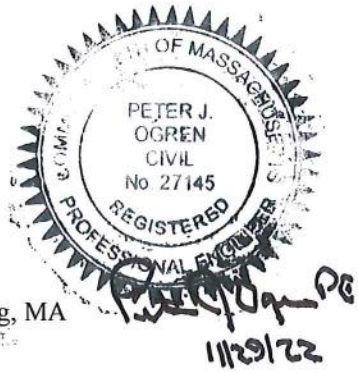
HAYES ENGINEERING, INC.

Stormwater Management Report

25 Haven Street
Mixed-Use Development
Reading, Massachusetts

November 22, 2022



Prepared for: 25 Haven Street, LLC
25 Haven Street, Reading, MA

Prepared by: Hayes Engineering, Inc.
603 Salem Street, Wakefield, MA

Hayes Engineering, Inc.
Civil Engineers & Land Surveyors
603 Salem Street, Wakefield, MA 01880
(781) 246-2800 phone, (781) 246-7596 fax

Stormwater Management Report

- Introduction & Background
- Compliance with Massachusetts Stormwater Standards
  - Standard 1: No New Untreated Discharges
  - Standard 2: Peak Rate Attenuation
  - Standard 3: Recharge
  - Standard 4: Water Quality
  - Standard 5: LUHPPLs
  - Standard 6: Critical Areas
  - Standard 7: Redevelopment Projects
  - Standard 8: Construction Period Pollution Plan
  - Standard 9: Operation and Maintenance Plan
  - Standard 10: Prohibition of Illicit Discharges
- Construction Pollution Prevention Plan
- Long-term Pollution Prevention Plan
- Appendix A: HydroCAD Drainage Calculations
- Appendix B: NRCS Soil Mapping and Data
- Watershed Maps

Introduction and Background

The Site consists of approximately 18,935 square feet in land area in Reading, Massachusetts abutting Haven Street to the North, Green Street to the South and commercial business properties to the east and west. The site is currently developed and consists of a large parking area to the east and an approximately 7,953-sf building to the west. The parcel is almost wholly impervious and drains via surface runoff and a drainage system to the existing drainage system within High Street. Site topography generally slopes to the south towards Green Street, with a small portion sloping towards a catch basin on Haven Street that then flows to a Green Streets catch basin and out to the High Street drainage system.

The Project consists of the construction of a proposed 4-story, 12-unit residential multi-family building with two commercial spaces at ground level, as well as associated parking and utilities. The Project, as proposed, represents a redevelopment project and results in a net of 1,200-sf. of impervious surface.

This Storm Water Management Report evaluates the Project's hydrologic impacts and compliance with the Massachusetts Stormwater Management Standards as identified in the Massachusetts Stormwater Handbook (MSH) for the proposed improvements described above.

Methodology

This study evaluates the Site hydrology in accordance with the National Resource Conservation Service (NRCS), formerly the Soil Conservation Service (SCS), methodology outlined in Technical Release 55 and Technical Release 20. Precipitation volumes are summarized in Table 1, below:

Table 1: Design Storm Events
NOAA, Atlas 14, Volume 10, Version 3 – Reading, Massachusetts

Recurrence Interval	Precipitation
2-year, 24-hour	3.31-inches
10-year, 24-hour	5.22-inches
25-year, 24-hour	6.41-inches
100-year, 24-hour	8.24-inches

Modelling was performed using HydroCAD™ software and model parameters based on pre- and post-development hydrologic soil group, land cover conditions, and topography.

Analysis

The selected design point of comparison for this analysis is the catch basin on Green Street that leads to the drainage system on High Street. Peak rates of runoff were evaluated in both the existing and proposed conditions using the cumulative rainfall depths for the 2, 10, 25 and 100-year, Type III, 24-hour storm events as identified above. As previously stated, the Project is a redevelopment project and reduces impervious surfaces at the Site.

Compliance with Stormwater Management Standards

Standard 1: No New Untreated Discharges

The Project, as proposed, will not create new untreated discharges of stormwater runoff. The project reduces impervious surface coverage at the site and collects the entire parking lot with a deep sump catch basin equipped with a ADS Barracuda Separator to enhance stormwater treatment.

Standard 2: Peak Rate Attenuation

The Project, as proposed, does not increase peak rate of runoff in 2, 10, 25 and 100-year, Type III, 24-hour storm events to the selected design point. HydroCAD™ calculations accompany this report as Appendix A. The following table summarizes the calculated peak rate of runoff to the Design Point for the project in the existing and proposed conditions:

Table 2: Peak Rate of Runoff
Tributary to Broadway Street

Storm Event	Existing Condition Peak Rate of Discharge	Proposed Condition Peak Rate of Discharge
2-year, 24-hour, Type III (3.31-inches)	1.14 cfs	0.38 cfs
10-year, 24-hour, Type III (5.22-inches)	1.97 cfs	0.74 cfs
25-year, 24-hour, Type III (6.41-inches)	2.49 cfs	0.99 cfs
100-year, 24-hour, Type III (8.24-inches)	3.28 cfs	1.39 cfs

Standard 3: Recharge

The Natural Resource Conservation Service (NRCS) does not classify the soil at the site, other than noting that it is "Urban Land." However, adjacent soils are representative of Hydrologic Soil Group (HSG) "A" which was selected for this analysis (see Appendix A – Soil Maps). The site is a redevelopment project and subject to this standard to the maximum extent practicable. The reduction in impervious surfaces will decrease the volume of surficial runoff, resulting in increased infiltration from the site. Runoff volumes in the existing and proposed conditions are summarized in Table 3, below:

Table 3: Volume of Runoff
Tributary to Broadway Street

Storm Event	Existing Condition Runoff Volume	Proposed Condition Runoff Volume
2-year, 24-hour, Type III (3.31-inches)	3,693 cf	1,419 cf
10-year, 24-hour, Type III (5.22-inches)	6,568 cf	2,647 cf
25-year, 24-hour, Type III (6.41-inches)	8,395 cf	3,483 cf
100-year, 24-hour, Type III (8.24-inches)	11,230 cf	5,182 cf

Standard 4: Water Quality

The Project is classified as a redevelopment project under the MSH and is required to meet the water quality standard to the maximum extent practicable. Stormwater runoff from the site is collected by deep-sump basin with an ADS Barracuda S4 swirl particle separator sized to provide a presumptive TSS removal rate of 80-percent to improve stormwater quality prior to discharge. Sizing calculations for the swirl particle separator accompany this report as Appendix C.

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

The Project is not associated with a LUHPPL. Standard 5 is not applicable to this project.

Standard 6: Critical Areas

The Site is not tributary to an Outstanding Resource Water (ORW) or other Critical Areas.

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

The Project is a redevelopment and has been designed to meet the applicable Standards to the maximum extent practicable.

Standard 8: Construction Period Pollution Prevention & Sedimentation Control

A construction period pollution prevention plan accompanies this report. The Project is also subject to a NPDES Construction General Permit. A SWPPP will be submitted prior to the commencement of construction activities.

Standard 9: Operations and Maintenance Plan

A post-construction Operation and Maintenance Plan (Long-Term Pollution Prevention Plan) accompanies this report.

Standard 10: Prohibition of Illicit Discharges

The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges. An illicit discharge statement is also included in the plan.

Construction Period Pollution Prevention Plan

Project Name: Mixed-Use Development
25 Haven Street
Reading, Massachusetts

Owner's Name: 25 Haven Street, LLC

Applicant's Name: 25 Haven Street, LLC

Party Responsible for Maintenance: 25 Haven Street, LLC

Project Description:

The Applicant seeks to construct a 4-story, 12-unit multi-family residential building with 2 ground level commercial spaces, and associated parking and utilities.

Erosion and Sedimentation Control Measures During Construction Activities:

Storm Drain Inlet Protection

A temporary storm inlet protection filter will be placed in all catch basin units. The purpose of the filter is to prevent the inflow of sediment into the closed drainage system(s). The filters shall remain in place until a permanent vegetative cover is established and the transport of sediment is no longer visibly apparent. The filter shall be inspected and maintained on a weekly basis and after significant storm events. Significant storm events are those having greater than one-quarter (1/4) inch of precipitation in a 24-hour period.

Surface Stabilization

The surface of all disturbed areas shall be stabilized during and after construction. Temporary measures shall be taken during construction to prevent erosion and sedimentation. No construction sediment shall be allowed to enter infiltration areas. All disturbed slopes shall be stabilized with a permanent vegetative cover. Some or all of the following measures can be used on the Project as conditions may warrant:

- Temporary Seeding
- Temporary Mulching
- Placement of Hay
- Placement of Geo-Synthetic Fabrics
- Hydroseeding
- Permanent Seeding
- Placement of Sod

Surface and Subsurface Infiltration Facilities

No construction period runoff should be directed toward infiltration facilities. The performance of these facilities shall be checked weekly and after significant storm events throughout construction.

INSPECTION SCHEDULE and EVALUATION CHECKLIST

To be completed weekly and within 24-hours of significant rainfall events (greater than 1/4-inches in a 24-hour period).

Inspector's Name: _____ Date: _____

Qualifications: _____

_____

Days since last rainfall: _____ days Amount of last rainfall: _____inches

Stabilization Measures

Sub-Catchment	Date of Last Disturbance	Date of Next Disturbance	Stabilized (Yes or No)	Stabilized With:	Condition

Stabilization required: _____

_____

_____

_____

_____

_____

To be performed by: _____ on or before: _____

PERIMETER CONTROLS

Date of Inspection: _____

Stabilized Construction Entrance:

Location	Does much sediment get tracked onto roadway? (Yes or No)	Is gravel clean or full of sediment?	Is all traffic using the entrance to access/exit the site? (Yes or No)	Is the culvert beneath the entrance working? (Yes or No)

Maintenance required for stabilized construction entrance: _____

_____

_____

To be performed by: _____ on or before: _____

Other Best Management Practices:

BMP	In use? (Yes or No)	Maintenance Required? (Yes or No)	Describe location of Problem(s), if any.

Maintenance required: _____

_____

_____

To be performed by: _____ on or before: _____

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

Signature: _____ Date: _____

Long-Term Pollution Prevention Plan

Project Name: Mixed-Use Development
25 Haven Street
Reading, Massachusetts

Owner's Name: 25 Haven Street, LLC

Applicant's Name: 25 Haven Street, LLC

Party Responsible for Maintenance: 25 Haven Street, LLC

Project Description:

The Applicant seeks to construct a 4-story, 12-unit multi-family residential building with 2 ground level commercial spaces, and associated parking and utilities.

Acknowledgement: _____ Date: _____

Post-Construction Inspection and Maintenance Measures:

Erosion Control

Sedimentation caused from erosion of soils can adversely affect the performance of the storm water management system. The site should be inspected annually for areas that are barren and/or showing signs of erosion and should be stabilized through immediate re-vegetation.

Debris and Litter Removal

Litter and other debris may collect in storm water best management practices (BMPs), potentially causing clogging of facilities. All debris and litter shall be removed as necessary, at a minimum of four (4) times per year in the spring, summer, fall and winter.

Deep Sump Catch Basin

In accordance with Volume 2, Chapter 2 of the MassDEP Storm Water Handbook as summarized below:
Inspect or clean deep sump catch basins at least four (4) times per year and at the end of the foliage and snow-removal seasons. Sediments must also be removed four (4) times per year or whenever the depth of deposits is greater than or equal to one-half (1/2) the depth from the invert of the lowest pipe in the basin to the bottom of the basin (the sump). If handling runoff from land uses with higher potential pollutant loads (LUHPPLs) or discharging near or to a critical area, more frequent cleaning may be necessary.

Deep sump catch basins should be cleaned with vacuum trucks only. Clamshell buckets shall not be used to clean hooded catch basins. Vacuum trucks remove more sediment and supernatant, and are less likely to snap the hood within the deep sump basin.

Always consider the safety of the staff cleaning deep sump catch basins. Cleaning a deep sump catch basin within a road with active traffic or even within a parking lot is dangerous, and a police detail may be necessary to safeguard workers.

Although catch basin debris often contains concentrations of oil and hazardous materials such as petroleum hydrocarbons and metals, MassDEP classifies them as solid waste. Unless there is evidence that they have been contaminated by a spill or other means, MassDEP does not routinely require catch basin cleanings to be tested before disposal. Contaminated catch basin cleanings must be evaluated in accordance with the Hazardous Waste Regulations, 310 CMR 30.000, and handled as hazardous waste.

In the absence of evidence of contamination, catch basin cleanings may be taken to a landfill or other facility permitted by MassDEP to accept solid waste, without any prior approval by MassDEP. However, some landfills require catch basin cleanings to be tested before they are accepted.

With prior MassDEP approval, catch basin cleanings may be used as grading and shaping materials at landfills undergoing closure (see Revised Guidelines for Determining Closure Activities at Inactive Unlined Landfill Sites) or as daily cover at active landfills. MassDEP also encourages the beneficial reuse of catch basin cleanings whenever possible. A Beneficial Reuse Determination is required for such use.

MassDEP regulations prohibit landfills from accepting materials that contain free-draining liquids. One way to remove liquids is to use a hydraulic lift truck during cleaning operations so that the material can be decanted at the site. After loading material from several catch basins into a truck, elevate the truck so that any free-draining liquid can flow back into the structure. If there is no free water in the truck, the material may be deemed to be sufficiently dry. Otherwise the catch basin cleanings must undergo a Paint Filter Liquids Test. Go to www. Mass.gov/dep/ recycle/laws/cafacts.doc for information on all of the MassDEP requirements pertaining to the disposal of catch basin cleanings.

ADS Barracuda S4 Swirl Particle Separator[1]

One of the advantages of the Barracuda is the ease of maintenance. Like any system that collects pollutants, the Barracuda must be maintained for continued effectiveness. Maintenance is a simple procedure performed using a vacuum truck or similar equipment. The systems were designed to minimize the volume of water removed during routine maintenance, reducing disposal costs.

Contractors can access the pollutants stored in the manhole through the manhole cover. This allows them to gain vacuum hose access to the bottom of the manhole to remove sediment and trash. There is no confined space entry necessary for inspection or maintenance.

[1] Taken from ADS Barracuda Maintenance Guide, July 2017

The entire maintenance procedure typically takes from 2 to 4 hours, depending on the size of the system, the captured material, and the capacity of the vacuum truck.

Local regulations may apply to the maintenance procedure. Safe and legal disposal of pollutants is the responsibility of the maintenance contractor. Maintenance should be performed only by a qualified contractor.

Inspection and Cleaning Cycle

Periodic inspection is needed to determine the need for and frequency of maintenance. You should begin inspecting as soon as construction is complete and thereafter on an annual basis. Typically, the system needs to be cleaned every 1-3 years.

Excessive oils, fuels or sediments may reduce the maintenance cycle. Periodic inspection is important.

Determining When to Clean

To determine the sediment depth, the maintenance contractor should lower a stadia rod into the manhole until it contacts the top of the captured sediment and mark that spot on the rod. Then push the probe through to the bottom of the sump and mark that spot to determine sediment depth.

Maintenance should occur when the sediment has reached the levels indicated in the Storage Capacity Chart.

Model	Manhole Diameter	Treatment Chamber Capacity	Standard Sediment Capacity (20" depth)	NJDEP Sediment Capacity (50% of standard depth)
S3	36"	212 gallons	0.44 cubic yards	0.22 cubic yards
S4	48"	564 gallons	0.78 cubic yards	0.39 cubic yards
S5	60"	881 gallons	1.21 cubic yards	0.61 cubic yards
S6	72"	1269 gallons	1.75 cubic yards	0.88 cubic yards
S8	96"	3835 gallons	3.10 cubic yards	1.55 cubic yards
S10	120"	7496 gallons	4.85 cubic yards	2.43 cubic yards

Maintenance Instructions

1. Remove the manhole cover to provide access to the pollutant storage. Pollutants are stored in the sump, below the bowl assembly visible from the surface. You'll access this area through the 10" diameter access cylinder.
2. Use a vacuum truck or other similar equipment to remove all water, debris, oils and sediment. See figure 1.
3. Use a high pressure hose to clean the manhole of all the remaining sediment and debris. Then, use the vacuum truck to remove the water.
4. Fill the cleaned manhole with water until the level reaches the invert of the outlet pipe.
5. Replace the manhole cover.
6. Dispose of the polluted water, oils, sediment, and trash at an approved facility.

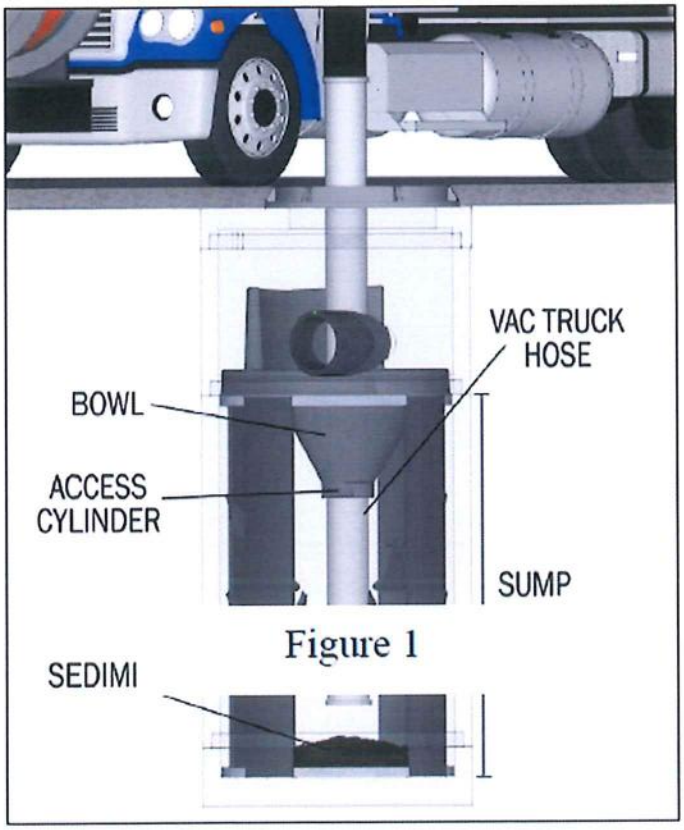


Figure 1

Good Housekeeping Practices:

Provisions for storing paints, cleaners, automotive waste and other potentially hazardous household waste products inside or under cover:

- All materials stored on-site shall be in a neat, orderly manner in their appropriate containers with original manufacturer's label(s);
- Only store enough material as needed; whenever possible, all of a product shall be used prior to disposing of container;

- Manufacturer, federal, state and local recommendations for proper use and disposal shall be followed.

Vehicle Washing Controls:

- Use commercial car washes whenever possible. Car washes treat and/or recycle wash water;
- Cars shall be washed on gravel, grass or other permeable surfaces to allow filtration to occur;
- Use biodegradable soaps only;
- Use hose nozzles that automatically turn off when unattended.

Routine Inspection and Maintenance of Storm Water BMPs

- Previously addressed.

Spill Prevention and Response Plans

- Spill control practices shall be in conformance with the guidelines set forth in the National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention Plan (SWPPP).

Maintenance of Lawns, Gardens and Other Landscaped Areas:

- Grass shall not be cut shorter than two (2) to three (3) inches and mulch clipping should be left on lawns as a natural fertilizer;
- Use low volume water approaches for irrigation such as drip-type or sprinkler systems. Water plants only when needed to enhance root growth and avoid runoff problems;
- Mulch shall be used wherever practicable. Mulch helps retain water and prevents erosion.

Storage and Use of Fertilizers, Herbicides and Pesticides:

- Fertilizers shall be applied in the minimum amounts recommended by the manufacturer. Once applied, fertilizer shall be worked into the soil to limit exposure to storm water. Storage will be in covered areas only. Contents of partially used bags shall be transferred into sealable plastic containers to avoid spills;
- Do not fertilize before or during rain events;
- Consider the use of organic fertilizers;
- Pesticides shall be applied only when necessary and only in the minimum amounts recommended by the manufacturer.

Pet Waste Management

- Scoop up and seal pet waste in plastic bags. Dispose of in garbage.

Solid Waste Management

- All solid waste shall be disposed of or recycled in accordance with all federal, state and local regulations.

List of Emergency Contacts for Plan Implementation

To be determined by Owner.

Illicit Discharges

As required by Standard 10 of the Massachusetts Stormwater Standards, I, the undersigned, being the authorized owner/responsible party of the above referenced property do hereby certify that no illicit discharges exist on the site and that the stormwater management system, as shown on the above referenced plan, does not contain or permit any illicit discharges to enter the stormwater management system. Furthermore, discharges from interior building drains or plumbing within the buildings are prohibited.

Illicit discharges do not include discharges from the following activities or facilities: firefighting, water line flushing, landscape irrigation, uncontaminated groundwater, potable water sources, foundation drains, air conditioning condensation, footing drains, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated water from swimming pools, water used for street washing and water used to clean residential buildings without detergents.

The pollution prevention plan measures in this project to prevent illicit discharges to the stormwater management system, include wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease, include:

1. Identifying the responsible personnel for the implementation of an effective Illicit Discharge Detection and Elimination [IDDE] program.
2. Identify potential sources of Illicit Discharges.
3. Implement the Spill Prevention and Control Plan contained in the property Stormwater Pollution Prevention Plan [SWPPP].

Further, I certify that the stormwater management system ass shown on the referenced plan will be maintained in accordance with the conditions of the Long-Term Pollution Prevention Plan.

_____ _____

Signature Date

POST-CONSTRUCTION
OPERATION AND MAINTENANCE LOG

Inspector's Name: _____ Date: _____
Qualifications: _____
_____

Inspection Type: ☐ Routine ☐ Spill ☐ Other: _____
☐ Post-Rainfall (Precipitation in Inches: _____)

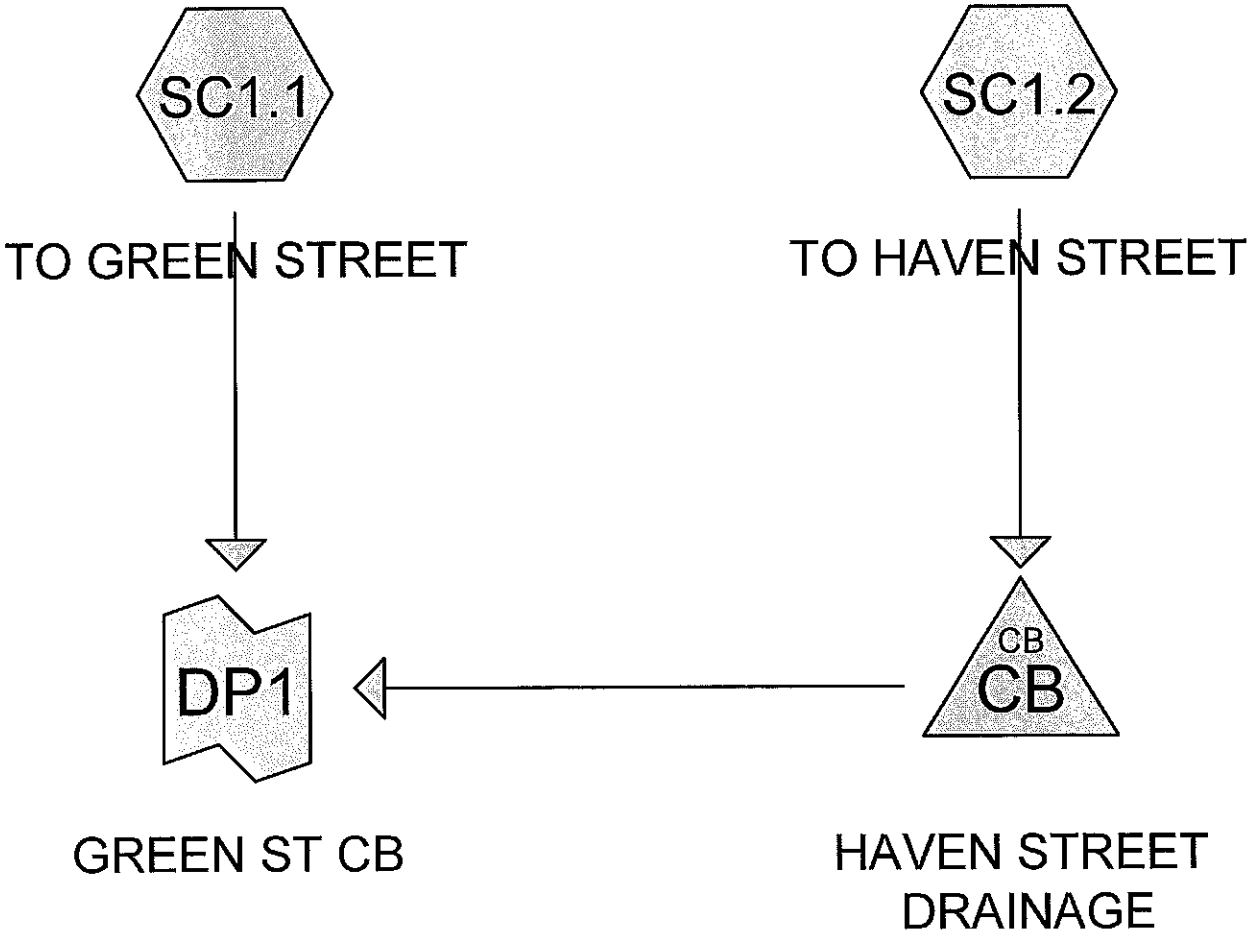
BMP	Frequency	Date Last Performed	Comments
Litter and Debris Removal	After Significant Rain Events		
Deep Sump Catch Basin	Inspect four (4) times per year Maintenance as necessary		
Vegetated Areas	Inspect as necessary for erosion		

Notes: _____
_____
_____
_____
_____
_____

Appendix A:

HydroCAD™ Calculations

EXISTING RUNOFF



Subcat Reach Pond Link

Routing Diagram for EXISTING REA0149
Prepared by {enter your company name here}, Printed 11/23/2022

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 Year	Type III 24-hr		Default	24.00	1	3.31	2
2	10 Year	Type III 24-hr		Default	24.00	1	5.22	2
3	25 Year	Type III 24-hr		Default	24.00	1	6.41	2
4	100 Year	Type III 24-hr		Default	24.00	1	8.24	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
2,301	39	>75% Grass cover, Good, HSG A (SC1.1, SC1.2)
913	98	Concrete, HSG A (SC1.1, SC1.2)
15	68	Crushed Stone, Poor, HSG A (SC1.1)
7,748	98	Paved parking, HSG A (SC1.1, SC1.2)
7,953	98	Unconnected roofs, HSG A (SC1.1)
18,930	**91**	**TOTAL AREA**

Time span=0.00-40.00 hrs, dt=0.05 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment SC1.1: TO GREEN STREET Runoff Area=16,070 sf 90.02% Impervious Runoff Depth=2.46"
Tc=6.0 min CN=92 Runoff=1.01 cfs 3,288 cf

Subcatchment SC1.2: TO HAVEN STREET Runoff Area=2,860 sf 75.07% Impervious Runoff Depth=1.70"
Tc=6.0 min CN=83 Runoff=0.13 cfs 405 cf

Pond CB: HAVEN STREET DRAINAGE Peak Elev=102.41' Inflow=0.13 cfs 405 cf
6.0" Round Culvert n=0.013 L=156.0' S=0.0053 '/' Outflow=0.13 cfs 405 cf

Link DP1: GREEN ST CB Inflow=1.14 cfs 3,693 cf
Primary=1.14 cfs 3,693 cf

Total Runoff Area = 18,930 sf Runoff Volume = 3,693 cf Average Runoff Depth = 2.34"
12.23% Pervious = 2,316 sf 87.77% Impervious = 16,614 sf

Summary for Subcatchment SC1.1: TO GREEN STREET

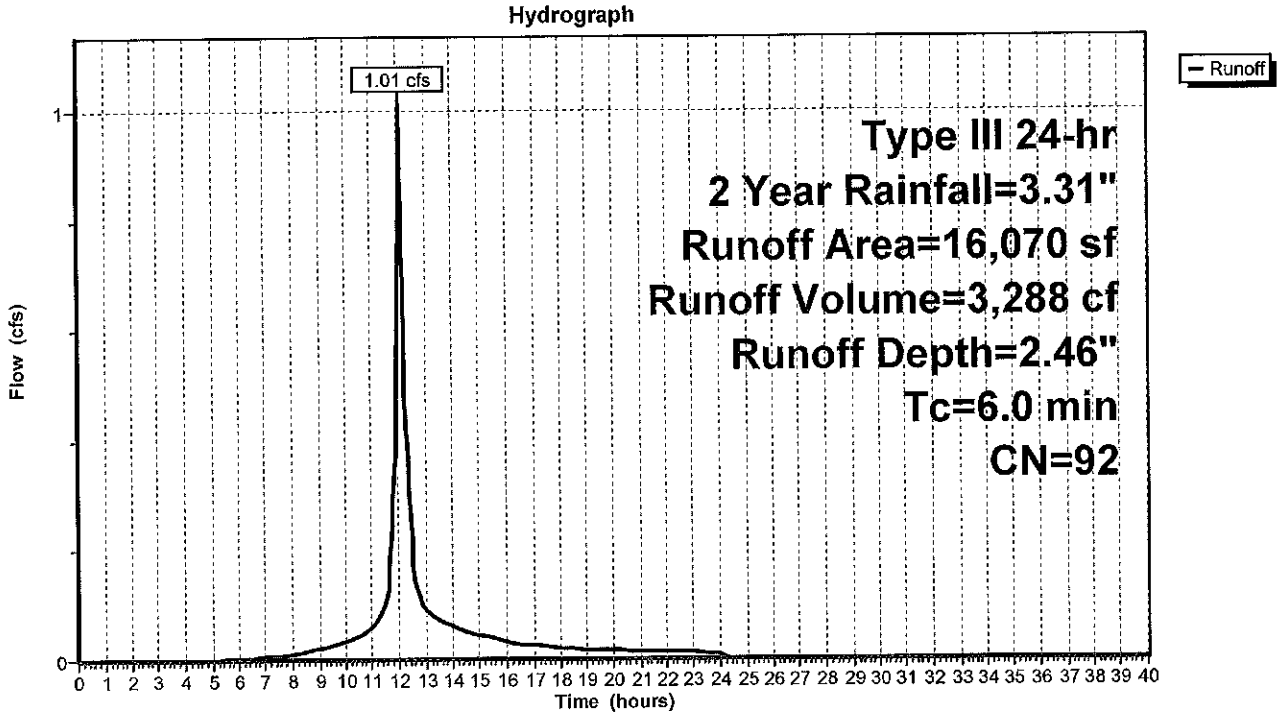
Runoff = 1.01 cfs @ 12.09 hrs, Volume= 3,288 cf, Depth= 2.46"
Routed to Link DP1 : GREEN ST CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.31"

	Area (sf)	CN	Description
	1,588	39	>75% Grass cover, Good, HSG A
*	5,839	98	Paved parking, HSG A
*	675	98	Concrete, HSG A
*	15	68	Crushed Stone, Poor, HSG A
*	7,953	98	Unconnected roofs, HSG A
	16,070	92	Weighted Average
	1,603		9.98% Pervious Area
	14,467		90.02% Impervious Area
	7,953		54.97% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC1.1: TO GREEN STREET



Summary for Subcatchment SC1.2: TO HAVEN STREET

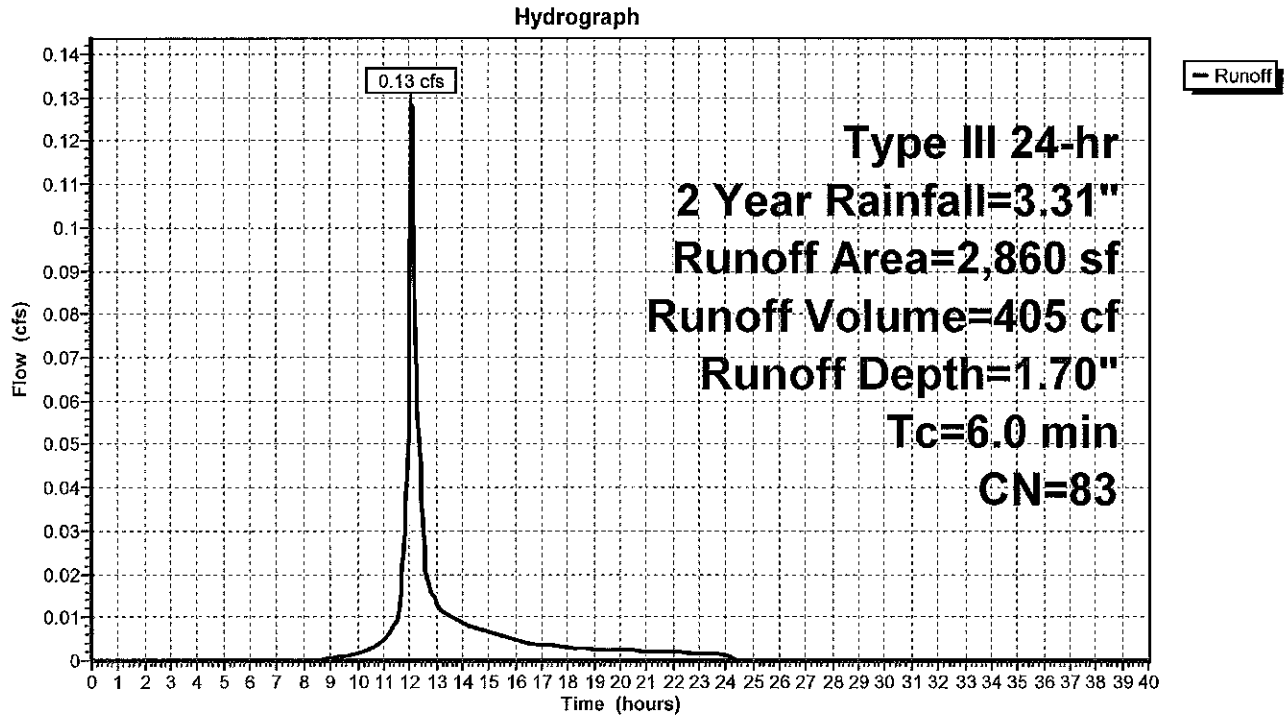
Runoff = 0.13 cfs @ 12.09 hrs, Volume= 405 cf, Depth= 1.70"
Routed to Pond CB : HAVEN STREET DRAINAGE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.31"

	Area (sf)	CN	Description
	713	39	>75% Grass cover, Good, HSG A
*	1,909	98	Paved parking, HSG A
*	238	98	Concrete, HSG A
	2,860	83	Weighted Average
	713		24.93% Pervious Area
	2,147		75.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC1.2: TO HAVEN STREET



Summary for Pond CB: HAVEN STREET DRAINAGE

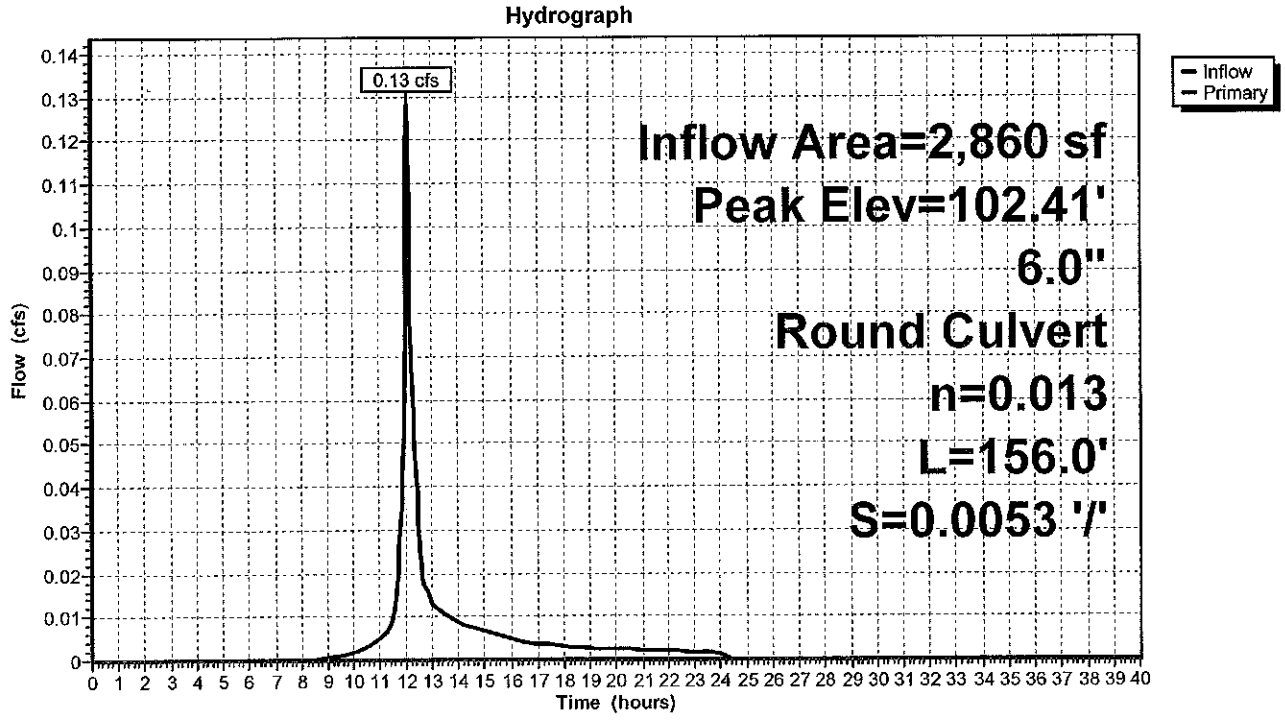
Inflow Area = 2,860 sf, 75.07% Impervious, Inflow Depth = 1.70" for 2 Year event
Inflow = 0.13 cfs @ 12.09 hrs, Volume= 405 cf
Outflow = 0.13 cfs @ 12.09 hrs, Volume= 405 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.13 cfs @ 12.09 hrs, Volume= 405 cf
Routed to Link DP1 : GREEN ST CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Peak Elev= 102.41' @ 12.09 hrs
Flood Elev= 104.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	102.15'	**6.0" Round Culvert** L= 156.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.15' / 101.33' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.13 cfs @ 12.09 hrs HW=102.41' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.13 cfs @ 1.82 fps)

Pond CB: HAVEN STREET DRAINAGE

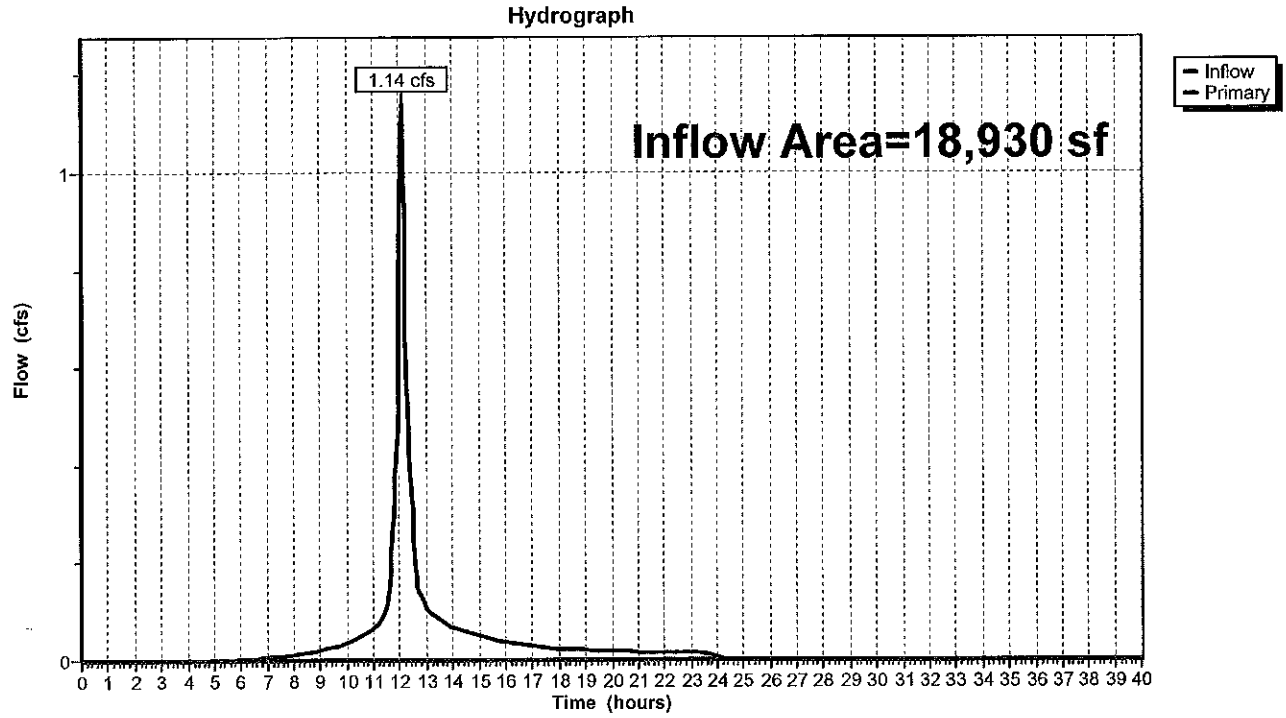


Summary for Link DP1: GREEN ST CB

Inflow Area = 18,930 sf, 87.77% Impervious, Inflow Depth = 2.34" for 2 Year event
Inflow = 1.14 cfs @ 12.09 hrs, Volume= 3,693 cf
Primary = 1.14 cfs @ 12.09 hrs, Volume= 3,693 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP1: GREEN ST CB



Time span=0.00-40.00 hrs, dt=0.05 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment SC1.1: TO GREEN STREET Runoff Area=16,070 sf 90.02% Impervious Runoff Depth=4.30"
Tc=6.0 min CN=92 Runoff=1.72 cfs 5,764 cf

Subcatchment SC1.2: TO HAVEN STREET Runoff Area=2,860 sf 75.07% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=83 Runoff=0.25 cfs 804 cf

Pond CB: HAVEN STREET DRAINAGE Peak Elev=102.53' Inflow=0.25 cfs 804 cf
6.0" Round Culvert n=0.013 L=156.0' S=0.0053 '/' Outflow=0.25 cfs 804 cf

Link DP1: GREEN ST CB Inflow=1.97 cfs 6,568 cf
Primary=1.97 cfs 6,568 cf

Total Runoff Area = 18,930 sf Runoff Volume = 6,568 cf Average Runoff Depth = 4.16"
12.23% Pervious = 2,316 sf 87.77% Impervious = 16,614 sf

Summary for Subcatchment SC1.1: TO GREEN STREET

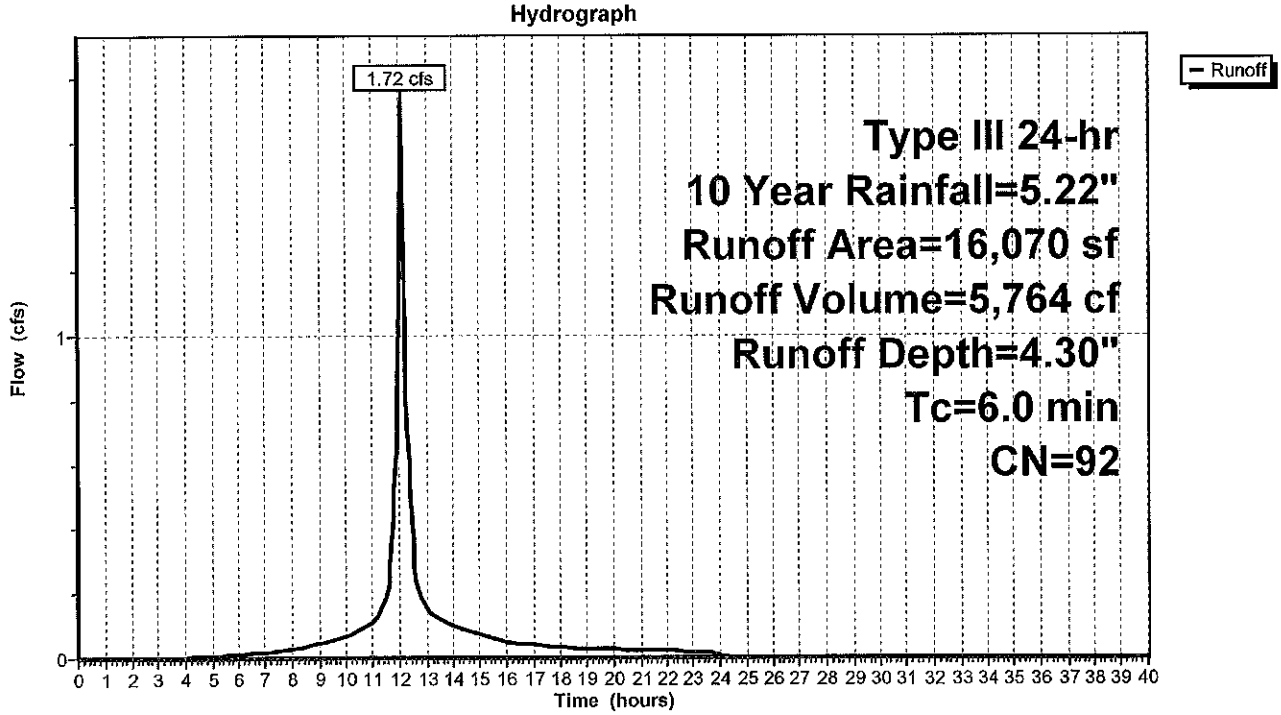
Runoff = 1.72 cfs @ 12.09 hrs, Volume= 5,764 cf, Depth= 4.30"
Routed to Link DP1 : GREEN ST CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.22"

	Area (sf)	CN	Description
	1,588	39	>75% Grass cover, Good, HSG A
*	5,839	98	Paved parking, HSG A
*	675	98	Concrete, HSG A
*	15	68	Crushed Stone, Poor, HSG A
*	7,953	98	Unconnected roofs, HSG A
	16,070	92	Weighted Average
	1,603		9.98% Pervious Area
	14,467		90.02% Impervious Area
	7,953		54.97% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC1.1: TO GREEN STREET



Summary for Subcatchment SC1.2: TO HAVEN STREET

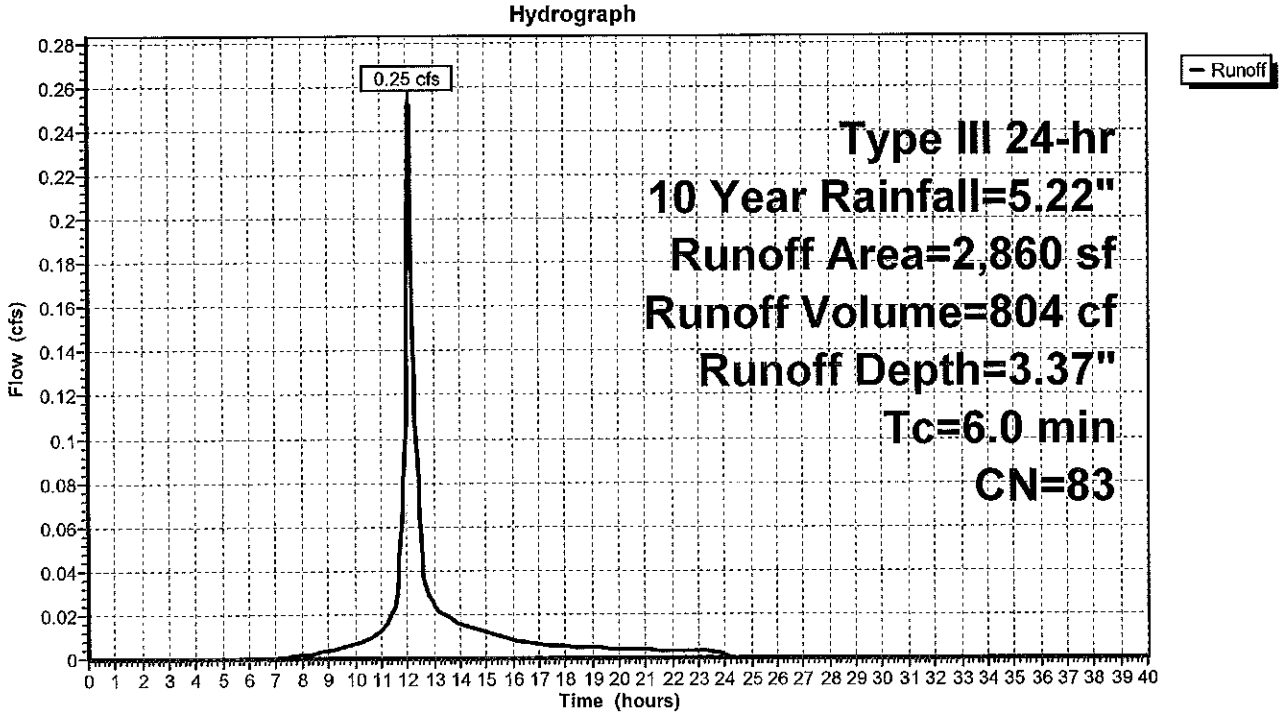
Runoff = 0.25 cfs @ 12.09 hrs, Volume= 804 cf, Depth= 3.37"
Routed to Pond CB : HAVEN STREET DRAINAGE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.22"

	Area (sf)	CN	Description
	713	39	>75% Grass cover, Good, HSG A
*	1,909	98	Paved parking, HSG A
*	238	98	Concrete, HSG A
	2,860	83	Weighted Average
	713		24.93% Pervious Area
	2,147		75.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC1.2: TO HAVEN STREET



Summary for Pond CB: HAVEN STREET DRAINAGE

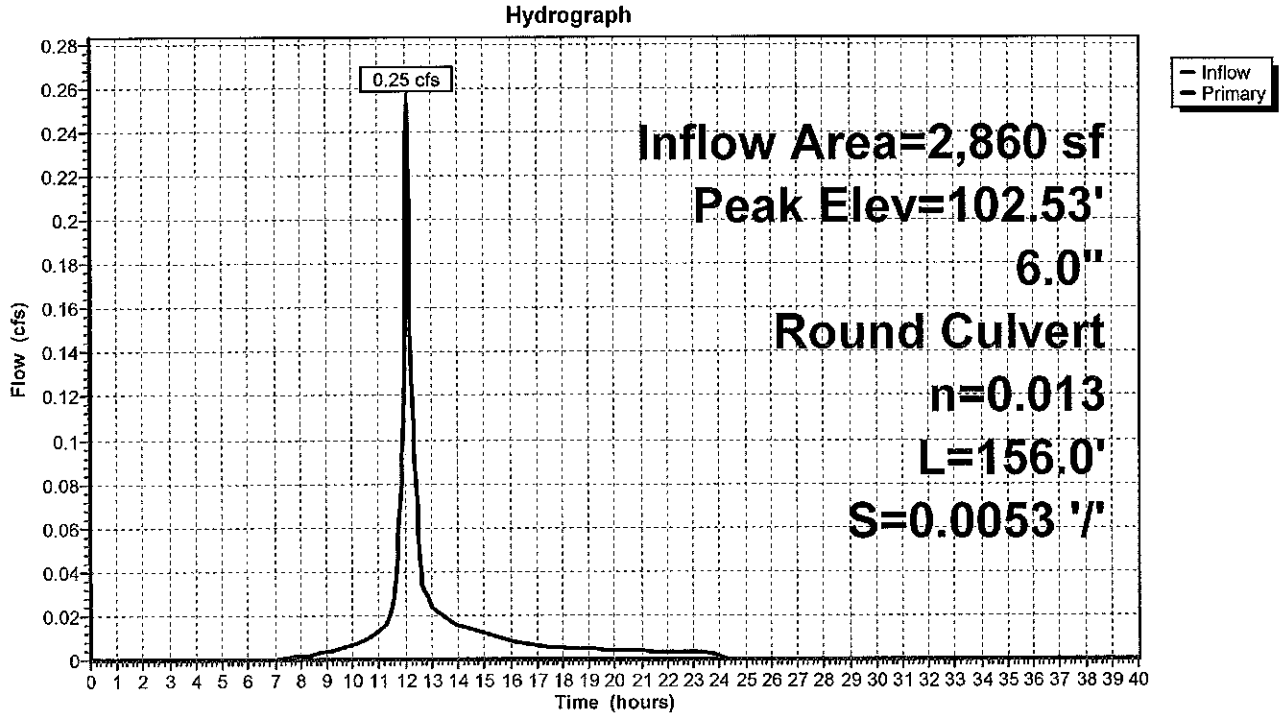
Inflow Area = 2,860 sf, 75.07% Impervious, Inflow Depth = 3.37" for 10 Year event
Inflow = 0.25 cfs @ 12.09 hrs, Volume= 804 cf
Outflow = 0.25 cfs @ 12.09 hrs, Volume= 804 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.25 cfs @ 12.09 hrs, Volume= 804 cf
Routed to Link DP1 : GREEN ST CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Peak Elev= 102.53' @ 12.09 hrs
Flood Elev= 104.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	102.15'	**6.0" Round Culvert** L= 156.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.15' / 101.33' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.25 cfs @ 12.09 hrs HW=102.53' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.25 cfs @ 2.16 fps)

