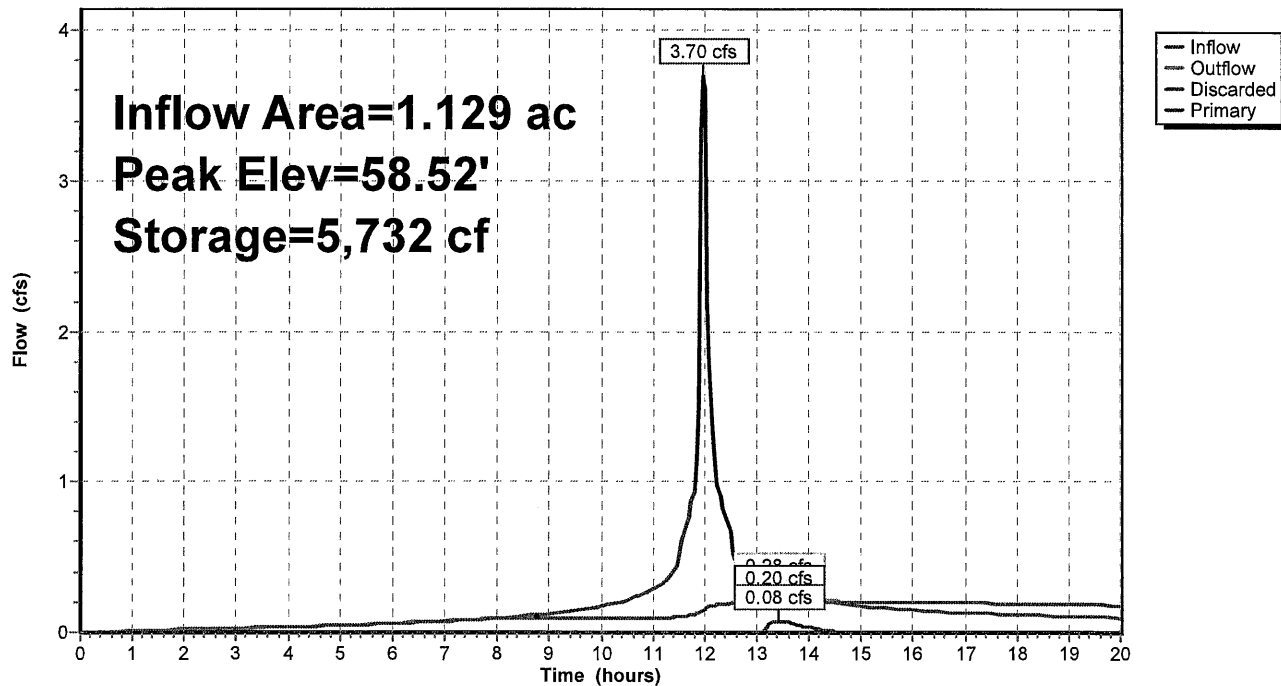
↑2=Exfiltration (Exfiltration Controls 0.20 cfs)

Primary OutFlow Max=0.08 cfs @ 13.41 hrs HW=58.52' TW=54.07' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 0.08 cfs @ 0.30 fps)