Pond CB: HAVEN STREET DRAINAGE

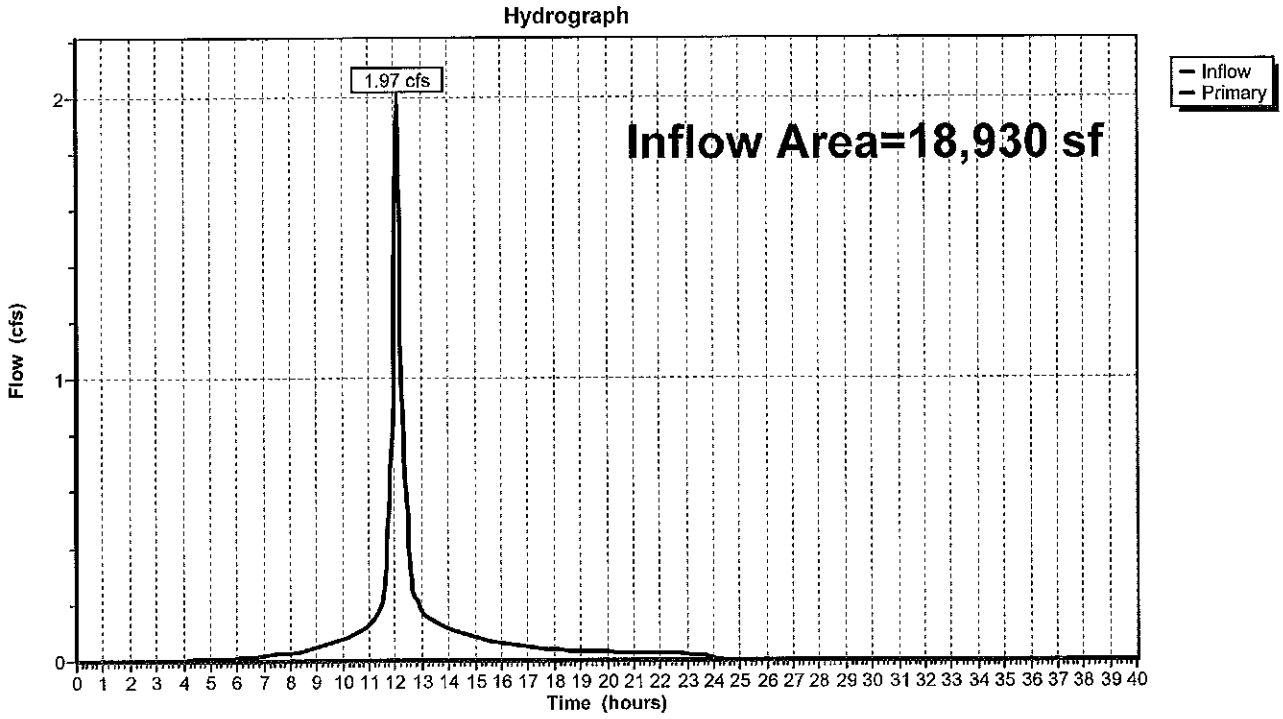


Summary for Link DP1: GREEN ST CB

Inflow Area = 18,930 sf, 87.77% Impervious, Inflow Depth = 4.16" for 10 Year event
Inflow = 1.97 cfs @ 12.09 hrs, Volume= 6,568 cf
Primary = 1.97 cfs @ 12.09 hrs, Volume= 6,568 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP1: GREEN ST CB



Time span=0.00-40.00 hrs, dt=0.05 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment SC1.1: TO GREEN STREET Runoff Area=16,070 sf 90.02% Impervious Runoff Depth=5.47"
Tc=6.0 min CN=92 Runoff=2.16 cfs 7,329 cf

Subcatchment SC1.2: TO HAVEN STREET Runoff Area=2,860 sf 75.07% Impervious Runoff Depth=4.47"
Tc=6.0 min CN=83 Runoff=0.33 cfs 1,066 cf

Pond CB: HAVEN STREET DRAINAGE Peak Elev=102.61' Inflow=0.33 cfs 1,066 cf
6.0" Round Culvert n=0.013 L=156.0' S=0.0053 '/' Outflow=0.33 cfs 1,066 cf

Link DP1: GREEN ST CB Inflow=2.49 cfs 8,395 cf
Primary=2.49 cfs 8,395 cf

Total Runoff Area = 18,930 sf Runoff Volume = 8,395 cf Average Runoff Depth = 5.32"
12.23% Pervious = 2,316 sf 87.77% Impervious = 16,614 sf

Summary for Subcatchment SC1.1: TO GREEN STREET

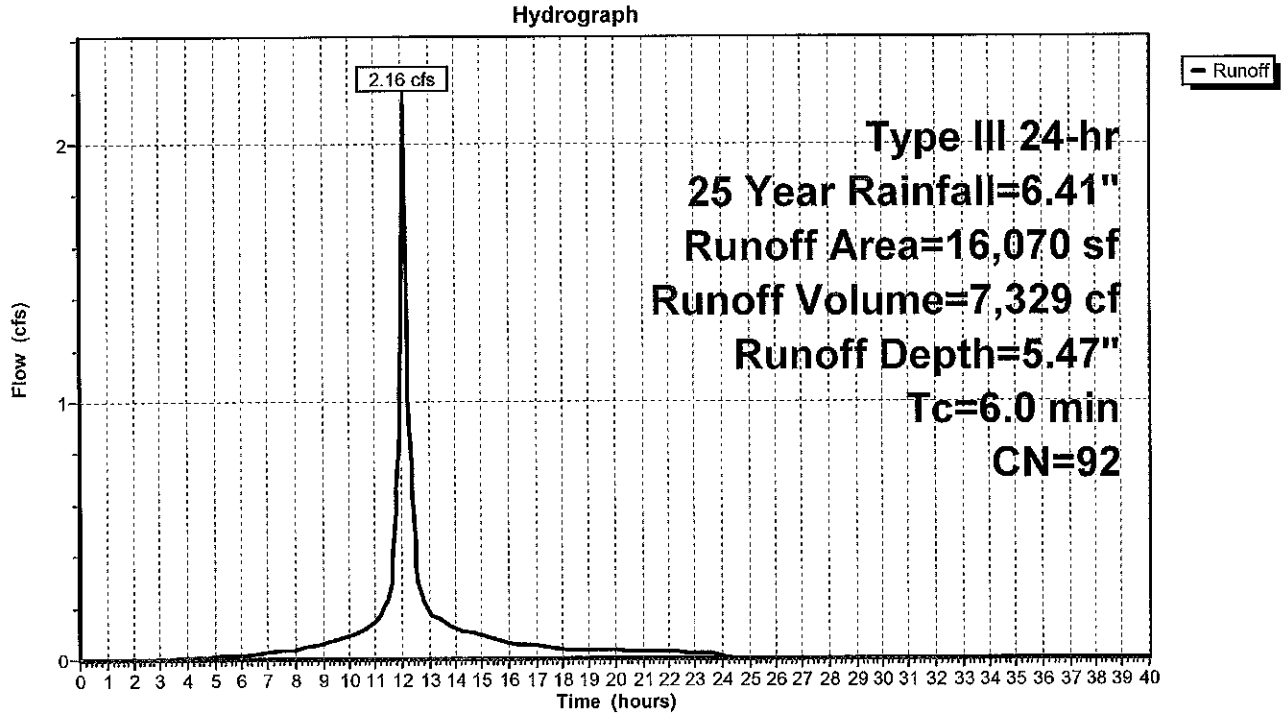
Runoff = 2.16 cfs @ 12.09 hrs, Volume= 7,329 cf, Depth= 5.47"
Routed to Link DP1 : GREEN ST CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.41"

	Area (sf)	CN	Description
	1,588	39	>75% Grass cover, Good, HSG A
*	5,839	98	Paved parking, HSG A
*	675	98	Concrete, HSG A
*	15	68	Crushed Stone, Poor, HSG A
*	7,953	98	Unconnected roofs, HSG A
	16,070	92	Weighted Average
	1,603		9.98% Pervious Area
	14,467		90.02% Impervious Area
	7,953		54.97% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC1.1: TO GREEN STREET



Summary for Subcatchment SC1.2: TO HAVEN STREET

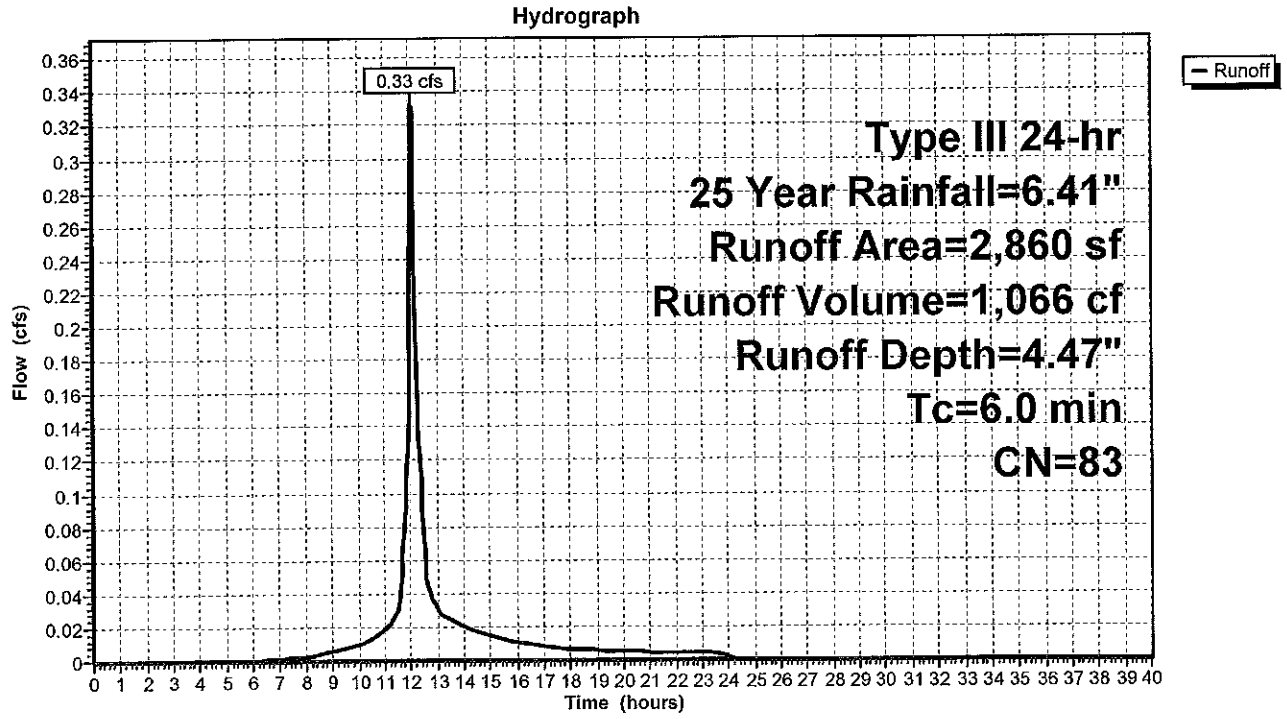
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 1,066 cf, Depth= 4.47"
Routed to Pond CB : HAVEN STREET DRAINAGE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.41"

	Area (sf)	CN	Description
	713	39	>75% Grass cover, Good, HSG A
*	1,909	98	Paved parking, HSG A
*	238	98	Concrete, HSG A
	2,860	83	Weighted Average
	713		24.93% Pervious Area
	2,147		75.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC1.2: TO HAVEN STREET



Summary for Pond CB: HAVEN STREET DRAINAGE

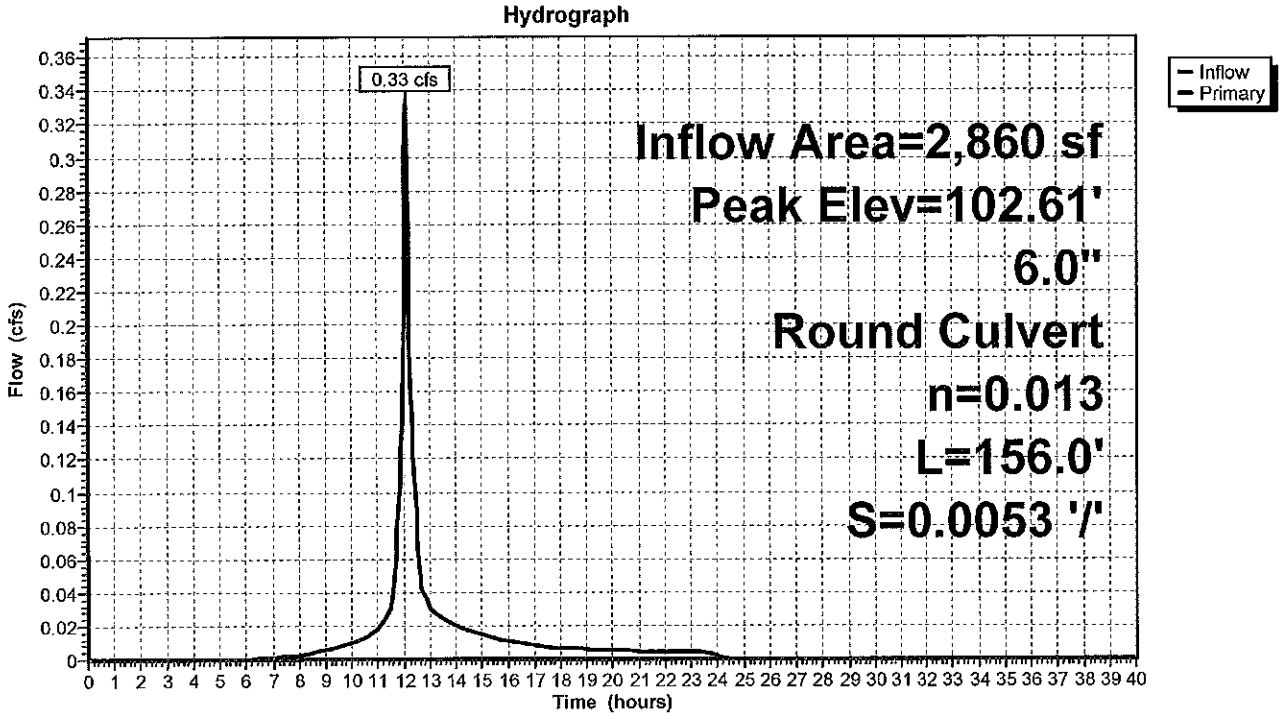
Inflow Area = 2,860 sf, 75.07% Impervious, Inflow Depth = 4.47" for 25 Year event
Inflow = 0.33 cfs @ 12.09 hrs, Volume= 1,066 cf
Outflow = 0.33 cfs @ 12.09 hrs, Volume= 1,066 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.09 hrs, Volume= 1,066 cf
Routed to Link DP1 : GREEN ST CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Peak Elev= 102.61' @ 12.09 hrs
Flood Elev= 104.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	102.15'	**6.0" Round Culvert** L= 156.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.15' / 101.33' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.32 cfs @ 12.09 hrs HW=102.60' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.32 cfs @ 2.29 fps)

Pond CB: HAVEN STREET DRAINAGE

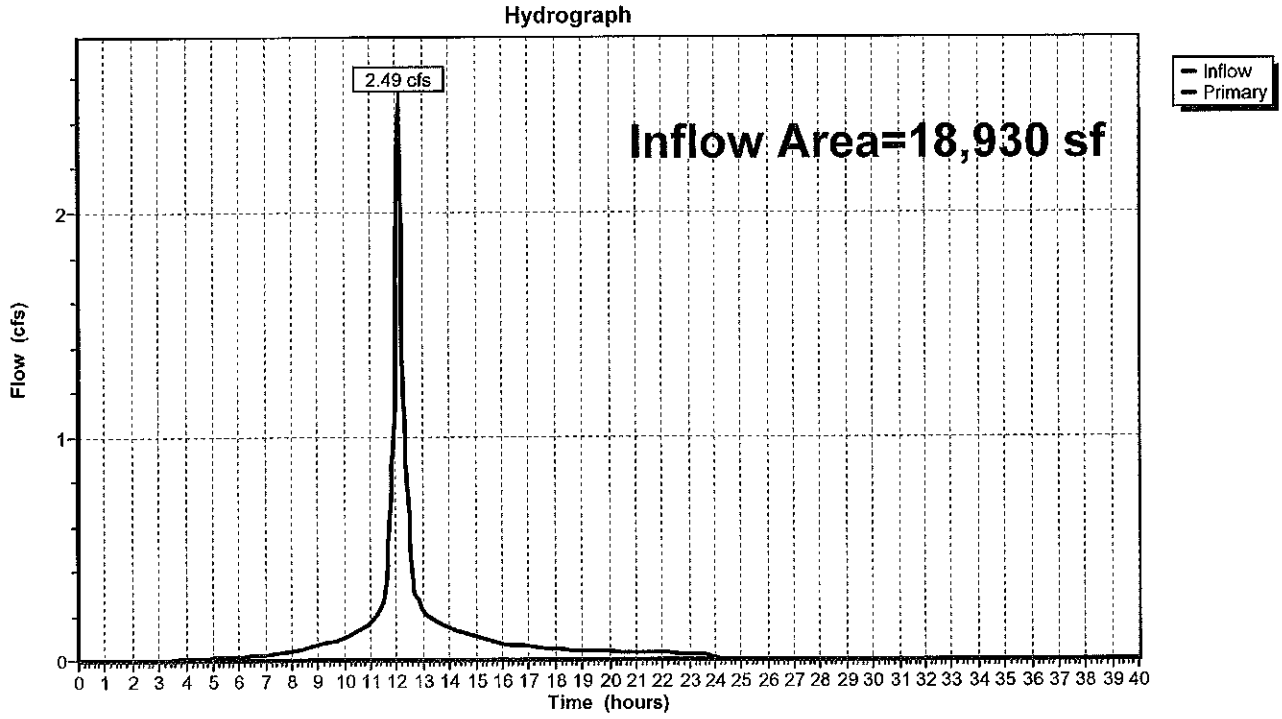


Summary for Link DP1: GREEN ST CB

Inflow Area = 18,930 sf, 87.77% Impervious, Inflow Depth = 5.32" for 25 Year event
Inflow = 2.49 cfs @ 12.09 hrs, Volume= 8,395 cf
Primary = 2.49 cfs @ 12.09 hrs, Volume= 8,395 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP1: GREEN ST CB



Time span=0.00-40.00 hrs, dt=0.05 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment SC1.1: TO GREEN STREET Runoff Area=16,070 sf 90.02% Impervious Runoff Depth=7.28"
Tc=6.0 min CN=92 Runoff=2.83 cfs 9,751 cf

Subcatchment SC1.2: TO HAVEN STREET Runoff Area=2,860 sf 75.07% Impervious Runoff Depth=6.21"
Tc=6.0 min CN=83 Runoff=0.45 cfs 1,479 cf

Pond CB: HAVEN STREET DRAINAGE Peak Elev=102.96' Inflow=0.45 cfs 1,479 cf
6.0" Round Culvert n=0.013 L=156.0' S=0.0053 '/' Outflow=0.45 cfs 1,479 cf

Link DP1: GREEN ST CB Inflow=3.28 cfs 11,230 cf
Primary=3.28 cfs 11,230 cf

Total Runoff Area = 18,930 sf Runoff Volume = 11,230 cf Average Runoff Depth = 7.12"
12.23% Pervious = 2,316 sf 87.77% Impervious = 16,614 sf

Summary for Subcatchment SC1.1: TO GREEN STREET

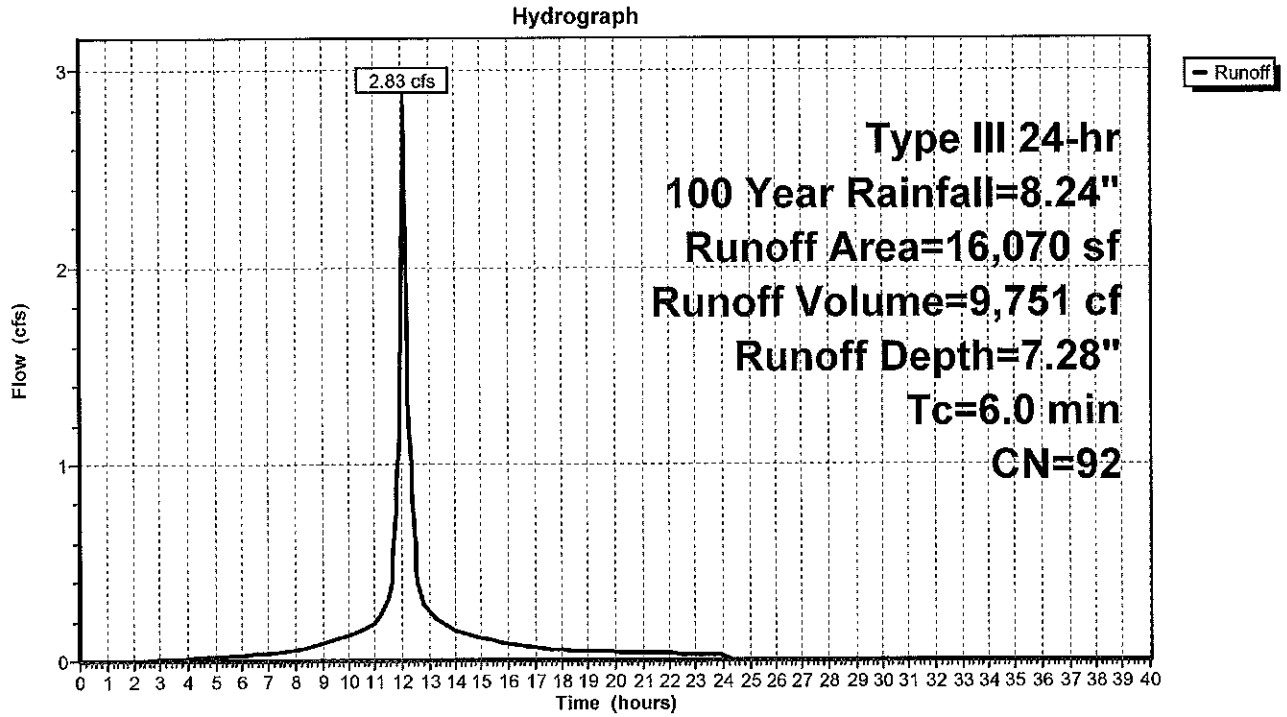
Runoff = 2.83 cfs @ 12.09 hrs, Volume= 9,751 cf, Depth= 7.28"
Routed to Link DP1 : GREEN ST CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=8.24"

	Area (sf)	CN	Description
	1,588	39	>75% Grass cover, Good, HSG A
*	5,839	98	Paved parking, HSG A
*	675	98	Concrete, HSG A
*	15	68	Crushed Stone, Poor, HSG A
*	7,953	98	Unconnected roofs, HSG A
	16,070	92	Weighted Average
	1,603		9.98% Pervious Area
	14,467		90.02% Impervious Area
	7,953		54.97% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment SC1.1: TO GREEN STREET



Summary for Subcatchment SC1.2: TO HAVEN STREET

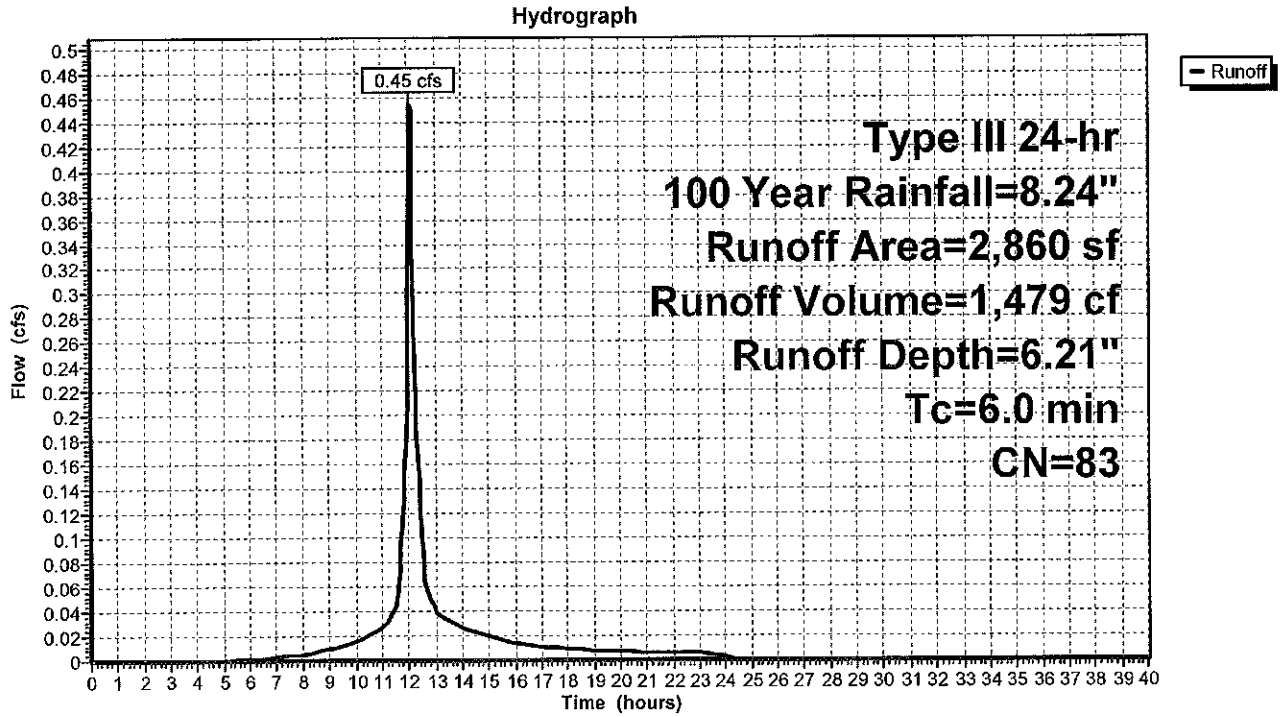
Runoff = 0.45 cfs @ 12.09 hrs, Volume= 1,479 cf, Depth= 6.21"
Routed to Pond CB : HAVEN STREET DRAINAGE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=8.24"

	Area (sf)	CN	Description
	713	39	>75% Grass cover, Good, HSG A
*	1,909	98	Paved parking, HSG A
*	238	98	Concrete, HSG A
	2,860	83	Weighted Average
	713		24.93% Pervious Area
	2,147		75.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment SC1.2: TO HAVEN STREET



Summary for Pond CB: HAVEN STREET DRAINAGE

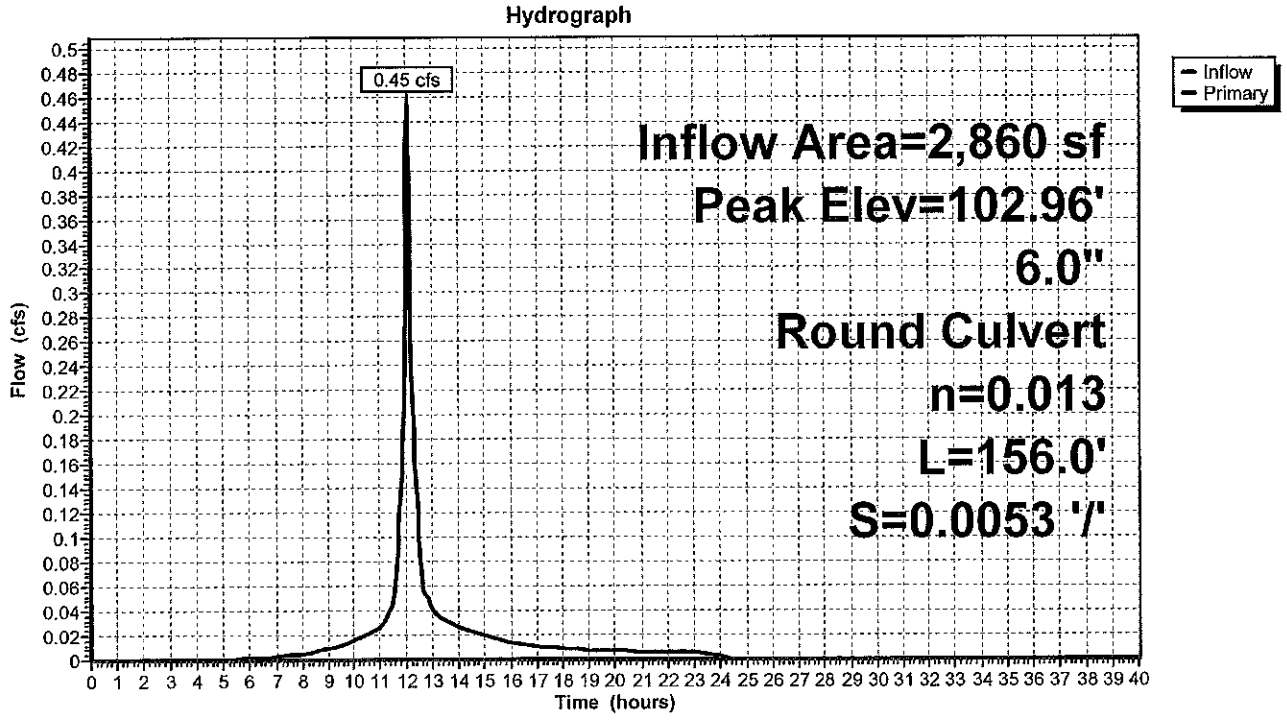
Inflow Area = 2,860 sf, 75.07% Impervious, Inflow Depth = 6.21" for 100 Year event
Inflow = 0.45 cfs @ 12.09 hrs, Volume= 1,479 cf
Outflow = 0.45 cfs @ 12.09 hrs, Volume= 1,479 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 12.09 hrs, Volume= 1,479 cf
Routed to Link DP1 : GREEN ST CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Peak Elev= 102.96' @ 12.10 hrs
Flood Elev= 104.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	102.15'	**6.0" Round Culvert** L= 156.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.15' / 101.33' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.44 cfs @ 12.09 hrs HW=102.91' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.44 cfs @ 2.24 fps)

Pond CB: HAVEN STREET DRAINAGE

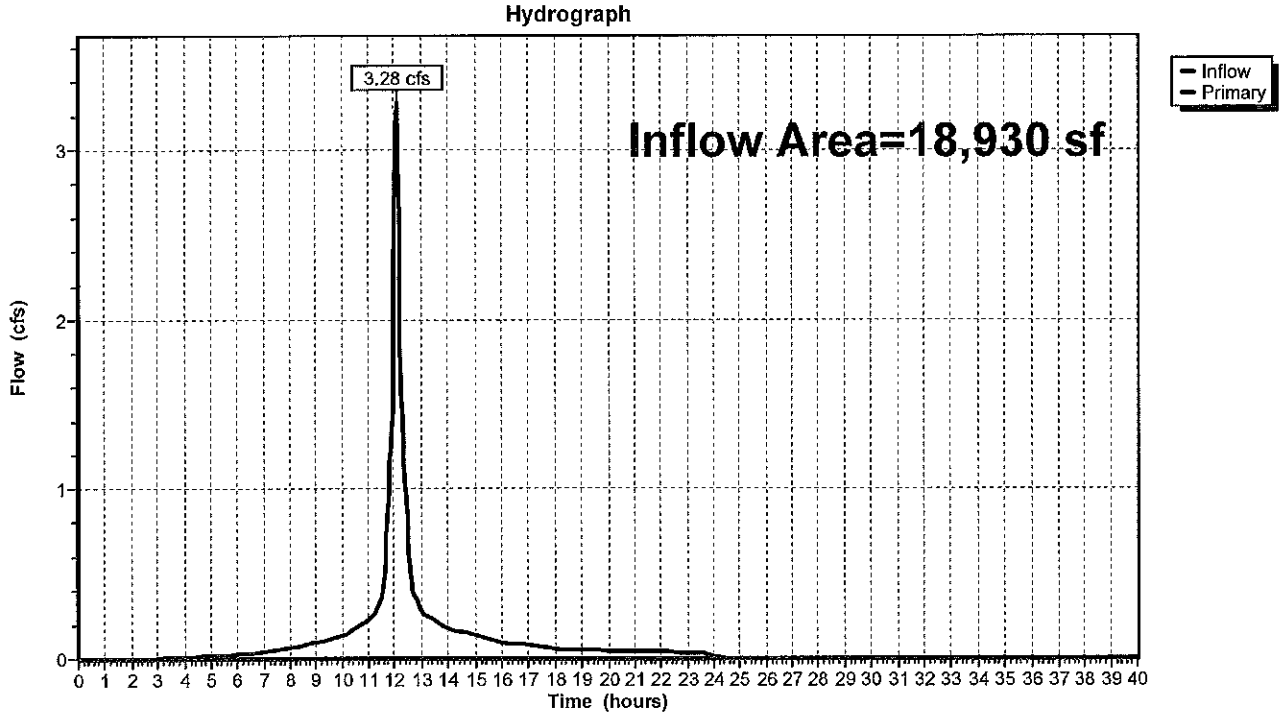


Summary for Link DP1: GREEN ST CB

Inflow Area = 18,930 sf, 87.77% Impervious, Inflow Depth = 7.12" for 100 Year event
Inflow = 3.28 cfs @ 12.09 hrs, Volume= 11,230 cf
Primary = 3.28 cfs @ 12.09 hrs, Volume= 11,230 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP1: GREEN ST CB



Events for Subcatchment SC1.1: TO GREEN STREET

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2 Year	3.31	1.01	3,288	2.46
10 Year	5.22	1.72	5,764	4.30
25 Year	6.41	2.16	7,329	5.47
100 Year	**8.24**	**2.83**	**9,751**	**7.28**

Events for Subcatchment SC1.2: TO HAVEN STREET

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2 Year	3.31	0.13	405	1.70
10 Year	5.22	0.25	804	3.37
25 Year	6.41	0.33	1,066	4.47
100 Year	**8.24**	**0.45**	**1,479**	**6.21**

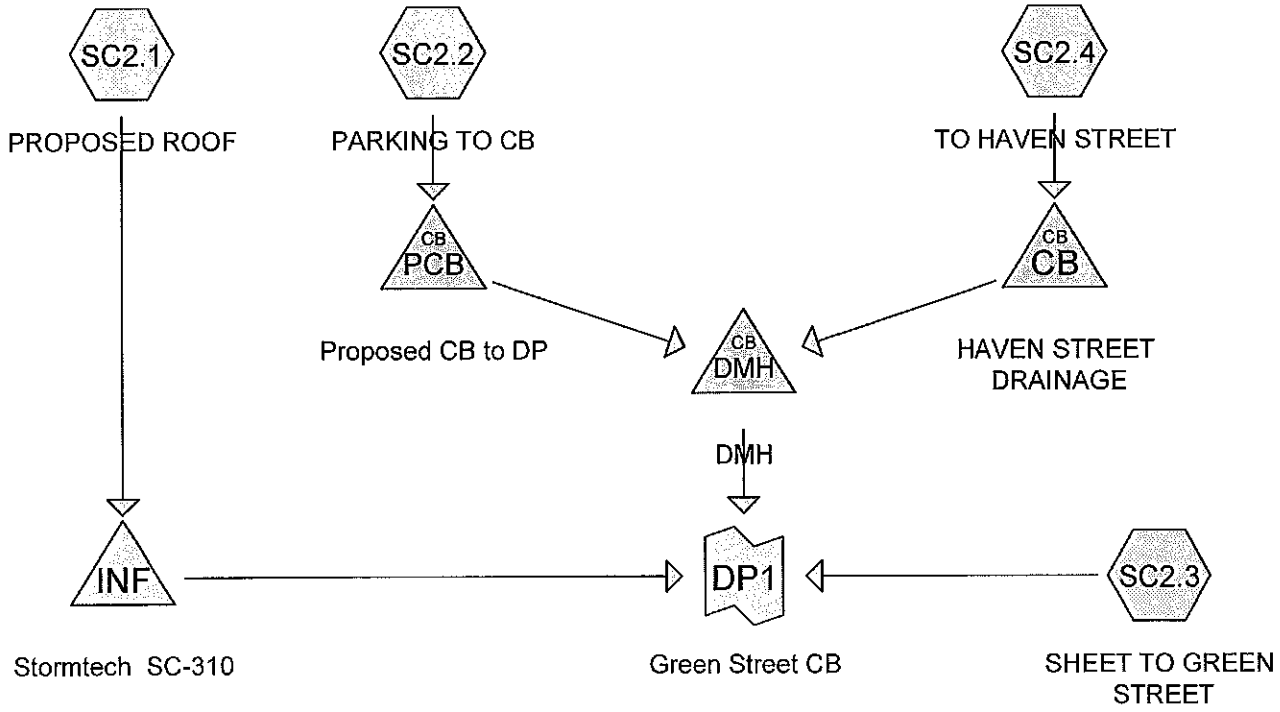
Events for Pond CB: HAVEN STREET DRAINAGE

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2 Year	0.13	0.13	102.41	**0**
10 Year	0.25	0.25	102.53	0
25 Year	0.33	0.33	102.61	0
100 Year	**0.45**	**0.45**	**102.96**	0

Events for Link DP1: GREEN ST CB

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
2 Year	1.14	1.14	**0.00**
10 Year	1.97	1.97	0.00
25 Year	2.49	2.49	0.00
100 Year	**3.28**	**3.28**	0.00

PROPOSED RUNOFF



Subcat Reach Pond Link

Routing Diagram for PROPOSED REA0149
Prepared by {enter your company name here}, Printed 11/23/2022

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 Year	Type III 24-hr		Default	24.00	1	3.31	2
2	10 Year	Type III 24-hr		Default	24.00	1	5.22	2
3	25 Year	Type III 24-hr		Default	24.00	1	6.41	2
4	100 Year	Type III 24-hr		Default	24.00	1	8.24	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
3,523	39	>75% Grass cover, Good, HSG A (SC2.3, SC2.4)
2,493	98	Concrete, HSG A (SC2.2, SC2.3, SC2.4)
4,315	98	Paved parking, HSG A (SC2.2)
8,600	98	Unconnected roofs, HSG A (SC2.1)
18,931	**87**	**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment SC2.1: PROPOSED ROOF Runoff Area=8,600 sf 100.00% Impervious Runoff Depth=3.08"
Tc=6.0 min CN=98 Runoff=0.62 cfs 2,205 cf

Subcatchment SC2.2: PARKING TO CB Runoff Area=4,532 sf 100.00% Impervious Runoff Depth=3.08"
Tc=6.0 min CN=98 Runoff=0.33 cfs 1,162 cf

Subcatchment SC2.3: SHEET TO GREEN Runoff Area=5,283 sf 39.18% Impervious Runoff Depth=0.53"
Tc=6.0 min CN=62 Runoff=0.05 cfs 233 cf

Subcatchment SC2.4: TO HAVEN STREET Runoff Area=516 sf 39.92% Impervious Runoff Depth=0.57"
Tc=6.0 min CN=63 Runoff=0.01 cfs 24 cf

Pond CB: HAVEN STREET DRAINAGE Peak Elev=102.20' Inflow=0.01 cfs 24 cf
6.0" Round Culvert n=0.011 L=174.0' S=0.0053 '/' Outflow=0.01 cfs 24 cf

Pond DMH: DMH Peak Elev=101.41' Inflow=0.33 cfs 1,187 cf
8.0" Round Culvert n=0.011 L=89.0' S=0.0053 '/' Outflow=0.33 cfs 1,187 cf

Pond INF: Stormtech SC-310 Peak Elev=101.51' Storage=253 cf Inflow=0.62 cfs 2,205 cf
Discarded=0.23 cfs 2,218 cf Primary=0.00 cfs 0 cf Outflow=0.23 cfs 2,218 cf

Pond PCB: Proposed CB to DP Peak Elev=101.48' Inflow=0.33 cfs 1,162 cf
8.0" Round Culvert n=0.011 L=1.0' S=0.0000 '/' Outflow=0.33 cfs 1,162 cf

Link DP1: Green Street CB Inflow=0.38 cfs 1,419 cf
Primary=0.38 cfs 1,419 cf

Total Runoff Area = 18,931 sf Runoff Volume = 3,625 cf Average Runoff Depth = 2.30"
18.61% Pervious = 3,523 sf 81.39% Impervious = 15,408 sf

Summary for Subcatchment SC2.1: PROPOSED ROOF

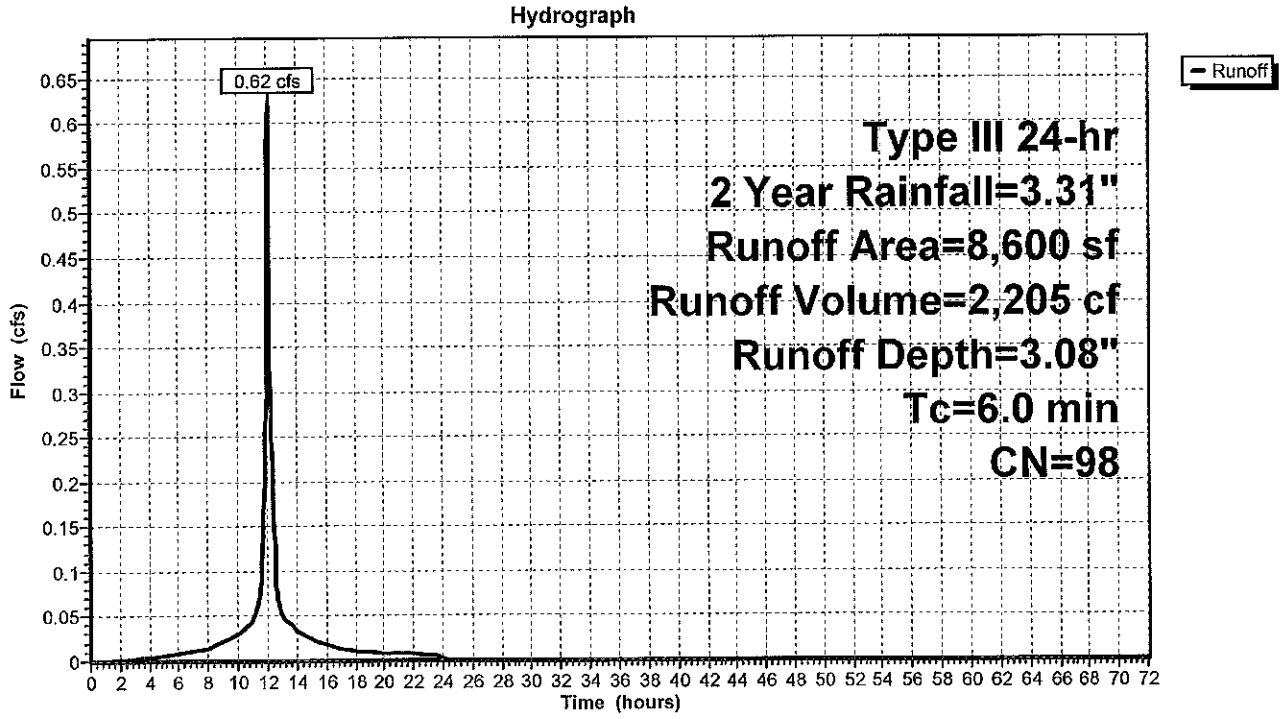
Runoff = 0.62 cfs @ 12.09 hrs, Volume= 2,205 cf, Depth= 3.08"
Routed to Pond INF : Stormtech SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.31"

	Area (sf)	CN	Description
*	8,600	98	Unconnected roofs, HSG A
	8,600		100.00% Impervious Area
	8,600		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC2.1: PROPOSED ROOF



Summary for Subcatchment SC2.2: PARKING TO CB

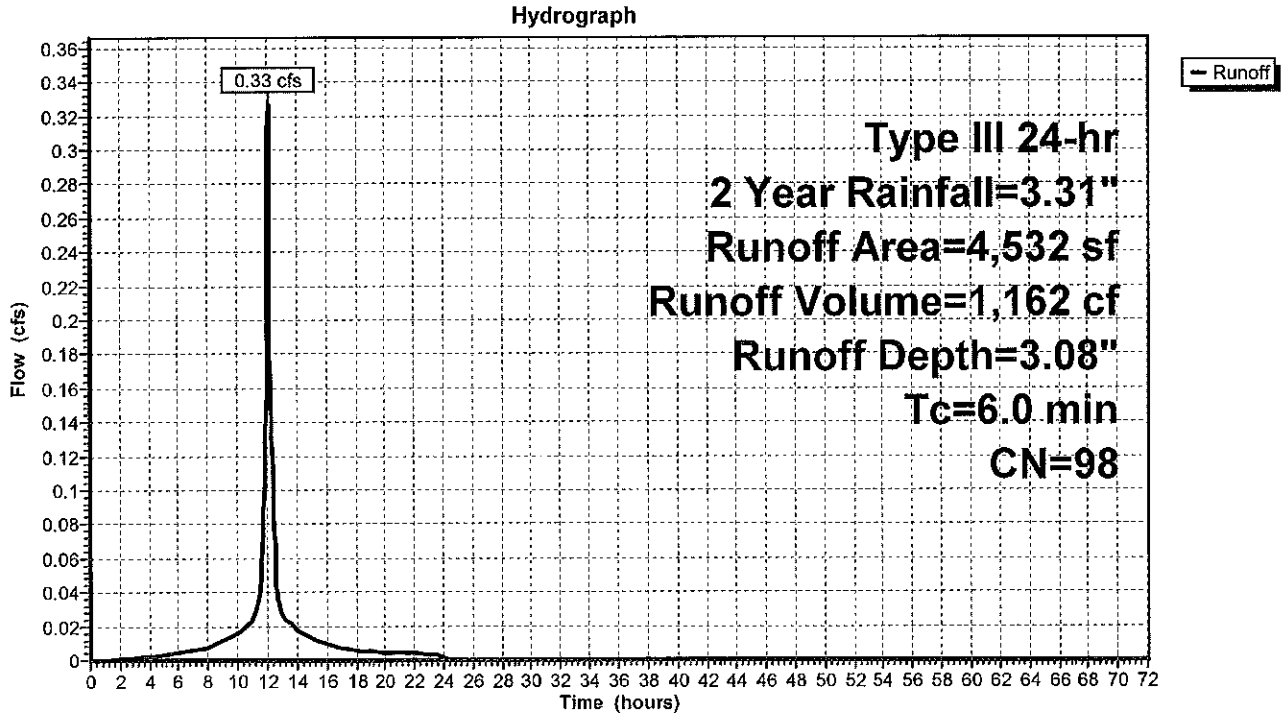
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 1,162 cf, Depth= 3.08"
Routed to Pond PCB : Proposed CB to DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.31"

	Area (sf)	CN	Description
*	4,315	98	Paved parking, HSG A
*	217	98	Concrete, HSG A
	4,532	98	Weighted Average
	4,532		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment SC2.2: PARKING TO CB



Summary for Subcatchment SC2.3: SHEET TO GREEN STREET

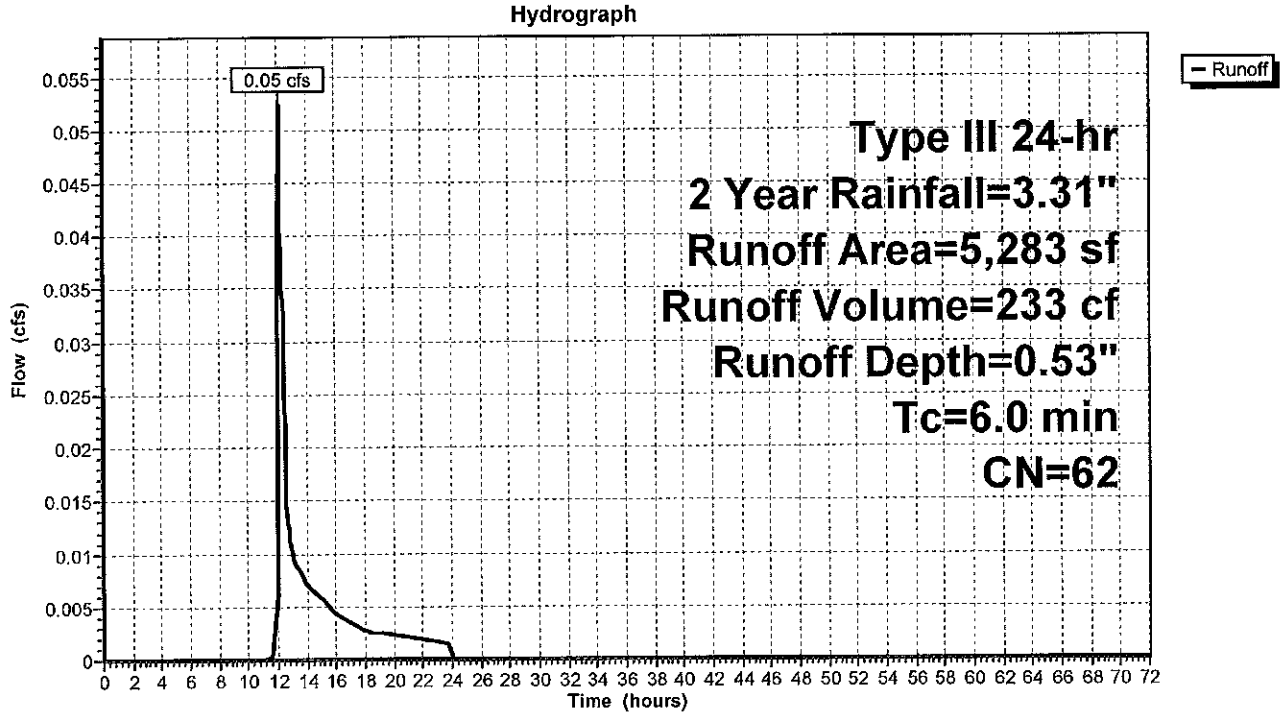
Runoff = 0.05 cfs @ 12.12 hrs, Volume= 233 cf, Depth= 0.53"
Routed to Link DP1 : Green Street CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.31"

	Area (sf)	CN	Description
	3,213	39	>75% Grass cover, Good, HSG A
*	2,070	98	Concrete, HSG A
	5,283	62	Weighted Average
	3,213		60.82% Pervious Area
	2,070		39.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC2.3: SHEET TO GREEN STREET



Summary for Subcatchment SC2.4: TO HAVEN STREET

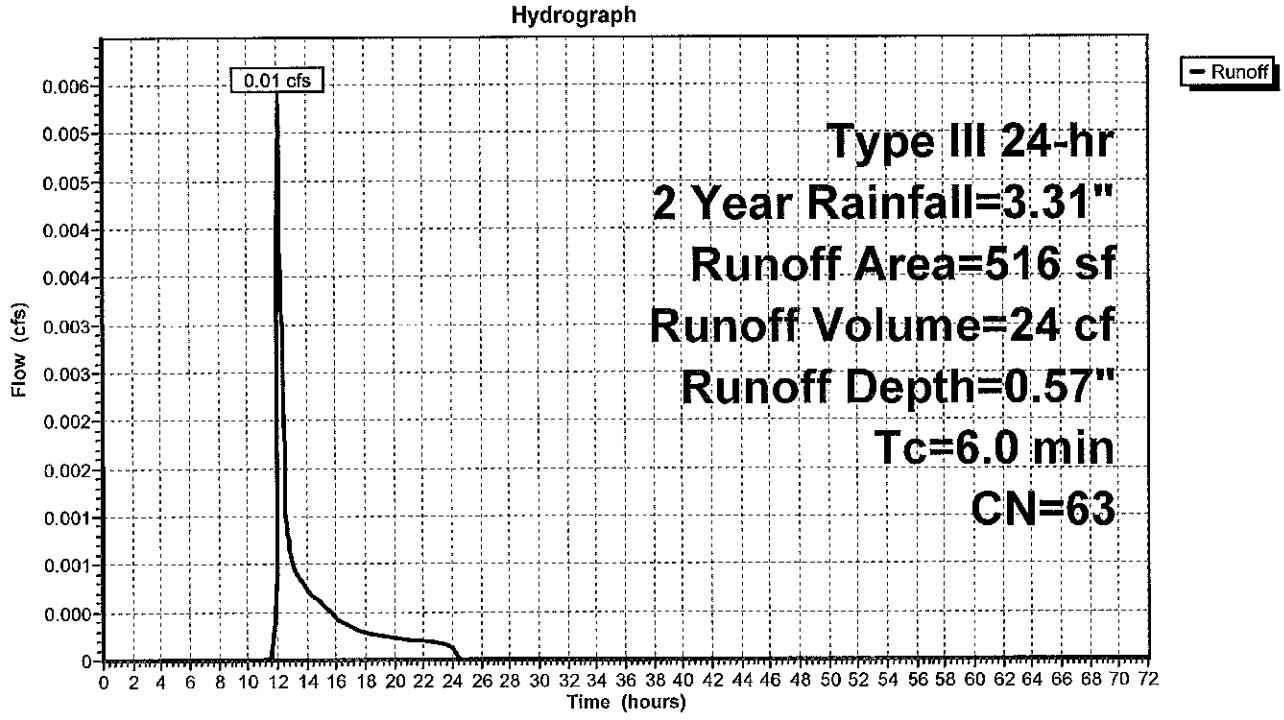
Runoff = 0.01 cfs @ 12.12 hrs, Volume= 24 cf, Depth= 0.57"
Routed to Pond CB : HAVEN STREET DRAINAGE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.31"

	Area (sf)	CN	Description
	310	39	>75% Grass cover, Good, HSG A
*	206	98	Concrete, HSG A
	516	63	Weighted Average
	310		60.08% Pervious Area
	206		39.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC2.4: TO HAVEN STREET



Summary for Pond CB: HAVEN STREET DRAINAGE

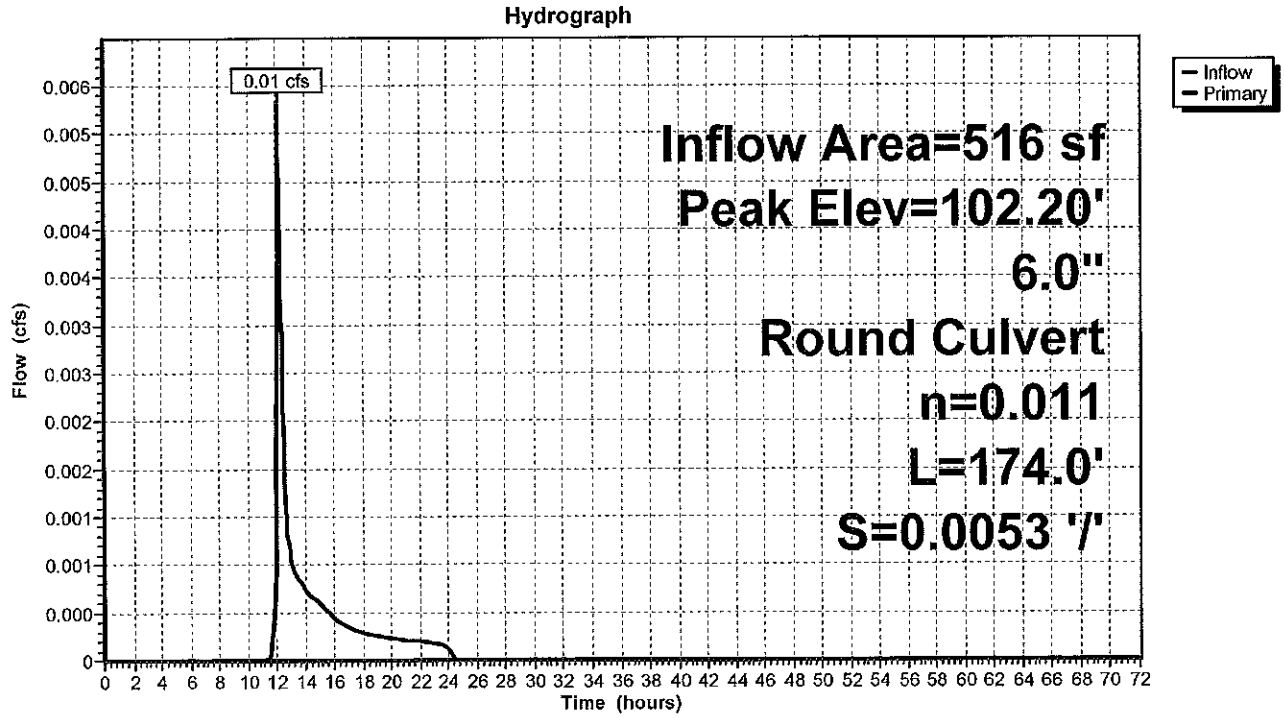
Inflow Area = 516 sf, 39.92% Impervious, Inflow Depth = 0.57" for 2 Year event
Inflow = 0.01 cfs @ 12.12 hrs, Volume= 24 cf
Outflow = 0.01 cfs @ 12.12 hrs, Volume= 24 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 12.12 hrs, Volume= 24 cf
Routed to Pond DMH : DMH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 102.20' @ 12.12 hrs
Flood Elev= 104.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	102.15'	**6.0" Round Culvert** L= 174.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.15' / 101.22' S= 0.0053 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf

Primary OutFlow Max=0.01 cfs @ 12.12 hrs HW=102.20' TW=101.39' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.01 cfs @ 0.78 fps)

Pond CB: HAVEN STREET DRAINAGE



Summary for Pond DMH: DMH

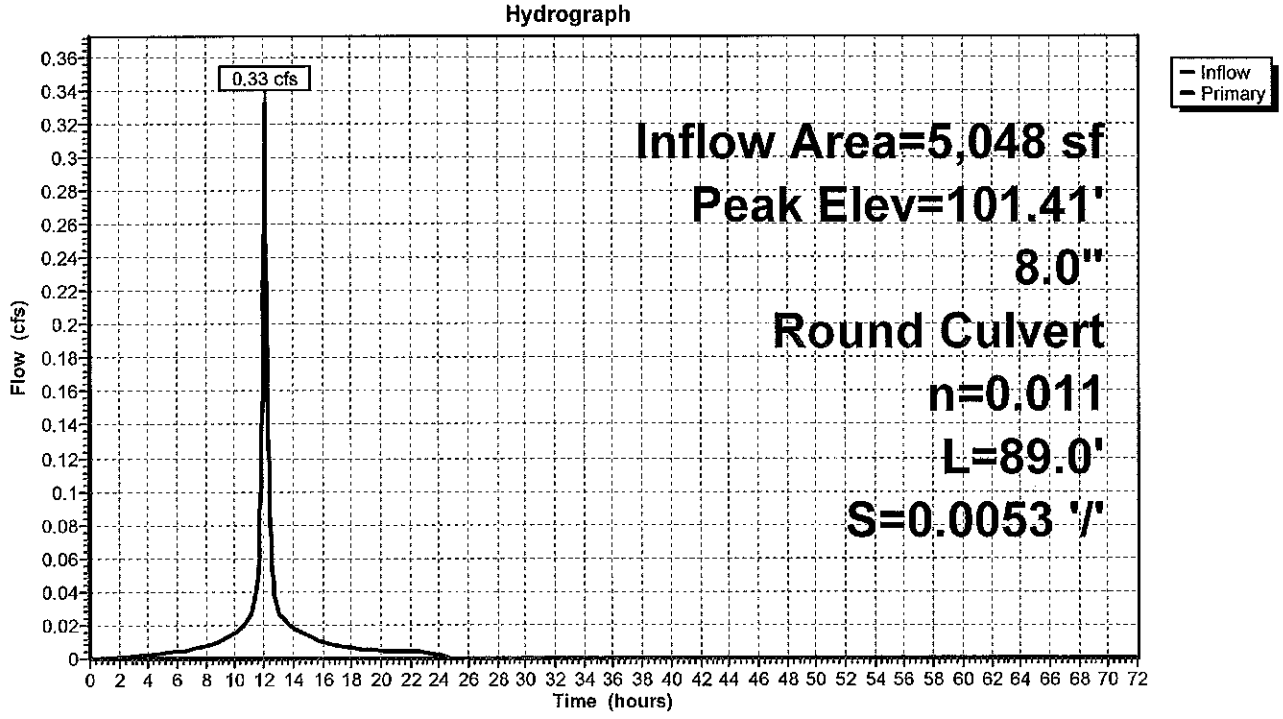
Inflow Area = 5,048 sf, 93.86% Impervious, Inflow Depth = 2.82" for 2 Year event
Inflow = 0.33 cfs @ 12.09 hrs, Volume= 1,187 cf
Outflow = 0.33 cfs @ 12.09 hrs, Volume= 1,187 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.09 hrs, Volume= 1,187 cf
Routed to Link DP1 : Green Street CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 101.41' @ 12.09 hrs
Flood Elev= 105.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.05'	**8.0" Round Culvert** L= 89.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.05' / 100.58' S= 0.0053 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf

Primary OutFlow Max=0.32 cfs @ 12.09 hrs HW=101.40' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.32 cfs @ 2.50 fps)

Pond DMH: DMH



Summary for Pond INF: Stormtech SC-310

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=110)

Inflow Area = 8,600 sf,100.00% Impervious, Inflow Depth = 3.08" for 2 Year event
Inflow = 0.62 cfs @ 12.09 hrs, Volume= 2,205 cf
Outflow = 0.23 cfs @ 12.00 hrs, Volume= 2,218 cf, Atten= 62%, Lag= 0.0 min
Discarded = 0.23 cfs @ 12.00 hrs, Volume= 2,218 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link DP1 : Green Street CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 101.51' @ 12.33 hrs Surf.Area= 1,222 sf Storage= 253 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.5 min (760.2 - 755.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	101.00'	875 cf	**18.17'W x 67.28'L x 2.33'H Field A** 2,852 cf Overall - 663 cf Embedded = 2,189 cf x 40.0% Voids
#2A	101.50'	663 cf	**ADS_StormTech SC-310 +Cap** x 45 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 45 Chambers in 5 Rows
		1,539 cf	Total Available Storage

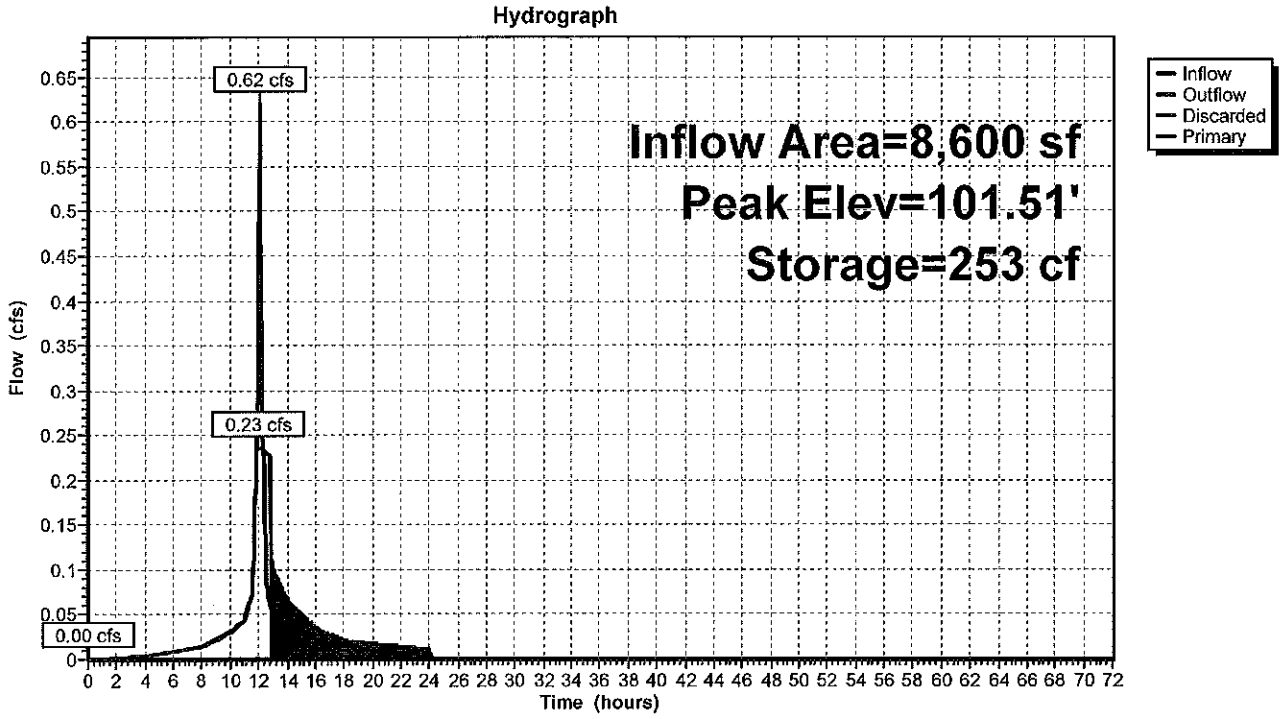
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	102.50'	**6.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.50' / 101.05' S= 0.0558 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf

Discarded OutFlow Max=0.23 cfs @ 12.00 hrs HW=101.06' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.23 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=101.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Controls 0.00 cfs)

Pond INF: Stormtech SC-310



Summary for Pond PCB: Proposed CB to DP

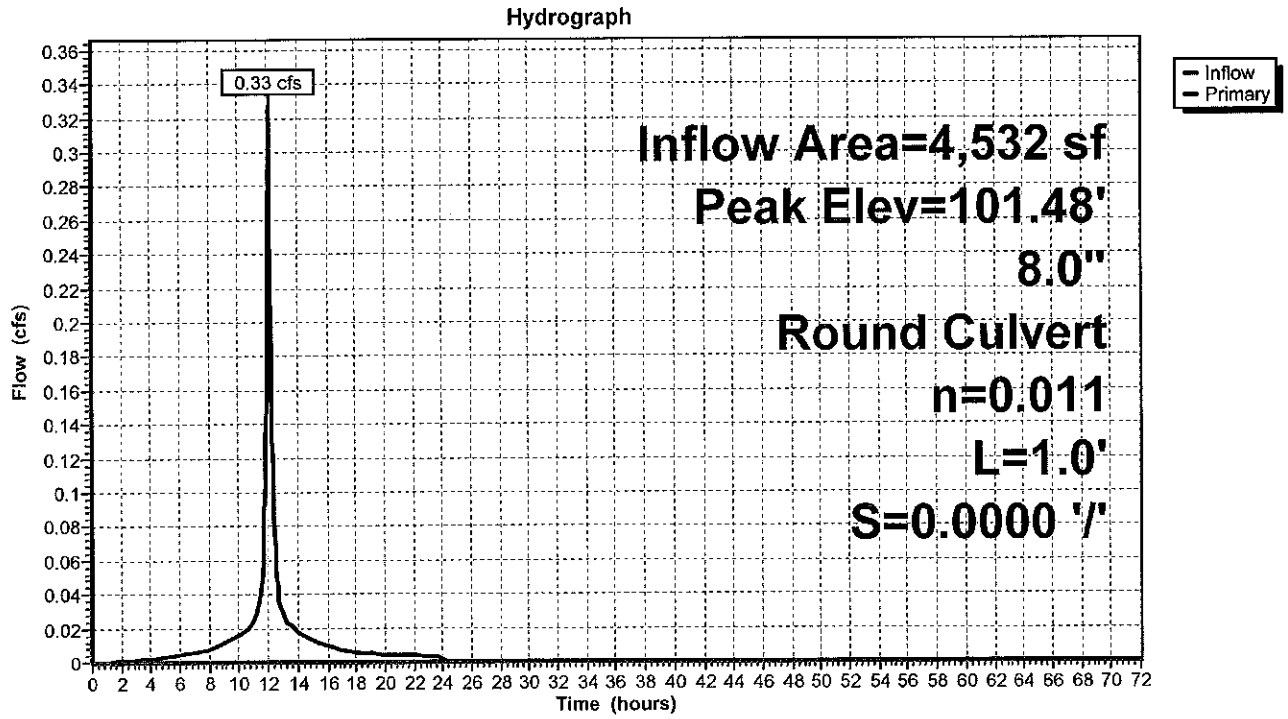
Inflow Area = 4,532 sf,100.00% Impervious, Inflow Depth = 3.08" for 2 Year event
Inflow = 0.33 cfs @ 12.09 hrs, Volume= 1,162 cf
Outflow = 0.33 cfs @ 12.09 hrs, Volume= 1,162 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.09 hrs, Volume= 1,162 cf
Routed to Pond DMH : DMH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 101.48' @ 12.11 hrs
Flood Elev= 104.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.05'	**8.0" Round Culvert** L= 1.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.05' / 101.05' S= 0.0000 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf

Primary OutFlow Max=0.28 cfs @ 12.09 hrs HW=101.47' TW=101.40' (Dynamic Tailwater)
↳**1=Culvert** (Outlet Controls 0.28 cfs @ 1.69 fps)

Pond PCB: Proposed CB to DP

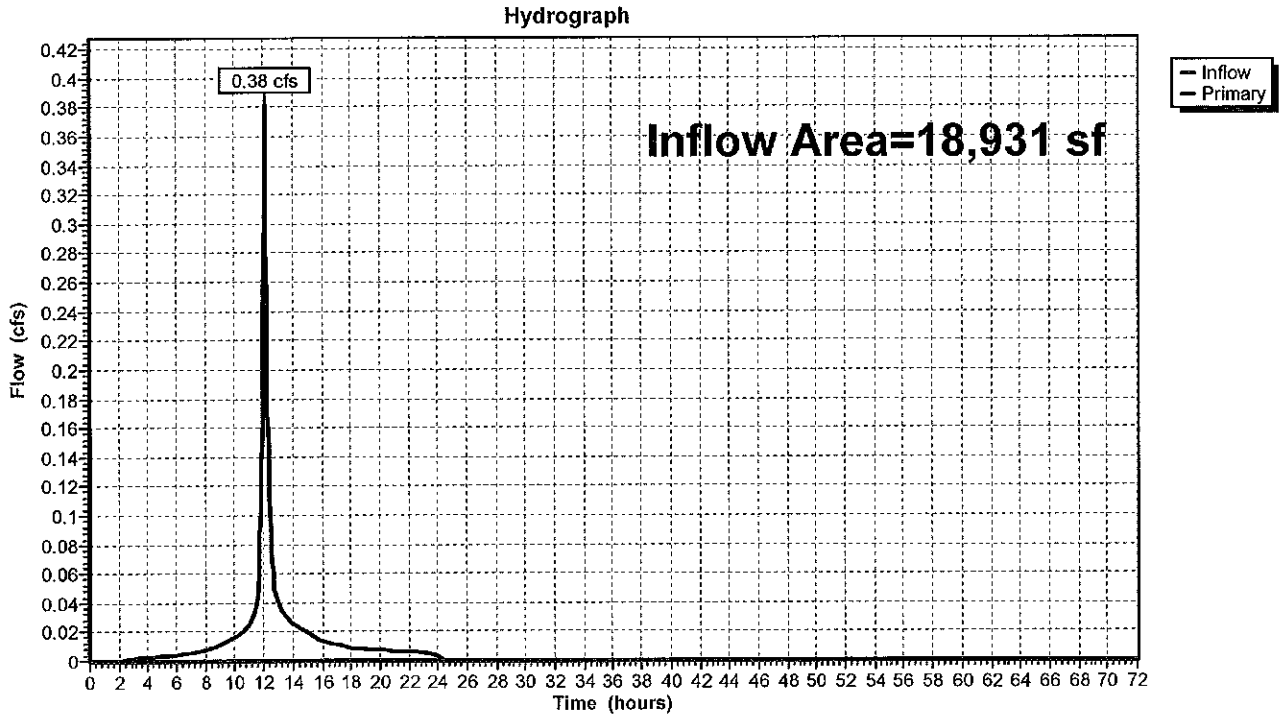


Summary for Link DP1: Green Street CB

Inflow Area = 18,931 sf, 81.39% Impervious, Inflow Depth = 0.90" for 2 Year event
Inflow = 0.38 cfs @ 12.09 hrs, Volume= 1,419 cf
Primary = 0.38 cfs @ 12.09 hrs, Volume= 1,419 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP1: Green Street CB



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment SC2.1: PROPOSED ROOF Runoff Area=8,600 sf 100.00% Impervious Runoff Depth=4.98"
Tc=6.0 min CN=98 Runoff=0.98 cfs 3,571 cf

Subcatchment SC2.2: PARKING TO CB Runoff Area=4,532 sf 100.00% Impervious Runoff Depth=4.98"
Tc=6.0 min CN=98 Runoff=0.52 cfs 1,882 cf

Subcatchment SC2.3: SHEET TO GREEN Runoff Area=5,283 sf 39.18% Impervious Runoff Depth=1.58"
Tc=6.0 min CN=62 Runoff=0.21 cfs 694 cf

Subcatchment SC2.4: TO HAVEN STREET Runoff Area=516 sf 39.92% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=63 Runoff=0.02 cfs 71 cf

Pond CB: HAVEN STREET DRAINAGE Peak Elev=102.25' Inflow=0.02 cfs 71 cf
6.0" Round Culvert n=0.011 L=174.0' S=0.0053 '/' Outflow=0.02 cfs 71 cf

Pond DMH: DMH Peak Elev=101.53' Inflow=0.54 cfs 1,953 cf
8.0" Round Culvert n=0.011 L=89.0' S=0.0053 '/' Outflow=0.54 cfs 1,953 cf

Pond INF: Stormtech SC-310 Peak Elev=102.00' Storage=701 cf Inflow=0.98 cfs 3,571 cf
Discarded=0.23 cfs 3,573 cf Primary=0.00 cfs 0 cf Outflow=0.23 cfs 3,573 cf

Pond PCB: Proposed CB to DP Peak Elev=101.62' Inflow=0.52 cfs 1,882 cf
8.0" Round Culvert n=0.011 L=1.0' S=0.0000 '/' Outflow=0.52 cfs 1,882 cf

Link DP1: Green Street CB Inflow=0.74 cfs 2,647 cf
Primary=0.74 cfs 2,647 cf

Total Runoff Area = 18,931 sf Runoff Volume = 6,218 cf Average Runoff Depth = 3.94"
18.61% Pervious = 3,523 sf 81.39% Impervious = 15,408 sf

Summary for Subcatchment SC2.1: PROPOSED ROOF

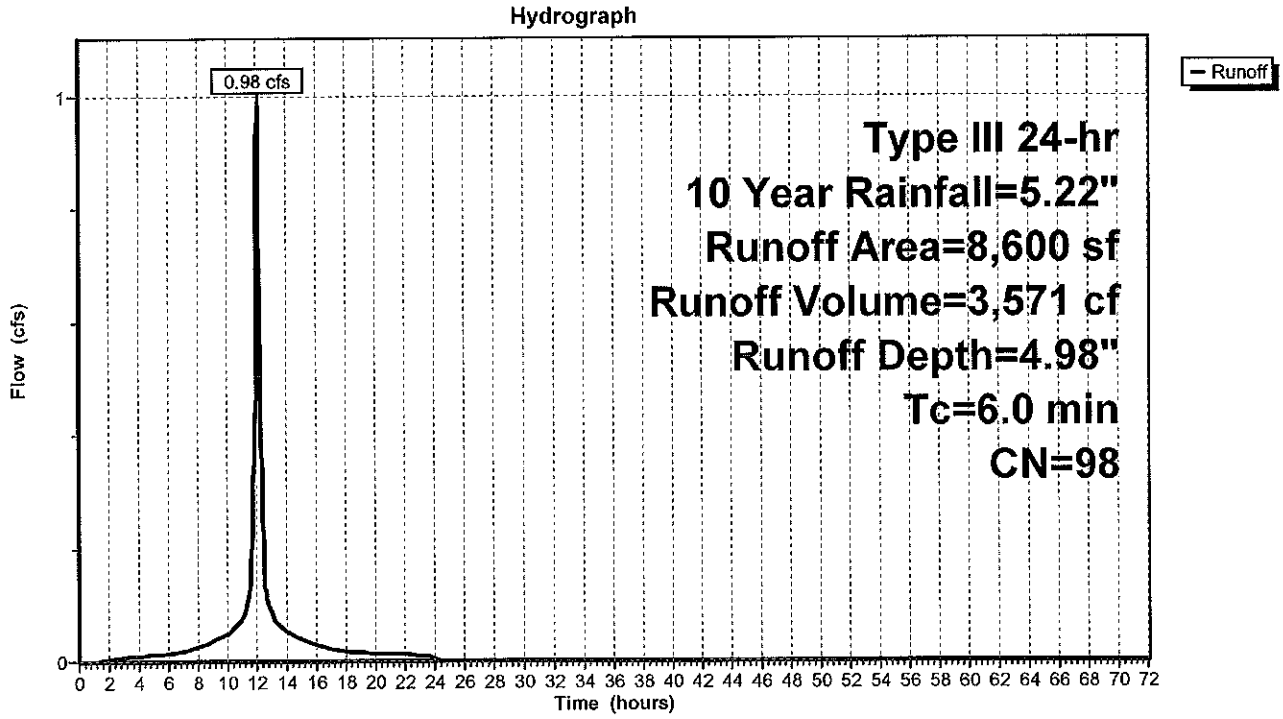
Runoff = 0.98 cfs @ 12.09 hrs, Volume= 3,571 cf, Depth= 4.98"
Routed to Pond INF : Stormtech SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.22"

	Area (sf)	CN	Description
*	8,600	98	Unconnected roofs, HSG A
	8,600		100.00% Impervious Area
	8,600		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC2.1: PROPOSED ROOF



Summary for Subcatchment SC2.2: PARKING TO CB

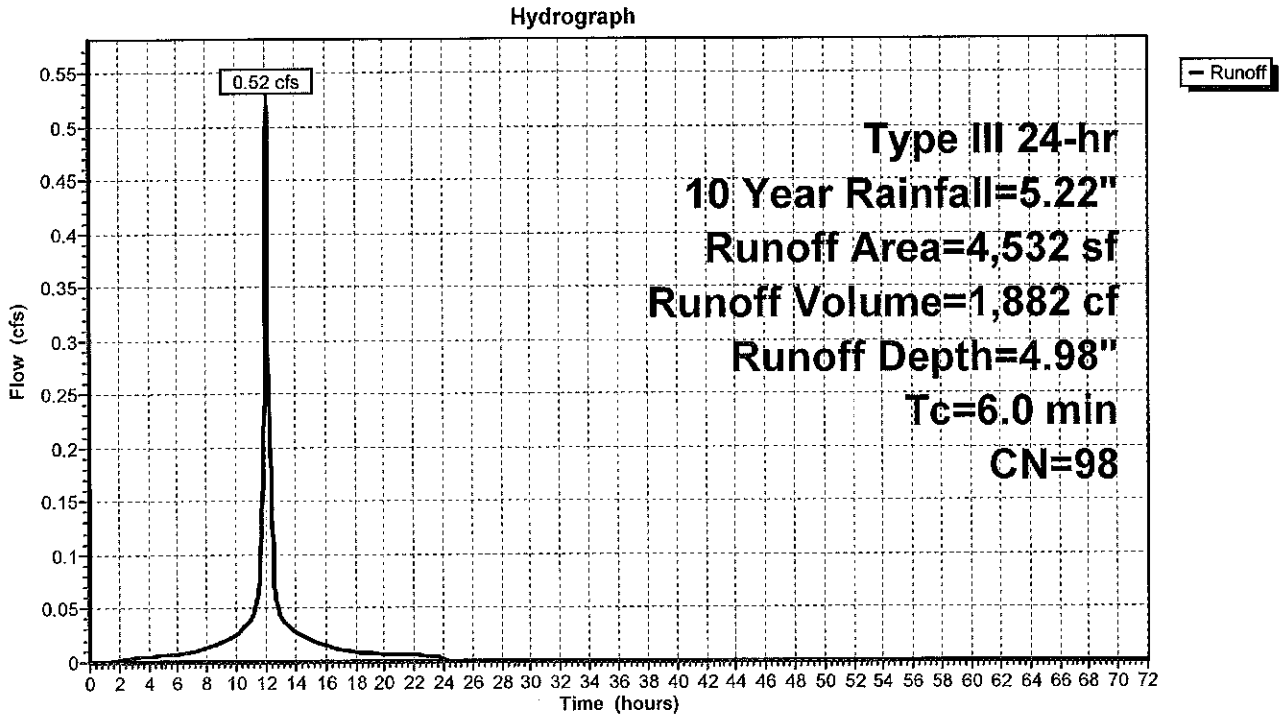
Runoff = 0.52 cfs @ 12.09 hrs, Volume= 1,882 cf, Depth= 4.98"
Routed to Pond PCB : Proposed CB to DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.22"

	Area (sf)	CN	Description
*	4,315	98	Paved parking, HSG A
*	217	98	Concrete, HSG A
	4,532	98	Weighted Average
	4,532		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC2.2: PARKING TO CB



Summary for Subcatchment SC2.3: SHEET TO GREEN STREET

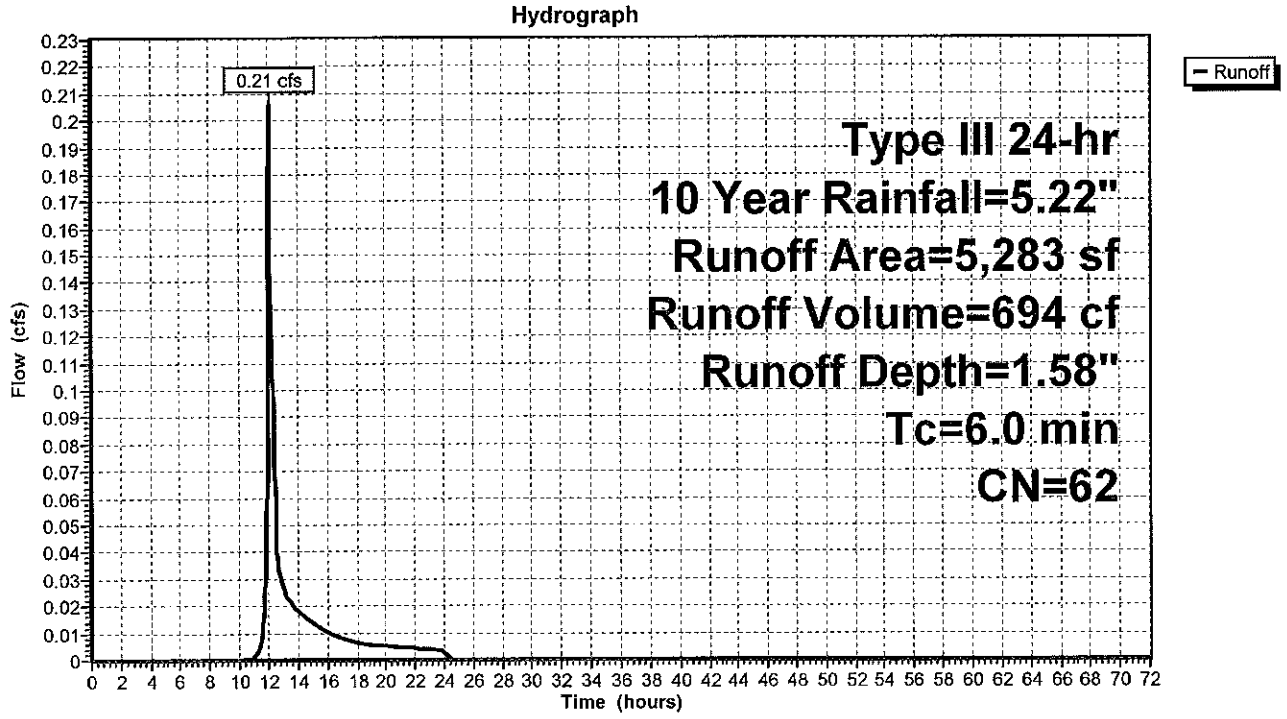
Runoff = 0.21 cfs @ 12.10 hrs, Volume= 694 cf, Depth= 1.58"
Routed to Link DP1 : Green Street CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.22"

	Area (sf)	CN	Description
	3,213	39	>75% Grass cover, Good, HSG A
*	2,070	98	Concrete, HSG A
	5,283	62	Weighted Average
	3,213		60.82% Pervious Area
	2,070		39.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC2.3: SHEET TO GREEN STREET



Summary for Subcatchment SC2.4: TO HAVEN STREET

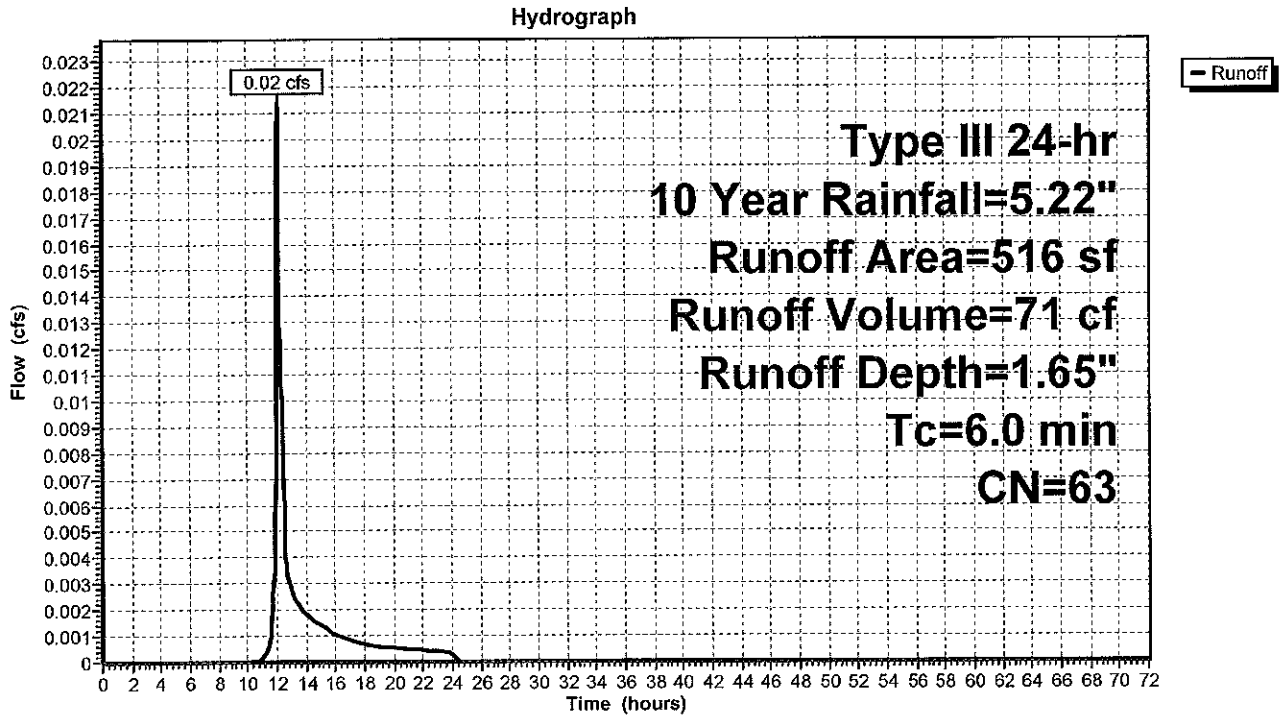
Runoff = 0.02 cfs @ 12.10 hrs, Volume= 71 cf, Depth= 1.65"
Routed to Pond CB : HAVEN STREET DRAINAGE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.22"

	Area (sf)	CN	Description
	310	39	>75% Grass cover, Good, HSG A
*	206	98	Concrete, HSG A
	516	63	Weighted Average
	310		60.08% Pervious Area
	206		39.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC2.4: TO HAVEN STREET



Summary for Pond CB: HAVEN STREET DRAINAGE

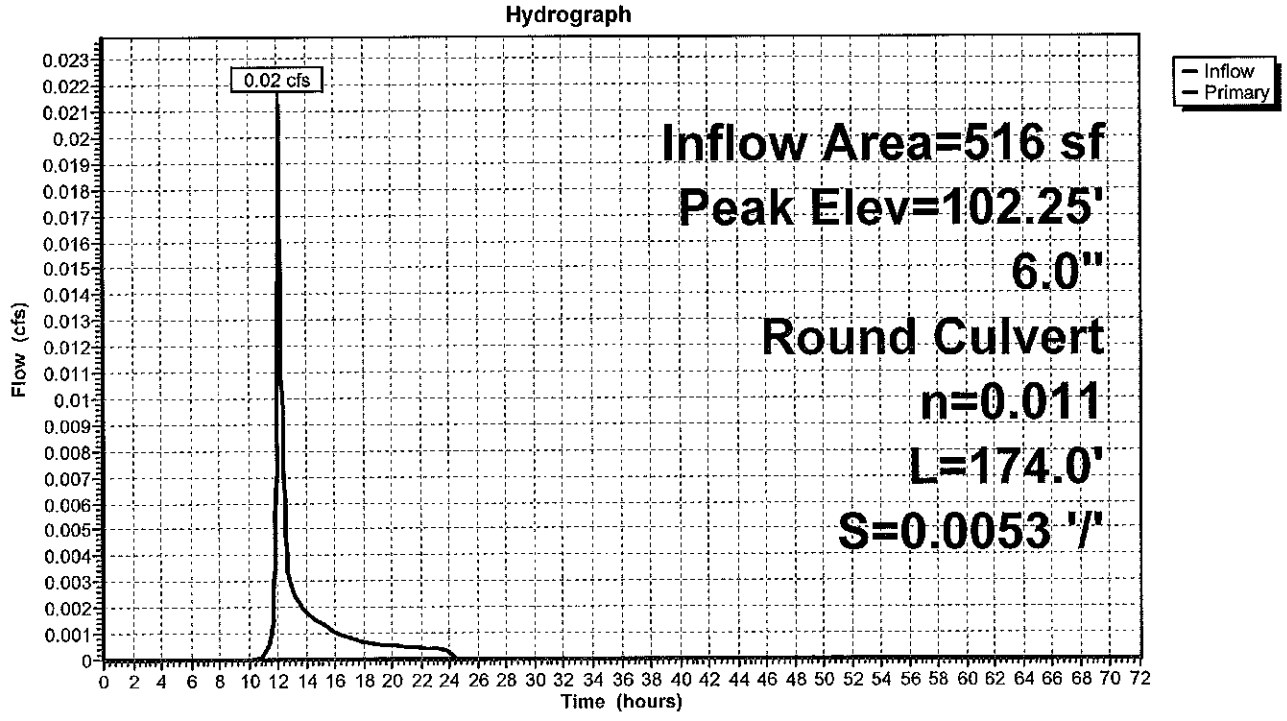
Inflow Area = 516 sf, 39.92% Impervious, Inflow Depth = 1.65" for 10 Year event
Inflow = 0.02 cfs @ 12.10 hrs, Volume= 71 cf
Outflow = 0.02 cfs @ 12.10 hrs, Volume= 71 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.10 hrs, Volume= 71 cf
Routed to Pond DMH : DMH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 102.25' @ 12.11 hrs
Flood Elev= 104.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	102.15'	**6.0" Round Culvert** L= 174.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.15' / 101.22' S= 0.0053 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf

Primary OutFlow Max=0.02 cfs @ 12.10 hrs HW=102.25' TW=101.52' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.02 cfs @ 1.11 fps)

Pond CB: HAVEN STREET DRAINAGE



Summary for Pond DMH: DMH

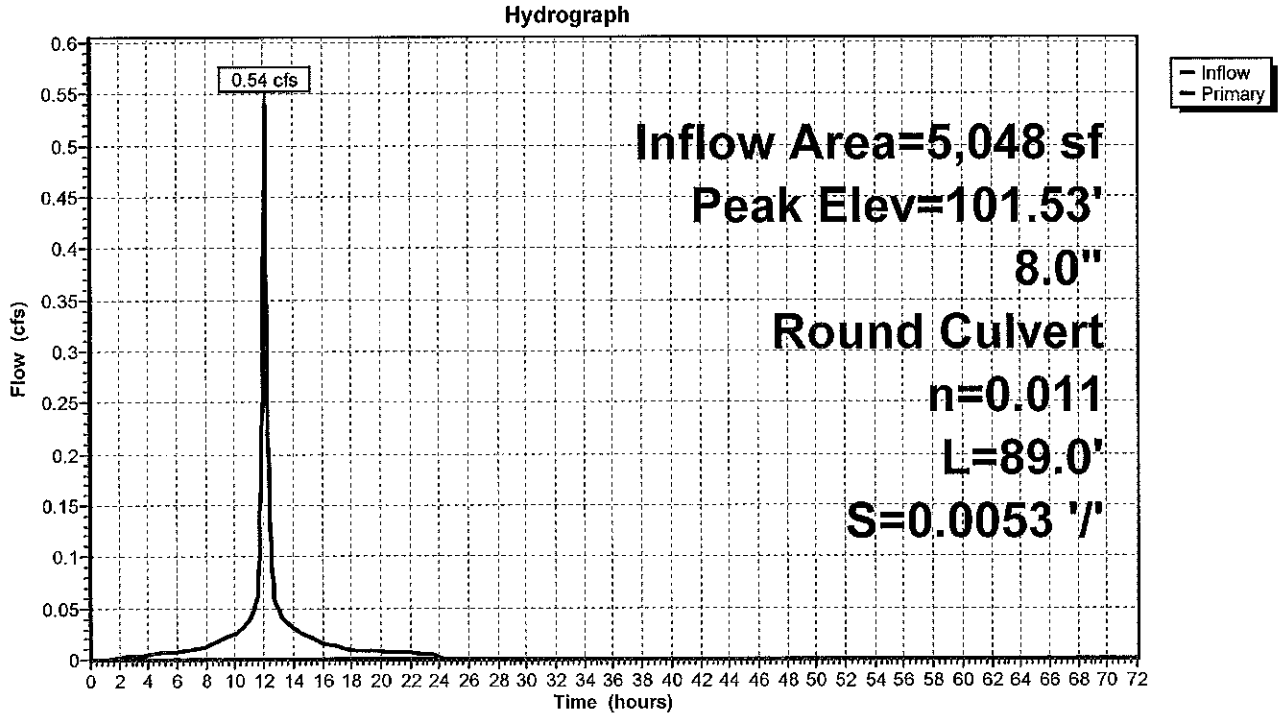
Inflow Area = 5,048 sf, 93.86% Impervious, Inflow Depth = 4.64" for 10 Year event
Inflow = 0.54 cfs @ 12.09 hrs, Volume= 1,953 cf
Outflow = 0.54 cfs @ 12.09 hrs, Volume= 1,953 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.54 cfs @ 12.09 hrs, Volume= 1,953 cf
Routed to Link DP1 : Green Street CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 101.53' @ 12.09 hrs
Flood Elev= 105.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.05'	**8.0" Round Culvert** L= 89.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.05' / 100.58' S= 0.0053 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf

Primary OutFlow Max=0.53 cfs @ 12.09 hrs HW=101.52' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.53 cfs @ 2.81 fps)

Pond DMH: DMH



Summary for Pond INF: Stormtech SC-310

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=102)

Inflow Area = 8,600 sf,100.00% Impervious, Inflow Depth = 4.98" for 10 Year event
Inflow = 0.98 cfs @ 12.09 hrs, Volume= 3,571 cf
Outflow = 0.23 cfs @ 11.80 hrs, Volume= 3,573 cf, Atten= 76%, Lag= 0.0 min
Discarded = 0.23 cfs @ 11.80 hrs, Volume= 3,573 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link DP1 : Green Street CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 102.00' @ 12.47 hrs Surf.Area= 1,222 sf Storage= 701 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 13.7 min (761.0 - 747.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	101.00'	875 cf	**18.17'W x 67.28'L x 2.33'H Field A** 2,852 cf Overall - 663 cf Embedded = 2,189 cf x 40.0% Voids
#2A	101.50'	663 cf	**ADS_StormTech SC-310 +Cap** x 45 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 45 Chambers in 5 Rows
		1,539 cf	Total Available Storage

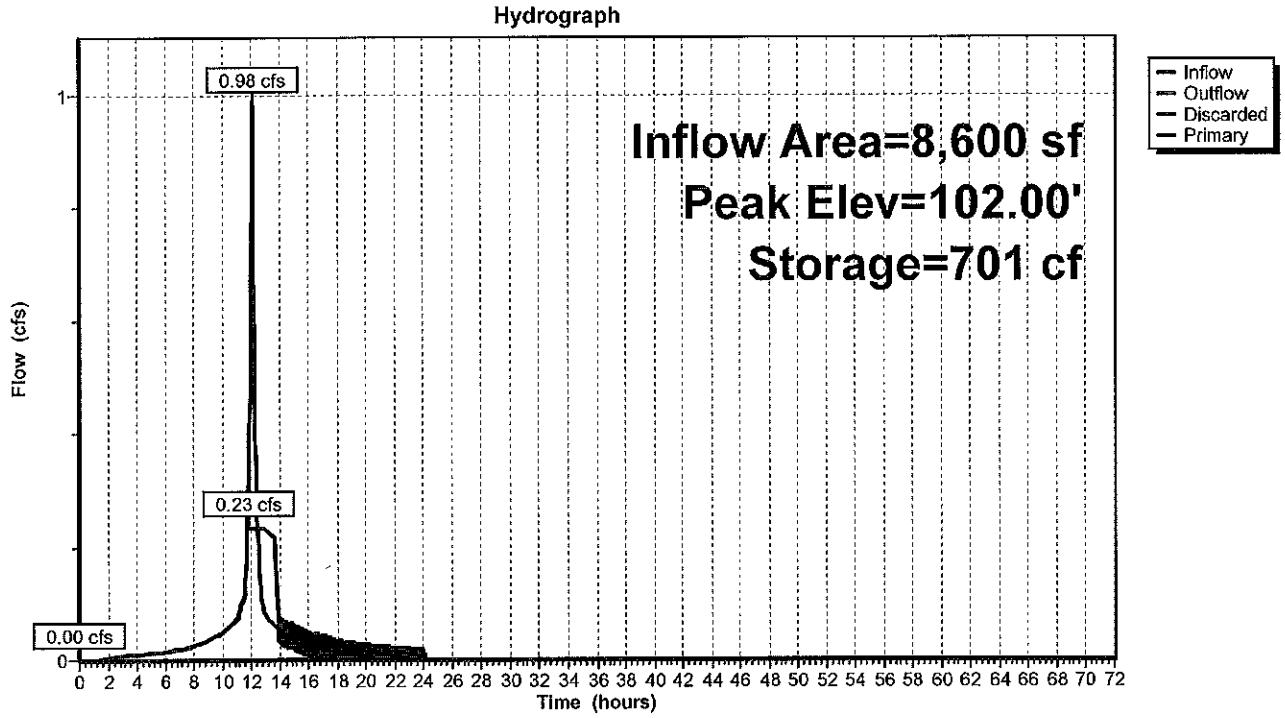
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	102.50'	**6.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.50' / 101.05' S= 0.0558 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf

Discarded OutFlow Max=0.23 cfs @ 11.80 hrs HW=101.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.23 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=101.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Controls 0.00 cfs)

Pond INF: Stormtech SC-310



Summary for Pond PCB: Proposed CB to DP

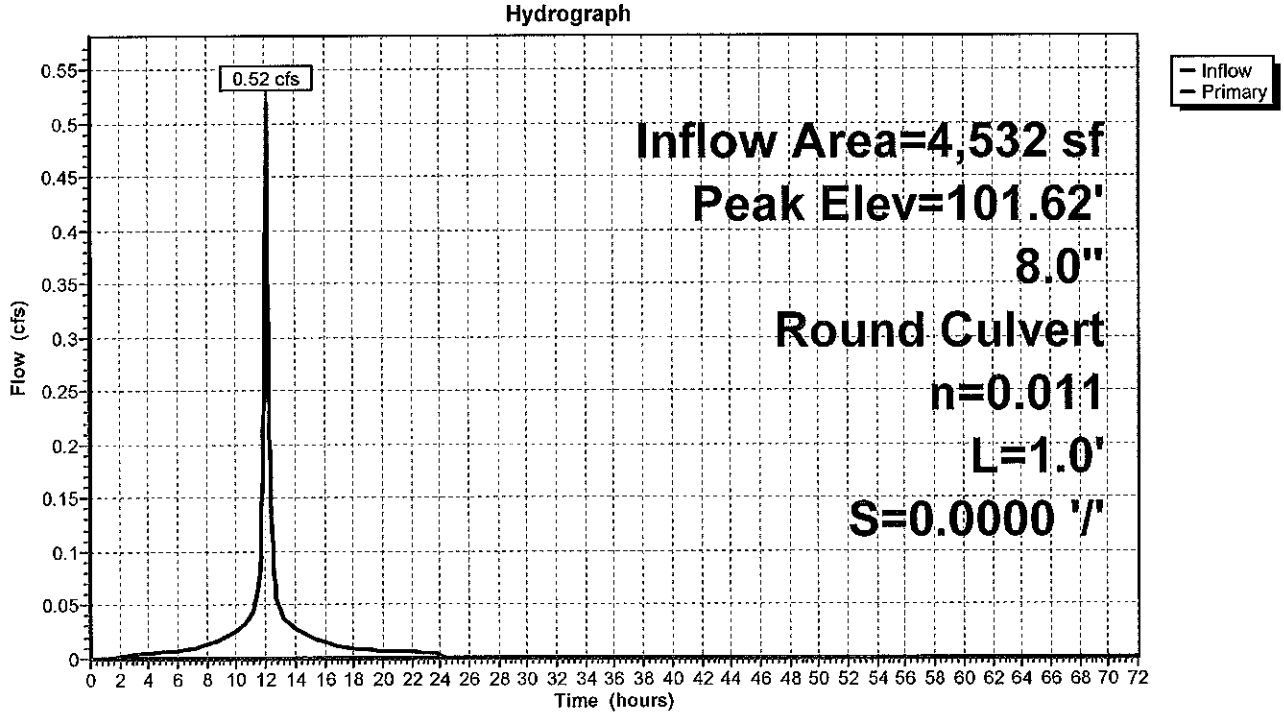
Inflow Area = 4,532 sf,100.00% Impervious, Inflow Depth = 4.98" for 10 Year event
Inflow = 0.52 cfs @ 12.09 hrs, Volume= 1,882 cf
Outflow = 0.52 cfs @ 12.09 hrs, Volume= 1,882 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 12.09 hrs, Volume= 1,882 cf
Routed to Pond DMH : DMH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 101.62' @ 12.11 hrs
Flood Elev= 104.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.05'	**8.0" Round Culvert** L= 1.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.05' / 101.05' S= 0.0000 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf

Primary OutFlow Max=0.43 cfs @ 12.09 hrs HW=101.60' TW=101.52' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.43 cfs @ 1.87 fps)

Pond PCB: Proposed CB to DP

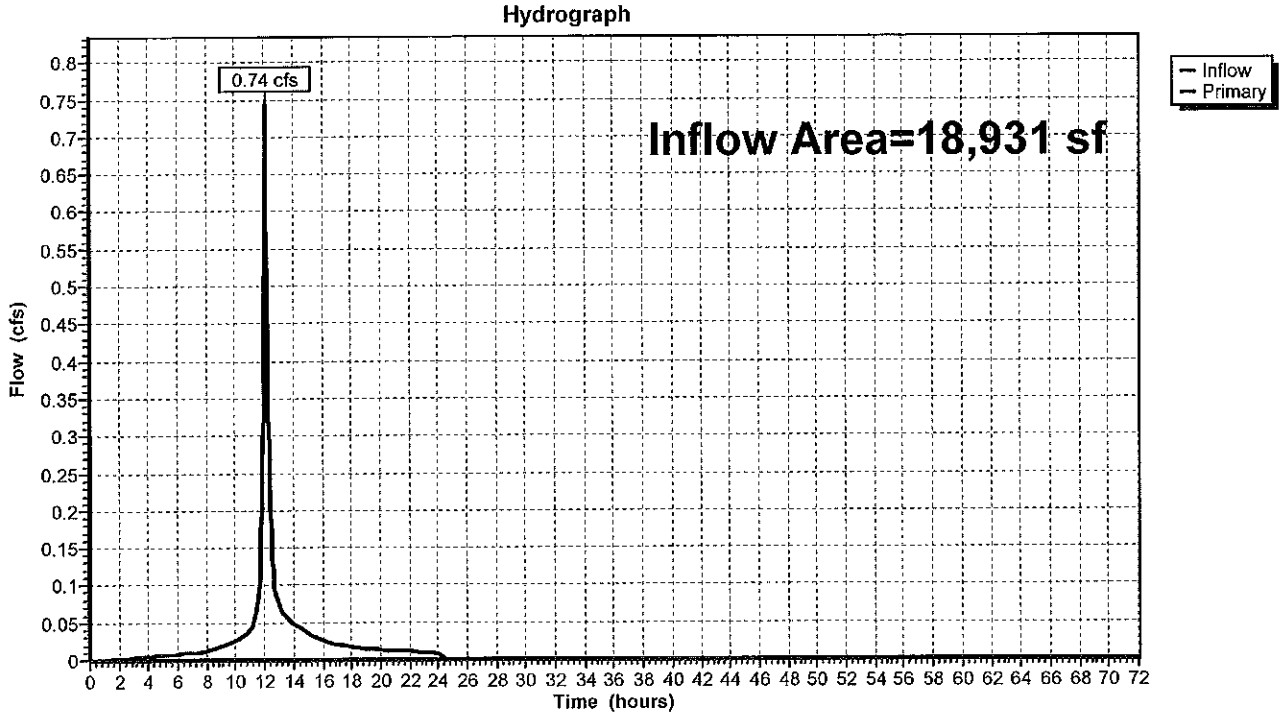


Summary for Link DP1: Green Street CB

Inflow Area = 18,931 sf, 81.39% Impervious, Inflow Depth = 1.68" for 10 Year event
Inflow = 0.74 cfs @ 12.09 hrs, Volume= 2,647 cf
Primary = 0.74 cfs @ 12.09 hrs, Volume= 2,647 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP1: Green Street CB



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment SC2.1: PROPOSED ROOF Runoff Area=8,600 sf 100.00% Impervious Runoff Depth=6.17"
Tc=6.0 min CN=98 Runoff=1.21 cfs 4,423 cf

Subcatchment SC2.2: PARKING TO CB Runoff Area=4,532 sf 100.00% Impervious Runoff Depth=6.17"
Tc=6.0 min CN=98 Runoff=0.64 cfs 2,331 cf

Subcatchment SC2.3: SHEET TO GREEN Runoff Area=5,283 sf 39.18% Impervious Runoff Depth=2.38"
Tc=6.0 min CN=62 Runoff=0.32 cfs 1,046 cf

Subcatchment SC2.4: TO HAVEN STREET Runoff Area=516 sf 39.92% Impervious Runoff Depth=2.47"
Tc=6.0 min CN=63 Runoff=0.03 cfs 106 cf

Pond CB: HAVEN STREET DRAINAGE Peak Elev=102.28' Inflow=0.03 cfs 106 cf
6.0" Round Culvert n=0.011 L=174.0' S=0.0053 '/' Outflow=0.03 cfs 106 cf