Pond RG1: RG1

Hydrograph



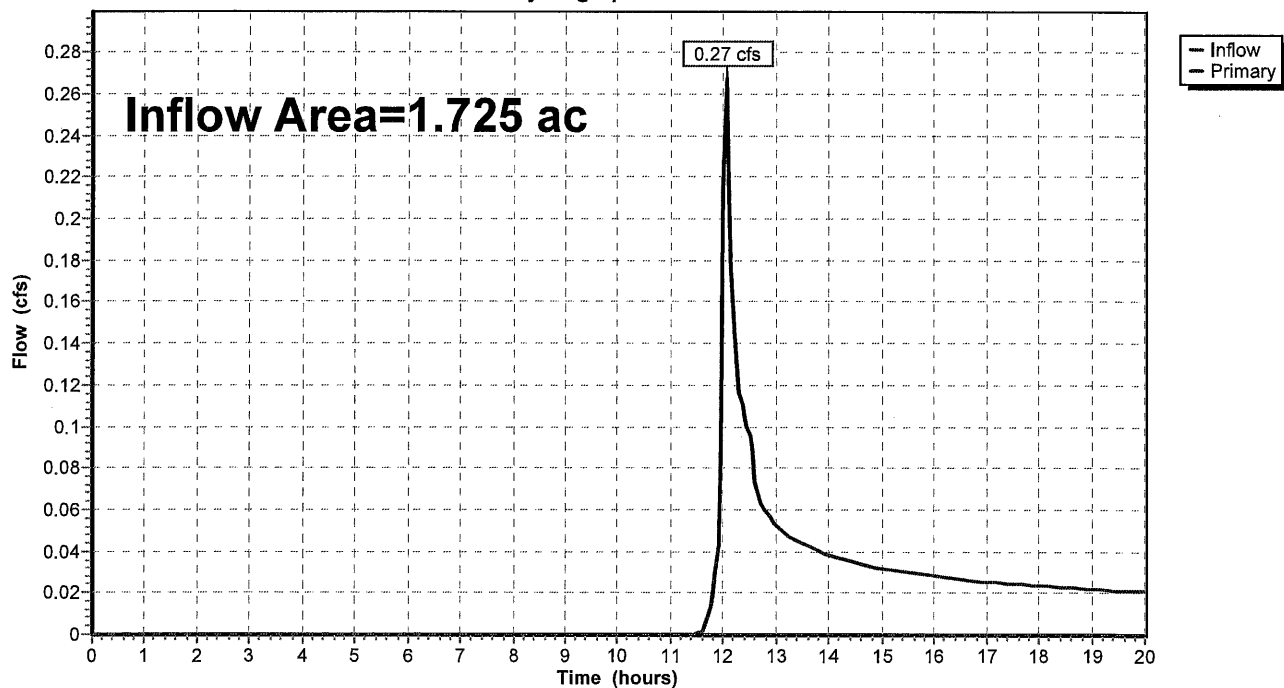
Summary for Link AP1: AP1

Inflow Area = 1.725 ac, 52.62% Impervious, Inflow Depth > 0.19" for 10-yr event
Inflow = 0.27 cfs @ 12.05 hrs, Volume= 0.027 af
Primary = 0.27 cfs @ 12.05 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link AP1: AP1

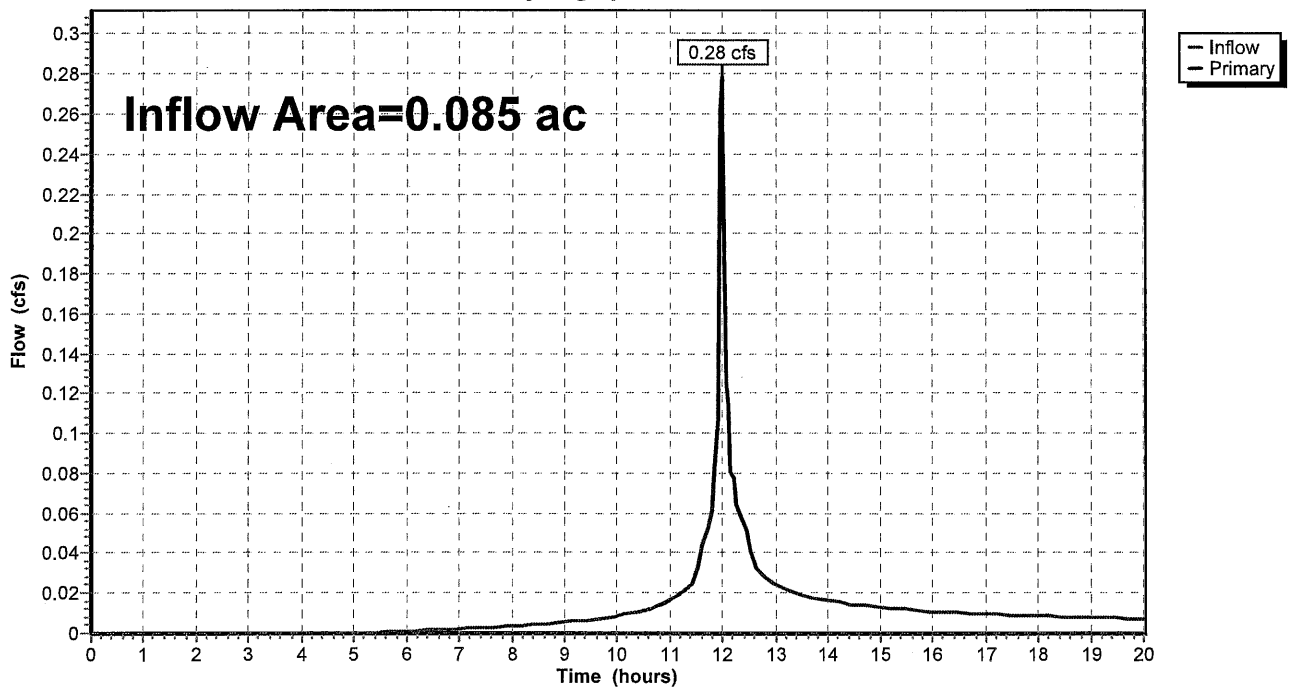
Hydrograph



Summary for Link AP2: AP2

Inflow Area = 0.085 ac, 73.27% Impervious, Inflow Depth > 2.57" for 10-yr event
Inflow = 0.28 cfs @ 11.97 hrs, Volume= 0.018 af
Primary = 0.28 cfs @ 11.97 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link AP2: AP2**Hydrograph**