Pond DMH: DMH Peak Elev=101.60' Inflow=0.67 cfs 2,437 cf
8.0" Round Culvert n=0.011 L=89.0' S=0.0053 '/' Outflow=0.67 cfs 2,437 cf

Pond INF: Stormtech SC-310 Peak Elev=102.38' Storage=1,019 cf Inflow=1.21 cfs 4,423 cf
Discarded=0.23 cfs 4,433 cf Primary=0.00 cfs 0 cf Outflow=0.23 cfs 4,433 cf

Pond PCB: Proposed CB to DP Peak Elev=101.72' Inflow=0.64 cfs 2,331 cf
8.0" Round Culvert n=0.011 L=1.0' S=0.0000 '/' Outflow=0.64 cfs 2,331 cf

Link DP1: Green Street CB Inflow=0.99 cfs 3,483 cf
Primary=0.99 cfs 3,483 cf

Total Runoff Area = 18,931 sf Runoff Volume = 7,906 cf Average Runoff Depth = 5.01"
18.61% Pervious = 3,523 sf 81.39% Impervious = 15,408 sf

Summary for Subcatchment SC2.1: PROPOSED ROOF

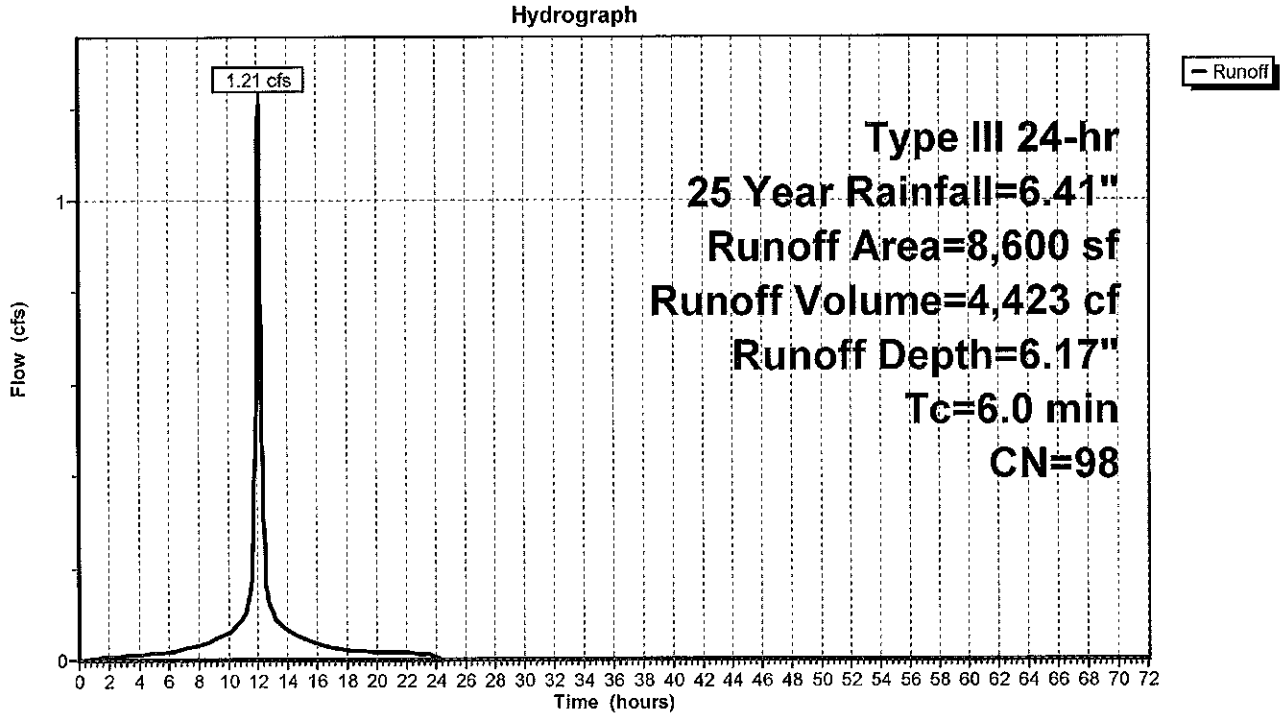
Runoff = 1.21 cfs @ 12.09 hrs, Volume= 4,423 cf, Depth= 6.17"
Routed to Pond INF : Stormtech SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.41"

	Area (sf)	CN	Description
*	8,600	98	Unconnected roofs, HSG A
	8,600		100.00% Impervious Area
	8,600		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC2.1: PROPOSED ROOF



Summary for Subcatchment SC2.2: PARKING TO CB

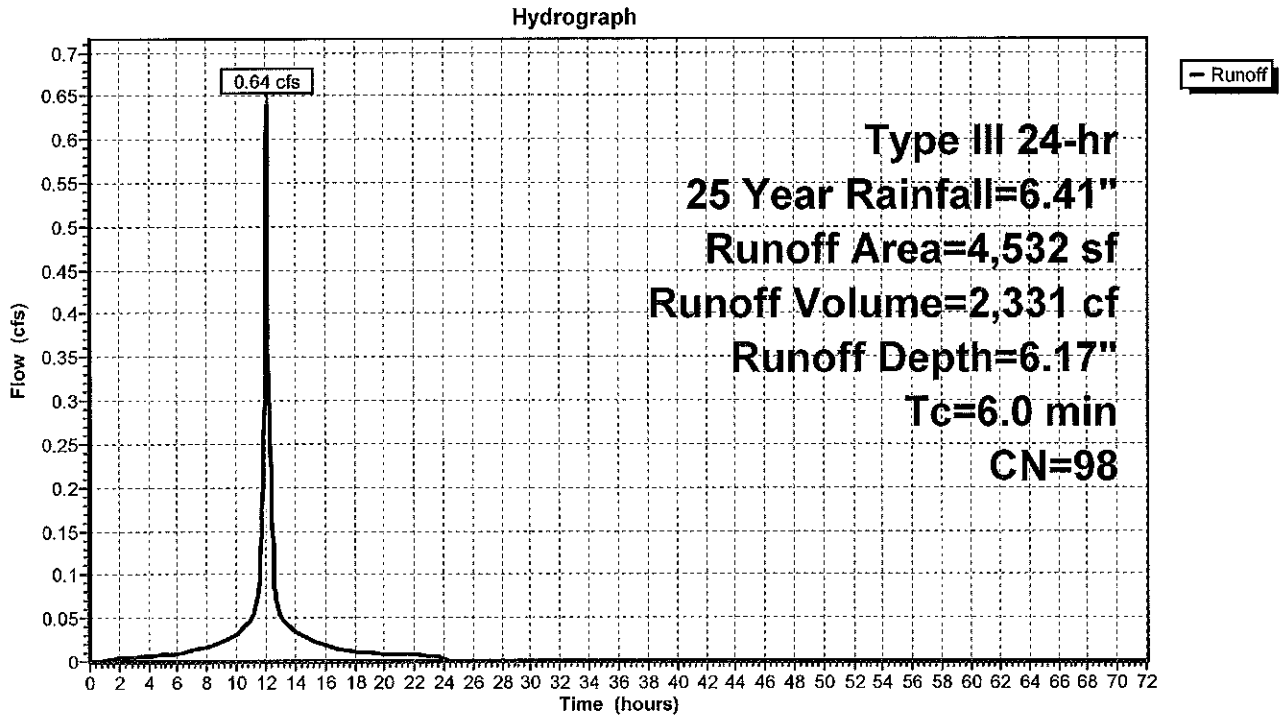
Runoff = 0.64 cfs @ 12.09 hrs, Volume= 2,331 cf, Depth= 6.17"
Routed to Pond PCB : Proposed CB to DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.41"

	Area (sf)	CN	Description
*	4,315	98	Paved parking, HSG A
*	217	98	Concrete, HSG A
	4,532	98	Weighted Average
	4,532		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment SC2.2: PARKING TO CB



Summary for Subcatchment SC2.3: SHEET TO GREEN STREET

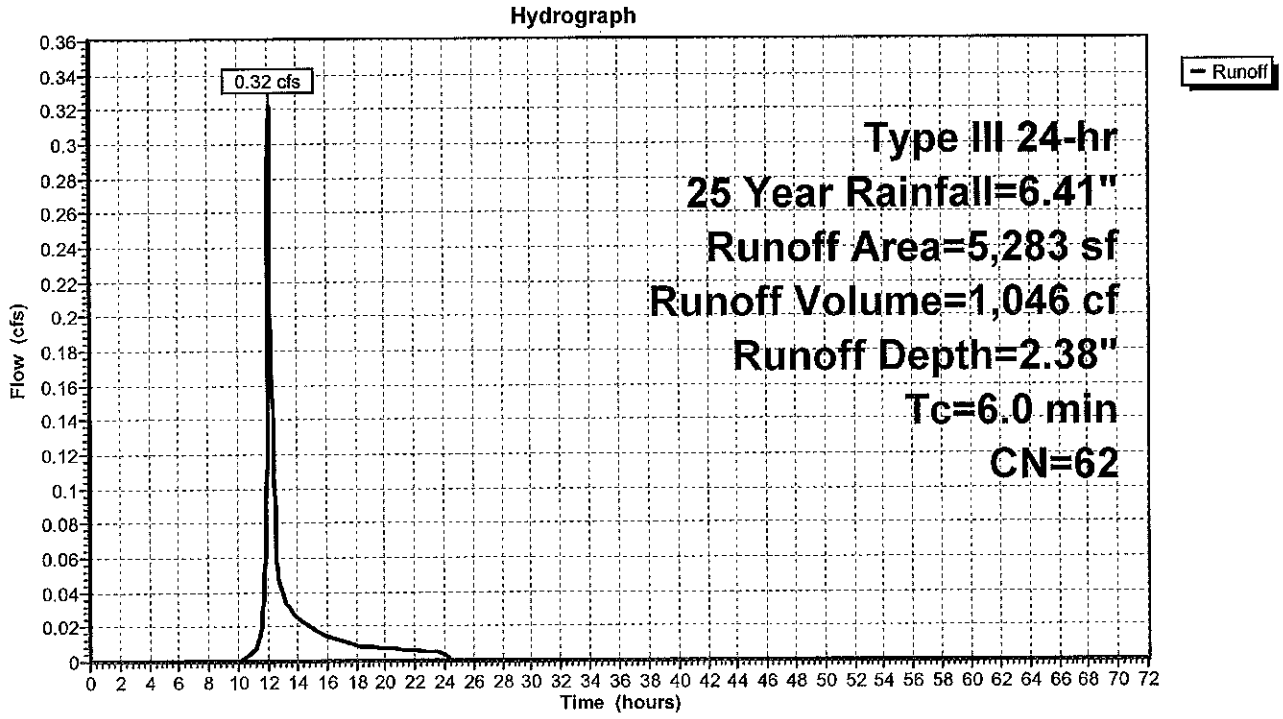
Runoff = 0.32 cfs @ 12.10 hrs, Volume= 1,046 cf, Depth= 2.38"
Routed to Link DP1 : Green Street CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.41"

	Area (sf)	CN	Description
	3,213	39	>75% Grass cover, Good, HSG A
*	2,070	98	Concrete, HSG A
	5,283	62	Weighted Average
	3,213		60.82% Pervious Area
	2,070		39.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment SC2.3: SHEET TO GREEN STREET



Summary for Subcatchment SC2.4: TO HAVEN STREET

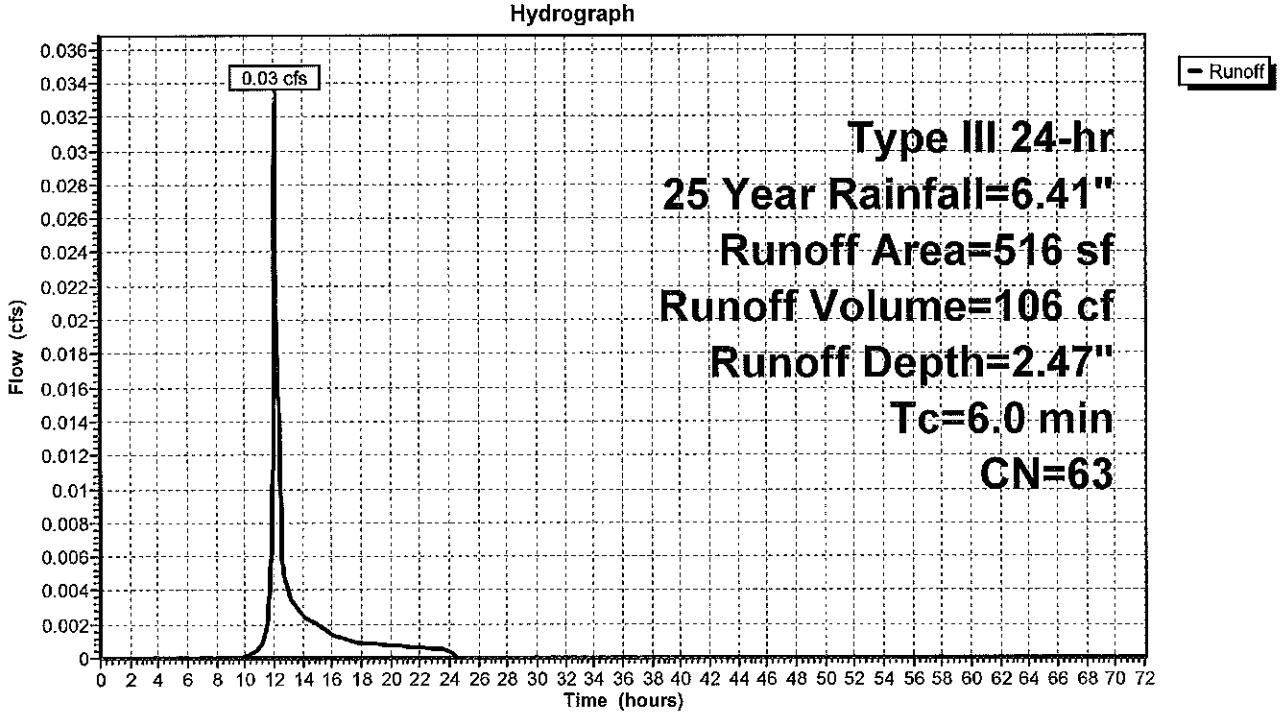
Runoff = 0.03 cfs @ 12.10 hrs, Volume= 106 cf, Depth= 2.47"
Routed to Pond CB : HAVEN STREET DRAINAGE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.41"

	Area (sf)	CN	Description
	310	39	>75% Grass cover, Good, HSG A
*	206	98	Concrete, HSG A
	516	63	Weighted Average
	310		60.08% Pervious Area
	206		39.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC2.4: TO HAVEN STREET



Summary for Pond CB: HAVEN STREET DRAINAGE

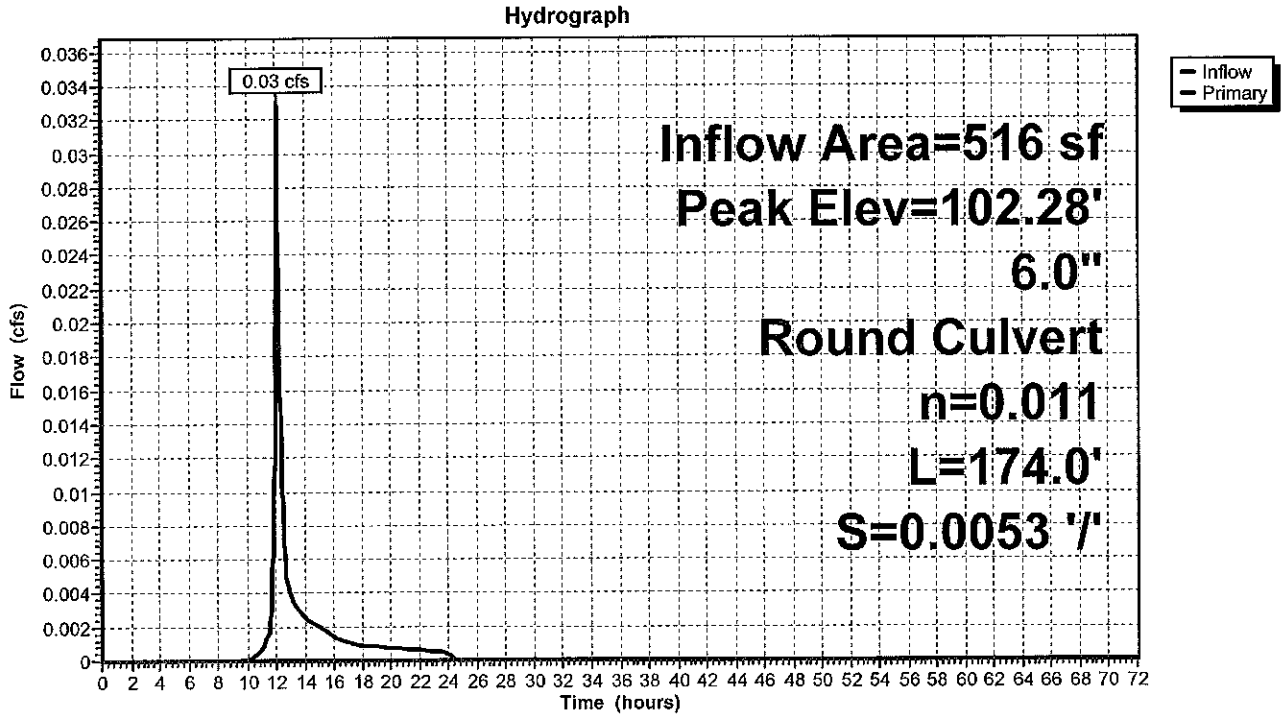
Inflow Area = 516 sf, 39.92% Impervious, Inflow Depth = 2.47" for 25 Year event
Inflow = 0.03 cfs @ 12.10 hrs, Volume= 106 cf
Outflow = 0.03 cfs @ 12.10 hrs, Volume= 106 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.03 cfs @ 12.10 hrs, Volume= 106 cf
Routed to Pond DMH : DMH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 102.28' @ 12.10 hrs
Flood Elev= 104.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	102.15'	**6.0" Round Culvert** L= 174.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.15' / 101.22' S= 0.0053 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf

Primary OutFlow Max=0.03 cfs @ 12.10 hrs HW=102.28' TW=101.59' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.03 cfs @ 1.23 fps)

Pond CB: HAVEN STREET DRAINAGE



Summary for Pond DMH: DMH

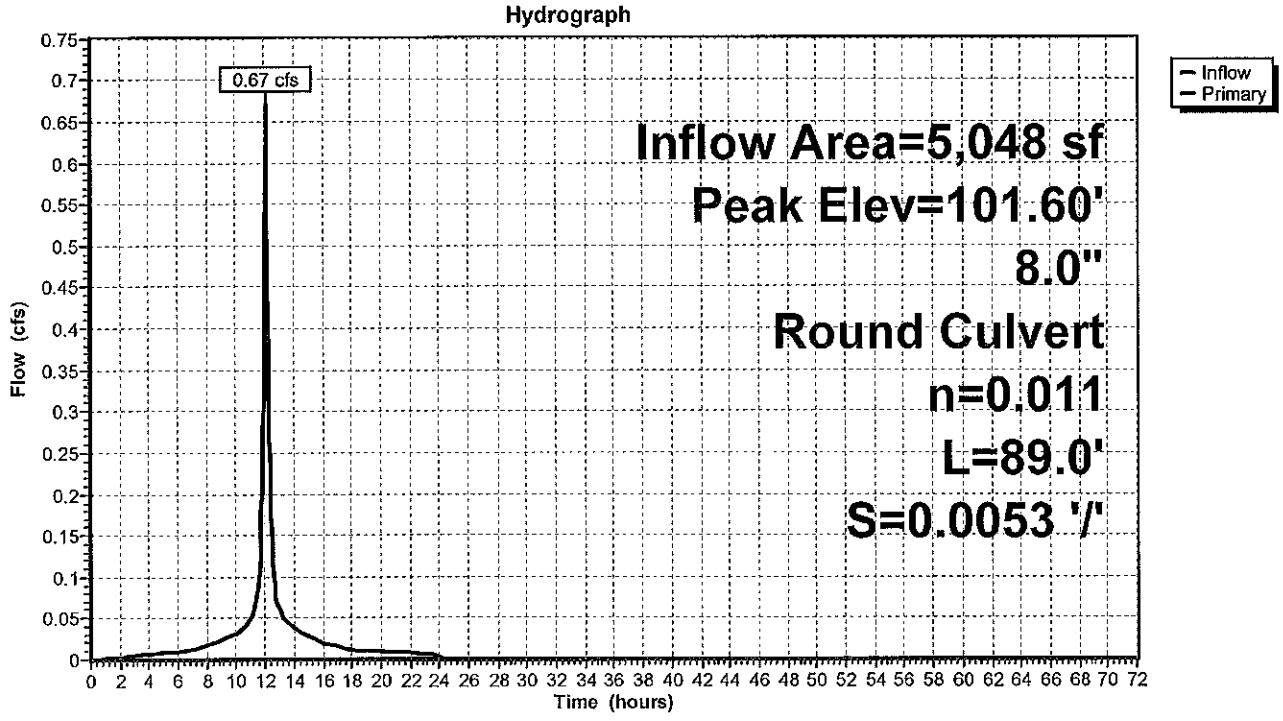
Inflow Area = 5,048 sf, 93.86% Impervious, Inflow Depth = 5.79" for 25 Year event
Inflow = 0.67 cfs @ 12.09 hrs, Volume= 2,437 cf
Outflow = 0.67 cfs @ 12.09 hrs, Volume= 2,437 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.09 hrs, Volume= 2,437 cf
Routed to Link DP1 : Green Street CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 101.60' @ 12.09 hrs
Flood Elev= 105.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.05'	**8.0" Round Culvert** L= 89.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.05' / 100.58' S= 0.0053 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf

Primary OutFlow Max=0.65 cfs @ 12.09 hrs HW=101.59' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.65 cfs @ 2.95 fps)

Pond DMH: DMH



Summary for Pond INF: Stormtech SC-310

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=95)

Inflow Area = 8,600 sf,100.00% Impervious, Inflow Depth = 6.17" for 25 Year event
Inflow = 1.21 cfs @ 12.09 hrs, Volume= 4,423 cf
Outflow = 0.23 cfs @ 11.75 hrs, Volume= 4,433 cf, Atten= 81%, Lag= 0.0 min
Discarded = 0.23 cfs @ 11.75 hrs, Volume= 4,433 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link DP1 : Green Street CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 102.38' @ 12.52 hrs Surf.Area= 1,222 sf Storage= 1,019 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 21.7 min (765.8 - 744.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	101.00'	875 cf	**18.17'W x 67.28'L x 2.33'H Field A** 2,852 cf Overall - 663 cf Embedded = 2,189 cf x 40.0% Voids
#2A	101.50'	663 cf	**ADS_StormTech SC-310 +Cap** x 45 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 45 Chambers in 5 Rows
		1,539 cf	Total Available Storage

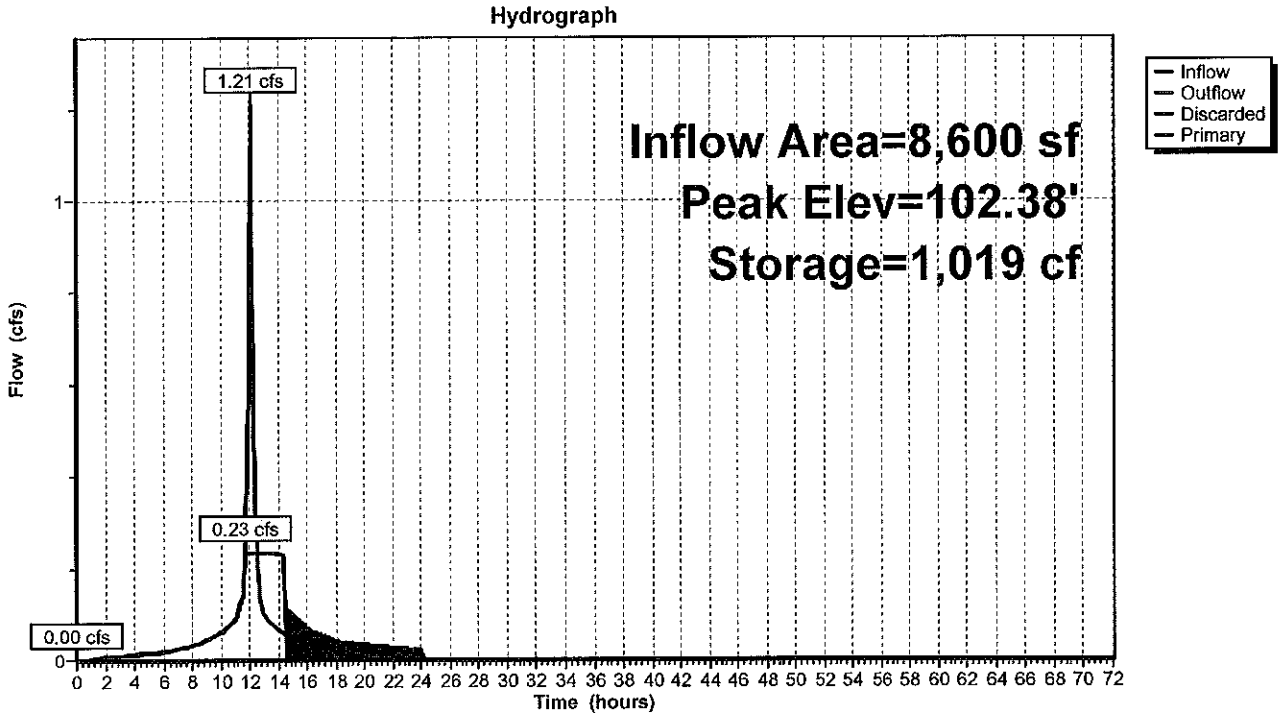
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	102.50'	**6.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.50' / 101.05' S= 0.0558 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf

Discarded OutFlow Max=0.23 cfs @ 11.75 hrs HW=101.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.23 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=101.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Controls 0.00 cfs)

Pond INF: Stormtech SC-310



Summary for Pond PCB: Proposed CB to DP

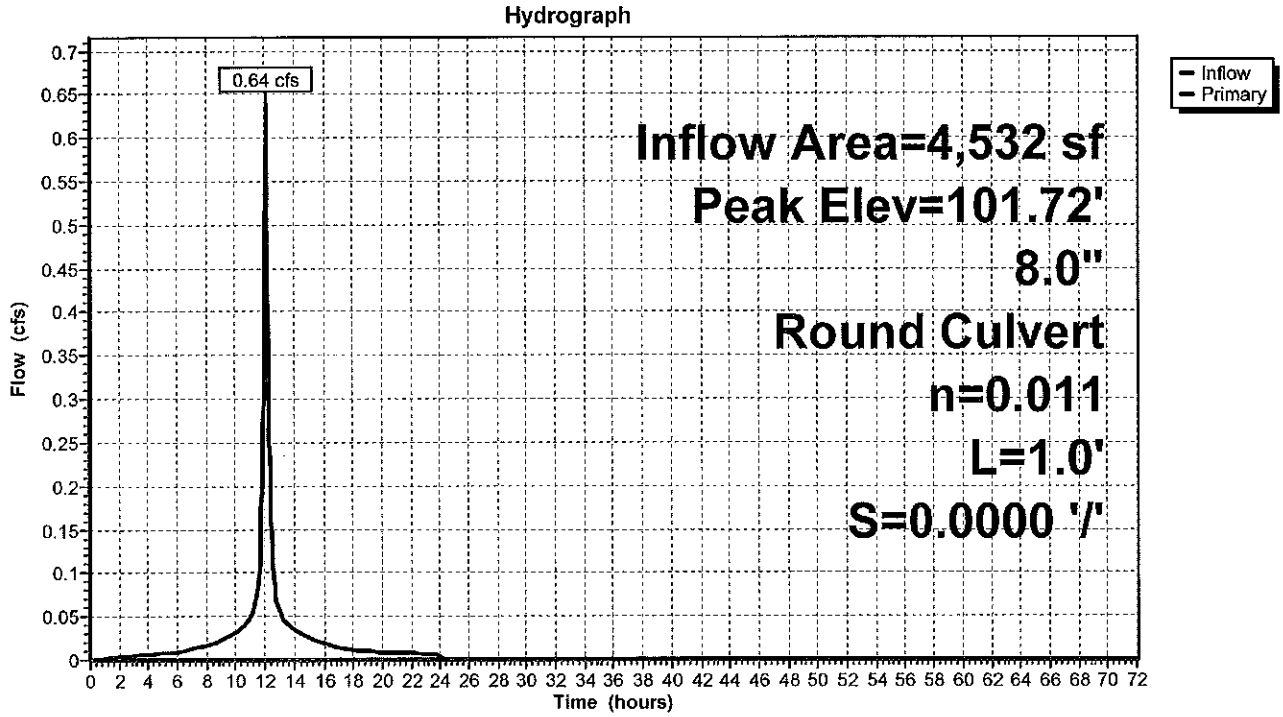
Inflow Area = 4,532 sf,100.00% Impervious, Inflow Depth = 6.17" for 25 Year event
Inflow = 0.64 cfs @ 12.09 hrs, Volume= 2,331 cf
Outflow = 0.64 cfs @ 12.09 hrs, Volume= 2,331 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.64 cfs @ 12.09 hrs, Volume= 2,331 cf
Routed to Pond DMH : DMH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 101.72' @ 12.11 hrs
Flood Elev= 104.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.05'	**8.0" Round Culvert** L= 1.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.05' / 101.05' S= 0.0000 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf

Primary OutFlow Max=0.53 cfs @ 12.09 hrs HW=101.69' TW=101.59' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.53 cfs @ 1.53 fps)

Pond PCB: Proposed CB to DP

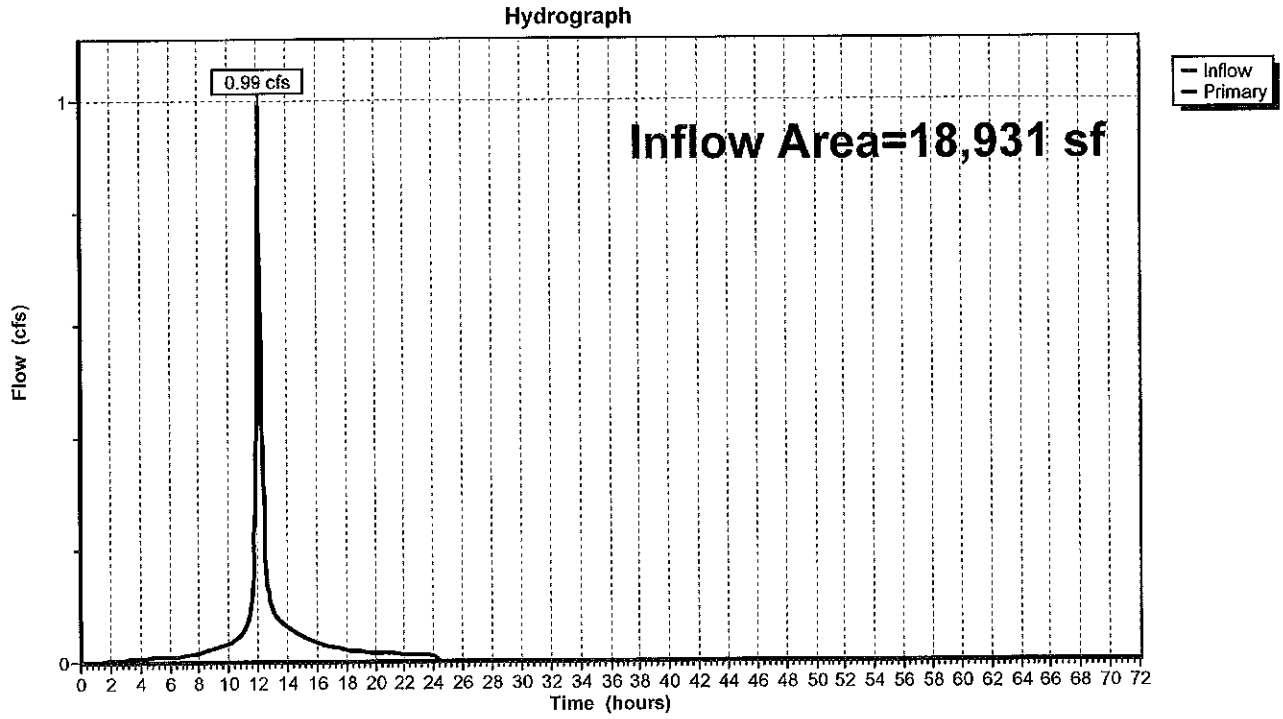


Summary for Link DP1: Green Street CB

Inflow Area = 18,931 sf, 81.39% Impervious, Inflow Depth = 2.21" for 25 Year event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 3,483 cf
Primary = 0.99 cfs @ 12.09 hrs, Volume= 3,483 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP1: Green Street CB



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment SC2.1: PROPOSED ROOF Runoff Area=8,600 sf 100.00% Impervious Runoff Depth=8.00"
Tc=6.0 min CN=98 Runoff=1.56 cfs 5,733 cf

Subcatchment SC2.2: PARKING TO CB Runoff Area=4,532 sf 100.00% Impervious Runoff Depth=8.00"
Tc=6.0 min CN=98 Runoff=0.82 cfs 3,021 cf

Subcatchment SC2.3: SHEET TO GREEN Runoff Area=5,283 sf 39.18% Impervious Runoff Depth=3.74"
Tc=6.0 min CN=62 Runoff=0.52 cfs 1,648 cf

Subcatchment SC2.4: TO HAVEN STREET Runoff Area=516 sf 39.92% Impervious Runoff Depth=3.86"
Tc=6.0 min CN=63 Runoff=0.05 cfs 166 cf

Pond CB: HAVEN STREET DRAINAGE Peak Elev=102.32' Inflow=0.05 cfs 166 cf
6.0" Round Culvert n=0.011 L=174.0' S=0.0053 '/' Outflow=0.05 cfs 166 cf

Pond DMH: DMH Peak Elev=101.71' Inflow=0.87 cfs 3,187 cf
8.0" Round Culvert n=0.011 L=89.0' S=0.0053 '/' Outflow=0.87 cfs 3,187 cf

Pond INF: Stormtech SC-310 Peak Elev=102.85' Storage=1,304 cf Inflow=1.56 cfs 5,733 cf
Discarded=0.23 cfs 5,394 cf Primary=0.30 cfs 347 cf Outflow=0.53 cfs 5,742 cf

Pond PCB: Proposed CB to DP Peak Elev=101.92' Inflow=0.82 cfs 3,021 cf
8.0" Round Culvert n=0.011 L=1.0' S=0.0000 '/' Outflow=0.82 cfs 3,021 cf

Link DP1: Green Street CB Inflow=1.39 cfs 5,182 cf
Primary=1.39 cfs 5,182 cf

Total Runoff Area = 18,931 sf Runoff Volume = 10,569 cf Average Runoff Depth = 6.70"
18.61% Pervious = 3,523 sf 81.39% Impervious = 15,408 sf

Summary for Subcatchment SC2.1: PROPOSED ROOF

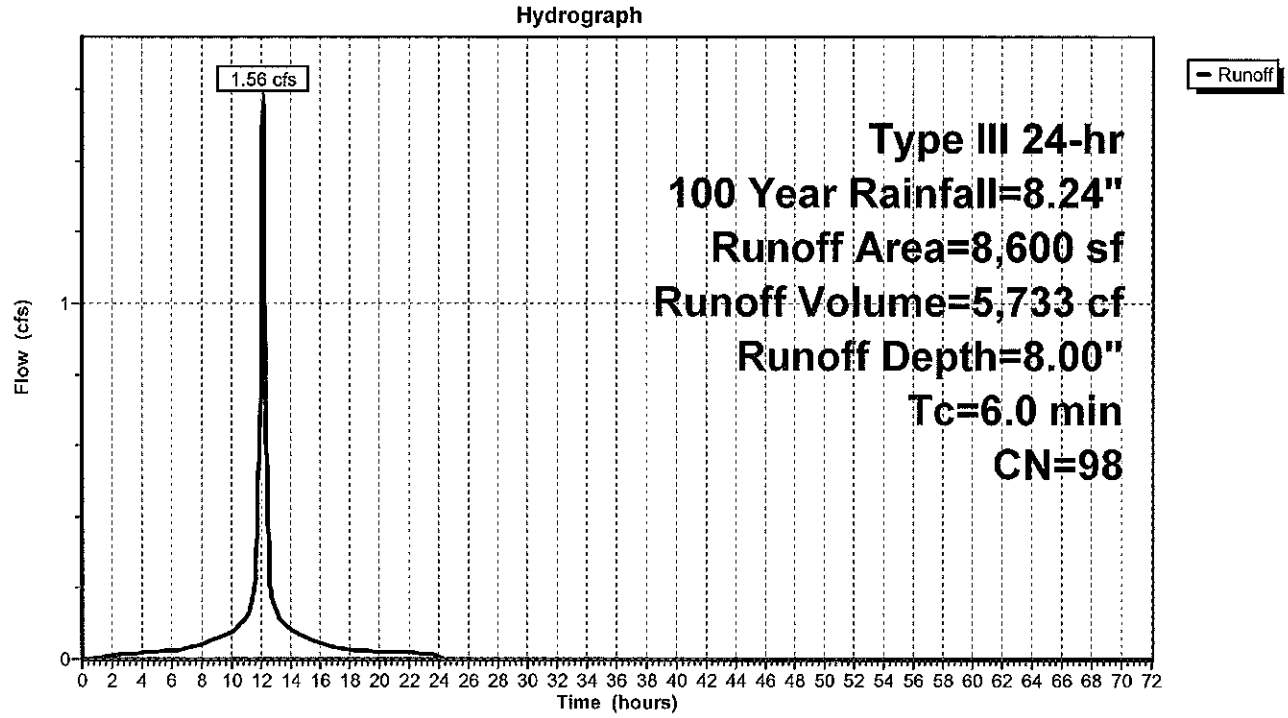
Runoff = 1.56 cfs @ 12.09 hrs, Volume= 5,733 cf, Depth= 8.00"
Routed to Pond INF : Stormtech SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=8.24"

	Area (sf)	CN	Description
*	8,600	98	Unconnected roofs, HSG A
	8,600		100.00% Impervious Area
	8,600		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC2.1: PROPOSED ROOF



Summary for Subcatchment SC2.2: PARKING TO CB

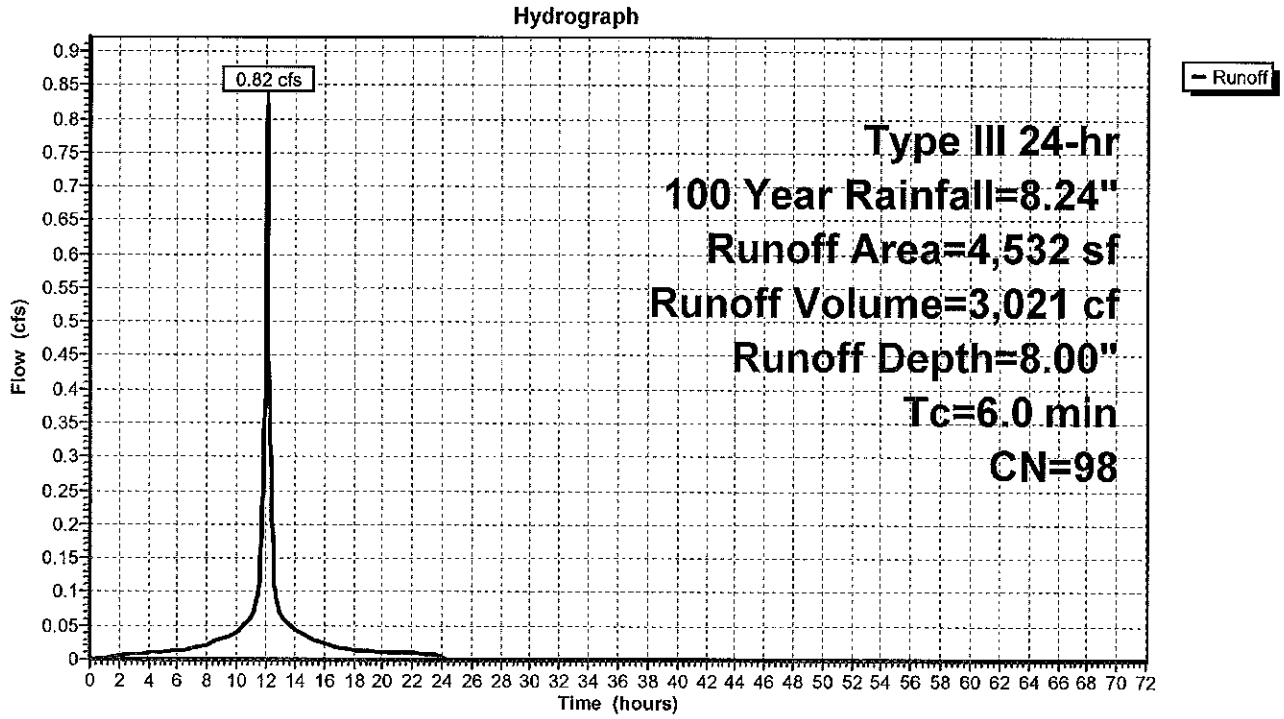
Runoff = 0.82 cfs @ 12.09 hrs, Volume= 3,021 cf, Depth= 8.00"
Routed to Pond PCB : Proposed CB to DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=8.24"

	Area (sf)	CN	Description
*	4,315	98	Paved parking, HSG A
*	217	98	Concrete, HSG A
	4,532	98	Weighted Average
	4,532		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC2.2: PARKING TO CB



Summary for Subcatchment SC2.3: SHEET TO GREEN STREET

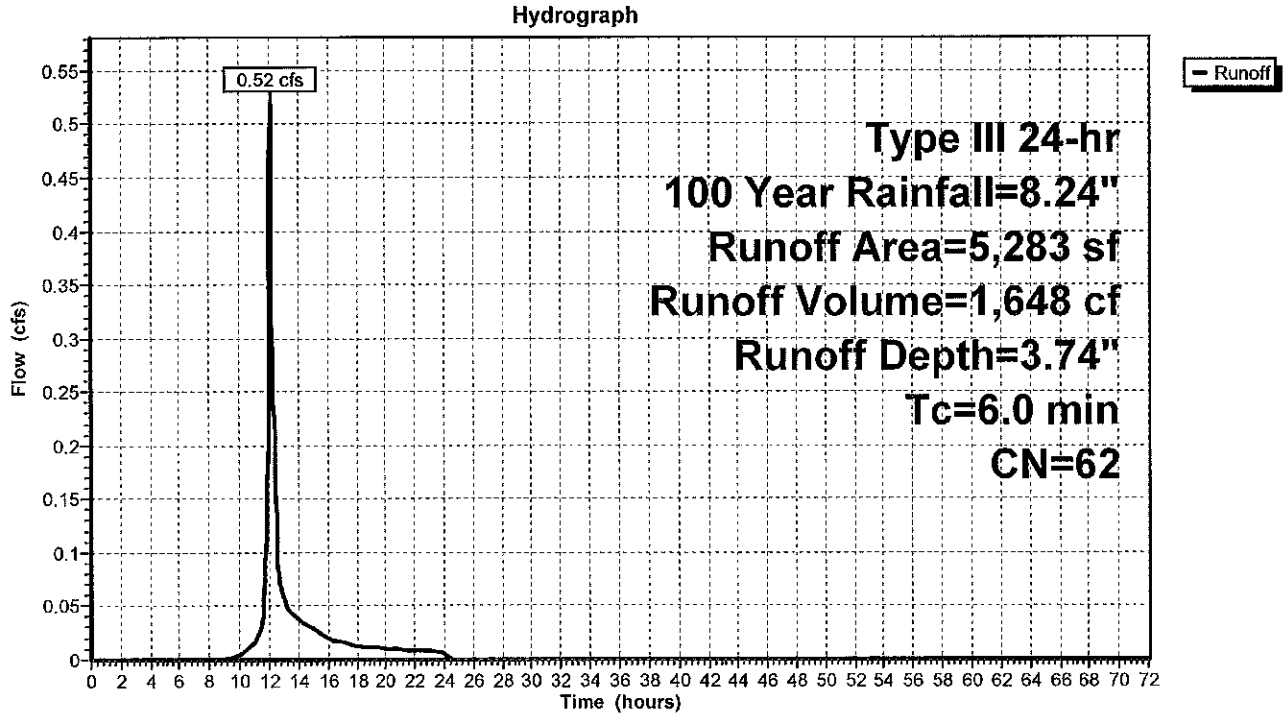
Runoff = 0.52 cfs @ 12.10 hrs, Volume= 1,648 cf, Depth= 3.74"
Routed to Link DP1 : Green Street CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=8.24"

	Area (sf)	CN	Description
	3,213	39	>75% Grass cover, Good, HSG A
*	2,070	98	Concrete, HSG A
	5,283	62	Weighted Average
	3,213		60.82% Pervious Area
	2,070		39.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC2.3: SHEET TO GREEN STREET



Summary for Subcatchment SC2.4: TO HAVEN STREET

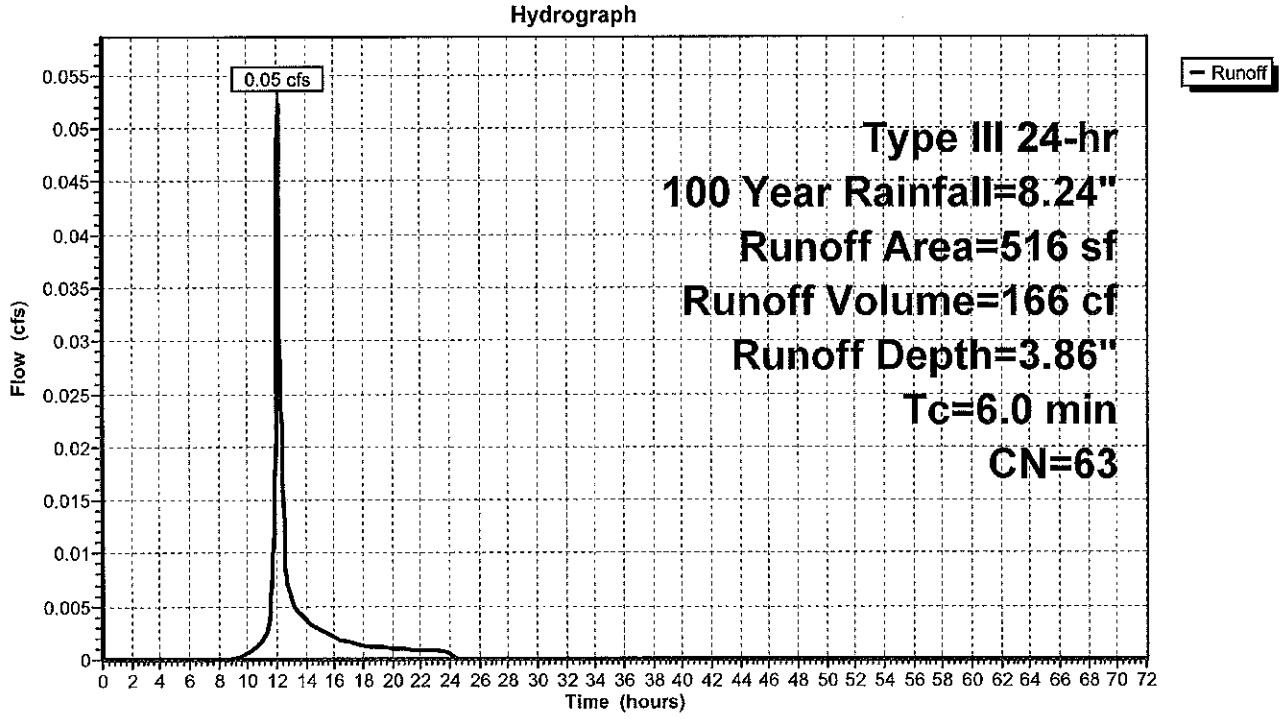
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 166 cf, Depth= 3.86"
Routed to Pond CB : HAVEN STREET DRAINAGE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=8.24"

	Area (sf)	CN	Description
	310	39	>75% Grass cover, Good, HSG A
*	206	98	Concrete, HSG A
	516	63	Weighted Average
	310		60.08% Pervious Area
	206		39.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment SC2.4: TO HAVEN STREET



Summary for Pond CB: HAVEN STREET DRAINAGE

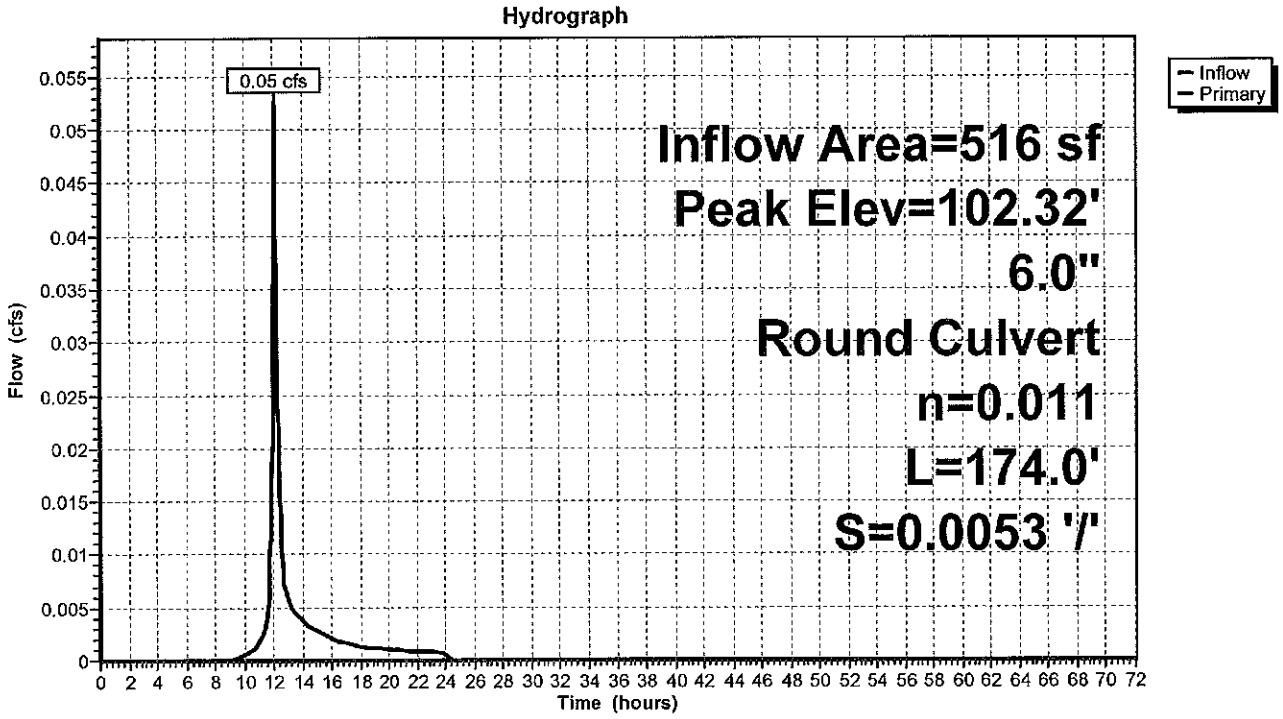
Inflow Area = 516 sf, 39.92% Impervious, Inflow Depth = 3.86" for 100 Year event
Inflow = 0.05 cfs @ 12.09 hrs, Volume= 166 cf
Outflow = 0.05 cfs @ 12.09 hrs, Volume= 166 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.09 hrs, Volume= 166 cf
Routed to Pond DMH : DMH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 102.32' @ 12.10 hrs
Flood Elev= 104.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	102.15'	**6.0" Round Culvert** L= 174.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.15' / 101.22' S= 0.0053 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf

Primary OutFlow Max=0.05 cfs @ 12.09 hrs HW=102.31' TW=101.70' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.05 cfs @ 1.34 fps)

Pond CB: HAVEN STREET DRAINAGE



Summary for Pond DMH: DMH

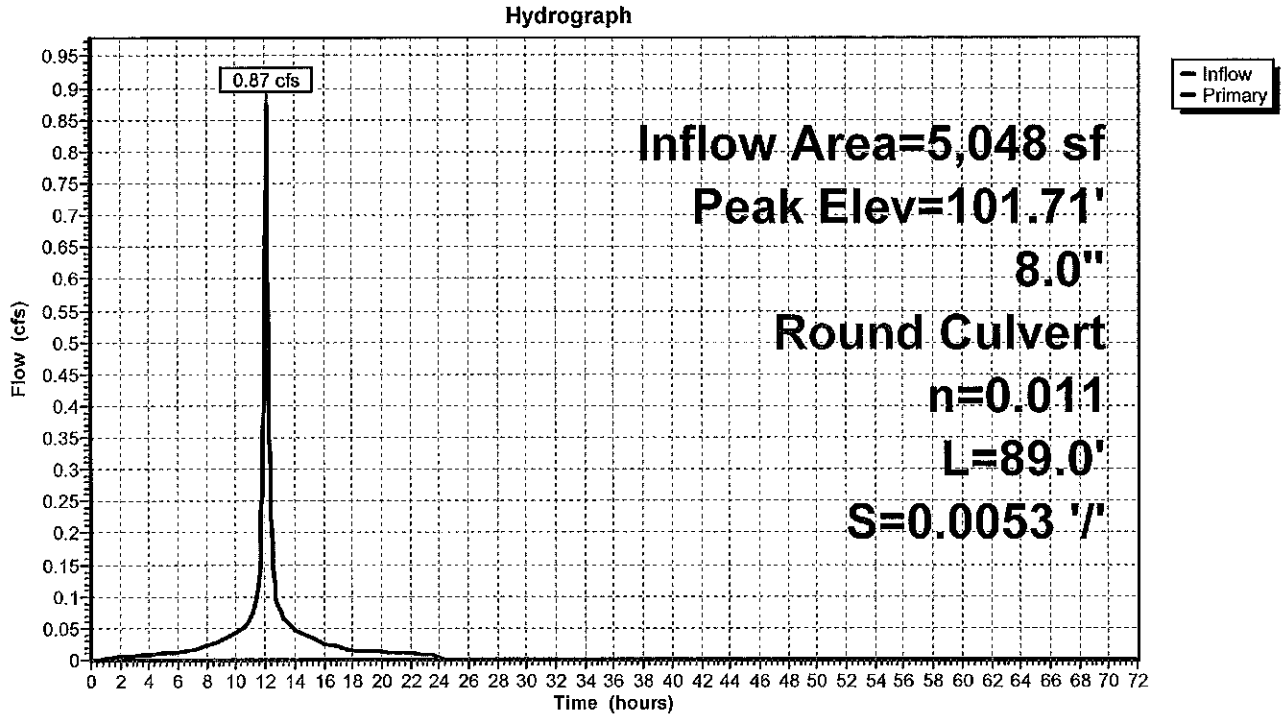
Inflow Area = 5,048 sf, 93.86% Impervious, Inflow Depth = 7.58" for 100 Year event
Inflow = 0.87 cfs @ 12.09 hrs, Volume= 3,187 cf
Outflow = 0.87 cfs @ 12.09 hrs, Volume= 3,187 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.87 cfs @ 12.09 hrs, Volume= 3,187 cf
Routed to Link DP1 : Green Street CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 101.71' @ 12.09 hrs
Flood Elev= 105.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.05'	**8.0" Round Culvert** L= 89.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.05' / 100.58' S= 0.0053 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf

Primary OutFlow Max=0.85 cfs @ 12.09 hrs HW=101.70' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.85 cfs @ 3.12 fps)

Pond DMH: DMH



Summary for Pond INF: Stormtech SC-310

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=89)

Inflow Area = 8,600 sf,100.00% Impervious, Inflow Depth = 8.00" for 100 Year event
Inflow = 1.56 cfs @ 12.09 hrs, Volume= 5,733 cf
Outflow = 0.53 cfs @ 12.37 hrs, Volume= 5,742 cf, Atten= 66%, Lag= 16.7 min
Discarded = 0.23 cfs @ 11.70 hrs, Volume= 5,394 cf
Primary = 0.30 cfs @ 12.37 hrs, Volume= 347 cf
Routed to Link DP1 : Green Street CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 102.85' @ 12.37 hrs Surf.Area= 1,222 sf Storage= 1,304 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 25.3 min (766.1 - 740.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	101.00'	875 cf	**18.17'W x 67.28'L x 2.33'H Field A** 2,852 cf Overall - 663 cf Embedded = 2,189 cf x 40.0% Voids
#2A	101.50'	663 cf	**ADS_StormTech SC-310 +Cap** x 45 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 45 Chambers in 5 Rows
		1,539 cf	Total Available Storage

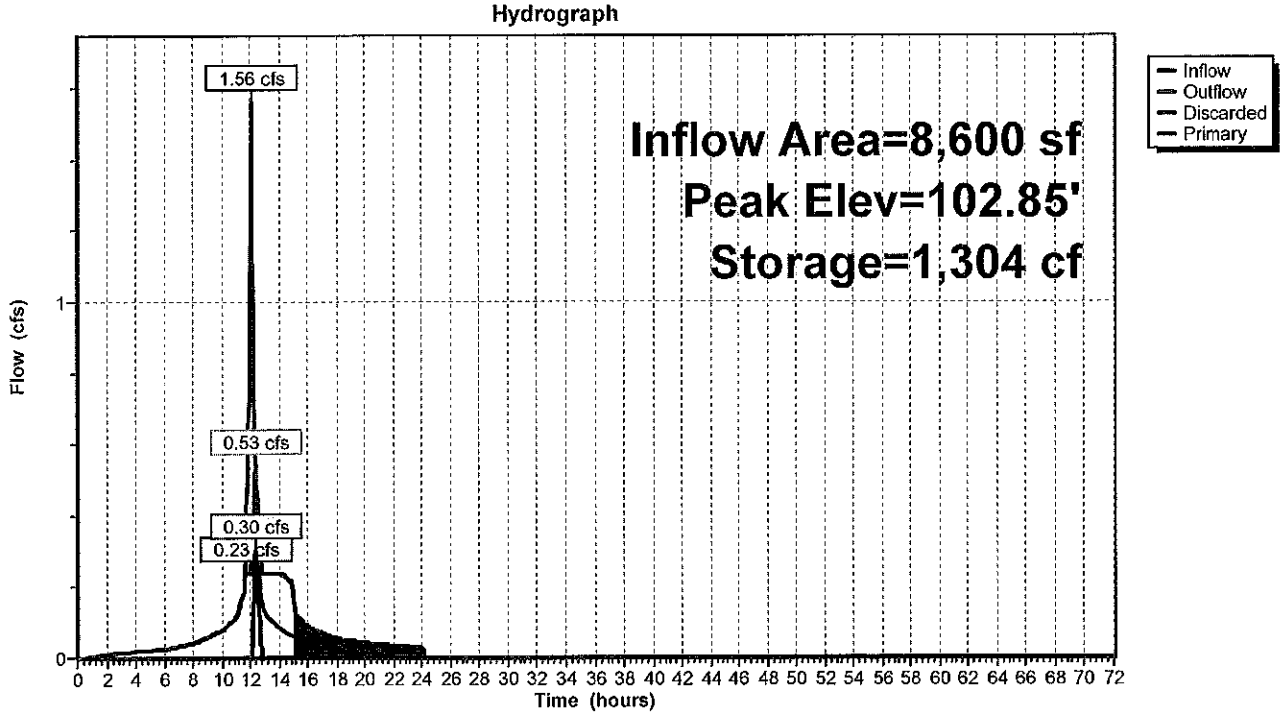
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	102.50'	**6.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.50' / 101.05' S= 0.0558 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf

Discarded OutFlow Max=0.23 cfs @ 11.70 hrs HW=101.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.23 cfs)

Primary OutFlow Max=0.30 cfs @ 12.37 hrs HW=102.85' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Inlet Controls 0.30 cfs @ 2.01 fps)

Pond INF: Stormtech SC-310



Summary for Pond PCB: Proposed CB to DP

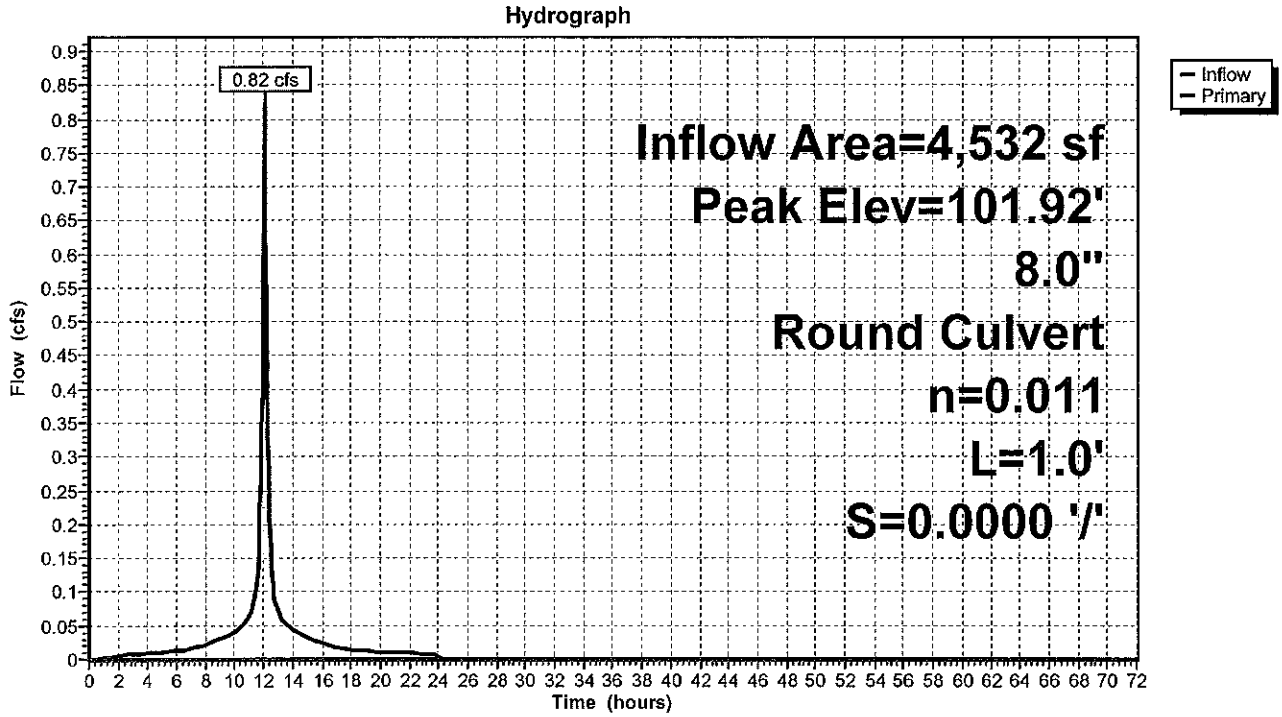
Inflow Area = 4,532 sf,100.00% Impervious, Inflow Depth = 8.00" for 100 Year event
Inflow = 0.82 cfs @ 12.09 hrs, Volume= 3,021 cf
Outflow = 0.82 cfs @ 12.09 hrs, Volume= 3,021 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.82 cfs @ 12.09 hrs, Volume= 3,021 cf
Routed to Pond DMH : DMH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 101.92' @ 12.11 hrs
Flood Elev= 104.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.05'	**8.0" Round Culvert** L= 1.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.05' / 101.05' S= 0.0000 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf

Primary OutFlow Max=0.68 cfs @ 12.09 hrs HW=101.86' TW=101.70' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.68 cfs @ 1.96 fps)

Pond PCB: Proposed CB to DP

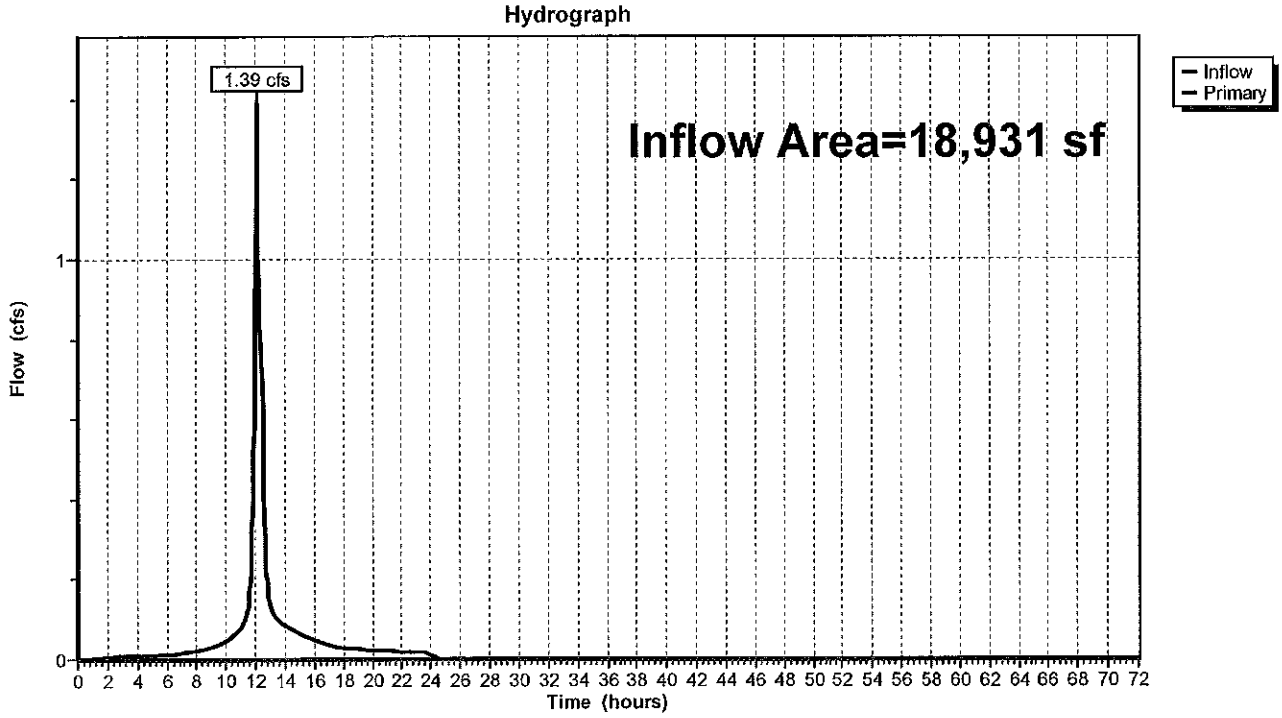


Summary for Link DP1: Green Street CB

Inflow Area = 18,931 sf, 81.39% Impervious, Inflow Depth = 3.29" for 100 Year event
Inflow = 1.39 cfs @ 12.09 hrs, Volume= 5,182 cf
Primary = 1.39 cfs @ 12.09 hrs, Volume= 5,182 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP1: Green Street CB



Events for Subcatchment SC2.1: PROPOSED ROOF

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2 Year	3.31	0.62	2,205	3.08
10 Year	5.22	0.98	3,571	4.98
25 Year	6.41	1.21	4,423	6.17
100 Year	**8.24**	**1.56**	**5,733**	**8.00**

Events for Subcatchment SC2.2: PARKING TO CB

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2 Year	3.31	0.33	1,162	3.08
10 Year	5.22	0.52	1,882	4.98
25 Year	6.41	0.64	2,331	6.17
100 Year	**8.24**	**0.82**	**3,021**	**8.00**

Events for Subcatchment SC2.3: SHEET TO GREEN STREET

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2 Year	3.31	0.05	233	0.53
10 Year	5.22	0.21	694	1.58
25 Year	6.41	0.32	1,046	2.38
100 Year	**8.24**	**0.52**	**1,648**	**3.74**

Events for Subcatchment SC2.4: TO HAVEN STREET

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2 Year	3.31	0.01	24	0.57
10 Year	5.22	0.02	71	1.65
25 Year	6.41	0.03	106	2.47
100 Year	**8.24**	**0.05**	**166**	**3.86**

Events for Pond CB: HAVEN STREET DRAINAGE

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2 Year	0.01	0.01	102.20	**0**
10 Year	0.02	0.02	102.25	0
25 Year	0.03	0.03	102.28	0
100 Year	**0.05**	**0.05**	**102.32**	0

Events for Pond DMH: DMH

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2 Year	0.33	0.33	101.41	**0**
10 Year	0.54	0.54	101.53	0
25 Year	0.67	0.67	101.60	0
100 Year	**0.87**	**0.87**	**101.71**	0

Events for Pond INF: Stormtech SC-310

Event	Inflow (cfs)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2 Year	0.62	0.23	**0.23**	0.00	101.51	253
10 Year	0.98	0.23	0.23	0.00	102.00	701
25 Year	1.21	0.23	0.23	0.00	102.38	1,019
100 Year	**1.56**	**0.53**	0.23	**0.30**	**102.85**	**1,304**

Events for Pond PCB: Proposed CB to DP

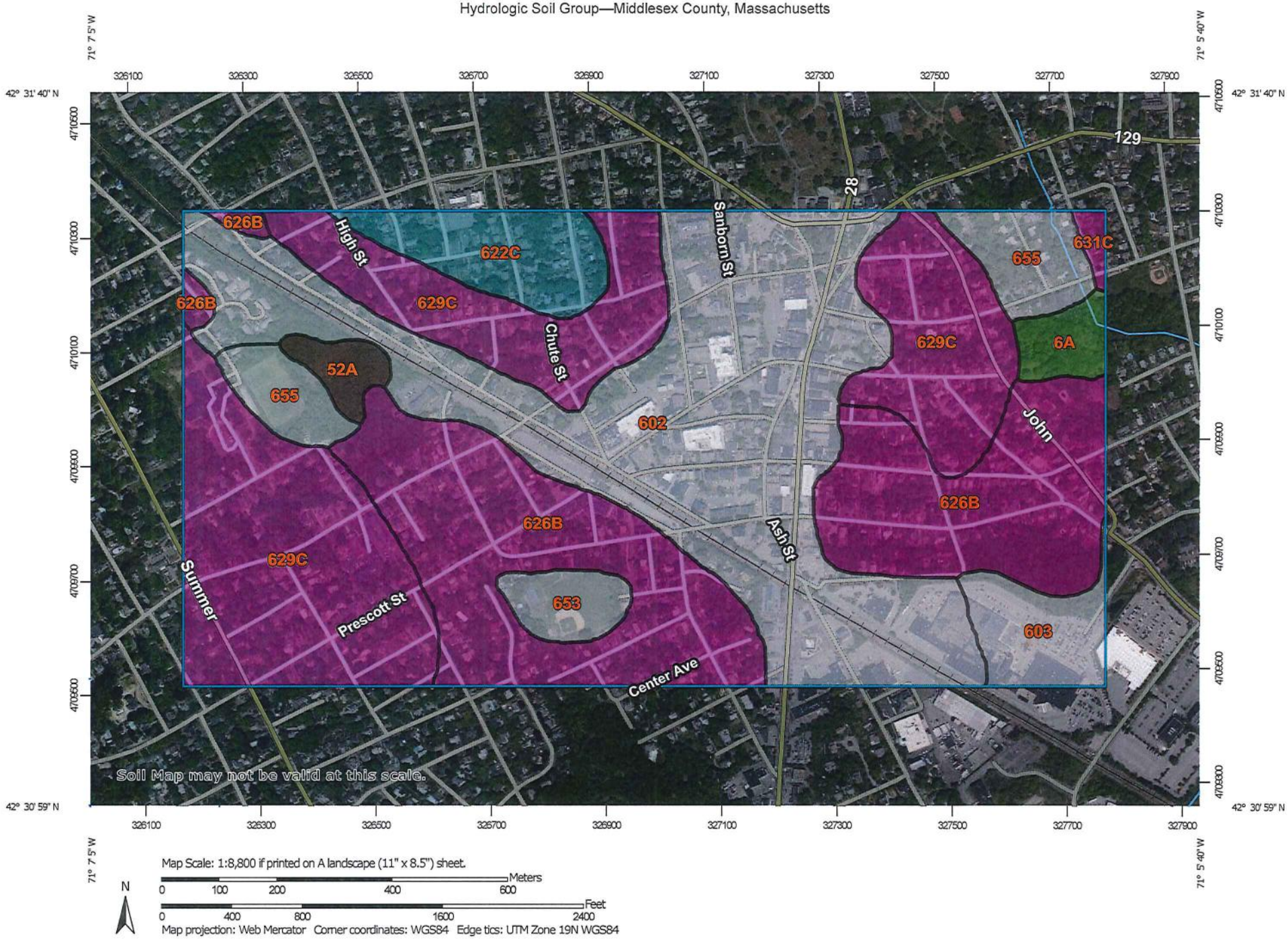
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2 Year	0.33	0.33	101.48	**0**
10 Year	0.52	0.52	101.62	0
25 Year	0.64	0.64	101.72	0
100 Year	**0.82**	**0.82**	**101.92**	0

Events for Link DP1: Green Street CB

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
2 Year	0.38	0.38	**0.00**
10 Year	0.74	0.74	0.00
25 Year	0.99	0.99	0.00
100 Year	**1.39**	**1.39**	0.00

Appendix B:

NRCS Soil Maps



Map Scale: 1:8,800 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 400 800 1600 2400

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

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

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

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

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

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

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

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 22, Sep 9, 2022

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

Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
6A	Scarboro mucky fine sandy loam, 0 to 3 percent slopes	A/D	4.7	1.4%
52A	Freetown muck, 0 to 1 percent slopes	B/D	3.8	1.2%
602	Urban land		100.8	30.5%
603	Urban land, wet substratum		10.3	3.1%
622C	Paxton-Urban land complex, 3 to 15 percent slopes	C	13.9	4.2%
626B	Merrimac-Urban land complex, 0 to 8 percent slopes	A	84.0	25.4%
629C	Canton-Charlton-Urban land complex, 3 to 15 percent slopes	A	91.1	27.6%
631C	Charlton-Urban land-Hollis complex, 3 to 15 percent slopes, rocky	A	1.3	0.4%
653	Udorthents, sandy		5.8	1.8%
655	Udorthents, wet substratum		14.9	4.5%
Totals for Area of Interest			330.8	100.0%

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix C:

Water Quality Flow Calculations

Hayes Engineering, Inc
603 Salem Street
Wakefield, MA 01880
Tel: (781) 246-2800
Fax: (781) 246-7596

Water Quality Flow Calculation Worksheet

Refer to File No. REA-0419

For First ½-inch of Runoff WQV:

Impervious Surfaces to Proprietary Treatment Device:

Catchment	Time of Conc. (hours)	Impervious Area (acres)	Impervious Area (sq. mi.)
2.1	0.100	0.197	
2.2	0.100	0.104	
2.3	0.100	0.048	
2.4	0.100	0.005	
Σ		0.354	0.000553125

Time of Concentration:

Longest Catchment Tc: 0.10 q_u from Figure 2, attached: 752 csm/in

Water Quality Flow (WQF):

$$Q_{0.5} = (q_u)(A)(WQV)$$

Where:

$Q_{0.5}$ = peak flow rate associated with the first ½-inch of runoff;

q_u = the unit peak discharge, in cubic feet per second per square mile per inch;

A = impervious surface in drainage area, in square miles;

WQV = water quality volume, in inches (0.5 inches)

$$Q_{0.5} = \left(752\frac{csm}{in}\right)(0.000553125\ sq.\ mi.)(0.5")$$

$$Q_{0.5} = 0.21\ cfs$$

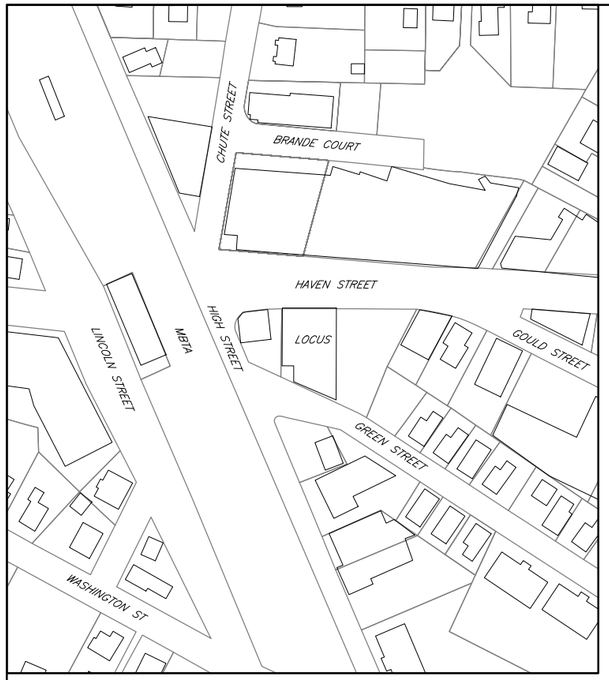
Water Quality Flow Calculation
25 Haven Street
Reading, MA
November 22, 2022

Figure 2: For First ½-inch of Runoff, Table of qu values for Ia/P Curve = 0.0.058, listed by tc, for Type III Storm Distribution

Tc (Hours)	qu (csm/in)	Tc (Hours)	qu (csm/in)	Tc (Hours)	qu (csm/in)	Tc (Hours)	qu (csm/in)
0.01	821	1.8	246	5.3	116	8.8	77
0.03	821	1.9	238	5.4	115	8.9	76
0.05	813	2	230	5.5	113	9	76
0.067	794	2.1	223	5.6	112	9.1	75
0.083	773	2.2	217	5.7	110	9.2	74
0.1	752	2.3	211	5.8	109	9.3	74
0.116	733	2.4	205	5.9	107	9.4	73
0.133	713	2.5	200	6	106	9.5	72
0.15	694	2.6	194	6.1	104	9.6	72
0.167	677	2.7	190	6.2	103	9.7	71
0.183	662	2.8	185	6.3	102	9.8	70
0.2	646	2.9	181	6.4	100	9.9	70
0.217	632	3	176	6.5	99	10	69
0.233	619	3.1	173	6.6	98		
0.25	606	3.2	169	6.7	97		
0.3	572	3.3	165	6.8	96		
0.333	552	3.4	162	6.9	94		
0.35	542	3.5	158	7	93		
0.4	516	3.6	155	7.1	92		
0.416	508	3.7	152	7.2	91		
0.5	472	3.8	149	7.3	90		
0.583	443	3.9	147	7.4	89		
0.6	437	4	144	7.5	88		
0.667	417	4.1	141	7.6	87		
0.7	408	4.2	139	7.7	86		
0.8	383	4.3	136	7.8	85		
0.9	361	4.4	134	7.9	84		
1	342	4.5	132	8	84		
1.1	325	4.6	130	8.1	83		
1.2	311	4.7	128	8.2	82		
1.3	297	4.8	126	8.3	81		
1.4	285	4.9	124	8.4	80		
1.5	274	5	122	8.5	79		
1.6	264	5.1	120	8.6	79		
1.7	254	5.2	118	8.7	78		

Appendix D:

Watershed Plans



LOCUS MAP:
(1"=100')
STRUCTURES AND BOUNDARIES COMPILED FROM MASSMAPPER GIS INFORMATION

NOTES:

1. THIS PLAN IS BASED ON AN ACTUAL ON-THE-GROUND FIELD SURVEY CONDUCTED BY HAYES ENGINEERING, INC. ON MARCH 4, 2022.
2. THE ELEVATIONS DEPICTED HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) BASED UPON MACORS REAL-TIME NETWORK NAD 83 (2011) (EPOCH 2010.00) DATUM USING GEOID 12B FOR ORTHOMETRIC HEIGHTS.
3. THIS PROPERTY DOES NOT LIES WITHIN A FLOOD HAZARD AREA (ZONE A OR V) AS SHOWN ON FLOOD INSURANCE RATE MAP NUMBER 25017C0313E; EFFECTIVE DATE: 06/04/2010

HAVEN STREET

SC1.1 LOT A
AREA=18,935±S.F.

SC1.2

HAVEN STREET TRUST
REGISTRY BOOK 1333/110
LOT B ON LCC 6068B
MAP 16 LOT 314
#1 HAVEN STREET

55 HAVEN STREET REALTY TRUST
DEED BOOK 17048 PAGE 480
PLAN BOOK 221 OF 1956
MAP 16 LOT 307
#51 HAVEN STREET

55 HAVEN STREET REALTY TRUST
DEED BOOK 17048 PAGE 496
MAP 16 LOT 308
#12 GREEN STREET

HIGH STREET

GREEN STREET

DP

LEGEND:

104	MINOR CONTOUR
105	MAJOR CONTOUR
X	FENCE
W	WATER LINE
	WATER GATE
	WATER SHUTOFF
S	SEWER LINE
S	SEWER MANHOLE
D	DRAIN LINE
D	DRAIN MANHOLE
	CATCH BASINS
G	GAS LINE
	GAS GATE
E	ELECTRIC LINE
OHW	OVERHEAD WIRE
E	ELECTRIC MANHOLE
EHH	ELECTRIC HANDHOLE
	UTILITY POLE
	LIGHTPOLE
DHF	DRILL HOLE FOUND
SBDHF	STONE BOUND DRILL HOLE FOUND
IRF/IPF	IRON ROD/PIPE FOUND
	DECIDUOUS TREE
	BOLLARD
MW	MONITORING WELL
3'H	3 FEET HIGH
BB	BITUMINOUS BERM
BIT.	BITUMINOUS
CI	CAST IRON
CLF	CHAINLINK FENCE
CONC.	CONCRETE
DI	DUCTILE IRON
EOP	EDGE OF PAVEMENT
UGE	UNDERGROUND ELECTRIC
VGC	VERTICAL GRANITE CURB
W	PROPOSED WATER LINE
S	PROPOSED SEWER LINE
S	PROPOSED GREASE TRAP
	PROPOSED CATCH BASIN
D	PROPOSED DRAIN LINE
D	PROPOSED DRAIN MANHOLE
OHW	PROPOSED OVERHEAD WIRE
	PROPOSED UTILITY POLE
104.51	PROPOSED SPOT ELEVATION
2.0%	PROPOSED FLOW
PGC	PROPOSED GRANITE CURB
PROP.	PROPOSED

Prepared For:

25 HAVEN STREET, LLC
25 HAVEN STREET
READING, MASSACHUSETTS
REGISTRY BOOK 1557/74
ASSESSORS MAP 16 LOT 309

Prepared By:

Hayes Engineering, Inc.
603 Salem Street
Wakefield, MA 01880
Ph: 781.246.2800
Fax: 781.246.7596
www.hayeseng.com

Design By: JG
Drawn By: xxx
Checked By: PJO
Project File: xxx
Comp. No: REA175

- [x] Issued For Permit
- [ ] Issued For Review
- [ ] Issued For Bid
- [ ] Issued For Construction
- [x] Not For Construction

No.	Revision	Date
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Date: November 22, 2022

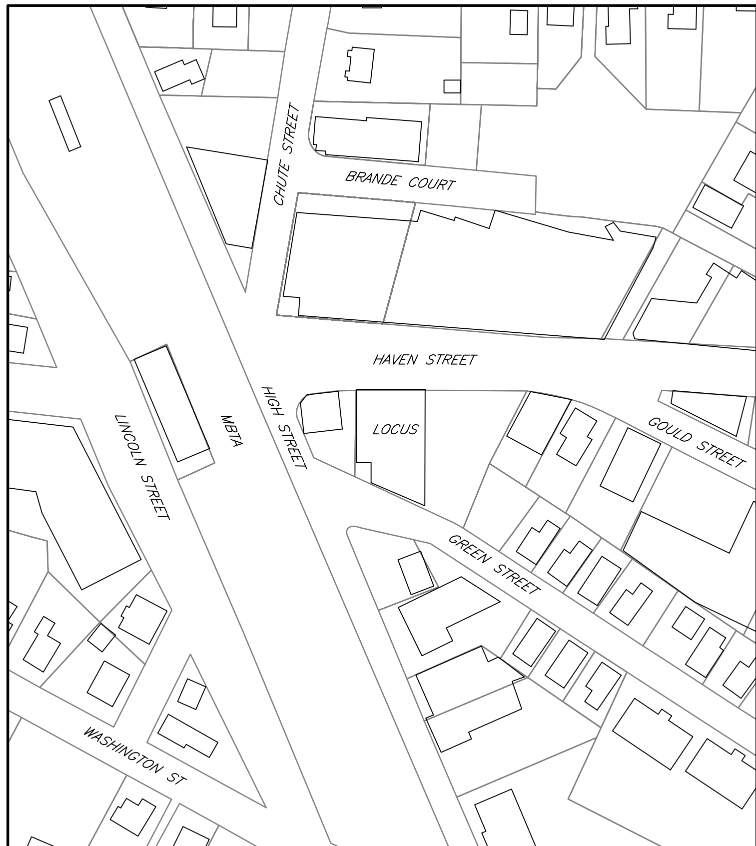
Drawing Title:

EXISTING WATERSHED
25 HAVEN STREET
READING, MASS.

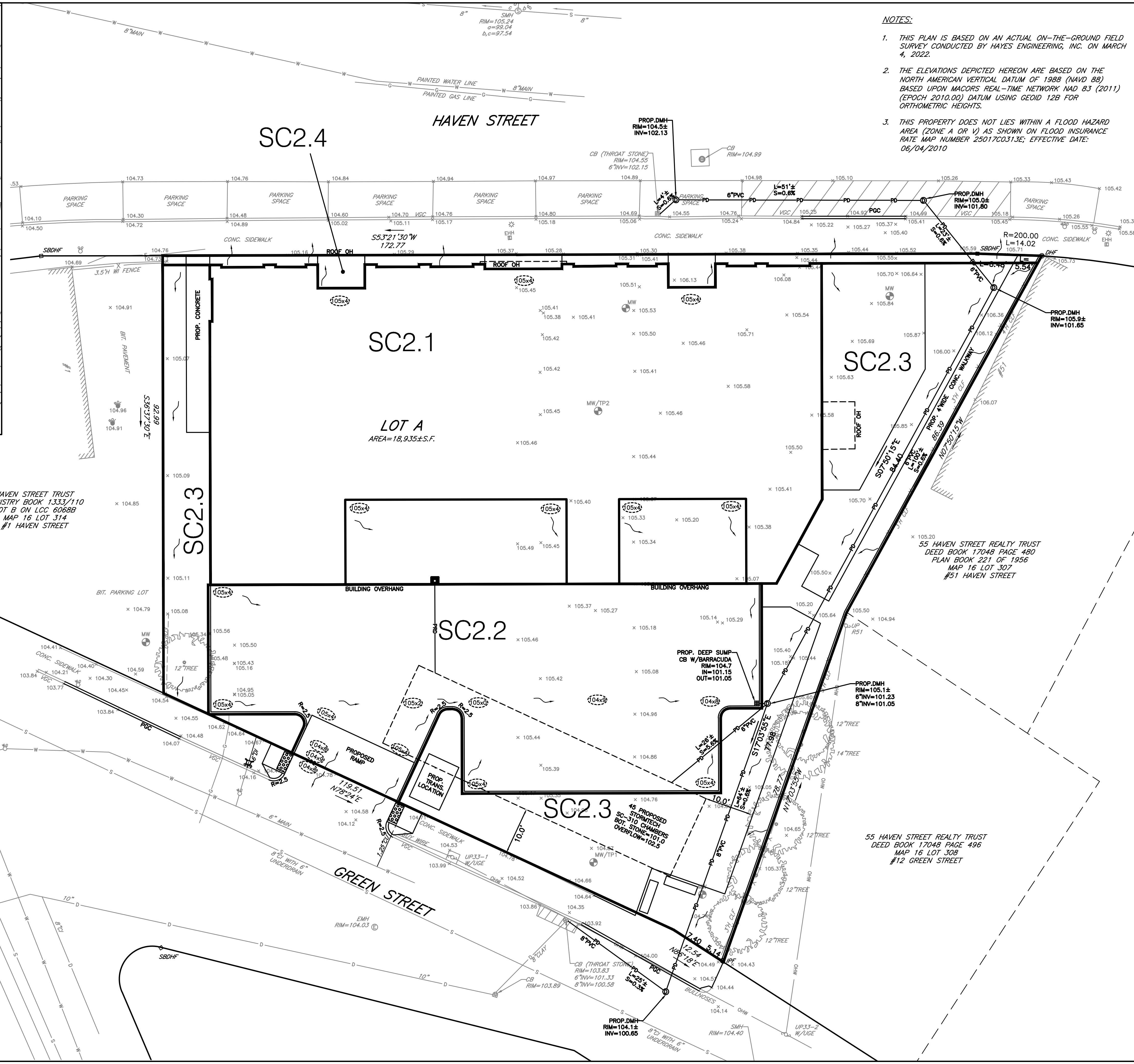
Drawing No.:

SW

SHEET 1 OF 2



LOCUS MAP:
(1"=100')
STRUCTURES AND BOUNDARIES COMPILED FROM MASSMAPPER GIS INFORMATION


HAVEN STREET
SC2.4
SC2.1
SC2.2
SC2.3
LOT A
AREA=18,935±S.F.
HIGH STREET
GREEN STREET
HAVEN STREET TRUST
REGISTRY BOOK 1333/110
LOT B ON LCC 6068B
MAP 16 LOT 314
#1 HAVEN STREET
55 HAVEN STREET REALTY TRUST
DEED BOOK 17048 PAGE 480
PLAN BOOK 221 OF 1956
MAP 16 LOT 307
#51 HAVEN STREET
55 HAVEN STREET REALTY TRUST
DEED BOOK 17048 PAGE 496
MAP 16 LOT 308
#12 GREEN STREET
S53°21'30"W
172.77
BUILDING OVERHANG
PROPOSED RAMP
PROP. TRANS. LOCATION
45 PROPOSED STORMTECH SC-310 CHAMBERS
BOT. STONE=101.0
OVERFLOW=102.5
PROP. DEEP SUMP CB W/BARRACUDA
RIM=104.7
IN=101.15
OUT=101.05
PROP.DMH
RIM=104.5±
INV=102.13
PROP.DMH
RIM=105.0±
INV=101.80
PROP.DMH
RIM=105.9±
INV=101.65
PROP.DMH
RIM=105.1±
6"INV=101.23
8"INV=101.05
PROP.DMH
RIM=104.1±
INV=100.65
PROP. 4' WIDE CONC WALKWAY
CONC. SIDEWALK
PARKING SPACE
Grid North MSPCS

NOTES:

1. THIS PLAN IS BASED ON AN ACTUAL ON-THE-GROUND FIELD SURVEY CONDUCTED BY HAYES ENGINEERING, INC. ON MARCH 4, 2022.

2. THE ELEVATIONS DEPICTED HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) BASED UPON MACORS REAL-TIME NETWORK NAD 83 (2011) (EPOCH 2010.00) DATUM USING GEOID 12B FOR ORTHOMETRIC HEIGHTS.

3. THIS PROPERTY DOES NOT LIES WITHIN A FLOOD HAZARD AREA (ZONE A OR V) AS SHOWN ON FLOOD INSURANCE RATE MAP NUMBER 25017C0313E; EFFECTIVE DATE: 06/04/2010

LEGEND:

MINOR CONTOUR
MAJOR CONTOUR
FENCE
WATER LINE
WATER GATE
WATER SHUTOFF
SEWER LINE
SEWER MANHOLE
DRAIN LINE
DRAIN MANHOLE
CATCH BASINS
GAS LINE
GAS GATE
ELECTRIC LINE
OVERHEAD WIRE
ELECTRIC MANHOLE
ELECTRIC HANDHOLE
UTILITY POLE
LIGHTPOLE
DHF — DRILL HOLE FOUND
SBDHF — STONE BOUND DRILL HOLE FOUND
IRF/IPF — IRON ROD/PIPE FOUND
DECIDUOUS TREE
BOLLARD
MONITORING WELL
3'H — 3 FEET HIGH
BB — BITUMINOUS BERM
BIT. — BITUMINOUS
CI — CAST IRON
CLF — CHAINLINK FENCE
CONC. — CONCRETE
DI — DUCTILE IRON
EOP — EDGE OF PAVEMENT
UGE — UNDERGROUND ELECTRIC
VGC — VERTICAL GRANITE CURB
PROPOSED WATER LINE
PROPOSED SEWER LINE
PROPOSED GREASE TRAP
PROPOSED CATCH BASIN
PROPOSED DRAIN LINE
PROPOSED DRAIN MANHOLE
PROPOSED OVERHEAD WIRE
PROPOSED UTILITY POLE
PROPOSED SPOT ELEVATION
2.0% — PROPOSED FLOW
PGC — PROPOSED GRANITE CURB
PROP. — PROPOSED

Prepared For:

25 HAVEN STREET, LLC
25 HAVEN STREET
READING, MASSACHUSETTS
REGISTRY BOOK 1557/74
ASSESSORS MAP 16 LOT 309

Prepared By:

Hayes Engineering, Inc.
603 Salem Street
Wakefield, MA 01880
Ph: 781.246.2800
Fax: 781.246.7596
www.hayeseng.com

Design By: JG
Drawn By: xxx
Checked By: PJO
Project File: REA-0419
Comp. No: REA175

☒ Issued For Permit
☐ Issued For Review
☐ Issued For Bid
☐ Issued For Construction
☒ Not For Construction

No.	Revision	Date
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Date: November 22, 2022

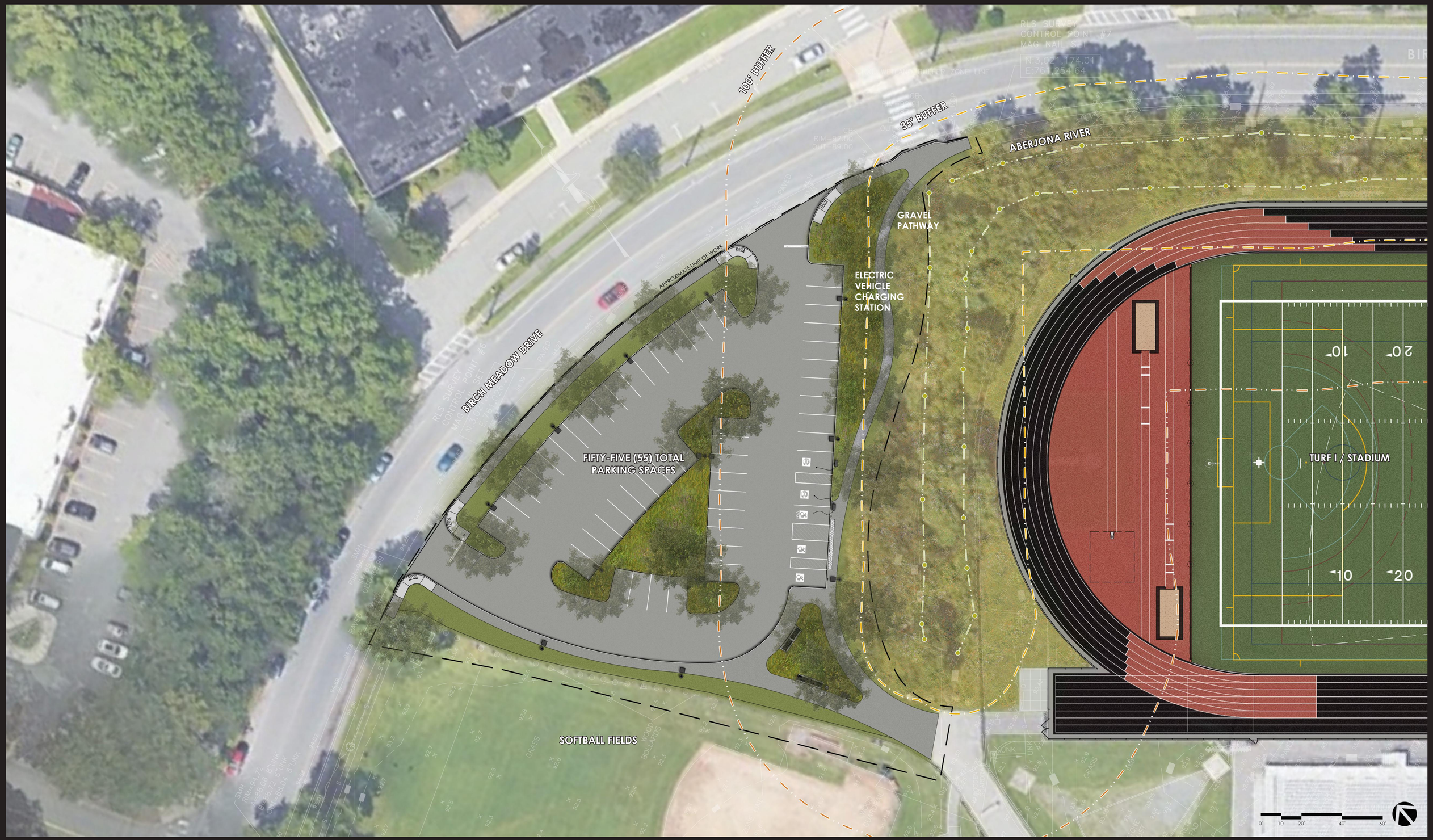
Drawing Title:

PROPOSED WATERSHED
25 HAVEN STREET
READING, MASS.

Drawing No.:

SW

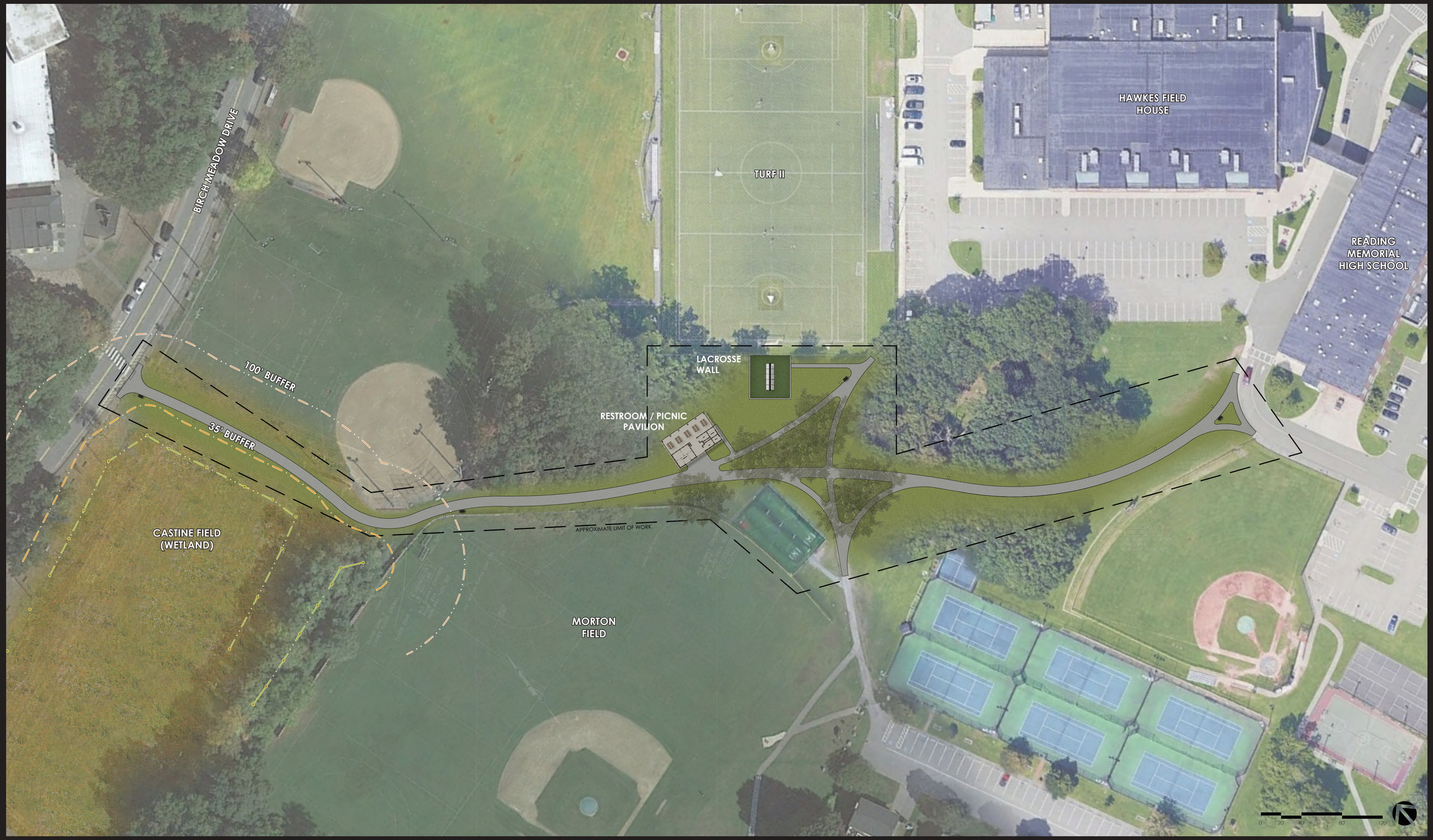
SHEET 2 OF 2



Birch Meadow Park | North Parking Lot Renovation

Town of Reading | Reading, Massachusetts

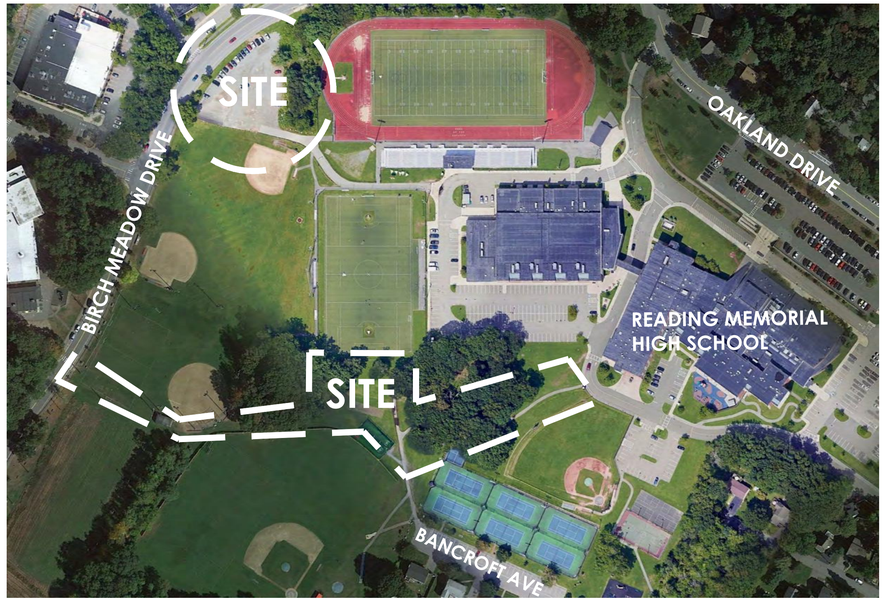
ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com



Birch Meadow Park | Central Spine Pathway & Restroom Pavilion

Town of Reading | Reading, Massachusetts

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com



LOCUS MAP N.T.S.