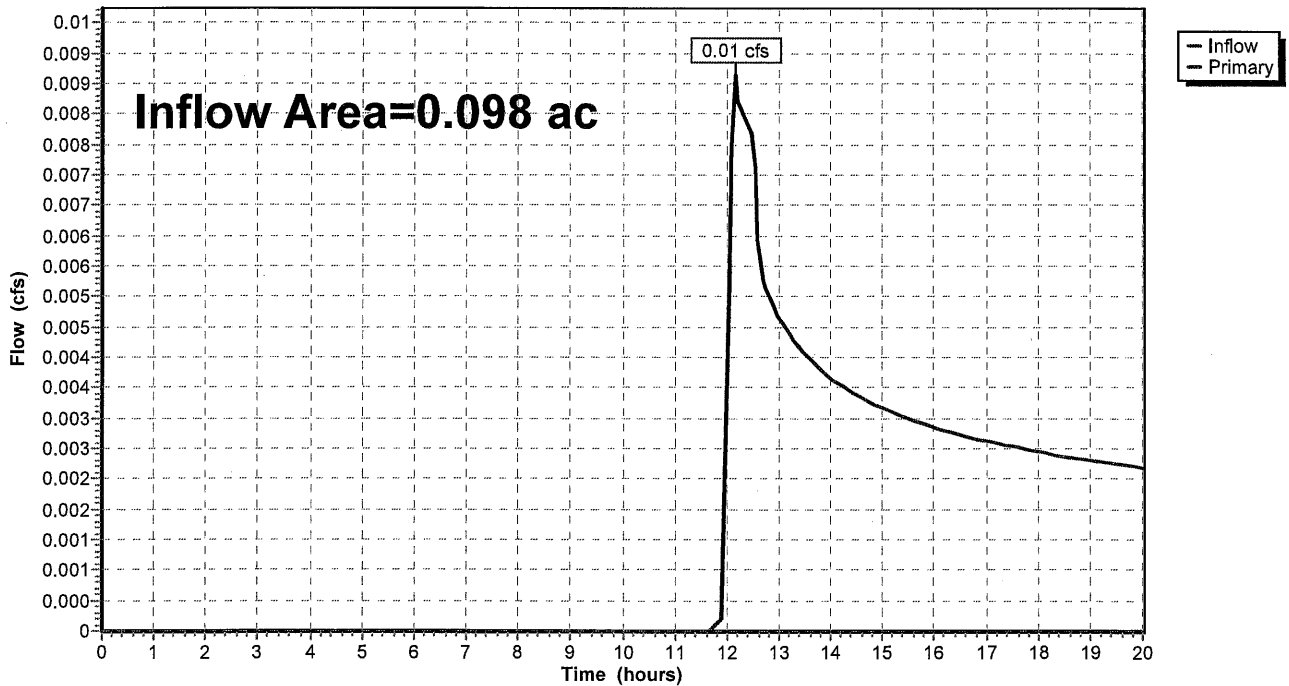
Summary for Link AP3: AP3

Inflow Area = 0.098 ac, 12.04% Impervious, Inflow Depth > 0.31" for 10-yr event
Inflow = 0.01 cfs @ 12.16 hrs, Volume= 0.003 af
Primary = 0.01 cfs @ 12.16 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link AP3: AP3

Hydrograph



A - 2

NODE LISTING - 25-YR

1677-Post

Circle-k 24-hr S1 25-yr 25-yr Rainfall=6.03"