LIST OF DRAWINGS

MINOR SITE PLAN REVIEW | NOVEMBER 30, 2022

TOWN OF READING

BIRCH MEADOW PARK | PHASE I RENOVATIONS

READING, MA

OWNER

Town of Reading
16 Lowell Street
Reading, MA 01867
(781) 942-9001

LANDSCAPE ARCHITECT/CIVIL ENGINEER

Activitas
70 Milton Street
Dedham, MA 02026-2915
(781) 326-2600

ARCHITECT

OCO Architecture :: Design
709 Hingham Street
Hingham, MA 02043
(617) 699-8395

ELECTRICAL ENGINEER

NV5 Engineers
200 Brickstone Square, Suite 201
Andover, MA 01810-1488
(978) 475-0298

WETLAND DELINEATION

Epsilon Associates, Inc.
3 Mill & Main Place, Suite 250
Maynard, MA 01754
(978) 897-7100

SURVEY

Reed Land Survey, Inc.
109 Rhode Island Road, Suite 4A
Lakeville, MA 02347
(508) 923-1181

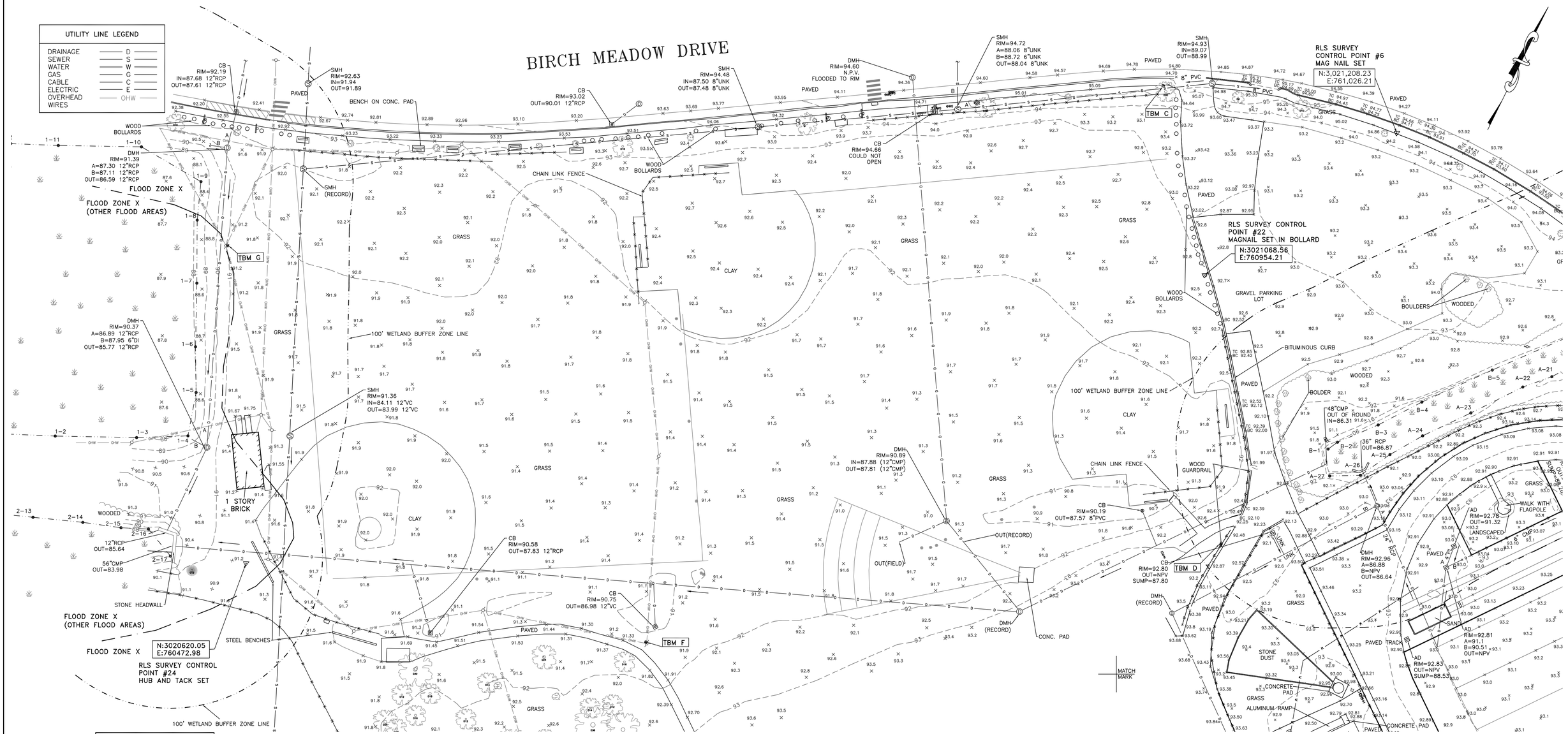
TOWN OF READING
BIRCH MEADOW PARK | PHASE I RENOVATIONS

MINOR SITE PLAN REVIEW | NOVEMBER 30, 2022

REVISIONS: PROJECT NO. 22014.00

NO.	DATE	SHEETS REVISED	NOTES

ACTIVITAS
landscape architecture | civil engineering



LEGEND

THESE STANDARD SYMBOLS MAY BE FOUND IN THE DRAWING

- STREET SIGN
- FIRE HYDRANT
- CABLE MANHOLE
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- SEWER MANHOLE
- TELEPHONE MANHOLE
- WATER MANHOLE
- UNKNOWN MANHOLE
- CATCH BASIN
- ELECTRIC BOX/MTR
- CABLE BOX
- TELEPHONE BOX
- GAS METER
- MONITORING WELL
- GAS GATE
- WATER GATE
- ELECTRIC HAND HOLE
- UTILITY POLE
- LIGHT POLE
- GUY WIRE
- YARD LIGHT
- BOUND
- BOUND W/ DRILL HOLE
- POST/BOLLARD
- ROOF DRAIN
- BUSH/SHRUB
- PARKING SPACES

NOTES:

1. THE VERTICAL DATUM OF THIS SURVEY IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (N.A.V.D. 88). THE ELEVATIONS WERE DERIVED FROM GPS MEASUREMENTS REFERENCED TO THE MASSACHUSETTS CONTINUOUSLY OPERATING REFERENCE STATION NETWORK (MACORS).
2. THE COORDINATES SHOWN HEREON AND BASIS OF THE BEARINGS ARE REFERENCED TO THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (MAINLAND – NORTH AMERICAN DATUM OF 1983). THE COORDINATES WERE DERIVED FROM GPS MEASUREMENTS REFERENCED TO THE MASSACHUSETTS CONTINUOUSLY OPERATING REFERENCE STATION NETWORK (MACORS).
3. THE AREA SURVEYED IS LOCATED PARTIALLY IN FLOOD ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AND PARTIALLY IN FLOOD ZONE X OTHER FLOOD AREAS (AREAS OF 0.2%ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD) AS INDICATED ON THE F.E.M.A. FLOOD INSURANCE RATE MAP FOR MIDDLESEX COUNTY, MASSACHUSETTS, PANEL 311 OF 656 (COMMUNITY NUMBER 250211 PANEL 311 SUFFIX E) WITH AN EFFECTIVE DATE OF JUNE 4, 2010.
4. THE FIELD SURVEY FOR THIS PROJECT WAS COMPLETED ON JULY 21, 2022.
5. THE UTILITY LOCATIONS AND SIZES AS SHOWN HEREON ARE BASED ON SURFACE EVIDENCE AND ARE APPROXIMATE. DIG SAFE SHOULD BE CALLED PRIOR TO ANY EXCAVATIONS.

VERTICAL CONTROL FOR SITE – TEMPORARY BENCHMARKS (TBM)
TBM "C": NAIL IN TREE ELEVATION = 97.10 (N.A.V.D. 88)
TBM "D": SPIKE IN GUARD RAIL ELEVATION = 93.62 (N.A.V.D. 88)
TBM "F": SPIKE SET IN UTILITY POLE ELEVATION = 93.14 (N.A.V.D. 88)
TBM "G": SPIKE SET IN UTILITY POLE ELEVATION = 92.06 (N.A.V.D. 88)

COMMONWEALTH OF MASSACHUSETTS
GLEN D. REED # 40766
REGISTERED PROFESSIONAL LAND SURVEYOR

Glen D. Reed

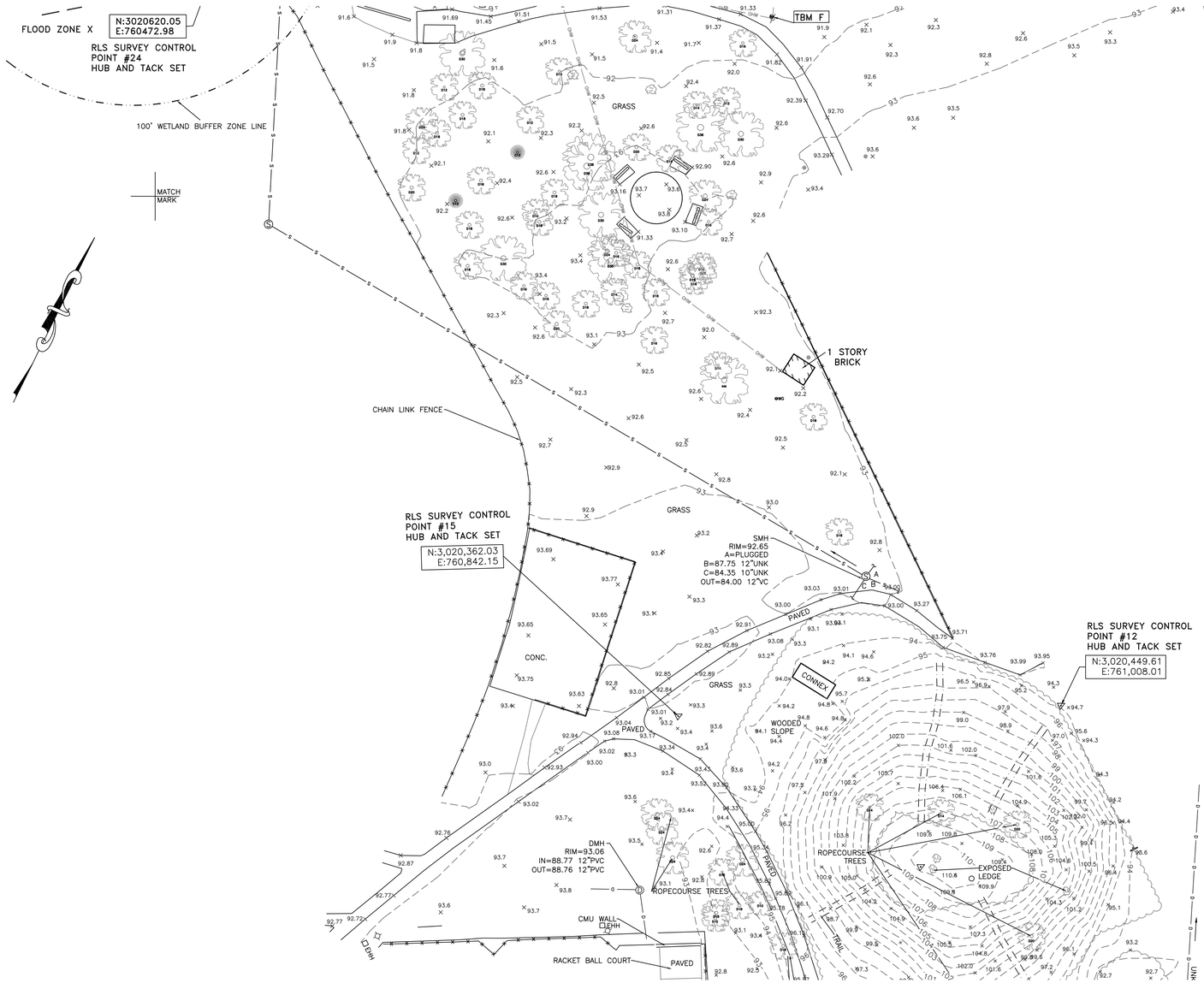
GLEN D. REED, P.L.S. LICENSE NO. 40766
AS AGENT FOR REED LAND SURVEYING, INC.
NOT INDIVIDUALLY

Reed Land Surveying, Inc.
109 RHODE ISLAND ROAD, SUITE 4A
LAKEVILLE, MASSACHUSETTS 02347
(508) 923-1181 FAX. (508) 923-1191

SHEET 1 OF 2

TOPOGRAPHIC SURVEY
READING MEMORIAL HIGH SCHOOL
BIRCH MEADOW DRIVE
READING, MASS.
(MIDDLESEX COUNTY)
PREPARED FOR
ACTIVITAS INC.

FILE: 21026 TOPO JULY 28, 2022



GLEN D. REED, P.L.S. LICENSE NO. 40766
AS AGENT FOR REED LAND SURVEYING, INC.
NOT INDIVIDUALLY

SCALE: 1"=30'

Reed
Land Surveying, Inc.
109 RHODE ISLAND ROAD, SUITE 4A
LAKEVILLE, MASSACHUSETTS 02347
(508) 923-1181 FAX. (508) 923-1191

SHEET 2 OF 2

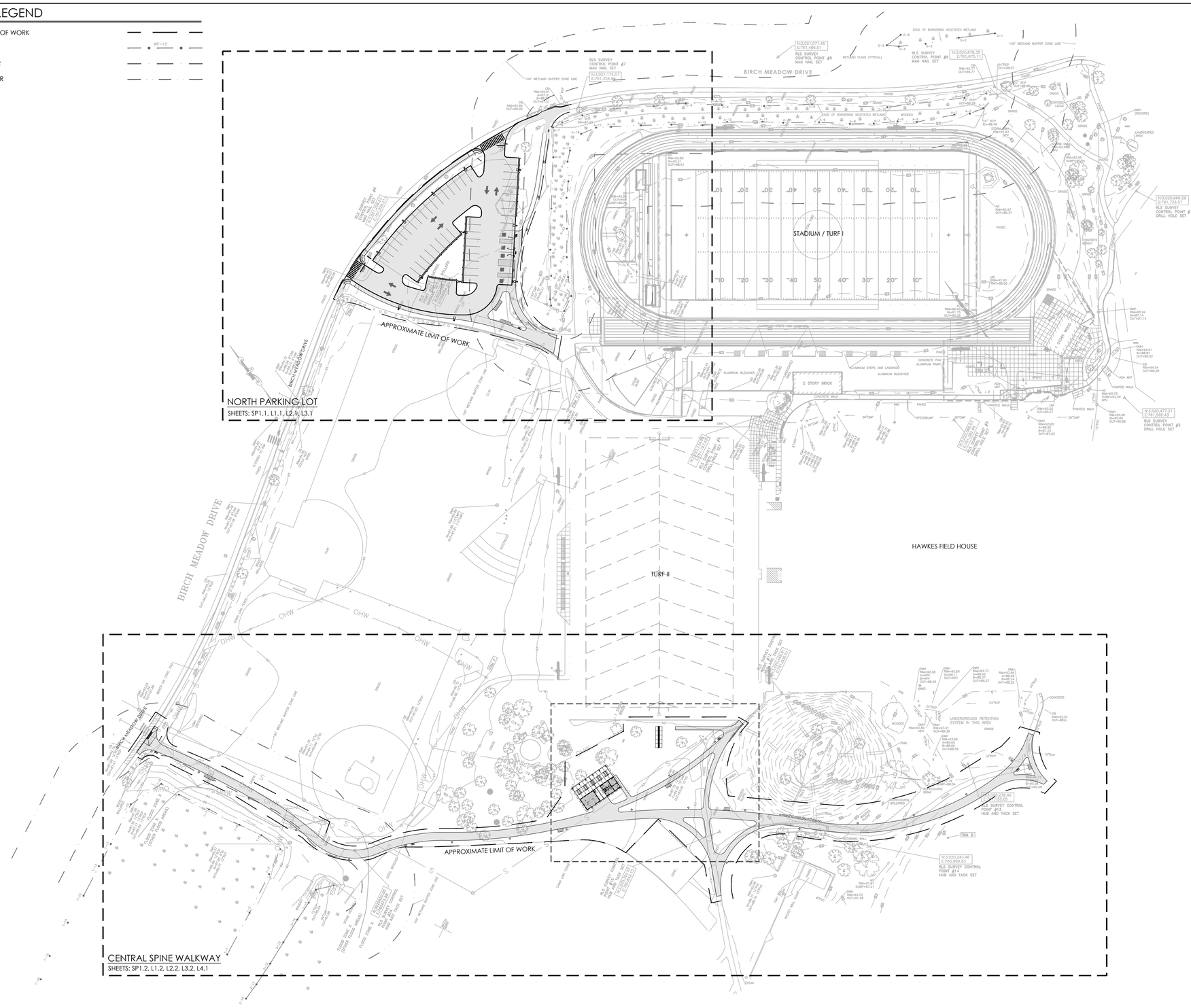
TOPOGRAPHIC SURVEY
READING MEMORIAL HIGH SCHOOL
BIRCH MEADOW DRIVE
READING, MASS.
(MIDDLESEX COUNTY)
PREPARED FOR
ACTIVITAS INC.

FILE: 21026 TOPO

JULY 28, 2022

KEY PLAN LEGEND

- APPROXIMATE LIMIT OF WORK
- WETLAND (WF-15)
- 35' WETLAND BUFFER
- 100' WETLAND BUFFER



CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

0' 30' 60' 120' 180'

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA
BIRCH MEADOW PARK | PHASE I RENOVATIONS

REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	1"=60'-0"
PROJECT NO.:	22014.00
FILE:	22014.00-L0.1-KEY_PLAN.dwg
DRAWN:	MJD
CHECKED:	EPM/SRC

SEAL:

SHEET TITLE:

KEY PLAN

SHEET NO:

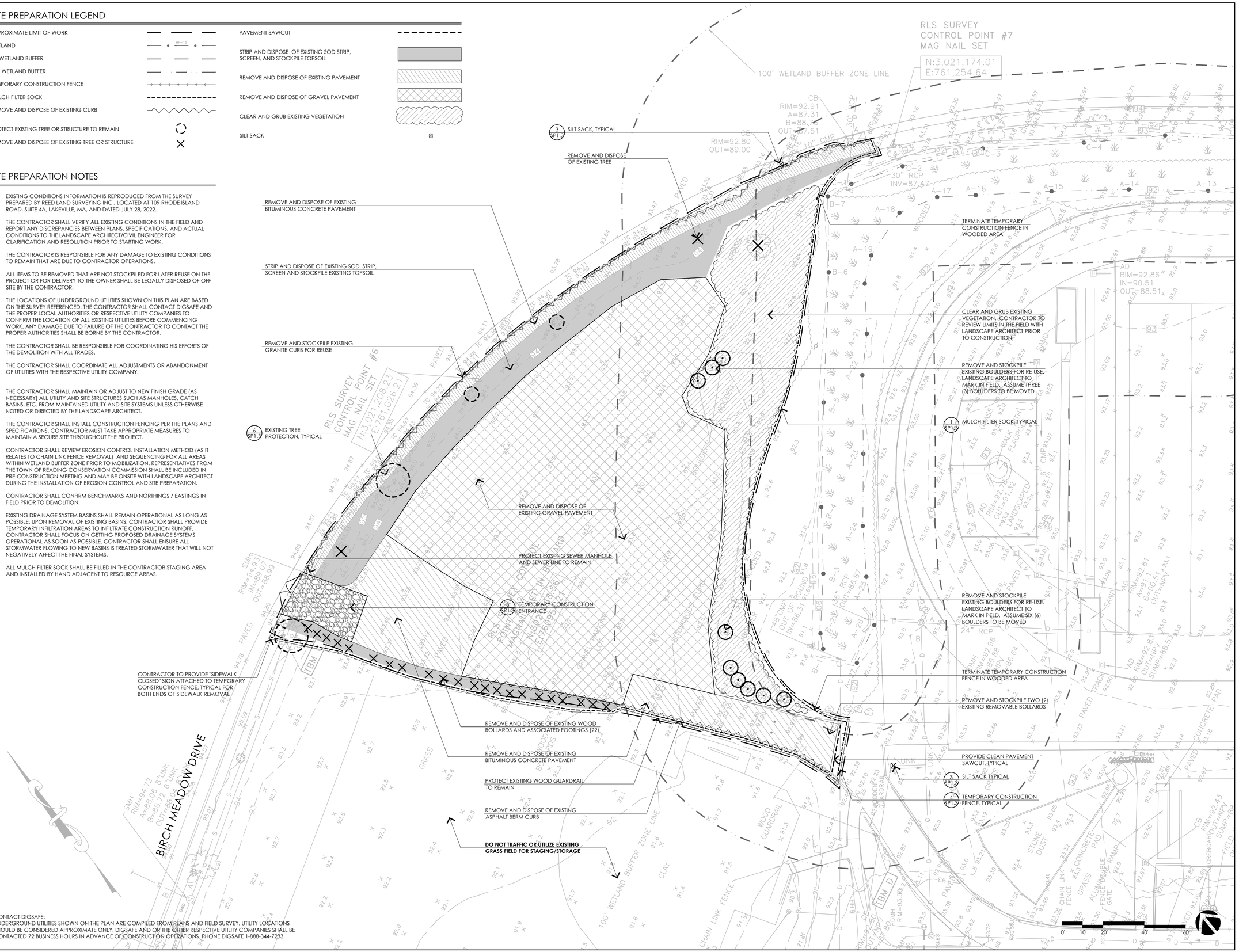
L0.1

SITE PREPARATION LEGEND

- APPROXIMATE LIMIT OF WORK
- WETLAND
- 35' WETLAND BUFFER
- 100' WETLAND BUFFER
- TEMPORARY CONSTRUCTION FENCE
- MULCH FILTER SOCK
- REMOVE AND DISPOSE OF EXISTING CURB
- PROTECT EXISTING TREE OR STRUCTURE TO REMAIN
- REMOVE AND DISPOSE OF EXISTING TREE OR STRUCTURE
- PAVEMENT SAWCUT
- STRIP AND DISPOSE OF EXISTING SOD STRIP, SCREEN, AND STOCKPILE TOPSOIL
- REMOVE AND DISPOSE OF EXISTING PAVEMENT
- REMOVE AND DISPOSE OF GRAVEL PAVEMENT
- CLEAR AND GRUB EXISTING VEGETATION
- SILT SACK

SITE PREPARATION NOTES

1. EXISTING CONDITIONS INFORMATION IS REPRODUCED FROM THE SURVEY PREPARED BY REED LAND SURVEYING INC., LOCATED AT 109 RHODE ISLAND ROAD, SUITE 4A, LAKEVILLE, MA, AND DATED JULY 28, 2022.
2. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES BETWEEN PLANS, SPECIFICATIONS, AND ACTUAL CONDITIONS TO THE LANDSCAPE ARCHITECT/CIVIL ENGINEER FOR CLARIFICATION AND RESOLUTION PRIOR TO STARTING WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING CONDITIONS TO REMAIN THAT ARE DUE TO CONTRACTOR OPERATIONS.
4. ALL ITEMS TO BE REMOVED THAT ARE NOT STOCKPILED FOR LATER REUSE ON THE PROJECT OR FOR DELIVERY TO THE OWNER SHALL BE LEGALLY DISPOSED OF OFF SITE BY THE CONTRACTOR.
5. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON THE SURVEY REFERENCED. THE CONTRACTOR SHALL CONTACT DIGSAFE AND THE PROPER LOCAL AUTHORITIES OR RESPECTIVE UTILITY COMPANIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS EFFORTS OF THE DEMOLITION WITH ALL TRADES.
7. THE CONTRACTOR SHALL COORDINATE ALL ADJUSTMENTS OR ABANDONMENT OF UTILITIES WITH THE RESPECTIVE UTILITY COMPANY.
8. THE CONTRACTOR SHALL MAINTAIN OR ADJUST TO NEW FINISH GRADE (AS NECESSARY) ALL UTILITY AND SITE STRUCTURES SUCH AS MANHOLES, CATCH BASINS, ETC. FROM MAINTAINED UTILITY AND SITE SYSTEMS UNLESS OTHERWISE NOTED OR DIRECTED BY THE LANDSCAPE ARCHITECT.
9. THE CONTRACTOR SHALL INSTALL CONSTRUCTION FENCING PER THE PLANS AND SPECIFICATIONS. CONTRACTOR MUST TAKE APPROPRIATE MEASURES TO MAINTAIN A SECURE SITE THROUGHOUT THE PROJECT.
10. CONTRACTOR SHALL REVIEW EROSION CONTROL INSTALLATION METHOD (AS IT RELATES TO CHAIN LINK FENCE REMOVAL) AND SEQUENCING FOR ALL AREAS WITHIN WETLAND BUFFER ZONE PRIOR TO MOBILIZATION. REPRESENTATIVES FROM THE TOWN OF READING CONSERVATION COMMISSION SHALL BE INCLUDED IN PRE-CONSTRUCTION MEETING AND MAY BE ONSITE WITH LANDSCAPE ARCHITECT DURING THE INSTALLATION OF EROSION CONTROL AND SITE PREPARATION.
11. CONTRACTOR SHALL CONFIRM BENCHMARKS AND NORTHINGS / EASTINGS IN FIELD PRIOR TO DEMOLITION.
12. EXISTING DRAINAGE SYSTEM BASINS SHALL REMAIN OPERATIONAL AS LONG AS POSSIBLE. UPON REMOVAL OF EXISTING BASINS, CONTRACTOR SHALL PROVIDE TEMPORARY INFILTRATION AREAS TO INFILTRATE CONSTRUCTION RUNOFF. CONTRACTOR SHALL FOCUS ON GETTING PROPOSED DRAINAGE SYSTEMS OPERATIONAL AS SOON AS POSSIBLE. CONTRACTOR SHALL ENSURE ALL STORMWATER FLOWING TO NEW BASINS IS TREATED STORMWATER THAT WILL NOT NEGATIVELY AFFECT THE FINAL SYSTEMS.
13. ALL MULCH FILTER SOCK SHALL BE FILLED IN THE CONTRACTOR STAGING AREA AND INSTALLED BY HAND ADJACENT TO RESOURCE AREAS.



CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NVS ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA
BIRCH MEADOW PARK | PHASE I RENOVATIONS

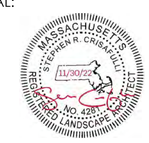
REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	1"=20'-0"
PROJECT NO.:	22014.00
FILE:	22014.00-SP1.1-SP_PLAN.dwg
DRAWN:	MJGM
CHECKED:	EPM/SRC

SEAL:



SHEET TITLE:
SITE PREPARATION PLAN SHEET 1

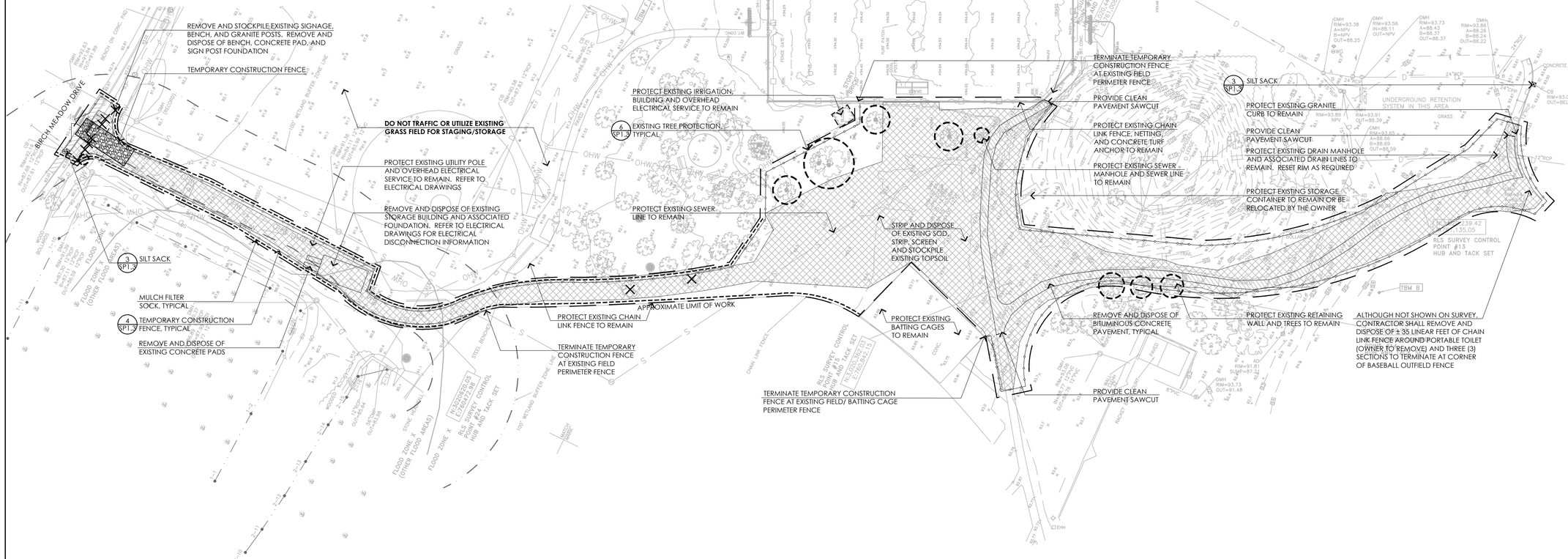
SHEET NO:
SP1.1

SITE PREPARATION LEGEND

- APPROXIMATE LIMIT OF WORK
- WETLAND (WF-1S)
- 35' WETLAND BUFFER
- 100' WETLAND BUFFER
- TEMPORARY CONSTRUCTION FENCE
- MULCH FILTER SOCK
- REMOVE AND DISPOSE OF EXISTING CURB
- REMOVE AND DISPOSE OF UTILITY LINES
- PROTECT EXISTING TREE OR STRUCTURE TO REMAIN
- PAVEMENT SAWCUT
- STRIP AND DISPOSE OF EXISTING SOD STRIP, SCREEN, AND STOCKPILE TOPSOIL
- REMOVE AND DISPOSE OF EXISTING PAVEMENT
- CLEAR AND GRUB EXISTING VEGETATION
- SILT SACK
- REMOVE AND DISPOSE OF EXISTING TREE OR STRUCTURE
- TOPSOIL REMOVAL LMIIT

SITE PREPARATION NOTES

1. EXISTING CONDITIONS INFORMATION IS REPRODUCED FROM THE SURVEY PREPARED BY REED LAND SURVEYING INC., LOCATED AT 109 RHODE ISLAND ROAD, SUITE 4A, LAKEVILLE, MA, AND DATED JULY 28, 2022.
2. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES BETWEEN PLANS, SPECIFICATIONS, AND ACTUAL CONDITIONS TO THE LANDSCAPE ARCHITECT/CIVIL ENGINEER FOR CLARIFICATION AND RESOLUTION PRIOR TO STARTING WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING CONDITIONS TO REMAIN THAT ARE DUE TO CONTRACTOR OPERATIONS.
4. ALL ITEMS TO BE REMOVED THAT ARE NOT STOCKPILED FOR LATER REUSE ON THE PROJECT OR FOR DELIVERY TO THE OWNER SHALL BE LEGALLY DISPOSED OF OFF SITE BY THE CONTRACTOR.
5. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON THE SURVEY REFERENCED. THE CONTRACTOR SHALL CONTACT DIGSAFE AND THE PROPER LOCAL AUTHORITIES OR RESPECTIVE UTILITY COMPANIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS EFFORTS OF THE DEMOLITION WITH ALL TRADES.
7. THE CONTRACTOR SHALL COORDINATE ALL ADJUSTMENTS OR ABANDONMENT OF UTILITIES WITH THE RESPECTIVE UTILITY COMPANY.
8. THE CONTRACTOR SHALL MAINTAIN OR ADJUST TO NEW FINISH GRADE (AS NECESSARY) ALL UTILITY AND SITE STRUCTURES SUCH AS MANHOLES, CATCH BASINS, ETC. FROM MAINTAINED UTILITY AND SITE SYSTEMS UNLESS OTHERWISE NOTED OR DIRECTED BY THE LANDSCAPE ARCHITECT.
9. THE CONTRACTOR SHALL INSTALL CONSTRUCTION FENCING PER THE PLANS AND SPECIFICATIONS. CONTRACTOR MUST TAKE APPROPRIATE MEASURES TO MAINTAIN A SECURE SITE THROUGHOUT THE PROJECT.
10. CONTRACTOR SHALL REVIEW EROSION CONTROL INSTALLATION METHOD (AS IT RELATES TO CHAIN LINK FENCE REMOVAL) AND SEQUENCING FOR ALL AREAS WITHIN WETLAND BUFFER ZONE PRIOR TO MOBILIZATION. REPRESENTATIVES FROM THE TOWN OF READING CONSERVATION COMMISSION SHALL BE INCLUDED IN PRE-CONSTRUCTION MEETING AND MAY BE ONSITE WITH LANDSCAPE ARCHITECT DURING THE INSTALLATION OF EROSION CONTROL AND SITE PREPARATION.
11. CONTRACTOR SHALL CONFIRM BENCHMARKS AND NORTHINGS / EASTINGS IN FIELD PRIOR TO DEMOLITION.
12. EXISTING DRAINAGE SYSTEM BASINS SHALL REMAIN OPERATIONAL AS LONG AS POSSIBLE. UPON REMOVAL OF EXISTING BASINS, CONTRACTOR SHALL PROVIDE TEMPORARY INFILTRATION AREAS TO INFILTRATE CONSTRUCTION RUNOFF. CONTRACTOR SHALL FOCUS ON GETTING PROPOSED DRAINAGE SYSTEMS OPERATIONAL AS SOON AS POSSIBLE. CONTRACTOR SHALL ENSURE ALL STORMWATER FLOWING TO NEW BASINS IS TREATED STORMWATER THAT WILL NOT NEGATIVELY AFFECT THE FINAL SYSTEMS.
13. ALL MULCH FILTER SOCK SHALL BE FILLED IN THE CONTRACTOR STAGING AREA AND INSTALLED BY HAND ADJACENT TO RESOURCE AREAS.



CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA

BIRCH MEADOW PARK | PHASE I RENOVATIONS

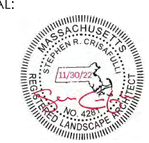
REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	1"=40'-0"
PROJECT NO.:	22014.00
FILE:	22014.00-SP1.2-SP_PLAN.dwg
DRAWN:	MJGM
CHECKED:	EPM/SRC

SEAL:

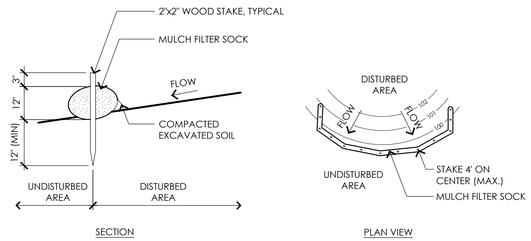


SHEET TITLE:

SITE PREPARATION PLAN SHEET II

SHEET NO:

SP1.2

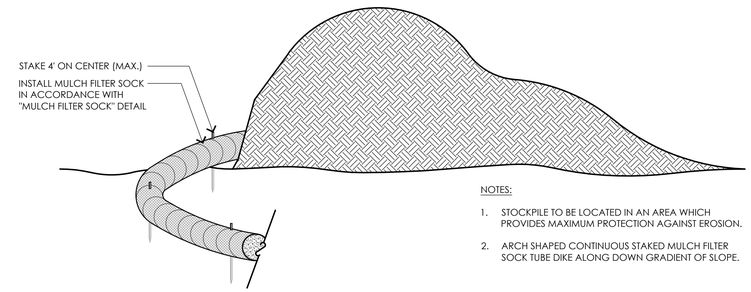


NOTES:

1. PLACE MULCH FILTER SOCK ON LEVEL GRADE. EXTEND BOTH ENDS OF THE TUBE AT LEAST 8'-0" UPSLOPE AT 45 DEGREES TO THE MAIN ALIGNMENT.
2. REMOVE DEPOSITS WHEN SEDIMENT ACCUMULATION IS ONE THIRD THE HEIGHT OF THE EXPOSED MULCH FILTER SOCK OR ONE HALF OF THE EXPOSED FILTER SOCK.
3. MULCH FILTER SOCK SHALL REMAIN IN WORKING ORDER UNTIL THE SITE IS STABILIZED. ADDITIONAL EROSION CONTROLS SHALL BE INSTALLED AS NEEDED TO PREVENT SILT FROM LEAVING THE SITE AT NO ADDITIONAL COST TO THE OWNER.
4. ALL CONTROLS SHALL BE SET 5' FROM BOTTOM TOE OF SLOPE

1 MULCH FILTER SOCK

NOT TO SCALE

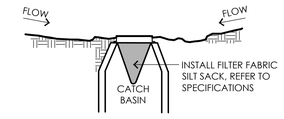


NOTES:

1. STOCKPILE TO BE LOCATED IN AN AREA WHICH PROVIDES MAXIMUM PROTECTION AGAINST EROSION.
2. ARCH SHAPED CONTINUOUS STAKED MULCH FILTER SOCK TUBE DIKE ALONG DOWN GRADIENT OF SLOPE.

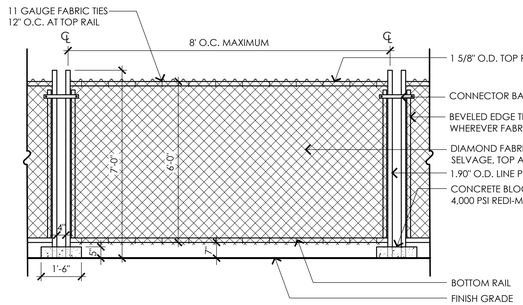
2 TEMPORARY MATERIAL STOCKPILE

NOT TO SCALE



3 SILT SACK

NOT TO SCALE



NOTES:

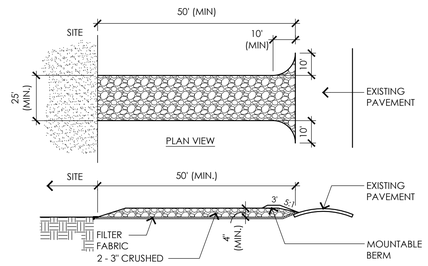
1. TEMPORARY CONSTRUCTION FENCE SHALL BE PROVIDED AT PROJECT LIMITS AS SHOWN ON THE SITE PREPARATION PLAN AND AS SPECIFIED. CONTRACTOR PROPOSED MODIFICATIONS TO TEMPORARY CONSTRUCTION FENCE, SUCH AS BUT NOT LIMITED TO THE USE OF SNOW FENCE (OR SIMILAR) WILL NOT BE CONSIDERED, UNLESS OTHERWISE NOTED.
2. POST SPACING SHALL BE EQUIDISTANT.
3. CONTRACTOR SHALL MAINTAIN A SECURE SITE AT ALL TIMES. CONTRACTOR SHALL PROVIDE ADDITIONAL TEMPORARY CONSTRUCTION FENCE AT NO ADDITIONAL COST TO THE OWNER IF NECESSARY TO PROPERLY SECURE THE SITE.

4 TEMPORARY CONSTRUCTION FENCE

NOT TO SCALE

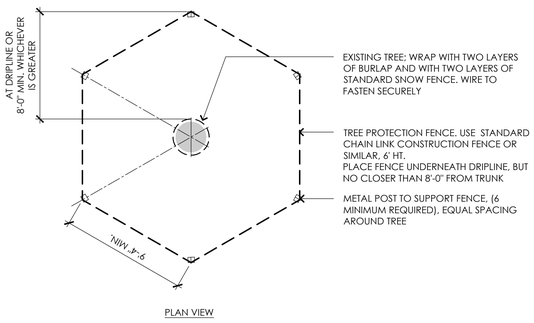
NOTES:

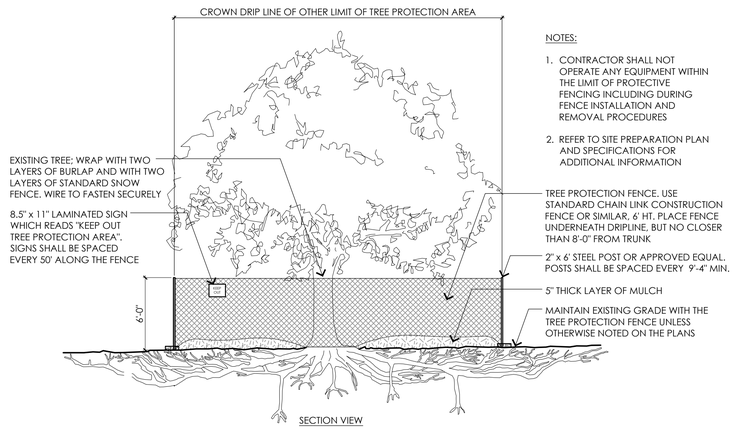
1. ENTRANCE WIDTH SHALL BE A TWENTY-FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT INTO RIGHT-OF-WAY OR ADJACENT PARKING AREAS AND DRIVES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED AND/OR TRACKED ONTO PUBLIC RIGHTS-OF-WAYS OR ADJACENT PARKING AREAS AND DRIVES MUST BE REMOVED IMMEDIATELY. MOUNTABLE BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED.
3. CONTRACTOR SHALL WASH WHEELS OF VEHICLES AT CONSTRUCTION ENTRANCE PRIOR TO VEHICLES EXITING SITE TO PREVENT SOIL MATERIAL FROM BEING TRACKED FROM THE SITE.
4. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED.



5 TEMPORARY CONSTRUCTION ENTRANCE

NOT TO SCALE





NOTES:

1. CONTRACTOR SHALL NOT OPERATE ANY EQUIPMENT WITHIN THE LIMIT OF PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL PROCEDURES
2. REFER TO SITE PREPARATION PLAN AND SPECIFICATIONS FOR ADDITIONAL INFORMATION

6 EXISTING TREE PROTECTION

NOT TO SCALE

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING

Reading, MA

BIRCH MEADOW PARK | PHASE I RENOVATIONS

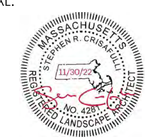
REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	AS NOTED
PROJECT NO.:	22014.00
FILE:	22014.00-SP1.3-SP_DET.dwg
DRAWN:	MJD
CHECKED:	EPM/SRC

SEAL:



SHEET TITLE:

SITE PREPARATION DETAILS

SHEET NO:

SP1.3

LAYOUT AND MATERIALS LEGEND

- APPROXIMATE LIMIT OF WORK
- WETLAND (WF-15)
- 35' WETLAND BUFFER
- 100' WETLAND BUFFER
- CEMENT CONCRETE PAVEMENT
- BITUMINOUS CONCRETE PAVEMENT
- STONE DUST PAVEMENT
- PARKING LOT LIGHTING
- SITE LIGHTING
- SITE SIGNAGE
- ELECTRIC VEHICLE CHARGING STATION

LAYOUT AND MATERIALS NOTES

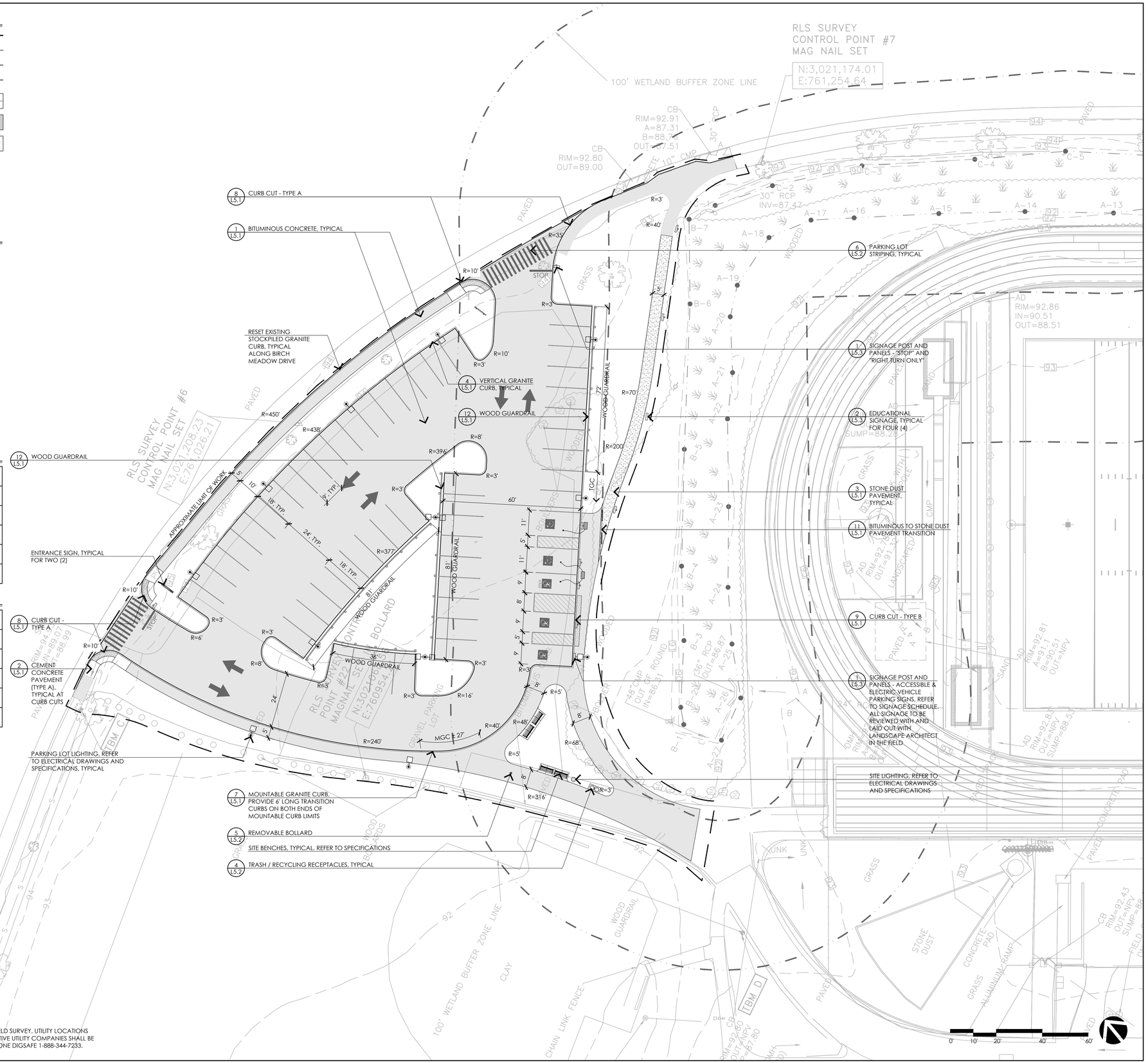
1. EXISTING CONDITIONS INFORMATION IS REPRODUCED FROM THE SURVEY PREPARED BY REED LAND SURVEYING INC., LOCATED AT 109 RHODE ISLAND ROAD, SUITE 4A, LAKEVILLE, MA, AND DATED JULY 28, 2022.
2. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ARE BASED ON THE SURVEY REFERENCED ABOVE. THE CONTRACTOR SHALL NOTIFY DIGSAFE AND THE PROPER LOCAL AUTHORITIES OR RESPECTIVE UTILITY COMPANIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
3. CONTRACTOR(S) SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.
4. ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATIONS, AND SITE CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE OWNER'S REPRESENTATIVE FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR CONSTRUCTION.
5. WHILE THE CONTRACTOR MAY USE THE ELECTRONIC DRAWINGS FOR LAYOUT PURPOSES, IT IS HIS RESPONSIBILITY TO CHECK ALL LAYOUT IN THE FIELD TO CONFIRM CONFORMITY WITH THE PROJECT DRAWINGS, SPECIFICATIONS, AND APPROVED SHOP DRAWINGS AND SUBMITTALS. USE OF ONLY THE ELECTRONIC DRAWINGS WITHOUT A SITE CHECK OF LAYOUT IS NOT ACCEPTABLE.

PARKING SPACE SCHEDULE

QUANTITY	PARKING SPACE TYPE
52	STANDARD PARKING SPACES
2	ACCESSIBLE PARKING SPACES
1	VAN-ACCESSIBLE PARKING SPACE
1	VAN ACCESSIBLE ELECTRIC VEHICLE CHARGING PARKING SPACE
2	ELECTRIC VEHICLE CHARGING PARKING SPACE

SIGNAGE SCHEDULE

QUANTITY	SIGNAGE TYPE
2	ACCESSIBLE PARKING SIGN
1	VAN-ACCESSIBLE PARKING SIGN
3	ELECTRIC VEHICLE CHARGING SIGN
2	STOP SIGN
1	RIGHT TURN ONLY



CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA
BIRCH MEADOW PARK | PHASE I RENOVATIONS

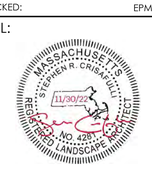
REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	1"=20'-0"
PROJECT NO.:	22014.00
FILE:	22014.00-L1.1-LM_PLAN.dwg
DRAWN:	MJD
CHECKED:	EPM/SRC

SEAL:



SHEET TITLE:
LAYOUT AND MATERIALS PLAN SHEET I

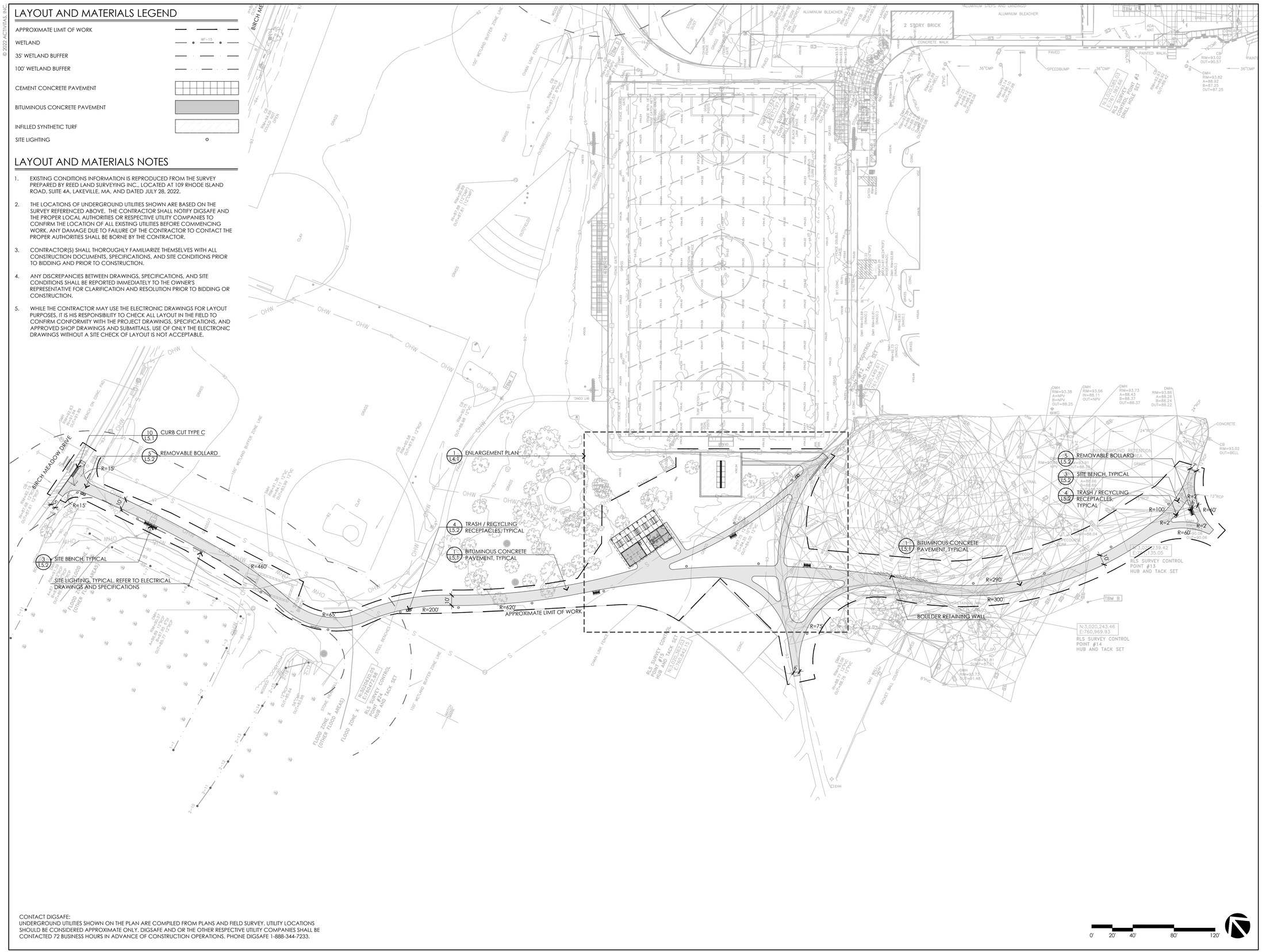
SHEET NO:
L1.1

LAYOUT AND MATERIALS LEGEND

- APPROXIMATE LIMIT OF WORK
- WETLAND (WF-15)
- 35' WETLAND BUFFER
- 100' WETLAND BUFFER
- CEMENT CONCRETE PAVEMENT
- BITUMINOUS CONCRETE PAVEMENT
- INFILLED SYNTHETIC TURF
- SITE LIGHTING

LAYOUT AND MATERIALS NOTES

1. EXISTING CONDITIONS INFORMATION IS REPRODUCED FROM THE SURVEY PREPARED BY REED LAND SURVEYING INC., LOCATED AT 109 RHODE ISLAND ROAD, SUITE 4A, LAKEVILLE, MA, AND DATED JULY 28, 2022.
2. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ARE BASED ON THE SURVEY REFERENCED ABOVE. THE CONTRACTOR SHALL NOTIFY DIGSAFE AND THE PROPER LOCAL AUTHORITIES OR RESPECTIVE UTILITY COMPANIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
3. CONTRACTOR(S) SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.
4. ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATIONS, AND SITE CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE OWNER'S REPRESENTATIVE FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR CONSTRUCTION.
5. WHILE THE CONTRACTOR MAY USE THE ELECTRONIC DRAWINGS FOR LAYOUT PURPOSES, IT IS HIS RESPONSIBILITY TO CHECK ALL LAYOUT IN THE FIELD TO CONFIRM CONFORMITY WITH THE PROJECT DRAWINGS, SPECIFICATIONS, AND APPROVED SHOP DRAWINGS AND SUBMITTALS. USE OF ONLY THE ELECTRONIC DRAWINGS WITHOUT A SITE CHECK OF LAYOUT IS NOT ACCEPTABLE.



CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA

BIRCH MEADOW PARK | PHASE I RENOVATIONS

REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	1"=40'-0"
PROJECT NO.:	22014.00
FILE:	22014.00-L1.2-LM_PLAN.dwg
DRAWN:	MJD
CHECKED:	EPM/SRC

SEAL:

SHEET TITLE:
LAYOUT AND MATERIALS PLAN SHEET II

SHEET NO:
L1.2

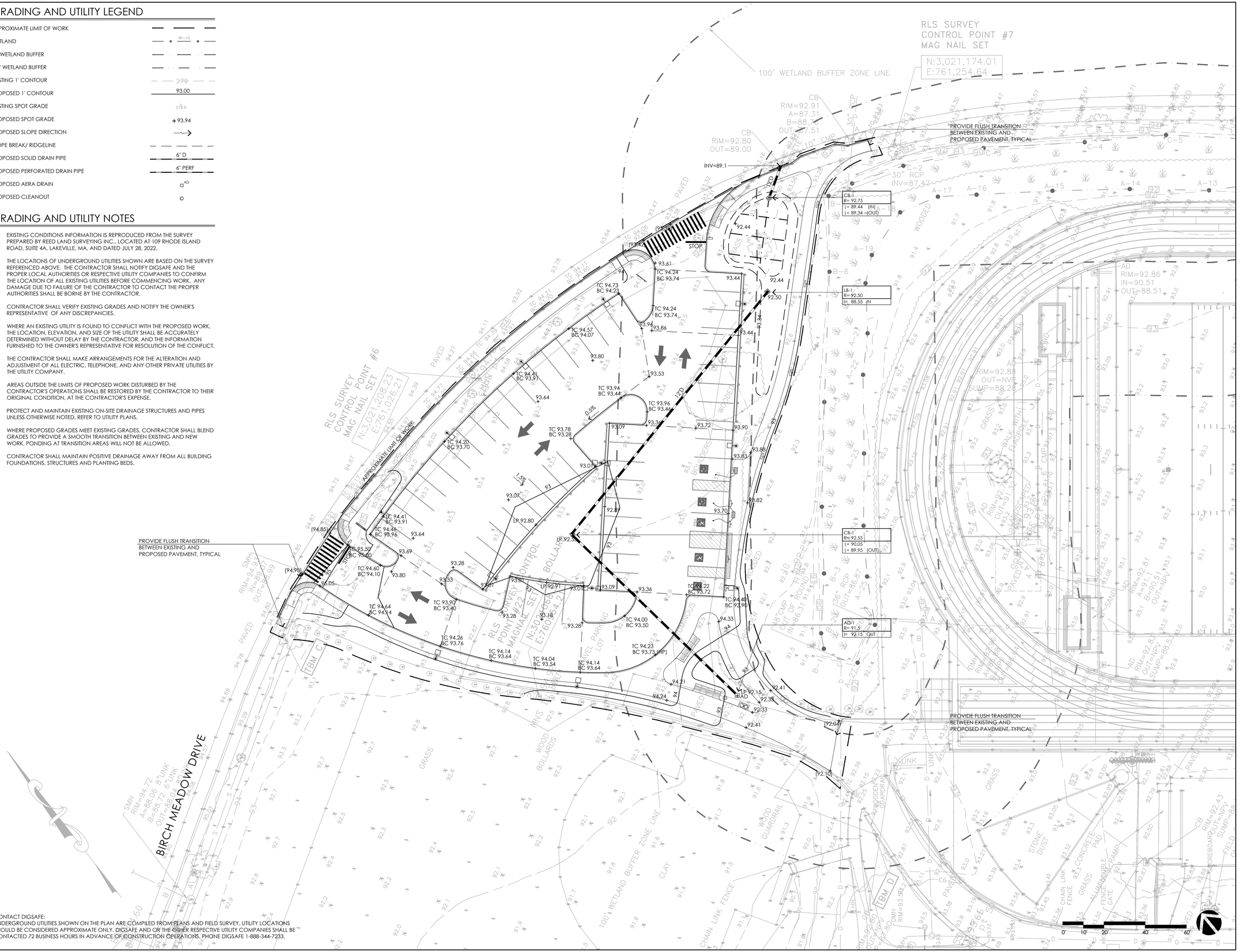
GRADING AND UTILITY LEGEND

APPROXIMATE LIMIT OF WORK	
WETLAND	WF-15
35' WETLAND BUFFER	
100' WETLAND BUFFER	
EXISTING 1' CONTOUR	279
PROPOSED 1' CONTOUR	93.00
EXISTING SPOT GRADE	278.6
PROPOSED SPOT GRADE	+ 93.94
PROPOSED SLOPE DIRECTION	
SLOPE BREAK/ RIDGELINE	
PROPOSED SOLID DRAIN PIPE	6" D
PROPOSED PERFORATED DRAIN PIPE	6" PERF
PROPOSED AERA DRAIN	AD
PROPOSED CLEANOUT	

GRADING AND UTILITY NOTES

1. EXISTING CONDITIONS INFORMATION IS REPRODUCED FROM THE SURVEY PREPARED BY REED LAND SURVEYING INC., LOCATED AT 109 RHODE ISLAND ROAD, SUITE 4A, LAKEVILLE, MA, AND DATED JULY 28, 2022.
2. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ARE BASED ON THE SURVEY REFERENCED ABOVE. THE CONTRACTOR SHALL NOTIFY DIGSAFE AND THE PROPER LOCAL AUTHORITIES OR RESPECTIVE UTILITY COMPANIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
3. CONTRACTOR SHALL VERIFY EXISTING GRADES AND NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES.
4. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE OWNER'S REPRESENTATIVE FOR RESOLUTION OF THE CONFLICT.
5. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF ALL ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANY.
6. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION, AT THE CONTRACTOR'S EXPENSE.
7. PROTECT AND MAINTAIN EXISTING ON-SITE DRAINAGE STRUCTURES AND PIPES UNLESS OTHERWISE NOTED, REFER TO UTILITY PLANS.
8. WHERE PROPOSED GRADES MEET EXISTING GRADES, CONTRACTOR SHALL BLEND GRADES TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND NEW WORK. PONDING AT TRANSITION AREAS WILL NOT BE ALLOWED.
9. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS, STRUCTURES AND PLANTING BEDS.

CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.



ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA

BIRCH MEADOW PARK | PHASE I RENOVATIONS

REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	1"=20'-0"
PROJECT NO.:	22014.00
FILE:	22014.00-L2.1-G_PLAN.dwg
DRAWN:	SRC
CHECKED:	MEB

SEAL:

COMMONWEALTH OF MASSACHUSETTS
MEGAN E. BUCZYNSKI
CIVIL
No. 47392
REGISTERED PROFESSIONAL ENGINEER

11/29/2022

SHEET TITLE:

GRADING AND UTILITY PLAN SHEET I

SHEET NO:

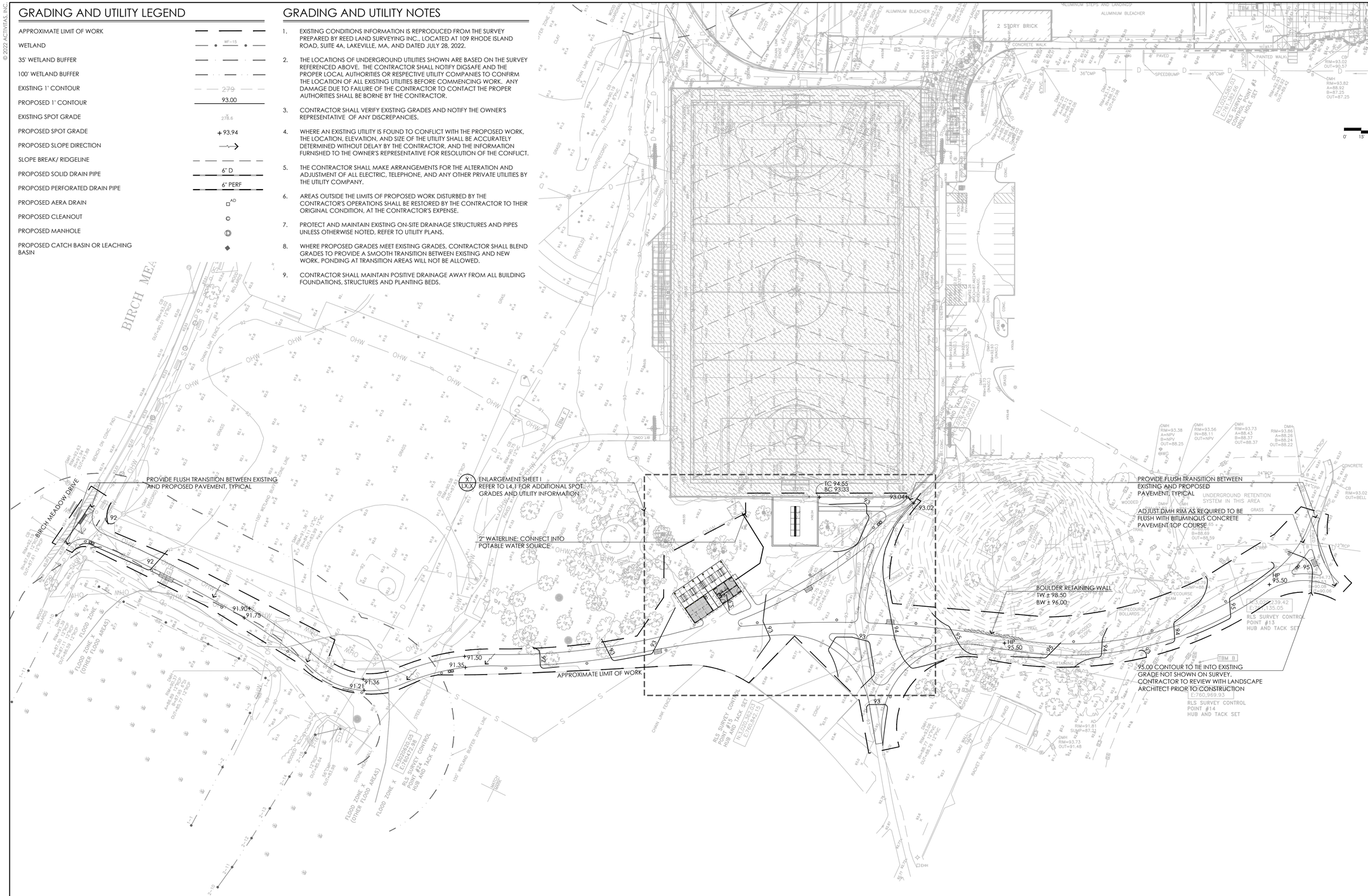
L2.1

GRADING AND UTILITY LEGEND

APPROXIMATE LIMIT OF WORK	
WETLAND	WF-15
35' WETLAND BUFFER	
100' WETLAND BUFFER	
EXISTING 1' CONTOUR	279
PROPOSED 1' CONTOUR	93.00
EXISTING SPOT GRADE	278.6
PROPOSED SPOT GRADE	+ 93.94
PROPOSED SLOPE DIRECTION	
SLOPE BREAK/ RIDGELINE	
PROPOSED SOLID DRAIN PIPE	6" D
PROPOSED PERFORATED DRAIN PIPE	6" PERF
PROPOSED AERA DRAIN	AD
PROPOSED CLEANOUT	
PROPOSED MANHOLE	
PROPOSED CATCH BASIN OR LEACHING BASIN	

GRADING AND UTILITY NOTES

1. EXISTING CONDITIONS INFORMATION IS REPRODUCED FROM THE SURVEY PREPARED BY REED LAND SURVEYING INC., LOCATED AT 109 RHODE ISLAND ROAD, SUITE 4A, LAKEVILLE, MA, AND DATED JULY 28, 2022.
2. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ARE BASED ON THE SURVEY REFERENCED ABOVE. THE CONTRACTOR SHALL NOTIFY DIGSAFE AND THE PROPER LOCAL AUTHORITIES OR RESPECTIVE UTILITY COMPANIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
3. CONTRACTOR SHALL VERIFY EXISTING GRADES AND NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES.
4. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE OWNER'S REPRESENTATIVE FOR RESOLUTION OF THE CONFLICT.
5. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF ALL ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANY.
6. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION, AT THE CONTRACTOR'S EXPENSE.
7. PROTECT AND MAINTAIN EXISTING ON-SITE DRAINAGE STRUCTURES AND PIPES UNLESS OTHERWISE NOTED, REFER TO UTILITY PLANS.
8. WHERE PROPOSED GRADES MEET EXISTING GRADES, CONTRACTOR SHALL BLEND GRADES TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND NEW WORK. PONDING AT TRANSITION AREAS WILL NOT BE ALLOWED.
9. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS, STRUCTURES AND PLANTING BEDS.



CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING

Reading, MA

BIRCH MEADOW PARK | PHASE I RENOVATIONS

REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	1"=20'-0"
PROJECT NO.:	22014.00
FILE:	22014.00-L2.1-G_PLAN.dwg
DRAWN:	MJD
CHECKED:	MEB

SEAL:

COMMONWEALTH OF MASSACHUSETTS
MEGAN E. BUCZYNSKI
CIVIL
No. 47392
REGISTERED PROFESSIONAL ENGINEER

11/29/2022

SHEET TITLE:

GRADING AND UTILITY PLAN SHEET II

SHEET NO:

L2.2

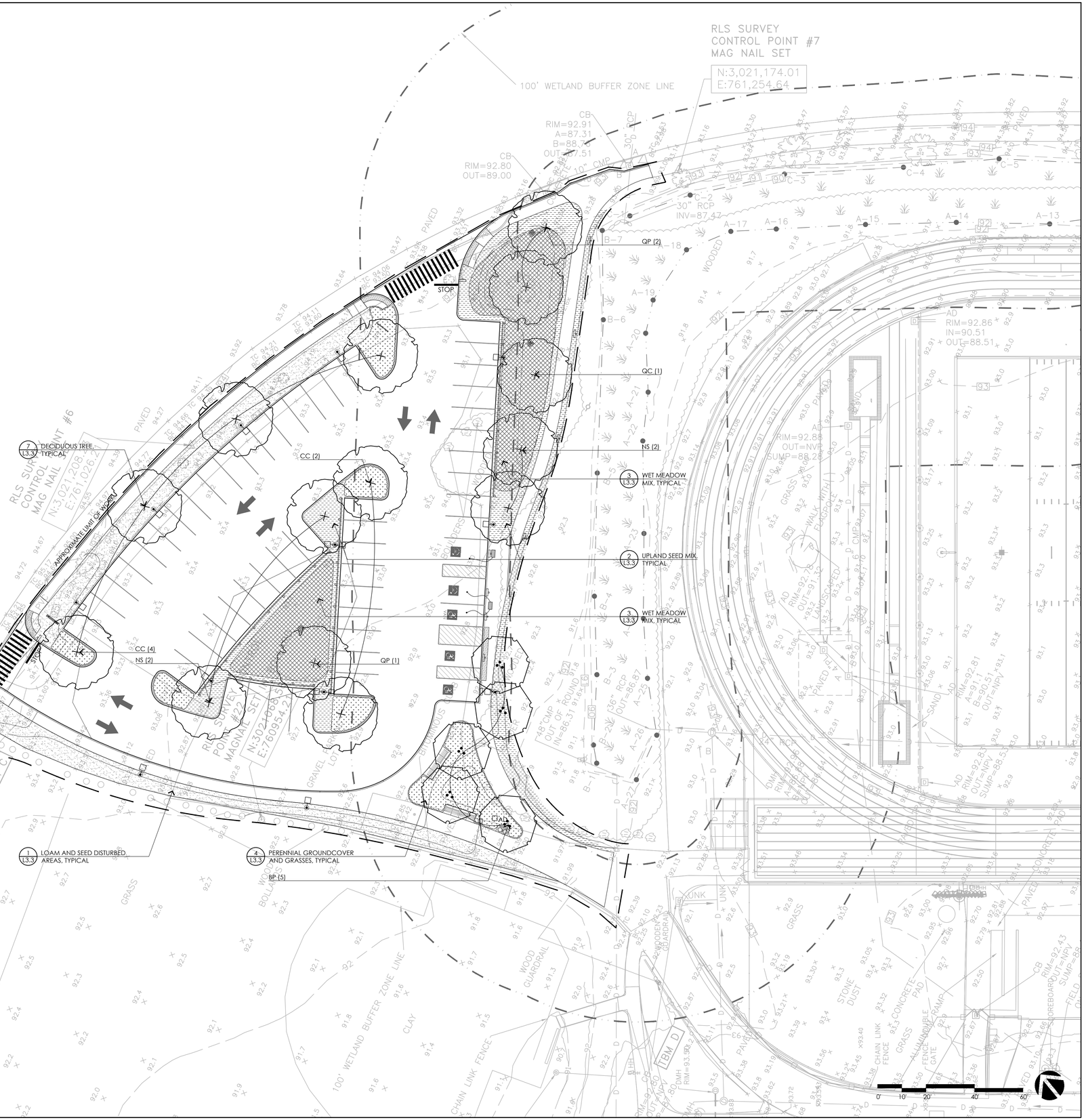
PLANTING LEGEND

- APPROXIMATE LIMIT OF WORK
- WETLAND (WF-15)
- 30' WETLAND BUFFER
- 100' WETLAND BUFFER
- PROPOSED 1' CONTOUR
- TEMPORARY FENCING AT SEED ESTABLISHMENT AREAS
- PERENNIALS, GROUNDCOVER, AND GRASSES
- LOAM AND SEED
- LOAM AND SOD (**ALTERNATE NO. X**)
- CONSERVATION/UPLAND SEED MIX
- WETLAND SEED MIX
- DECIDUOUS TREE
- MULTI-STEM TREE
- SHRUB

PLANTING NOTES

1. EXISTING CONDITIONS INFORMATION IS REPRODUCED FROM THE SURVEY PREPARED BY REED LAND SURVEYING INC., LOCATED AT 109 RHODE ISLAND ROAD, SUITE 4A, LAKEVILLE, MA, AND DATED JULY 28, 2022.
2. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ARE BASED ON THE SURVEY REFERENCED ABOVE. THE CONTRACTOR SHALL NOTIFY DIGSAFE AND THE PROPER LOCAL AUTHORITIES OR RESPECTIVE UTILITY COMPANIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
3. CONTRACTOR SHALL BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND WILL CONTINUE UNTIL FINAL WRITTEN ACCEPTANCE OF PLANT MATERIAL.
4. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM PROPOSED BUILDING, STRUCTURES, AND PLANTING BEDS.
5. THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE ALL PLANTINGS SHOWN ON THIS DRAWING.
6. ALL MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
7. ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS TO ORIGINAL GRADES BEFORE DIGGING.
8. FINAL LAYOUT OF PLANTINGS WILL BE IN THE FIELD PER THE DIRECTION OF THE LANDSCAPE ARCHITECT, PROVIDE A MINIMUM FORTY-EIGHT (48) HOURS NOTICE PRIOR TO BEGINNING FINAL LAYOUT AND PLANTING OPERATIONS.
9. ALL PLANTS TO BE BALLED IN BURLAP OR CONTAINERIZED.
10. ALL PLANTED AREAS TO BE EDGED AND MULCHED WITH AGED PINE BARK: PARTIALLY DECOMPOSED, JET BLACK IN COLOR AND FREE OF WOOD CHIPS THICKER THAN 1/4 INCH.
11. LANDSCAPE ISLAND PLANTING SOIL MIX: UTILIZE EXISTING SITE LOAM FROM STOCKPILES. THOROUGHLY INCORPORATE WITH COMPOST AS NEEDED PER SOILS ANALYSIS. FERTILIZE PER RECOMMENDED RATES IN SOIL ANALYSIS.
12. TREE PIT PLANTING SOIL MIX: REFER TO SPECIFICATIONS FOR CU STRUCTURAL SOIL.
13. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF ACCEPTANCE.
14. ALL PLANT MATERIALS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT, AT THE NURSERY, AND AT THE SITE.
15. ALL AREAS OF THE SITE WHICH HAVE BEEN DISTURBED AND NOT OTHERWISE DEVELOPED SHALL BE LOAMED AND SEEDED WITH A MINIMUM DEPTH OF 12" DEPTH TOPSOIL UNLESS OTHERWISE NOTED.
16. SLOPES 3:1 AND GREATER SHALL RECEIVE STRAW BLANKET PRIOR TO SEEDING.
17. REFER TO SHEET L3.3 FOR PLANTING AND SEED MIX SCHEDULES.

CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.



ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA

BIRCH MEADOW PARK | PHASE I RENOVATIONS

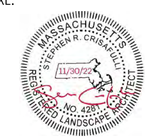
REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	1"=20'-0"
PROJECT NO.:	22014.00
FILE:	22014.00-L3.1-P_PLAN.dwg
DRAWN:	MJD
CHECKED:	EPM/SRC

SEAL:



SHEET TITLE:

PLANTING PLAN
SHEET I

SHEET NO:

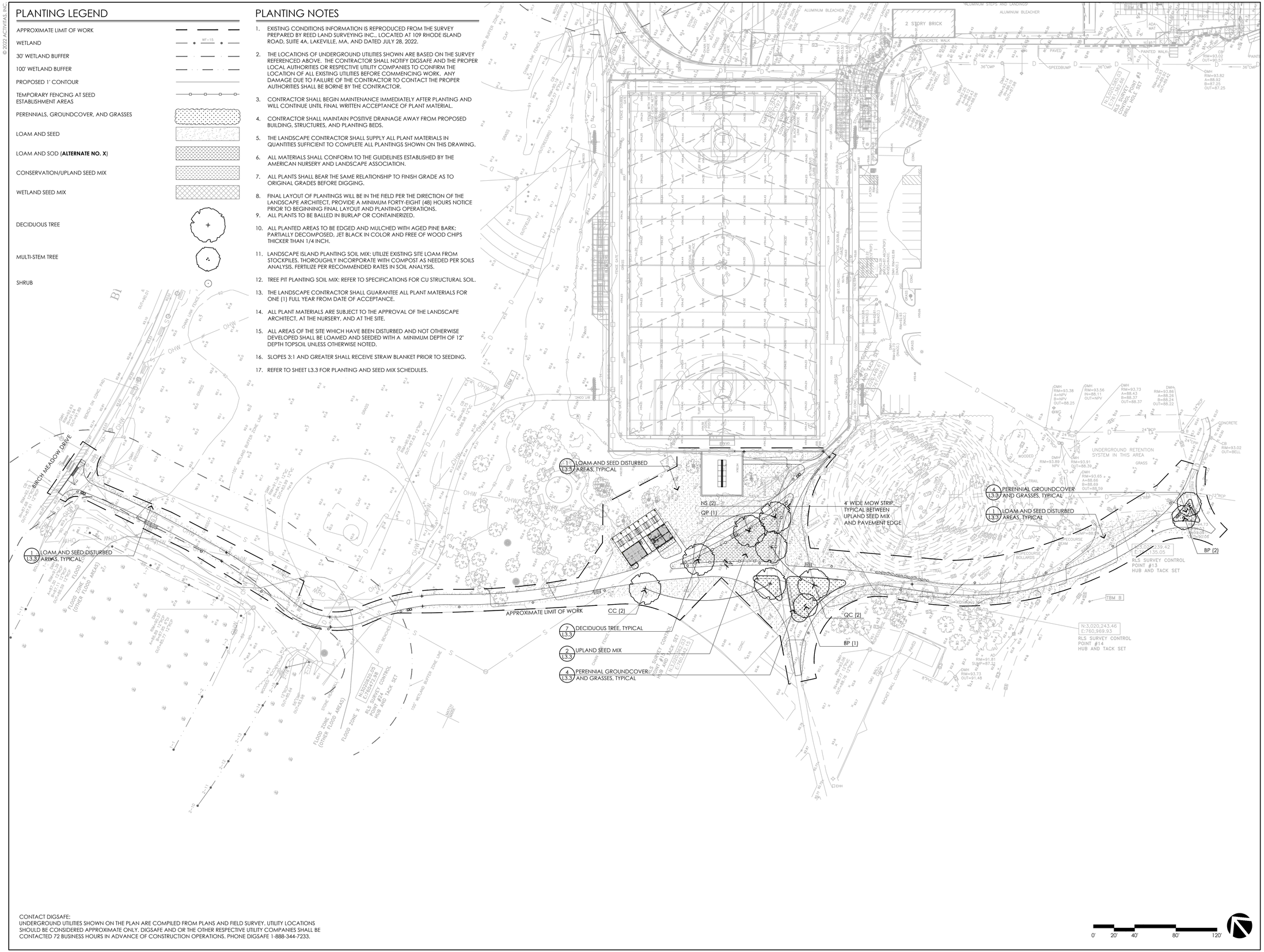
L3.1

PLANTING LEGEND

- APPROXIMATE LIMIT OF WORK
- WETLAND (WF – 15)
- 30' WETLAND BUFFER
- 100' WETLAND BUFFER
- PROPOSED 1' CONTOUR
- TEMPORARY FENCING AT SEED ESTABLISHMENT AREAS
- PERENNIALS, GROUNDCOVER, AND GRASSES
- LOAM AND SEED
- LOAM AND SOD (**ALTERNATE NO. X**)
- CONSERVATION/UPLAND SEED MIX
- WETLAND SEED MIX
- DECIDUOUS TREE
- MULTI-STEM TREE
- SHRUB

PLANTING NOTES

1. EXISTING CONDITIONS INFORMATION IS REPRODUCED FROM THE SURVEY PREPARED BY REED LAND SURVEYING INC., LOCATED AT 109 RHODE ISLAND ROAD, SUITE 4A, LAKEVILLE, MA, AND DATED JULY 28, 2022.
2. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ARE BASED ON THE SURVEY REFERENCED ABOVE. THE CONTRACTOR SHALL NOTIFY DIGSAFE AND THE PROPER LOCAL AUTHORITIES OR RESPECTIVE UTILITY COMPANIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
3. CONTRACTOR SHALL BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND WILL CONTINUE UNTIL FINAL WRITTEN ACCEPTANCE OF PLANT MATERIAL.
4. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM PROPOSED BUILDING, STRUCTURES, AND PLANTING BEDS.
5. THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE ALL PLANTINGS SHOWN ON THIS DRAWING.
6. ALL MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
7. ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS TO ORIGINAL GRADES BEFORE DIGGING.
8. FINAL LAYOUT OF PLANTINGS WILL BE IN THE FIELD PER THE DIRECTION OF THE LANDSCAPE ARCHITECT, PROVIDE A MINIMUM FORTY-EIGHT (48) HOURS NOTICE PRIOR TO BEGINNING FINAL LAYOUT AND PLANTING OPERATIONS.
9. ALL PLANTS TO BE BALLED IN BURLAP OR CONTAINERIZED.
10. ALL PLANTED AREAS TO BE EDGED AND MULCHED WITH AGED PINE BARK; PARTIALLY DECOMPOSED, JET BLACK IN COLOR AND FREE OF WOOD CHIPS THICKER THAN 1/4 INCH.
11. LANDSCAPE ISLAND PLANTING SOIL MIX: UTILIZE EXISTING SITE LOAM FROM STOCKPILES, THOROUGHLY INCORPORATE WITH COMPOST AS NEEDED PER SOILS ANALYSIS. FERTILIZE PER RECOMMENDED RATES IN SOIL ANALYSIS.
12. TREE PIT PLANTING SOIL MIX: REFER TO SPECIFICATIONS FOR CU STRUCTURAL SOIL.
13. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF ACCEPTANCE.
14. ALL PLANT MATERIALS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT, AT THE NURSERY, AND AT THE SITE.
15. ALL AREAS OF THE SITE WHICH HAVE BEEN DISTURBED AND NOT OTHERWISE DEVELOPED SHALL BE LOAMED AND SEEDED WITH A MINIMUM DEPTH OF 12" DEPTH TOPSOIL UNLESS OTHERWISE NOTED.
16. SLOPES 3:1 AND GREATER SHALL RECEIVE STRAW BLANKET PRIOR TO SEEDING.
17. REFER TO SHEET L3.3 FOR PLANTING AND SEED MIX SCHEDULES.



CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

0' 20' 40' 80' 120'

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA

BIRCH MEADOW PARK | PHASE I RENOVATIONS

REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	1"=20'-0"
PROJECT NO.:	22014.00
FILE:	22014.00-L3.2-P_PLAN.dwg
DRAWN:	XXX
CHECKED:	EPM/SRC

SEAL:

SHEET TITLE:

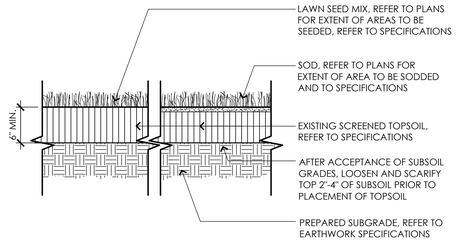
PLANTING PLAN
SHEET II

SHEET NO:

L3.2

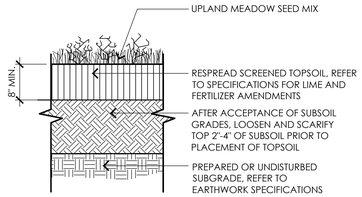
NOTE:

REFER TO SHEETS L3.1 AND L3.2 FOR LIMITS OF SOD MOW STRIP AREAS.



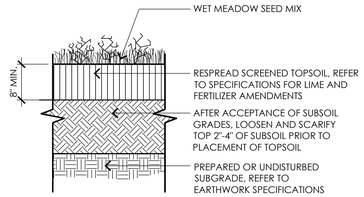
1 LOAM AND SEED / SOD

NOT TO SCALE



2 UPLAND SEED MIX

NOT TO SCALE

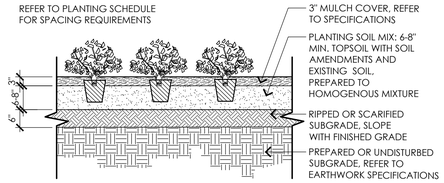


3 WET MEADOW SEED MIX

NOT TO SCALE

NOTE:

REFER TO PLANTING SCHEDULE FOR SPACING REQUIREMENTS

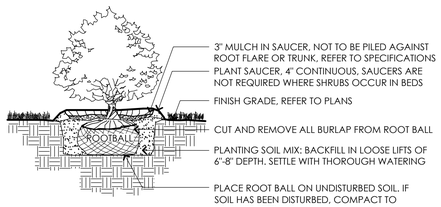


4 PERENNIALS, GROUNDCOVER, AND GRASSES

NOT TO SCALE

NOTES:

1. SHRUB SHALL BEAR SAME RELATIONSHIP TO FINISHED GRADE AS IT BORE TO NURSERY OR FIELD GRADE.
2. WHERE SHRUBS OCCUR IN GROUPINGS IN PLANT BEDS, PROVIDE 2 - FOOT DEEP CONTINUOUS LOAM BED AND 3" MULCH CONTINUOUS TO CUT EDGES OF PLANT BED

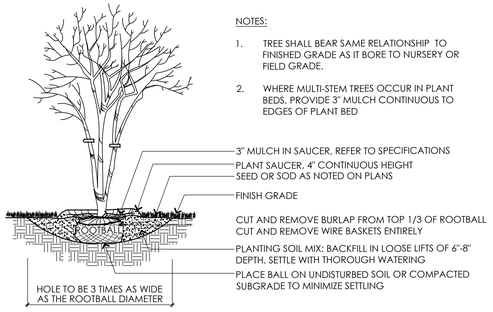


5 SHRUB

NOT TO SCALE

NOTES:

1. TREE SHALL BEAR SAME RELATIONSHIP TO FINISHED GRADE AS IT BORE TO NURSERY OR FIELD GRADE.
2. WHERE MULTI-STEM TREES OCCUR IN PLANT BEDS, PROVIDE 3" MULCH CONTINUOUS TO EDGES OF PLANT BED

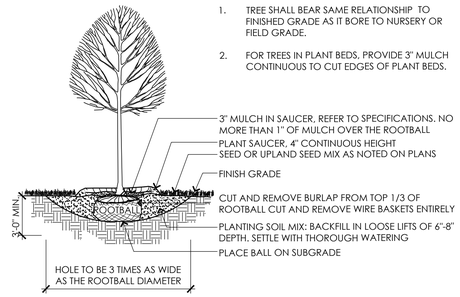


6 MULTI-STEM TREE

NOT TO SCALE

NOTES:

1. TREE SHALL BEAR SAME RELATIONSHIP TO FINISHED GRADE AS IT BORE TO NURSERY OR FIELD GRADE.
2. FOR TREES IN PLANT BEDS, PROVIDE 3" MULCH CONTINUOUS TO CUT EDGES OF PLANT BEDS.

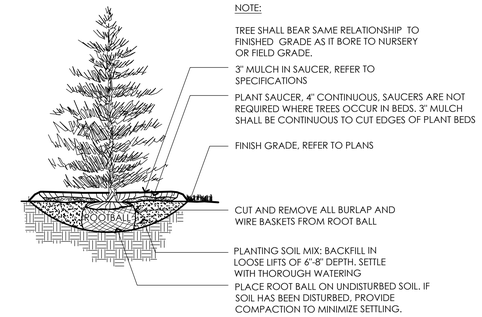


7 DECIDUOUS TREE

NOT TO SCALE

NOTE:

TREE SHALL BEAR SAME RELATIONSHIP TO FINISHED GRADE AS IT BORE TO NURSERY OR FIELD GRADE.



8 EVERGREEN TREE

NOT TO SCALE

SUGGESTED TREES AND SHRUBS

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	NOTES	QTY.	
TREES (MIXTURE OF DRY AND WET)						
BN	BETULA POPULIFOLIA	RIVER BIRCH	10'-12' HT.	MULTI-STEM	8	FACW
CC	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2-2.5" CAL.	B&B	8	FAC
NS	NYSSA SYLVATICA	BLACK TUPELO	2-2.5" CAL.	B&B	6	FAC
QC	QUERCUS COCCINEA	SCARLET OAK	3-3.5" CAL.	B&B	3	FACW+
QP	QUERCUS PALUSTRIS	PIN OAK	3-3.5" CAL.	B&B	4	FACW
SHRUBS (MIXTURE OF DRY AND WET)						
AM	ARONIA MELANOCARPA	BLACK CHOKEBERRY	3 GAL.	SPACE 36" O.C		FAC
FG	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	3 GAL.	SPACE 24" O.C		FACW
IG	ILEX GLABRA	INKBERRY	3 GAL.	SPACE 36" O.C		FACW-
IV	ILEX VERTICILLATA	WINTERBERRY	3 GAL.	SPACE 36" O.C		FACW+
VA	VACCINIUM ANGUSTIFOLIUM	LOWBUSH BLUEBERRY	3 GAL.	SPACE 24" O.C		FACU
GRASSES AND GROUNDCOVERS						
CAF	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	FEATHER REED GRASS	1 GAL.	SPACE 24" O.C		
DP	DENNSTAEDTIA PUNCTILOBULA	HAY SCENTED FERN	1 GAL.	SPACE 24" O.C		
MF	MONARDA FISTULOSA	WILD BERGAMOT/ BEEBALM	1 GAL.	SPACE 18" O.C		
PA	PENNISETUM ALOPECUROIDES 'HAMELN"	DWARF FOUNTAIN GRASS	1 GAL.	SPACE 24" O.C		
RH	RUDBECKIA HIRTA	BLACK-EYED SUSAN	1 GAL.	SPACE 24" O.C		

TERMS:

OBL	OBLIGATED WETLAND SPECIES	ALMOST ALWAYS IN WETLANDS
FACW	FACULTATIVE WETLAND SPECIES	USUALLY IN WETLANDS BUT OCCASIONALLY NOT IN WETLANDS
FAC	FACULTATIVE SPECIES	EQUALLY LIKELY IN WETLANDS AND NOT IN WETLANDS
FACU	FACULTATIVE UPLAND SPECIES	USUALLY NOT IN WETLANDS BUT OCCASIONALLY IN WETLANDS
UPL	OBLIGATED UPLAND SPECIES	ALMOST ALWAYS IN NON-WETLANDS

UPLAND SEED MIX

BOTANICAL NAME	COMMON NAME	
NEW ENGLAND ROADSIDE MATRIX UPLAND SEED MIX		
ELYMUS CANADENSIS	CANADA WILD RYE	FACW+
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	FACU
FESTUCA RUBRA	CREEPING RED FESCUE	FACU
ANDROPOGON GERARDII	BIG BLUESTEM	FAC
SORGHASTRUM NUTANS	INDIAN GRASS	UPL
CHAMAECRISTA FASCICULATA	PARTRIDGE PEA	FACU
PANICUM VIRGATUM	SWITCHGRASS	FAC
RHUS TYPHINA	STAGHORN SUMAC	
CORNUS AMOMUM	SILKY DOGWOOD	FACW
CORNUS RACEMOSA	GREY DOGWOOD	FAC
ASCLEPIAS SYRIACA	COMMON MILKWEED	FACU-
ZIZIA AUREA	GOLDEN ALEXANDERS	FAC
DESMODIUM CANADENSE	SHOWY TICK TREFOIL	FAC
LESPEDEZA CAPITATA	BUSH CLOVER	FACU-
HELIOPSIS HELIANTHOIDES	OX EYE SUNFLOWER	UPL
MONARDA FISTULOSA	WILD BERGAMOT	UPL
RUDBECKIA HIRTA	BLACK EYED SUSAN	FACU-
ASTER LAEVIS	SMOOTH BLUE ASTER	UPL
EUTHAMIA GRAMINIFOLIA	GRASS LEAVED GOLDENROD	FAC
SOLIDAGO JUNCEA	EARLY GOLDENROD	

APPLY 18LBS/ACRE: 1250 SF/LB

NOTES:

1. SEED MIXES SHALL BE EQUIVALENT TO THE SEED MIXES SHOWN AS DESIGNED AND SUPPLIED BY NEW ENGLAND WETLAND PLANTS, INC., AMHERST, MA (413) 548-8000.
2. CONTRACTOR SHALL SUBMIT ALL SEED MIXES TO LANDSCAPE ARCHITECT FOR REVIEW PRIOR TO PLACING ORDER.

UPLAND SEED MIX | 50:50 Blend of Upland Seed Mix and Wet Meadow Seed Mix Quantity:
Site Development Areas (±5,400 sf) 1 lb/1250 sf **(qty. ±5 lbs)**

WETLAND MEADOW SEED MIX | 50:50 Blend of Upland Seed Mix and Wet Meadow Seed Mix Quantity:
Site Development Areas (±3,600 sf) 1 lb/1250 sf **(qty. ±3 lbs)**

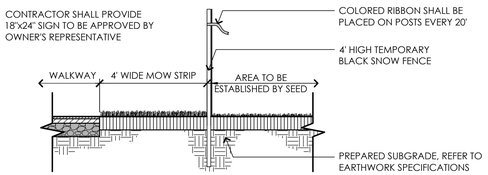
WET MEADOW SEED MIX

BOTANICAL NAME	COMMON NAME	
NEW ENGLAND ROADSIDE MATRIX WET MEADOW SEED MIX		
ELYMUS RIPARIUS	RIVERBANK WILD RYE	FACW
FESTUCA RUBRA	CREEPING RED FESCUE	FACU
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	FACW-
BIDENS ARISTOSA	TICKSEED SUNFLOWER	FACW
PANICUM DICHOTOMIFLORUM	SMOOTH PANIC GRASS	FACW-
PANICUM VIRGATUM	SWITCHGRASS	FAC
CORNUS AMOMUM	SILKY DOGWOOD	FACW
VERBENA HASTATA	BLUE VERVAIN	FACW
CAREX LURIDA	LURID SEDGE	OBL
CAREX SCOPARIA	BLUNT BROOM SEDGE	FACW
HELENIUM AUTUMNALE	COMMON SNEEZEWEED	FACW+
VIBURNUM DENTATUM	ARROW WOOD VIBURNUM	FAC
ASCLEPIAS INCARNATA	SWAMP MILKWEED	OBL
ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	FACW-
EUPATORIUM MACULATUM	SPOTTED JOE PYE WEED	FACW
EUPATORIUM PERFOLIATUM	BONESET	FACW
AGROSTIS SCABRA	ROUGH BENTGRASS/TICKLEGRASS	FAC
SCIRPUS ATROVIRENS	GREEN BULRUSH	OBL
SAMBUCUS CANADENSIS	ELDERBERRY	FACW-

APPLY 18LBS/ACRE: 1250 SF/LB

NOTES:

CONTRACTOR SHALL PROVIDE 18"x24" SIGN TO BE APPROVED BY OWNER'S REPRESENTATIVE



9 TEMPORARY FENCING AT SEED ESTABLISHMENT AREAS

NOT TO SCALE

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING

Reading, MA

BIRCH MEADOW PARK | PHASE I RENOVATIONS

REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	AS NOTED
PROJECT NO.:	22014.00
FILE:	22014.00-L5.3-P_DET_1.dwg
DRAWN:	SRC
CHECKED:	EPM/SRC

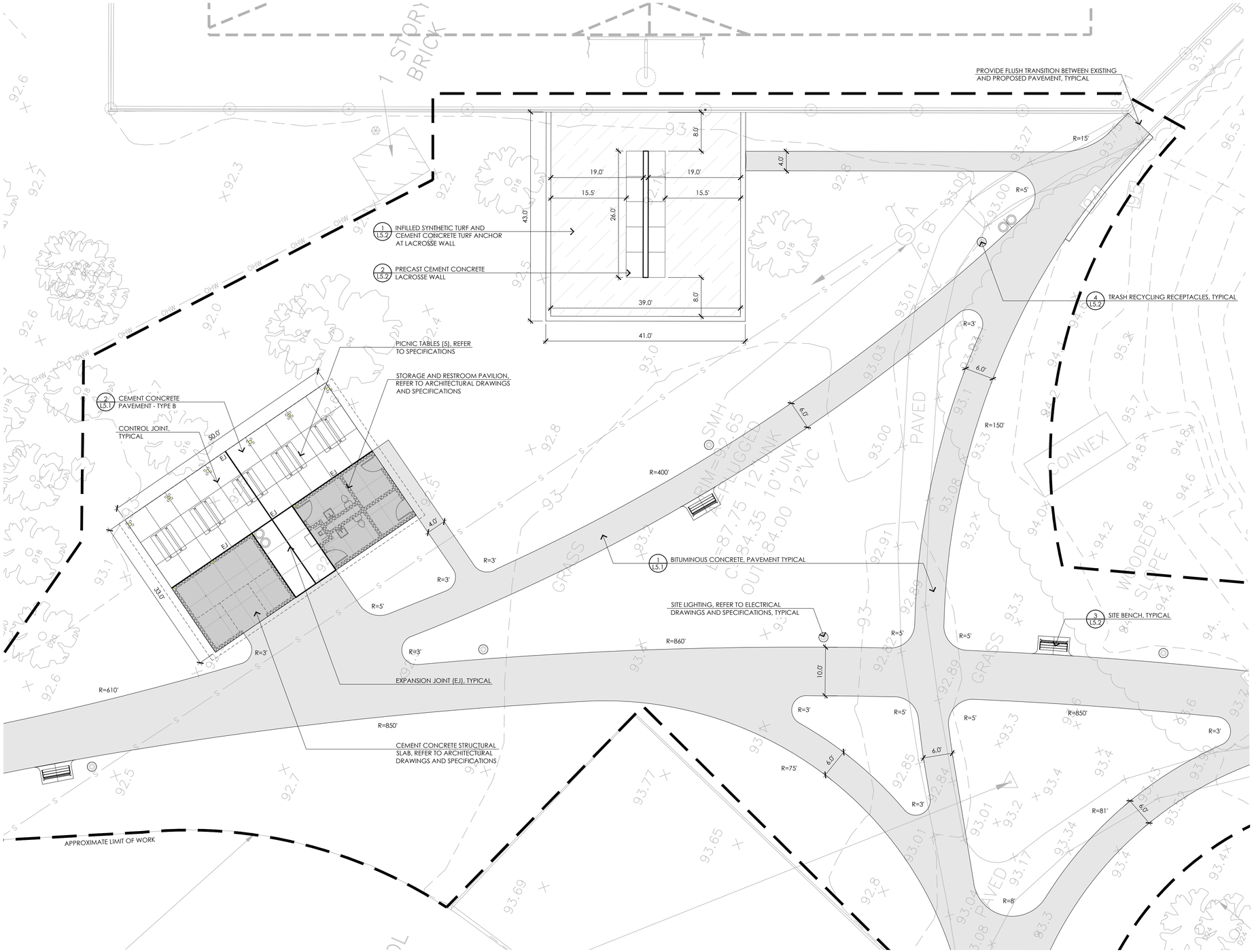
SEAL:

SHEET TITLE:

PLANTING DETAILS AND SCHEDULES

SHEET NO:

L3.3



1 ENLARGEMENT NO. 1

1" = 10'-0"

CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA

BIRCH MEADOW PARK | PHASE I RENOVATIONS

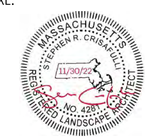
REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	1"=10'-0"
PROJECT NO.:	22014.00
FILE:	22014.00-L4.1-ENL_PLAN.dwg
DRAWN:	MJD
CHECKED:	EPM/SRC

SEAL:

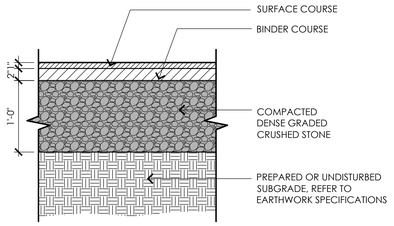


SHEET TITLE:

ENLARGEMENT PLAN

SHEET NO:

L4.1

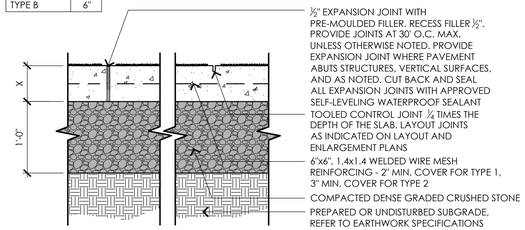


1 BITUMINOUS CONCRETE PAVEMENT
NOT TO SCALE

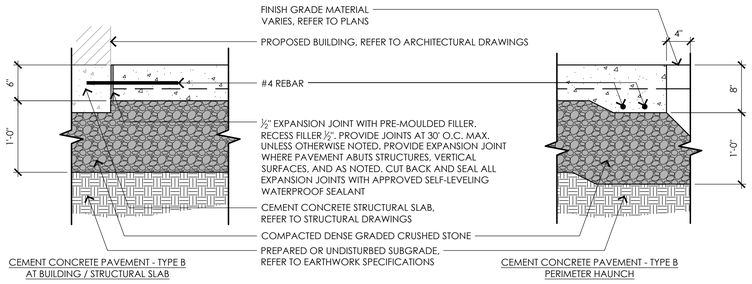
NOTE:

CONTRACTOR TO REVIEW LOCATION AND LAYOUT OF EXPANSION JOINTS AND TOOLED CONTROL JOINTS PRIOR TO COMMENCING CEMENT CONCRETE PAVEMENT INSTALLATION OPERATIONS

	X
TYPE A	4"
TYPE B	6"

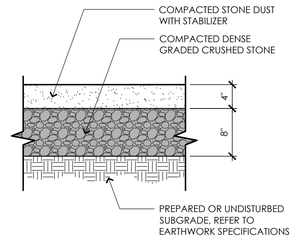


2 CEMENT CONCRETE PAVEMENT
NOT TO SCALE



NOTE:

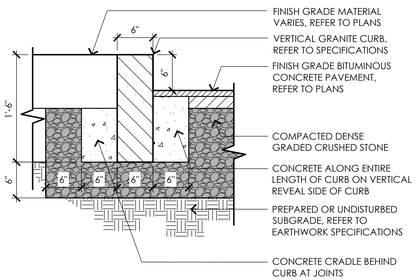
CONTRACTOR SHALL PROVIDE STEEL EDGE AT ALL EDGES OF STONE DUST PAVING, REFER TO SPECIFICATIONS



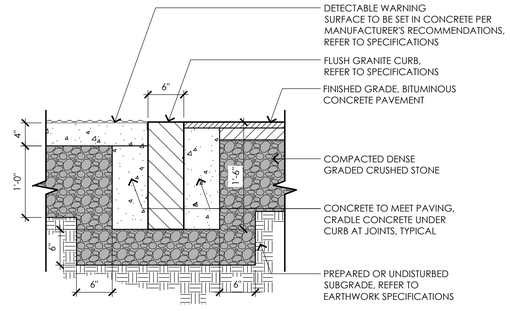
3 STONE DUST PAVEMENT
NOT TO SCALE

NOTE:

ALL JOINTS BETWEEN GRANITE CURB UNITS SHALL BE MORTARED



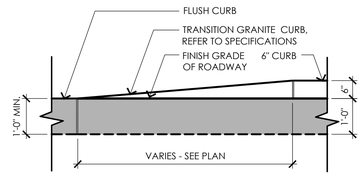
4 VERTICAL GRANITE CURB
NOT TO SCALE



5 FLUSH GRANITE CURB WITH DETECTABLE WARNING STRIP
NOT TO SCALE

NOTE:

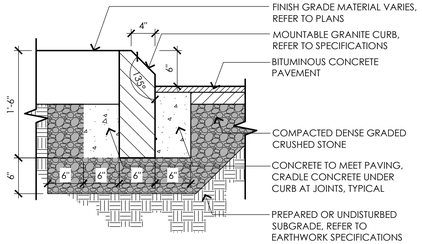
ALL JOINTS BETWEEN GRANITE CURB UNITS SHALL BE MORTARED.



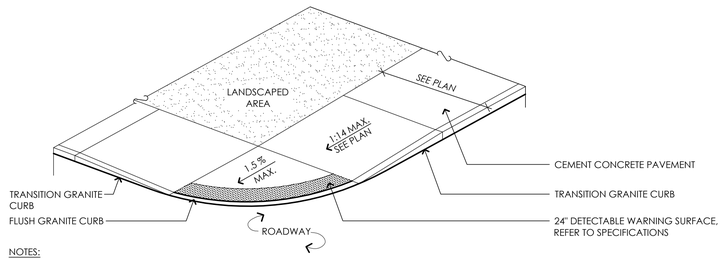
6 TRANSITION GRANITE CURB
NOT TO SCALE

NOTE:

ALL JOINTS BETWEEN GRANITE CURB UNITS SHALL BE MORTARED.



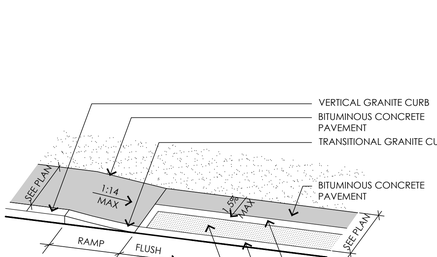
7 MOUNTABLE GRANITE CURB
NOT TO SCALE



NOTES:

1. RAMP CROSS SECTION TO BE THE SAME AS ADJACENT SIDEWALK; I.E. DEPTH OF SURFACE AND FOUNDATION.
2. DIMENSIONS ARE SUBJECT TO CHANGE IN FIELD. ALL SLOPES AND DIMENSIONS TO COMPLY WITH A.D.A. AND MAAB REQUIREMENTS.
3. PROVIDE EXPANSION JOINT AT TOPS OF RAMP AND AT BACK OF WALK AT INTERFACE OF GRANITE CURB.
4. PROVIDE HEAVY BROOM FINISH ON RAMP AND SIDE SLOPES PERPENDICULAR TO FLOW OF TRAFFIC.
5. MINIMUM WALK DIMENSIONS ARE FROM BACK OF GRANITE CURB.
6. TRANSITION GRANITE CURB LENGTH AS REQUIRED TO MEET CODE.
7. FIXED OBJECTS (I.E. UTILITY POLES, HYDRANTS ETC.) MUST NOT ENCROACH ON ANY PART OF A WHEELCHAIR RAMP, INCLUDING TRANSITION SLOPES.
8. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP, EXCLUDING GRANITE CURB TRANSITIONS, TO BE LOCATED OUTSIDE OF THE CROSSWALK.

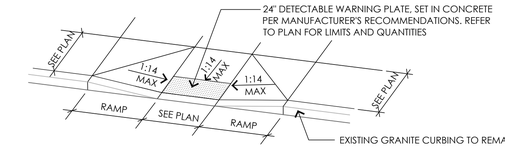
8 CURB CUT - TYPE A
NOT TO SCALE



NOTES:

1. RAMP CROSS SECTION TO BE THE SAME AS ADJACENT SIDEWALK; I.E. DEPTH OF SURFACE AND FOUNDATION.
2. DIMENSIONS ARE SUBJECT TO CHANGE IN FIELD. ALL SLOPES AND DIMENSIONS TO COMPLY WITH A.D.A. AND MAAB REQUIREMENTS.
3. PROVIDE EXPANSION JOINT AT TOPS OF RAMP AND AT BACK OF WALK AT INTERFACE OF GRANITE CURB. CUT BACK AND SEAL ALL EXPANSION JOINTS WITH APPROVED SELF-LEVELING WATERPROOF SEALANT/CAULK.
4. PROVIDE HEAVY BROOM FINISH ON RAMP AND SIDE SLOPES PERPENDICULAR TO FLOW OF TRAFFIC.
5. MINIMUM WALK DIMENSIONS ARE FROM BACK OF GRANITE CURB.
6. TRANSITION GRANITE CURB LENGTH AS REQUIRED TO MEET CODE.
7. FIXED OBJECTS (I.E. UTILITY POLES, HYDRANTS ETC.) MUST NOT ENCROACH ON ANY PART OF A WHEELCHAIR RAMP, INCLUDING TRANSITION SLOPES.
8. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP, EXCLUDING GRANITE CURB TRANSITIONS, TO BE LOCATED OUTSIDE OF THE CROSSWALK.

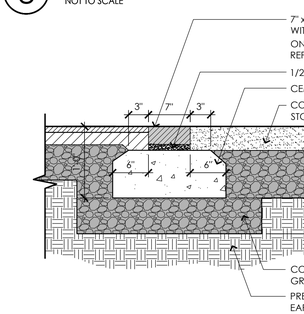
9 CURB CUT - TYPE B
NOT TO SCALE



NOTES:

1. RAMP CROSS SECTION TO BE THE SAME AS ADJACENT SIDEWALK; I.E. DEPTH OF SURFACE AND FOUNDATION.
2. DIMENSIONS ARE SUBJECT TO CHANGE IN FIELD. ALL SLOPES AND DIMENSIONS TO COMPLY WITH A.D.A. AND MAAB REQUIREMENTS.
3. PROVIDE EXPANSION JOINT AT TOPS OF RAMP AND AT BACK OF WALK AT INTERFACE OF GRANITE CURB.
4. PROVIDE HEAVY BROOM FINISH ON RAMP AND SIDE SLOPES PERPENDICULAR TO FLOW OF TRAFFIC.
5. MINIMUM WALK DIMENSIONS ARE FROM BACK OF GRANITE CURB.
6. TRANSITION GRANITE CURB LENGTH AS REQUIRED TO MEET CODE.
7. FIXED OBJECTS (I.E. UTILITY POLES, HYDRANTS ETC.) MUST NOT ENCROACH ON ANY PART OF A WHEELCHAIR RAMP, INCLUDING TRANSITION SLOPES.
8. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP, EXCLUDING GRANITE CURB TRANSITIONS, TO BE LOCATED OUTSIDE OF THE CROSSWALK.