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Page 8

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points x 3

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1	Runoff Area=14,305 sf 82.00% Impervious Runoff Depth>4.12" Flow Length=158' Tc=2.4 min CN=87 Runoff=1.50 cfs 0.113 af
Subcatchment A2: A2	Runoff Area=7,881 sf 69.17% Impervious Runoff Depth>3.40" Flow Length=226' Tc=7.0 min CN=80 Runoff=0.59 cfs 0.051 af
Subcatchment A3: A3	Runoff Area=3,695 sf 100.00% Impervious Runoff Depth>5.35" Flow Length=75' Slope=0.0050 '/' Tc=1.7 min CN=98 Runoff=0.45 cfs 0.038 af
Subcatchment A4: A4	Runoff Area=5,328 sf 100.00% Impervious Runoff Depth>5.35" Flow Length=114' Slope=0.0050 '/' Tc=2.4 min CN=98 Runoff=0.64 cfs 0.054 af
Subcatchment A5: A5	Runoff Area=6,121 sf 100.00% Impervious Runoff Depth>5.35" Flow Length=101' Tc=1.1 min CN=98 Runoff=0.76 cfs 0.063 af
Subcatchment A6: A6	Runoff Area=1,550 sf 100.00% Impervious Runoff Depth>5.35" Flow Length=89' Tc=0.8 min CN=98 Runoff=0.19 cfs 0.016 af
Subcatchment A7: A7	Runoff Area=6,295 sf 85.50% Impervious Runoff Depth>4.34" Flow Length=103' Tc=0.6 min CN=89 Runoff=0.70 cfs 0.052 af
Subcatchment A8: A8	Runoff Area=4,003 sf 0.00% Impervious Runoff Depth>0.33" Flow Length=29' Slope=0.2000 '/' Tc=1.5 min CN=39 Runoff=0.01 cfs 0.003 af
Subcatchment A9: A9	Runoff Area=4,394 sf 0.00% Impervious Runoff Depth>0.33" Flow Length=55' Slope=0.2000 '/' Tc=2.4 min CN=39 Runoff=0.01 cfs 0.003 af
Subcatchment B1: B1	Runoff Area=4,270 sf 12.04% Impervious Runoff Depth>0.70" Flow Length=153' Tc=4.9 min CN=46 Runoff=0.05 cfs 0.006 af
Subcatchment C1: C1	Runoff Area=3,696 sf 73.27% Impervious Runoff Depth>3.61" Flow Length=200' Tc=1.3 min CN=82 Runoff=0.36 cfs 0.026 af
Subcatchment D1: D1	Runoff Area=21,569 sf 1.31% Impervious Runoff Depth>1.21" Flow Length=154' Tc=5.2 min CN=54 Runoff=0.55 cfs 0.050 af
Pond CB1: CB1	Peak Elev=58.64' Inflow=4.51 cfs 0.387 af 18.0" Round Culvert n=0.013 L=14.0' S=0.0071 '/' Outflow=4.51 cfs 0.387 af
Pond CB2: CB2	Peak Elev=58.85' Inflow=3.89 cfs 0.335 af 15.0" Round Culvert n=0.013 L=53.6' S=0.0138 '/' Outflow=3.89 cfs 0.335 af
Pond CB3: CB3	Peak Elev=59.68' Inflow=3.08 cfs 0.264 af 15.0" Round Culvert n=0.013 L=74.9' S=0.0051 '/' Outflow=3.08 cfs 0.264 af
Pond CB4: CB4	Peak Elev=60.60' Inflow=1.95 cfs 0.151 af 12.0" Round Culvert n=0.013 L=193.0' S=0.0046 '/' Outflow=1.95 cfs 0.151 af

1677-Post*Circle-k 24-hr S1 25-yr 25-yr Rainfall=6.03"*

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Page 9

Pond CB5: CB5

Peak Elev=59.73' Inflow=0.59 cfs 0.051 af
12.0" Round Culvert n=0.013 L=40.0' S=0.0065 '/' Outflow=0.59 cfs 0.051 af

Pond DP1: DP1

Peak Elev=56.21' Storage=2,121 cf Inflow=1.30 cfs 0.073 af
Discarded=0.11 cfs 0.059 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.059 af

Pond RD1: RD1

Peak Elev=61.08' Inflow=0.45 cfs 0.038 af
8.0" Round Culvert n=0.013 L=82.0' S=0.0110 '/' Outflow=0.45 cfs 0.038 af

Pond RD2: RD2

Peak Elev=59.72' Inflow=0.64 cfs 0.054 af
8.0" Round Culvert n=0.013 L=57.4' S=0.0174 '/' Outflow=0.64 cfs 0.054 af

Pond RG1: RG1

Peak Elev=58.61' Storage=5,998 cf Inflow=4.51 cfs 0.390 af
Discarded=0.21 cfs 0.202 af Primary=1.29 cfs 0.070 af Outflow=1.50 cfs 0.272 af

Link AP1: AP1

Inflow=0.55 cfs 0.050 af
Primary=0.55 cfs 0.050 af

Link AP2: AP2

Inflow=0.36 cfs 0.026 af
Primary=0.36 cfs 0.026 af

Link AP3: AP3

Inflow=0.05 cfs 0.006 af
Primary=0.05 cfs 0.006 af

Total Runoff Area = 1.908 ac Runoff Volume = 0.474 af Average Runoff Depth = 2.98"
48.55% Pervious = 0.926 ac 51.45% Impervious = 0.982 ac

A - 2

NODE LISTING - 50-YR

1677-Post

Circle-k 24-hr S1 50-yr 50-yr Rainfall=7.21"

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Page 10

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points x 3

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1Runoff Area=14,305 sf 82.00% Impervious Runoff Depth>5.16"
Flow Length=158' Tc=2.4 min CN=87 Runoff=1.78 cfs 0.141 af**Subcatchment A2: A2**Runoff Area=7,881 sf 69.17% Impervious Runoff Depth>4.38"
Flow Length=226' Tc=7.0 min CN=80 Runoff=0.72 cfs 0.066 af**Subcatchment A3: A3**Runoff Area=3,695 sf 100.00% Impervious Runoff Depth>6.43"
Flow Length=75' Slope=0.0050 '/ Tc=1.7 min CN=98 Runoff=0.52 cfs 0.045 af**Subcatchment A4: A4**Runoff Area=5,328 sf 100.00% Impervious Runoff Depth>6.43"
Flow Length=114' Slope=0.0050 '/ Tc=2.4 min CN=98 Runoff=0.73 cfs 0.066 af**Subcatchment A5: A5**Runoff Area=6,121 sf 100.00% Impervious Runoff Depth>6.43"
Flow Length=101' Tc=1.1 min CN=98 Runoff=0.88 cfs 0.075 af**Subcatchment A6: A6**Runoff Area=1,550 sf 100.00% Impervious Runoff Depth>6.43"
Flow Length=89' Tc=0.8 min CN=98 Runoff=0.22 cfs 0.019 af**Subcatchment A7: A7**Runoff Area=6,295 sf 85.50% Impervious Runoff Depth>5.39"
Flow Length=103' Tc=0.6 min CN=89 Runoff=0.83 cfs 0.065 af**Subcatchment A8: A8**Runoff Area=4,003 sf 0.00% Impervious Runoff Depth>0.65"
Flow Length=29' Slope=0.2000 '/ Tc=1.5 min CN=39 Runoff=0.03 cfs 0.005 af**Subcatchment A9: A9**Runoff Area=4,394 sf 0.00% Impervious Runoff Depth>0.65"
Flow Length=55' Slope=0.2000 '/ Tc=2.4 min CN=39 Runoff=0.04 cfs 0.005 af**Subcatchment B1: B1**Runoff Area=4,270 sf 12.04% Impervious Runoff Depth>1.16"
Flow Length=153' Tc=4.9 min CN=46 Runoff=0.09 cfs 0.009 af**Subcatchment C1: C1**Runoff Area=3,696 sf 73.27% Impervious Runoff Depth>4.61"
Flow Length=200' Tc=1.3 min CN=82 Runoff=0.44 cfs 0.033 af**Subcatchment D1: D1**Runoff Area=21,569 sf 1.31% Impervious Runoff Depth>1.82"
Flow Length=154' Tc=5.2 min CN=54 Runoff=0.84 cfs 0.075 af**Pond CB1: CB1**Peak Elev=59.01' Inflow=5.29 cfs 0.477 af
18.0" Round Culvert n=0.013 L=14.0' S=0.0071 '/ Outflow=5.29 cfs 0.477 af**Pond CB2: CB2**Peak Elev=59.59' Inflow=4.56 cfs 0.412 af
15.0" Round Culvert n=0.013 L=53.6' S=0.0138 '/ Outflow=4.56 cfs 0.412 af**Pond CB3: CB3**Peak Elev=59.91' Inflow=3.63 cfs 0.328 af
15.0" Round Culvert n=0.013 L=74.9' S=0.0051 '/ Outflow=3.63 cfs 0.328 af**Pond CB4: CB4**Peak Elev=60.79' Inflow=2.29 cfs 0.187 af
12.0" Round Culvert n=0.013 L=193.0' S=0.0046 '/ Outflow=2.29 cfs 0.187 af

1677-Post*Circle-k 24-hr S1 50-yr 50-yr Rainfall=7.21"*

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Page 11

Pond CB5: CB5

Peak Elev=59.93' Inflow=0.72 cfs 0.066 af
12.0" Round Culvert n=0.013 L=40.0' S=0.0065 '/' Outflow=0.72 cfs 0.066 af

Pond DP1: DP1

Peak Elev=57.35' Storage=4,367 cf Inflow=3.74 cfs 0.146 af
Discarded=0.17 cfs 0.096 af Primary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.096 af

Pond RD1: RD1

Peak Elev=61.16' Inflow=0.52 cfs 0.045 af
8.0" Round Culvert n=0.013 L=82.0' S=0.0110 '/' Outflow=0.52 cfs 0.045 af

Pond RD2: RD2

Peak Elev=59.85' Inflow=0.73 cfs 0.066 af
8.0" Round Culvert n=0.013 L=57.4' S=0.0174 '/' Outflow=0.73 cfs 0.066 af

Pond RG1: RG1

Peak Elev=58.71' Storage=6,330 cf Inflow=5.33 cfs 0.482 af
Discarded=0.22 cfs 0.215 af Primary=3.72 cfs 0.141 af Outflow=3.93 cfs 0.356 af

Link AP1: AP1

Inflow=0.84 cfs 0.075 af
Primary=0.84 cfs 0.075 af

Link AP2: AP2

Inflow=0.44 cfs 0.033 af
Primary=0.44 cfs 0.033 af

Link AP3: AP3

Inflow=0.09 cfs 0.009 af
Primary=0.09 cfs 0.009 af

Total Runoff Area = 1.908 ac Runoff Volume = 0.605 af Average Runoff Depth = 3.80"
48.55% Pervious = 0.926 ac 51.45% Impervious = 0.982 ac

APPENDIX B

MAPS

B – 1

PRE-DEVELOPED CONDITIONS

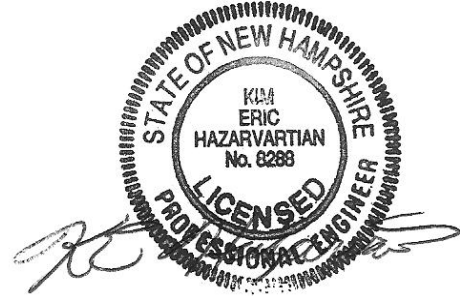
B – 2

POST-DEVELOPED CONDITIONS

MEMORANDUM

93 Stiles Road, Suite 201, Salem, New Hampshire 03079 USA
800 Turnpike Street, Suite 300, North Andover, Massachusetts 01845 USA
Phone (603) 212-9133 and Fax (603) 226-4108
Email tepp@teppllc.com and Web www.teppllc.com

Ref: 1466
Subject: Modified Site Plan
Proposed Commercial Development
Dover, New Hampshire
From: Kim Eric Hazarvartian, Ph.D., P.E., PTOE
Principal
Date: March 3, 2021



Civilworks New England has retained TEPP LLC to prepare this memorandum regarding the modified site plan for a proposed commercial development in the City of Dover, New Hampshire. The site is in the northeast quadrant of the Dover Point Road/Pointe Place intersection.

The modified site plan:

- relocates the proposed Dover Point Road driveway to the northern lot-frontage limit
- provides for use of proposed Dover Point Road driveway by the adjacent lot to the north

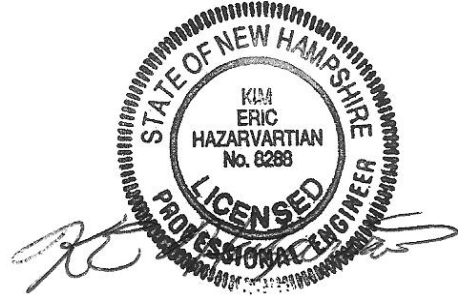
Conclusions are that the driveway relocation is beneficial because it:

- maximizes separation of the proposed driveway from Pointe Place
- eliminates the need for a separate driveway for the adjacent site, which reflects desirable driveway-consolidation and access-management principles

MEMORANDUM

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800 Turnpike Street, Suite 300, North Andover, Massachusetts 01845 USA
Phone (603) 212-9133 and Fax (603) 226-4108
Email tepp@teppllc.com and Web www.teppllc.com

Ref: 1466
Subject: Modified Site Plan
Proposed Commercial Development
Dover, New Hampshire
From: Kim Eric Hazarvartian, Ph.D., P.E., PTOE
Principal
Date: April 22, 2019

**INTRODUCTION**

Civilworks New England has retained TEPP LLC to prepare this memorandum regarding the modified site plan for a proposed commercial development in the City of Dover, New Hampshire. The proposed development will be in the northeast quadrant of the Dover Point Road/Pointe Place intersection.

The modified site plan:

- increases the proposed convenience store floor area, increases the number of vehicle-fueling positions (VFPs) and eliminates the drive-through window
- adds a proposed driveway along Dover Point Road
- adds a left-turn lane to the Dover Point Road southbound approach to the proposed driveway intersection

Conclusions are:

- the modified development program shows no significant change in calculated peak-hour trip generation from the City-approved development program
- the proposed Dover Point Road driveway will be more-than-adequately separated from Pointe Place
- the proposed Dover Point Road driveway will also serve the site to the north, eliminating the need for a separate driveway, reflecting desirable driveway-consolidation and access-management principles
- the proposed Dover Point Road driveway will benefit site safety and operations by providing a more direct connection to Dover Point Road that reduces recirculation through the site associated with the Pointe Place driveways

MODIFIED DEVELOPMENT PROGRAM

The City approved the proposed development as convenience store with about 3,055-square-foot (sf) floor area, 12 VFPs and one drive-through window. The applicant now seeks a convenience store of about 5,328-sf floor area, 12 VFPs and no drive-through window.

TRIP GENERATION

The Institute of Transportation Engineers (ITE) compiles trip generation information in the authoritative reference *Trip Generation*.¹ This information is based on empirical data for a variety of land uses including super convenience market/gas station, based on:

- floor area
- VFPs
- peak-hour traffic on adjacent street²

Table 1:

- shows calculated weekday vehicle-trips for the City-approved convenience store with about 3,055-sf floor area, 12 VFPs and one drive-through window, from the TEPP LLC TIAS³
- shows calculated weekday vehicle trips for the now-proposed convenience store of about 5,328-sf floor area, 12 VFPs and no drive-through window
- shows no significant change in calculated peak-hour trip generation between the City-approved and now-proposed development programs
- does not show reductions that are allowed for pass-by and diverted-linked trips

¹ ITE, *Trip Generation Manual*, 10th edition (Washington DC, September 2017).

² ITE, *Trip Generation Manual*, Volume 2, Data, Services (Land Uses 900-999), pages 402 to 425.

³ From TEPP LLC, *Traffic Impact and Access Study, Proposed Commercial Development, Dover, New Hampshire* (Salem, New Hampshire, April 14, 2010).

Table 1. Weekday total calculated trip generation

Time Period and Direction	Calculated Total Vehicle-Trips						
	Daily	AM-Street-Peak Hour			PM-Street-Peak Hour		
		In	Out	Total	In	Out	Total
Approved by City^a							
Convenience Market	2,414	100	99	199	115	114	229
<u>Drive-Through Window</u>	<u>360</u>	<u>30</u>	<u>31</u>	<u>61</u>	<u>7</u>	<u>8</u>	<u>25</u>
Total	2,774	130	130	260	122	122	244
Now Proposed^b							
Super Convenience Market	3,611 ^c	162	162	323 ^d	128	128	256 ^e

^a Convenience market with gasoline pumps, 2,855-sf floor area or 12 VFPs. Coffee/donut shop with drive-through window and no indoor seating, 200-sf floor area. From TEPP LLC TIAS.

^b Convenience market/gas station, 12 VFPs and 5,328-sf floor area.

^c Based on ITE, *Trip Generation Manual*, 10th edition, land use 960. Calculated as the average of vehicle-trips based on floor area and vehicle-trips based on VFPs. TEPP LLC has customer data from an existing convenience market with gasoline pumps. The facility was in the Town of Londonderry, New Hampshire on New Hampshire Route 28 west of Interstate Route 93. The total floor area was about 4,500 sf. The average daily customers for six weeks each in 2009 and 2010 was about 1,200, yielding about 2,400 vehicle-trips per day. Pro-rating to reflect a floor area of about 5,328-sf of floor area yields about 2,842 vehicle-trips per day.

^d Based on ITE, *Trip Generation Manual*, 10th edition, land use 960, convenience market/gas station. Calculated as the average of vehicle-trips based on fitted-curve equation for both floor area and VFPs and vehicle-trips based on peak-hour traffic on adjacent street. Peak-hour traffic estimated as 998 vehicles multiplied by 1.09 to reflect peak-month conditions, based on attached information from the New Hampshire Department of Transportation.

^e Based on ITE, *Trip Generation Manual*, 10th edition, land use 960, convenience market/gas station. Calculated as the average of vehicle-trips based on fitted-curve equation for both floor area and VFPs and vehicle-trips based on peak-hour traffic on adjacent street. Peak-hour traffic estimated as 968 vehicles multiplied by 1.09 to reflect peak-month conditions, based on attached information from the New Hampshire Department of Transportation.

Total trips appear on site driveways but not all are added to roads near the site. Accordingly, ITE compiles information on three trip types, based on empirical data for many land uses, in the authoritative Hooper, *Trip Generation Handbook*.⁴ These three trip types are:

⁴ Kevin G. Hooper, P.E., Principal Editor, *Trip Generation Handbook*, 3rd edition (Washington DC: Institute of Transportation Engineers, September 2017).

- primary trips that are added to the area and are primarily for visiting the site
- diverted trips that not added to the general area; these trips are from existing traffic on roads near the site
- pass-by trips that are not added to the general area; these trips are from existing traffic passing the site⁵

The below estimated primary trips are based on Hooper information for convenience market with gasoline pumps, land use 853:

- daily, 14 percent
- AM-street-peak hour, 11 percent
- PM-street-peak hour, 17 percent

MODIFIED DRIVEWAY SYSTEM

The City approved two driveways along the north side of Pointe Place east of Dover Point Road. The applicant now seeks to add one driveway along the east side of Dover Point Road north of Pointe Place.

The Dover Point Road driveway will:

- provide full movements in and out of the site
- include one lane entering the site and two lanes exiting the site
- be more-than-adequately separated from Pointe Place by about 200 feet (ft), center to center, and 155 ft, edge to edge
- be approximately centered on the northern limit of the Dover Point Road site frontage
- also serve the site to the north, eliminating the need for a separate driveway, reflecting desirable driveway-consolidation and access-management principles
- benefit site safety and operations by providing a more direct connection to Dover Point Road that reduces recirculation through the site associated with the Pointe Place driveways

The New Hampshire Department of Transportation (NHDOT) sets forth the following:⁶

⁵ Definitions of primary trips, diverted trips and pass-by trips are in Hooper, 3rd edition, page 93. Relevant data on primary trips, diverted trips and pass-by trips are in Hooper, pages 198 and 200.

⁶ NHDOT Office of the Commissioner, Declaratory Ruling No. 2000-01, Driveway Permits (Concord, New Hampshire, adopted March 10, 2000), Figure V.

- 100-ft desirable separation, edge to edge, between driveways and street intersections
- 30-ft minimum and 50-ft desirable separation, edge to edge, between two-way driveways

MODIFIED ROAD IMPROVEMENTS

The City approved the following proposed improvements to the Dover Point Road/Pointe Place intersection:

- one left-turn lane on the Dover Point Road southbound approach
- a second lane on the Pointe Place westbound approach

The applicant now seeks to provide one left-turn lane on the Dover Point Road southbound approach to the proposed driveway intersection. This left-turn lane would be continuous with the left-turn lane on the Dover Road southbound approach to the Pointe Place intersection.

CONCLUSION

The now-proposed development program shows no significant change in calculated peak-hour trip generation from the City-approved development program.

The proposed Dover Point Road driveway will:

- be more-than-adequately separated from Pointe Place
- also serve the site to the north, eliminating the need for a separate driveway, reflecting desirable driveway-consolidation and access-management principles
- benefit site safety and operations by providing a more direct connection to Dover Point Road that reduces recirculation through the site associated with the Pointe Place driveways

The applicant also proposes to provide one left-turn lane of the Dover Point Road southbound approach to the proposed driveway intersection.

attachments: NHDOT traffic-volume information

Location Info		Count Data Info	
Location ID	2125001	Start Date	4/10/2019
Type	I-SECTION	End Date	4/11/2019
Functional Class	4	Start Time	12:00 AM
Located On	Dover Point Rd	End Time	12:00 AM
Between	AND	Direction	2-WAY
Direction	2-WAY	Notes	nhdot
Community	DOVER	Count Source	21250015111
MPO_ID		File Name	02125001-0410001.PRN
HPMS ID		Weather	
Agency	New Hampshire DOT	Study	
		Owner	iwong
Interval: 60 mins			
Time	Hourly Count		
00:00 - 01:00	87		
01:00 - 02:00	32		
02:00 - 03:00	21		
03:00 - 04:00	32		
04:00 - 05:00	93		
05:00 - 06:00	214		
06:00 - 07:00	483		
07:00 - 08:00	998		
08:00 - 09:00	724		
09:00 - 10:00	606		
10:00 - 11:00	584		
11:00 - 12:00	692		
12:00 - 13:00	693		
13:00 - 14:00	696		
14:00 - 15:00	842		
15:00 - 16:00	920		
16:00 - 17:00	902		
17:00 - 18:00	968		
18:00 - 19:00	716		
19:00 - 20:00	531		
20:00 - 21:00	359		
21:00 - 22:00	252		
22:00 - 23:00	126		
23:00 - 24:00	88		
TOTAL	11659		

Year 2017 Monthly Data

Group 4 Averages:

Urban Highways

<u>Month</u>	<u>ADT</u>	<u>Adjustment to</u>	
		<u>Average</u>	<u>Peak</u>
January	12,254	1.21	1.33
February	13,494	1.10	1.21
March	14,335	1.03	1.14
April	15,004	0.99	1.09
May	15,547	0.95	1.05
June	16,310	0.91	1.00
July	15,523	0.95	1.05
August	15,974	0.93	1.02
September	15,546	0.95	1.05
October	15,104	0.98	1.08
November	14,544	1.02	1.12
December	14,151	1.05	1.15
Average ADT:	14,816		
Peak ADT:	16,310		

Source: New Hampshire Department of Transportation