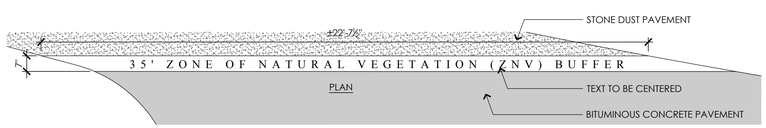
10 CURB CUT - TYPE C
NOT TO SCALE



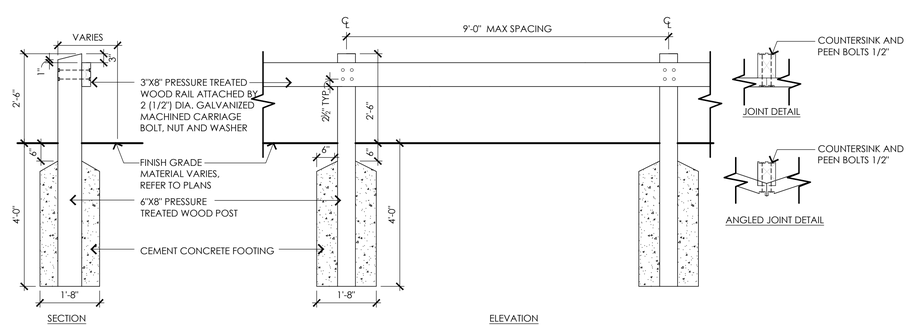
SECTION

NOTES:

1. SAND BLASTED LETTERING AND FONT STYLE SHALL BE SUPPLIED BY THE OWNERS REPRESENTATIVE AND COPY TO BE APPROVED BY OWNER'S REPRESENTATIVE.
2. GRANITE SHALL BE EQUIVALENT TO WOODBURY GREY WITH THERMAL FINISH AS SUPPLIED BY SWENSON GRANITE WORKS.



11 BITUMINOUS PAVING TO STONE DUST TRANSITION
NOT TO SCALE



SECTION ELEVATION

12 WOOD GUARDRAIL
NOT TO SCALE

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA
BIRCH MEADOW PARK | PHASE I RENOVATIONS

REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	AS NOTED
PROJECT NO.:	22014.00
FILE:	22014.00-L5.1-DET_1.dwg
DRAWN:	MJD
CHECKED:	EPM/SRC

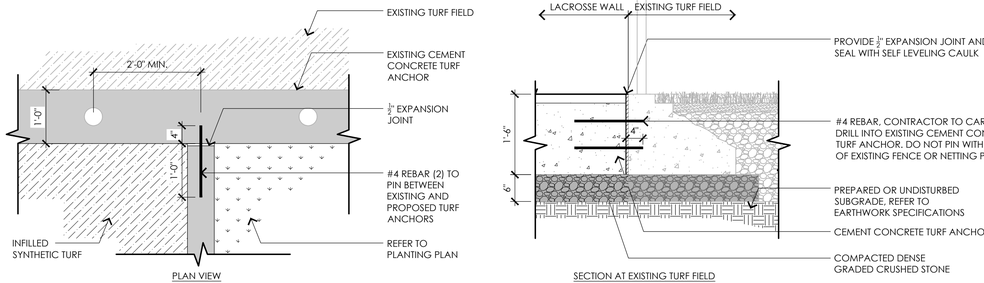
SEAL:

SHEET TITLE:

DETAIL SHEET I

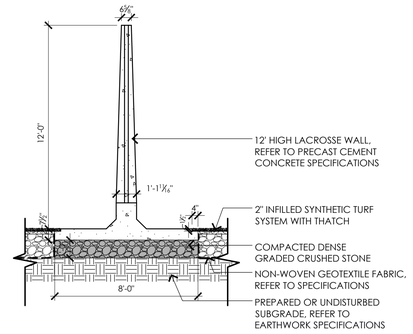
SHEET NO:

L5.1



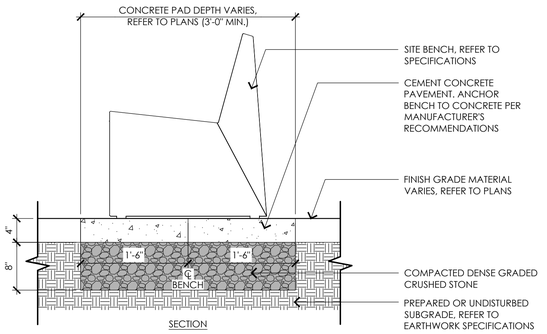
1 INFILLED SYNTHETIC TURF AND CEMENT CONCRETE TURF ANCHOR AT LACROSSE WALL

NOT TO SCALE



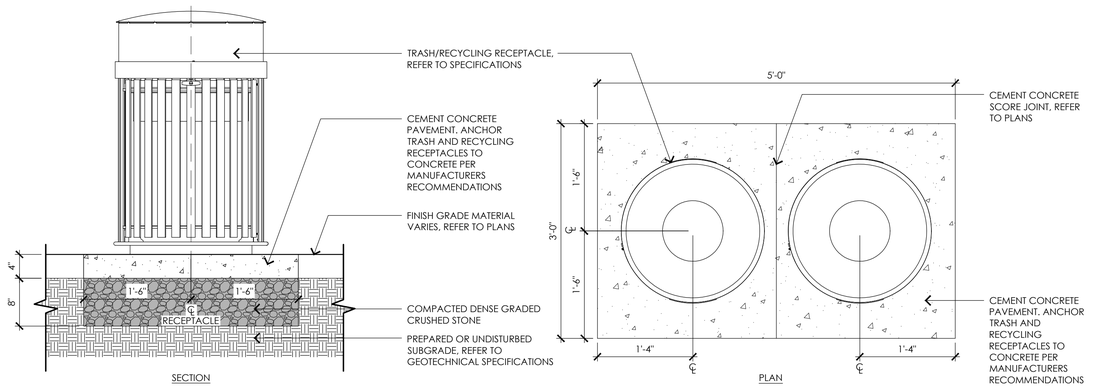
2 PRECAST CEMENT CONCRETE LACROSSE WALL

NOT TO SCALE



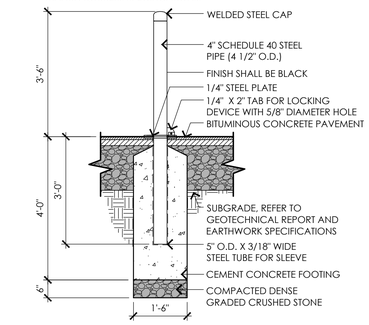
3 SITE BENCH

NOT TO SCALE



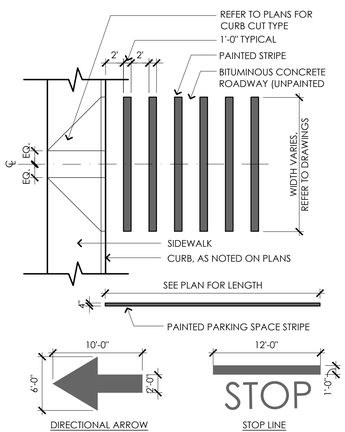
4 TRASH/RECYCLING RECEPTACLES ON CEMENT CONCRETE PAD

NOT TO SCALE



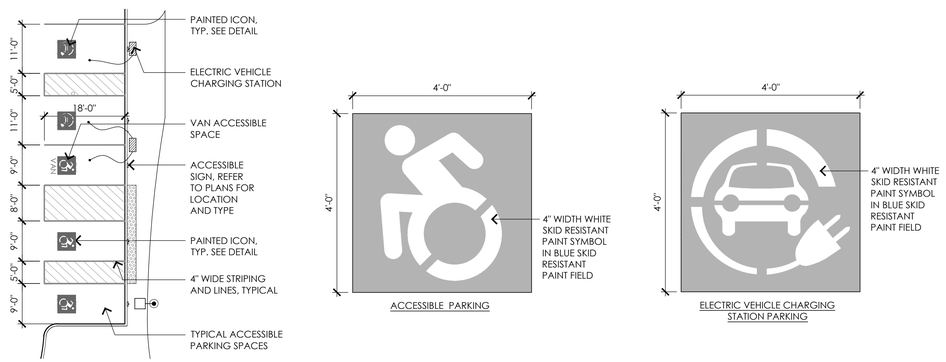
5 REMOVABLE BOLLARD

NOT TO SCALE



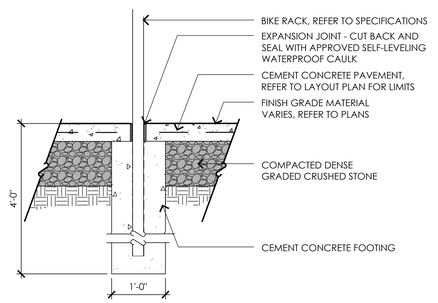
6 CROSSWALK / PARKING LOT STRIPING

NOT TO SCALE



7 ACCESSIBLE PARKING & ELECTRIC VEHICLE CHARGING STATION LAYOUT AND STRIPING

NOT TO SCALE



8 BIKE RACK

NOT TO SCALE

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA
BIRCH MEADOW PARK | PHASE I RENOVATIONS

REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	AS NOTED
PROJECT NO.:	22014.00
FILE:	22014.00-L5.2-DET_2.dwg
DRAWN:	MJD
CHECKED:	EPM/SRC

SEAL:

SHEET TITLE:

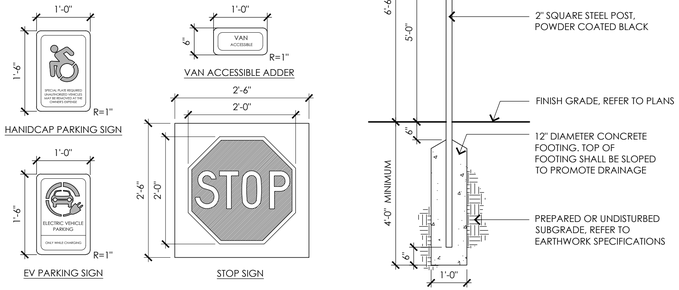
DETAIL SHEET II

SHEET NO:

L5.2

NOTES:

1. ALL TEXT, COLORS, FONTS, AND DIMENSIONS SHALL BE REVIEWED BY LANDSCAPE ARCHITECT AND THE OWNER.
2. GRAPHICS AND LETTERING STYLE SHALL BE SUPPLIED BY THE LANDSCAPE ARCHITECT AND COPY TO BE APPROVED BY LANDSCAPE ARCHITECT.
3. CONTRACTOR SHALL SUBMIT MOUNTING METHOD FOR APPROVAL.
4. ALL SIGN MOUNTING MECHANISMS SHALL BE PAINTED BLACK.

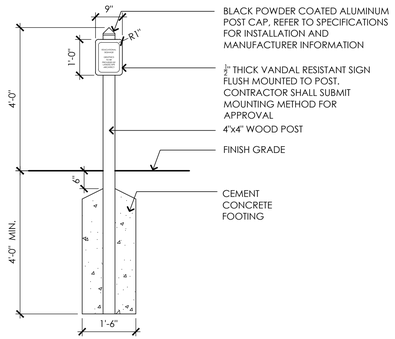


1 SIGNAGE POST AND PANELS

NOT TO SCALE

NOTES:

1. GRAPHICS AND LETTERING STYLE SHALL BE SUPPLIED BY THE OWNERS REPRESENTATIVE AND COPY TO BE APPROVED BY OWNER'S REPRESENTATIVE
2. ALL WOOD SHALL BE CEDAR, REFER TO SPECIFICATIONS

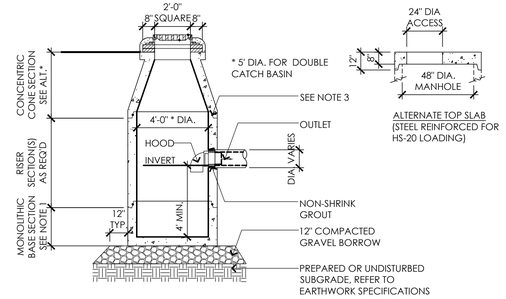


2 EDUCATIONAL SIGNAGE

NOT TO SCALE

NOTES:

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 1" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN FRAME SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR. (2 BRICK COURSES MIN., 5 BRICK COURSES MAX.)



3 CATCH BASIN

NOT TO SCALE

NOTES:

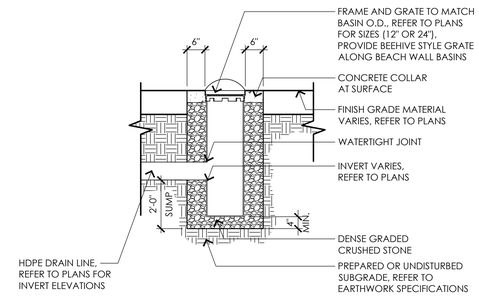
1. BASE SECTION SHALL BE MONOLITHIC WITH 6' INSIDE DIAMETER.
2. ALL PRECAST COMPONENTS SHALL BE DESIGNED FOR HS-20 LOADING.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR HS-20 LOADING.
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 1" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
6. STANDARD MANHOLE FRAME SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSE MINIMUM, 5 BRICK COURSE MAXIMUM)

4 LEACHING BASIN

NOT TO SCALE

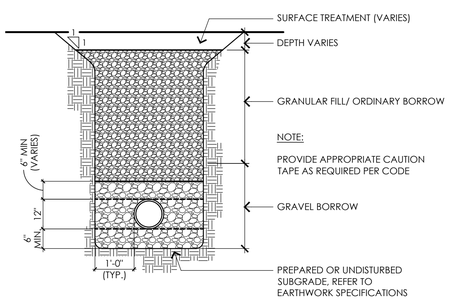
NOTES:

1. GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2. FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
3. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE.



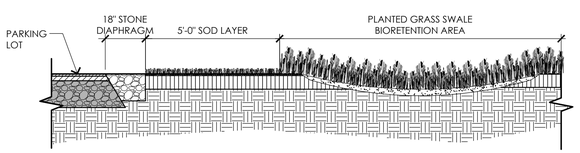
5 AREA DRAIN

NOT TO SCALE



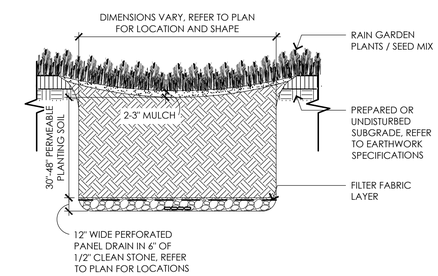
6 UTILITY TRENCH

NOT TO SCALE



7 BIORETENTION PRETREATMENT SECTION

NOT TO SCALE



8 BIORETENTION

NOT TO SCALE

11/29/2022

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING

Reading, MA

BIRCH MEADOW PARK | PHASE I RENOVATIONS

REGULATORY REVIEW
November 30, 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	AS NOTED
PROJECT NO.:	22014.00
FILE:	22014.00-L5.3-DET_3.dwg
DRAWN:	MJD
CHECKED:	EPM/SRC

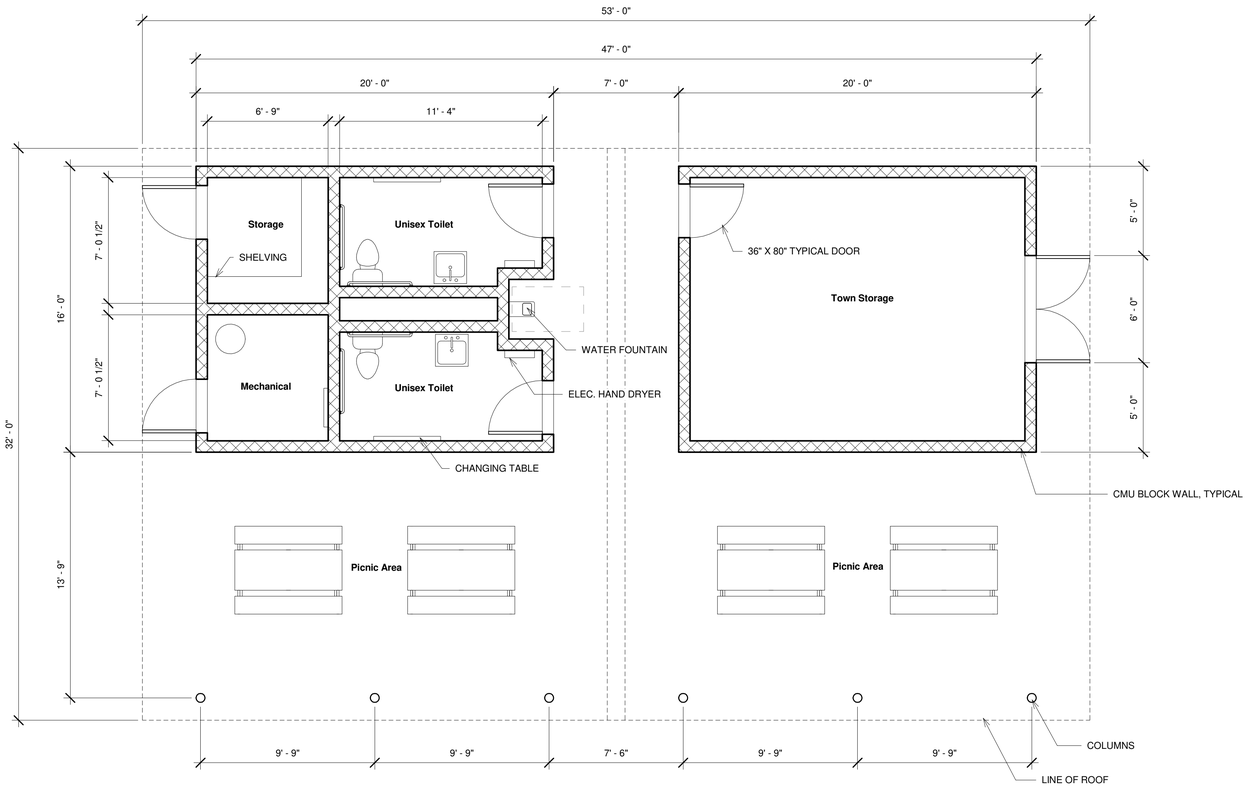
SEAL:

SHEET TITLE:

DETAIL SHEET III

SHEET NO:

L5.3



CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING

Reading, MA

BIRCH MEADOW PARK | PHASE I

NOTICE OF INTENT
November 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	1/4" = 1'-0"
PROJECT NO.:	22014.00
FILE:	Birch Meadow .dwg
DRAWN:	PSO
CHECKED:	XXX

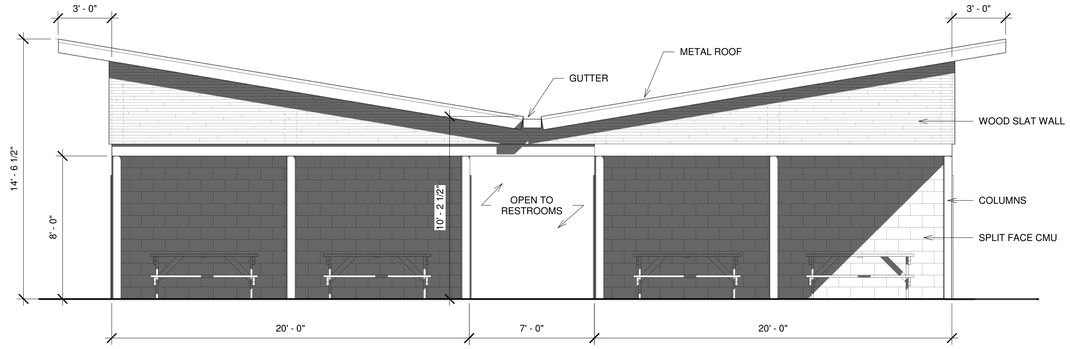
SEAL:

SHEET TITLE:

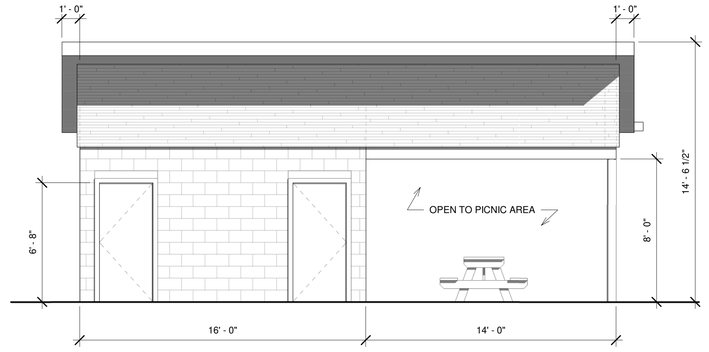
FIRST FLOOR PLAN

SHEET NO:

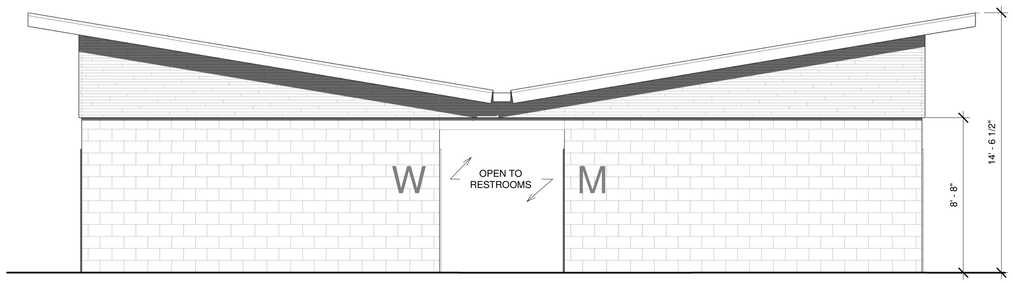
A1.1



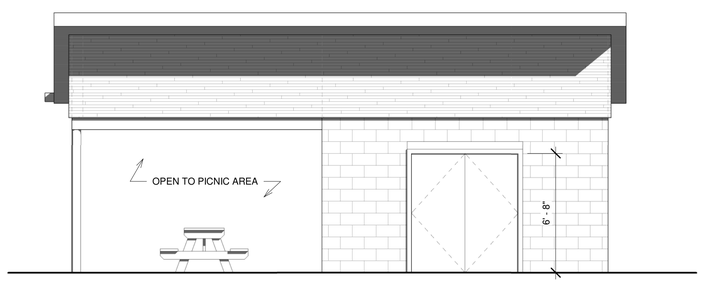
1 Front
1/4" = 1'-0"



2 Restroom Side
1/4" = 1'-0"



3 Rear
1/4" = 1'-0"



4 Storage Side
1/4" = 1'-0"

CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(731) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA
BIRCH MEADOW PARK | PHASE I

NOTICE OF INTENT
November 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	1/4" = 1'-0"
PROJECT NO.:	22014.00
FILE:	Birch Meadow .dwg
DRAWN:	PSO
CHECKED:	XXX

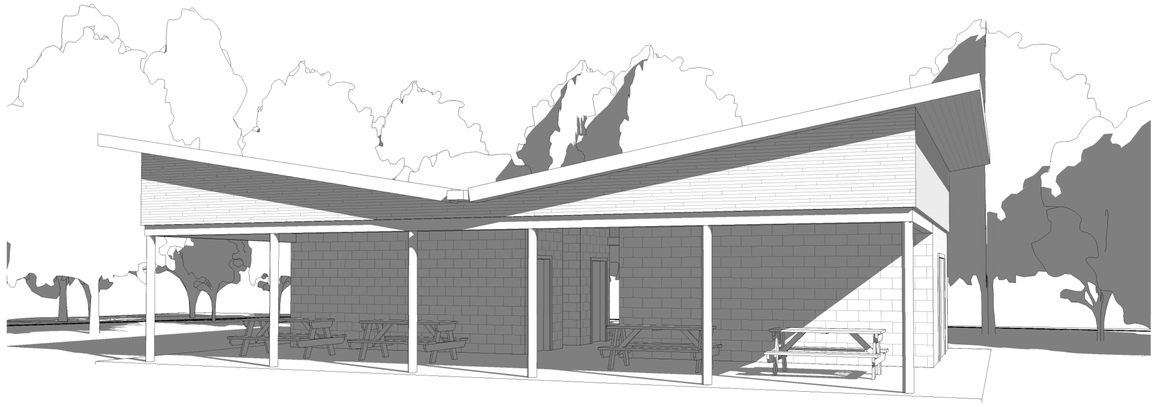
SEAL:

SHEET TITLE:

ELEVATIONS

SHEET NO:

A1.2



1 Front Rendering

2 Rear Rendering

CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA

BIRCH MEADOW PARK | PHASE I

NOTICE OF INTENT
November 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	n/a
PROJECT NO.:	22014.00
FILE:	Birch Meadow .dwg
DRAWN:	PSO
CHECKED:	XXX

SEAL:

SHEET TITLE:

RENDERINGS

SHEET NO:

A1.3

LIGHTING FIXTURE SCHEDULE - LED

TYPE	MANUFACTURERS	CATALOG NUMBER	DESCRIPTION	COLOR	CRI	LUMENS	INPUT WATTS	INPUT VOLTS	REMARKS
S1	LITHONIA	MR POLE: RSA-12-4-5C-PT-DBB	SINGLE HEAD LED AREA LIGHT MOUNTED ON 12' POLE	4000K	85			277	DARK BRONZE FINISH MOUNTED ON 3' POLE BASE
S2	LITHONIA	MR POLE: RSA-12-4-5C-PT-DBB	DOUBLE HEAD LED AREA LIGHT MOUNTED ON 12' POLE	4000K	80			277	DARK BRONZE FINISH MOUNTED ON 3' POLE BASE
S3	LITHONIA	MRPLED-42C-700MA-4000K-SR2-MVOLT-SF-DDBXBD POLE: RSA-10-4-5C-PT-DBB	LED AREA LIGHT MOUNTED ON 10' ROUND POLE	4000K	80	6,605	75	MVOLT	DARK BRONZE FINISH.

NOTES:

1. NOTES 2-3APPLY TO ALL APPLICABLE LIGHTING FIXTURES. THE REMARKS COLUMN SHALL NOTE ADDITIONAL REQUIREMENTS.
2. FIXTURES SPECIFIED WITH CATALOG NUMBERS ARE THE BASIS OF DESIGN AND ESTABLISH QUALITY LEVEL FOR EQUAL FIXTURES FROM MANUFACTURERS LISTED WITHOUT CATALOG NUMBERS. WHERE ONLY ONE MANUFACTURER LISTED, THERE SHALL BE NO SUBSTITUTION.
3. VERIFY EXACT MOUNTING CONDITIONS AND PROVIDE APPROPRIATE ACCESSORIES AND HARDWARE TO ACCOMMODATE REQUIREMENTS.
4. ADD ALTERNATE #1: NEW LED FIXTURE SHALL BE INSTALLED ON EXISTING POLE.

BRANCH CIRCUIT & FEEDER LEGEND

- BRANCH CIRCUIT OR FEEDER CONCEALED IN FINISHED AREAS
- BRANCH CIRCUIT OR FEEDER TURNING UP TOWARDS OBSERVER
- BRANCH CIRCUIT OR FEEDER TURNING DOWN AWAY FROM OBSERVER
- CONDUIT STUBBED ABOVE CEILING
- R22A-1,3,5 — BRANCH CIRCUIT HOME RUN TICKS INDICATE QUANTITY OF CONDUCTORS, GROUND CONDUCTORS ARE NOT INDICATED. NO TICKS INDICATES 2#12 & 1#12G IN 3/4"C MINIMUM. R22A-1,3,5 INDICATES PANEL AND CIRCUIT DESIGNATION FROM WHICH HOMERUN SHALL ORIGINATE. EACH CIRCUIT SHALL BE 20A-1P (20AMP SINGLE POLE) UNLESS NOTED OTHERWISE.
- FLEXIBLE CONNECTION TO EQUIPMENT. RACEWAY AND CONDUCTOR RATING TO MATCH ASSOCIATED BRANCH CIRCUIT OR FEEDER

ONE LINE SYMBOLS LEGEND

- XXAF / XXAT — CIRCUIT BREAKER, FIXED "XXAF" INDICATES FRAME SIZE "XXAT" INDICATES TRIP
- TRANSFORMER
- 3 PHASE, 3 WIRE DELTA CONNECTION
- 3 PHASE, 4 WIRE WYE SOLIDLY GROUNDED
- R21A — PANELBOARD

SITE LEGEND

- EH — ELECTRIC HAND HOLE
- TH — TELEPHONE HAND HOLE
- UE — UNDERGROUND ELECTRIC 'UE-EX' INDICATES EXISTING
- UT — UNDERGROUND TELEPHONE
- OE — OVERHEAD ELECTRIC 'OE-EX' INDICATES EXISTING
- OT — OVERHEAD TELEPHONE
- A / # — UNDERGROUND SECTION, REFER TO SECTION DETAIL "A" INDICATES DETAIL LETTER "#" INDICATES DRAWING NUMBER

MOTOR & CONTROLS LEGEND

- 30AS — DISCONNECT SWITCH RATED 30AMP, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED
  "3R" - INDICATES NEMA TYPE 3R ENCLOSURE
  "2P" - INDICATES 2 POLE SINGLE PHASE DISCONNECT
  "60AS" - INDICATES 60A SWITCH
- 60AS 70AF — FUSED DISCONNECT SWITCH, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
  "3R" - INDICATES NEMA TYPE 3R ENCLOSURE
  "60AS" - INDICATES 60AMP SWITCH
  "50AF" - INDICATES 50AMP FUSES
- 100AF 100AT CB — ENCLOSED CIRCUIT BREAKER

LIGHTING FIXTURE LEGEND

- F1 / 2 — POLE MOUNTED SPORTS LIGHTING FIXTURE. "F1' INDICATES FIXTURE TYPE "2' INDICATES CIRCUIT NUMBER
- S1 / # — POLE MOUNTED AREA LIGHTING FIXTURE
- S2

SWITCH LEGEND

- PC — PHOTOCELL

WIRING DEVICE LEGEND

- 5 GFI — DUPLEX RECEPTACLE, GROUNDING TYPE, RATED 20A, 125V
  "5"- INDICATES CIRCUIT NUMBER
  "GFI"- INDICATES INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER
  "WP" - INDICATES WEATHERPROOF. PROVIDE 'IN USE' COVER AND CAST ALUMINUM BOX.
- J — JUNCTION BOX
- PB — PULLBOX
- FBX — INFIELD COMBOX FOR POWER AND TELECOM MANUFACTURED BY SPORTSFIELD SPECIALTIES #CBIT1830. PROVIDE (2) WEATHERPROOF GFI RECEPTACLES AND 4"SQUARE WORKBOX WITH COVER FOR FUTURE TELECOM. BOXES SHALL BE CAST ALUMINUM EQUAL TO APPLETON TYPE FD WITH MOISTURE SEALING GASKETED COVERS.
  'X' DENOTES BOX NUMBER. SEE SITE PLAN FOR ADDITIONAL INFORMATION

EXISTING EQUIPMENT LEGEND

XM	EXISTING EQUIPMENT TO REMAIN
X	EXISTING EQUIPMENT TO BE REMOVED
XR	EXISTING EQUIPMENT TO BE RELOCATED
XN	NEW LOCATION OF EXISTING RELOCATED EQUIPMENT
NR	EXISTING EQUIPMENT TO BE REMOVED AND NEW EQUIPMENT TO BE INSTALLED ON EXISTING BRANCH/FEEDER
	EXISTING EQUIPMENT FOR INFORMATION ONLY- INDICATED BY SYMBOL WITH LIGHT AND OUT OF FUNCTION LINE TYPE
	EXISTING EQUIPMENT TO BE REWORKED- INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

ABBREVIATIONS

A/AMP	AMPERE	KWH	KILOWATT HOURS
AC	ALTERNATING CURRENT	LTG	LIGHTING
ADA	AMERICAN WITH DISABILITIES ACT	MCB	MAIN CIRCUIT BREAKER
AF	AMPERE FRAME	MEC	MASSACHUSETTS ELECTRICAL CODE
AFF	ABOVE FINISHED FLOOR	M/G	MOTOR/GENERATOR SET
AFG	ABOVE FINISHED GRADE	MH	MANHOLE
AIC	AMPERE INTERRUPTING CAPACITY	MLO	MAIN LUGS ONLY
AL	ALUMINUM	MTD	MOUNTED
AT	AMPERE TRIP	MTG	MOUNTING
ATS	AUTOMATIC TRANSFER SWITCH	NC	NORMALLY CLOSED CONTACT
AWG	AMERICAN WIRE GAUGE	NEC	NATIONAL ELECTRICAL CODE
B	BURIED	NO	NORMALLY OPEN CONTACT
C	CONDUIT	NTS	NOT TO SCALE
CA	CABLE	#	NUMBER
CATV	CABLE TELEVISION	OPD	OVER CURRENT PROTECTION DEVICE
CCTV	CLOSED CIRCUIT TELEVISION SYSTEM	POS	PROVIDED UNDER OTHER SECTIONS
CB	CIRCUIT BREAKER	PVC	POLYVINYL CHLORIDE
CKT	CIRCUITS	PWR	POWER
CPU	CENTRAL PROCESSING UNIT	RGS	RIGID GALVANIZED STEEL
℄	CENTERLINE	RMS	ROOT MEAN SQUARE VALUE
dB	DECIBEL	RPM	REVOLUTIONS PER MINUTE
DC	DIRECT CURRENT	SPD	SURGE PROTECTIVE DEVICE
DWG	DRAWING	SN	SOLID NEUTRAL
EC	ELECTRICAL CONTRACTOR	SWBD	SWITCHBOARD
EMT	ELECTRIC METALLIC TUBING	TB	TERMINAL BLOCK
FDR	FEEDER	TEL	TELEPHONE
FLMT	FLEXIBLE LIQUID TIGHT METALLIC TUBING	TERMN	TERMINAL
FREQ	FREQUENCY	TSP	TWISTED SHIELDED-PAIR
GEC	GROUNDING ELECTRODE CONDUCTOR	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
GFI	GROUND FAULT INTERRUPTING	TYP	TYPICAL
GND	GROUND	UG	UNDERGROUND
HH	HANDHOLE	UNO	UNLESS NOTED OTHERWISE
HP	HORSEPOWER	UPS	UNINTERRUPTIBLE POWER SUPPLY
HVAC	HEATING, VENTILATING AND AIR CONDITIONING	UTP	UNSHIELDED TWISTED-PAIR
HZ	HERTZ	V	VOLTS
IG	ISOLATED GROUND	VA	VOLT-AMPERE
JB	JUNCTION BOX	VSD	VARIABLE SPEED DRIVE
KVA	KILOVOLT-AMPERE	W	WATTS
KW	KILOWATT	WP	WEATHERPROOF

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA
BIRCH MEADOW PARK | PHASE I

NOTICE OF INTENT
November 2022

REVISIONS:

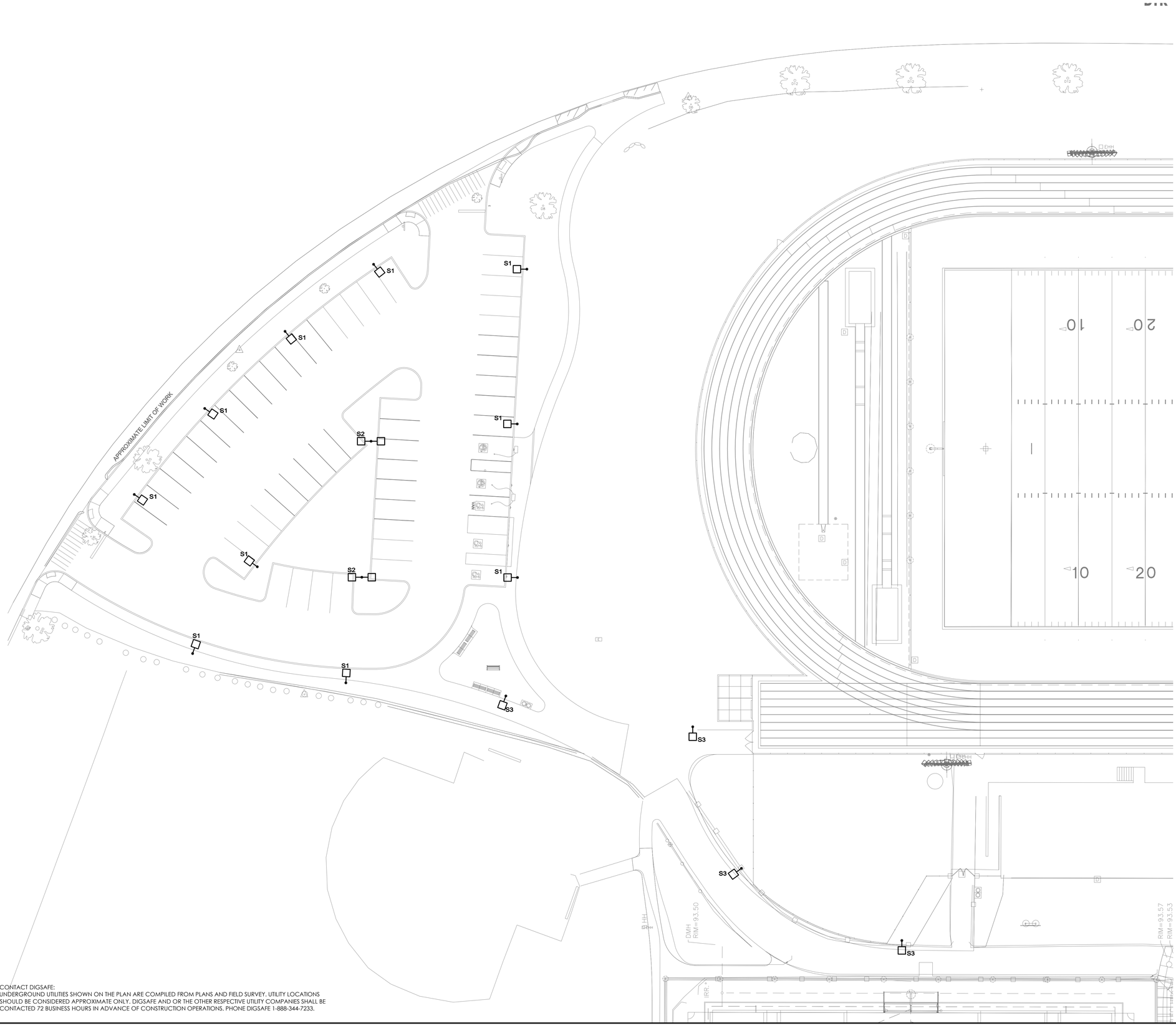
NO.	DATE	DESCRIPTION

SCALE: NTS
PROJECT NO.: 0220154
FILE:
DRAWN: MVM
CHECKED: KEG

SEAL:

SHEET TITLE:
ELECTRICAL LEGEND AND SCHEDULES

SHEET NO:
E0.0



CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA
BIRCH MEADOW PARK | PHASE I

NOTICE OF INTENT
November 2022

REVISIONS:

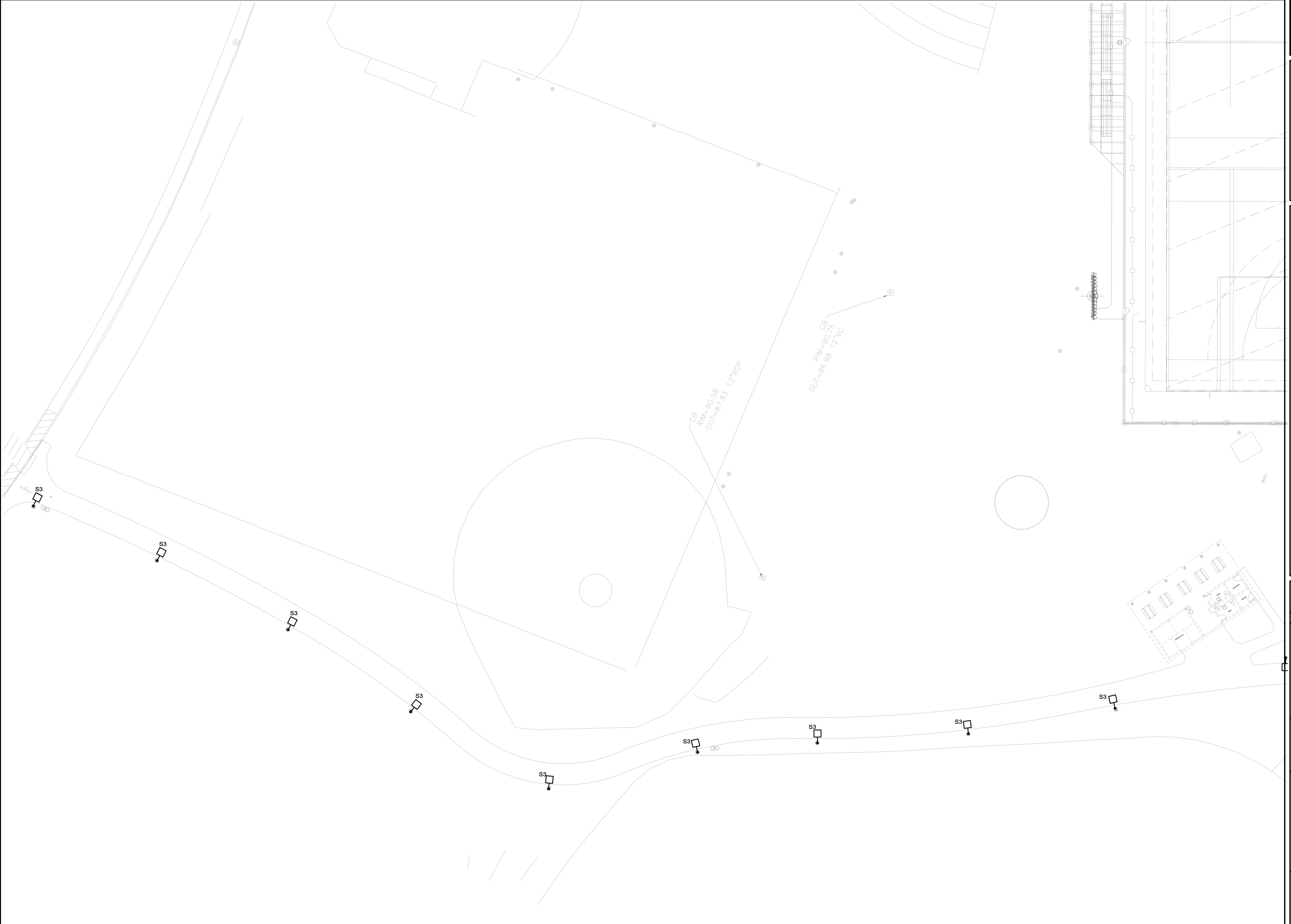
NO.	DATE	DESCRIPTION

SCALE:	1" = 20'-0"
PROJECT NO.:	0220154
FILE:	
DRAWN:	MVM
CHECKED:	KEG

SEAL:

SHEET TITLE:
ELECTRICAL
SITE PLAN
PART A

SHEET NO:
E1.0



CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA

BIRCH MEADOW PARK | PHASE I

NOTICE OF INTENT
November 2022

REVISIONS:

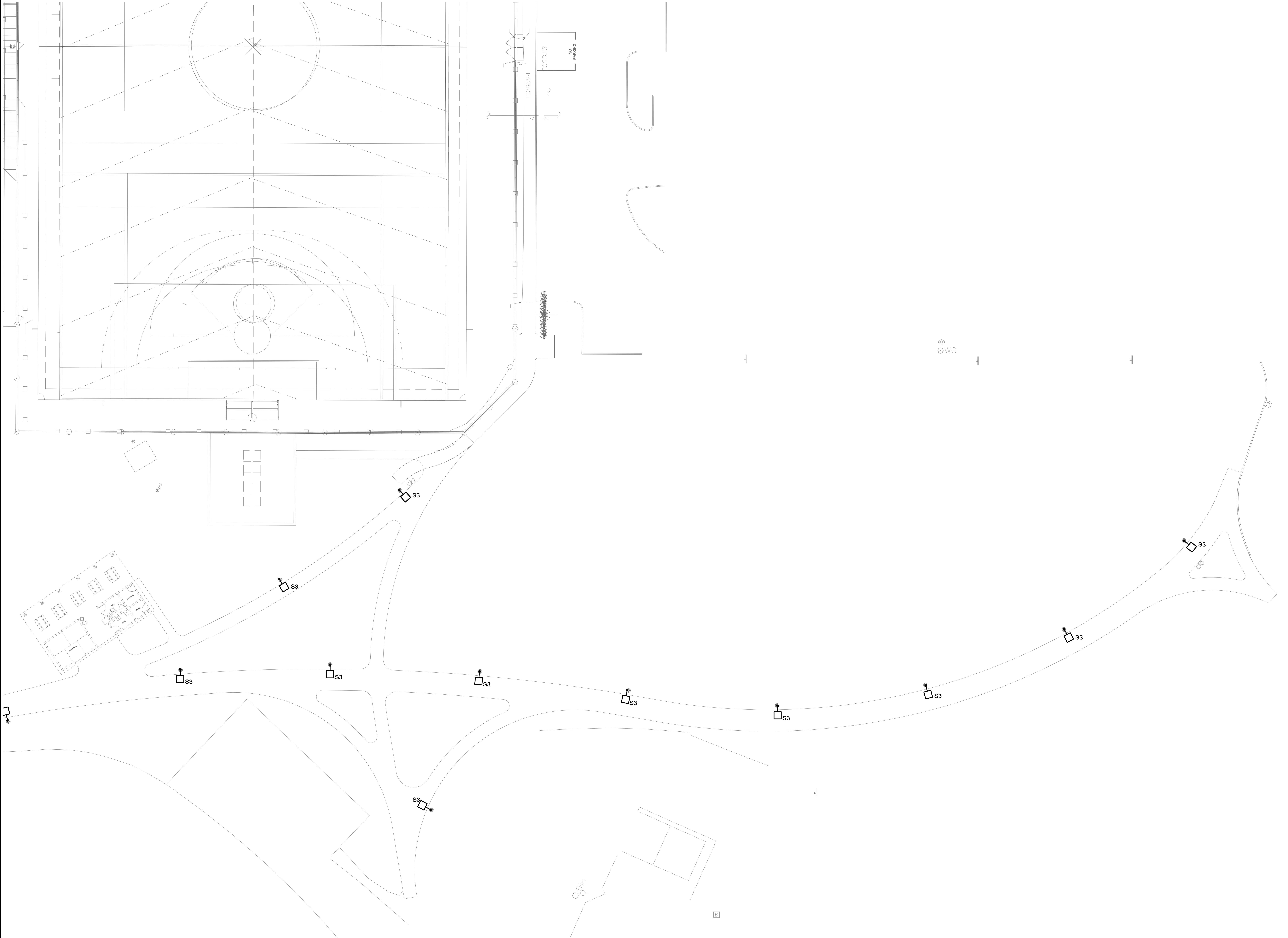
NO.	DATE	DESCRIPTION

SCALE:	1" = 20'-0"
PROJECT NO.:	0220154
FILE:	
DRAWN:	MVM
CHECKED:	KEG

SEAL:

SHEET TITLE:
ELECTRICAL
SITE PLAN
PART B

SHEET NO:
E1.1



CONTACT DIGSAFE:
UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE COMPILED FROM PLANS AND FIELD SURVEY. UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. DIGSAFE AND OR THE OTHER RESPECTIVE UTILITY COMPANIES SHALL BE CONTACTED 72 BUSINESS HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS. PHONE DIGSAFE 1-888-344-7233.

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA

BIRCH MEADOW PARK | PHASE I

NOTICE OF INTENT
November 2022

REVISIONS:

NO.	DATE	DESCRIPTION

SCALE:	1" = 20'-0"
PROJECT NO.:	0220154
FILE:	
DRAWN:	MVM
CHECKED:	KEG

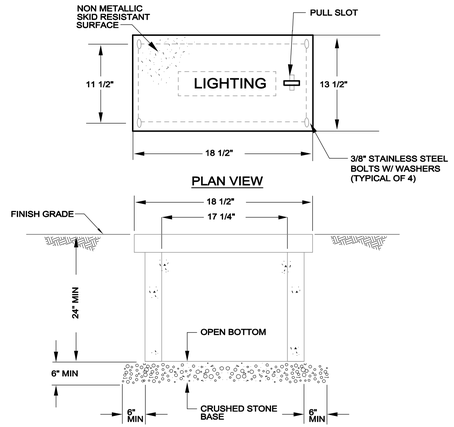
SEAL:

SHEET TITLE:

ELECTRICAL
SITE PLAN
PART C

SHEET NO:

E1.2

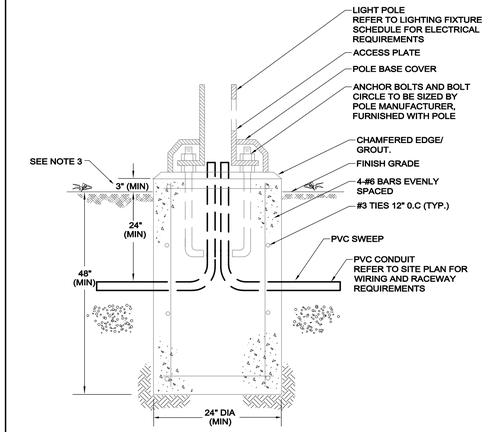


NOTES:
1. THIS IS A TYPICAL DETAIL. REFER TO DRAWING FOR ACTUAL DIMENSIONS OF HANDHOLE WHICH MAY DEVIATE FROM THESE DIMENSIONS. REFER TO THE SITE PLAN FOR QUANTITY OF CONDUITS AND THE "SERVICE" REQUIRED ON THE COVER.

2. THIS HANDHOLE IS INTENDED FOR NON-DELIBERATE VEHICULAR TRAFFIC ONLY, ANSI TIER 22 (22,500 POUND DESIGN LOAD)

3. HANDHOLE SHALL BE PREFABRICATED POLYMER CONCRETE AGGREGATE EQUAL TO QUAZITE OR EQUAL PRE CAST CONCRETE CONSTRUCTION.

NV5 TYPICAL PREFABRICATED HANDHOLE DETAIL E505

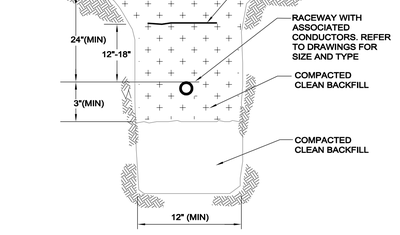


NOTES:
1. BASE DETAIL PROVIDED TO INDICATE GENERAL INTENT OF THE ELECTRICAL INSTALLATION. MODIFY BASE DEPTH AND DIAMETER TO ACCOMMODATE LIGHTING FIXTURE AND SOIL CHARACTERISTICS.

2. COORDINATE ANCHOR BOLT PLACEMENT WITH GENERAL CONTRACTOR. POLE BASE EXCAVATION FORMING, REBAR AND CONCRETE BY G.C.

3. ELEVATION ABOVE FINISH GRADE SHALL BE 3" FOR INSTALLATIONS IN ISLANDS/PERIMETERS AND 3'0" IN PAVED AREA UNLESS OTHERWISE NOTED.

NV5 SITE LIGHTING POLE BASE DETAIL E514



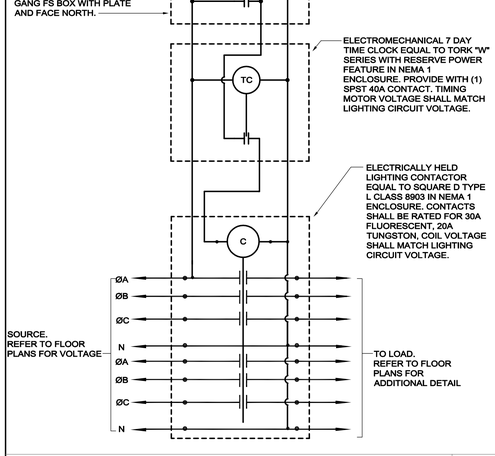
NOTES:
1. THIS DETAIL IS INTENDED TO ILLUSTRATE REQUIREMENTS WHICH EXCEED THOSE REQUIRED BY NEC TABLE 300-5.

2. WARNING TAPE SHALL BE DETECTABLE TYPE FOIL BACKED 4MIL POLYETHYLENE WITH FADE RESISTANT "BURIED ELECTRIC LINE BELOW" A MINIMUM OF 18 INCHES ABOVE THE BURIED SERVICE. TAPE SHALL BE EQUAL TO T&B NAF-0708.

3. ALL ROADWAY CROSSING SHALL BE ENCASED WITH A MINIMUM OF 2 INCHES OF CONCRETE (TOP BOTTOM AND SIDES) EXTENDING A MINIMUM OF 2 FEET BEYOND EACH SIDE OF CROSSING.

4. ALL CONDUIT RISERS SHALL UTILIZE LONG RADIUS GALVANIZED RIGID STEEL SWEEPS.

NV5 BURIED CONDUIT DETAIL E513



NV5 TIME SWITCH AND PHOTOCELL CONTROLLED CONTACTOR DETAIL E705

ACTIVITAS
landscape architecture | civil engineering
70 Milton Street | Dedham, MA 02026-2915
(781) 326-2600 | activitas.com

CONSULTANTS

ARCHITECT -
OCO ARCHITECTURE :: DESIGN

ELECTRICAL ENGINEER -
NV5 ENGINEERS

WETLAND DELINEATION-
EPSILON ASSOCIATES, INC.

SURVEY -
REED LAND SURVEY, INC.

TOWN OF READING
Reading, MA
BIRCH MEADOW PARK | PHASE I

NOTICE OF INTENT
November 2022

REVISIONS:

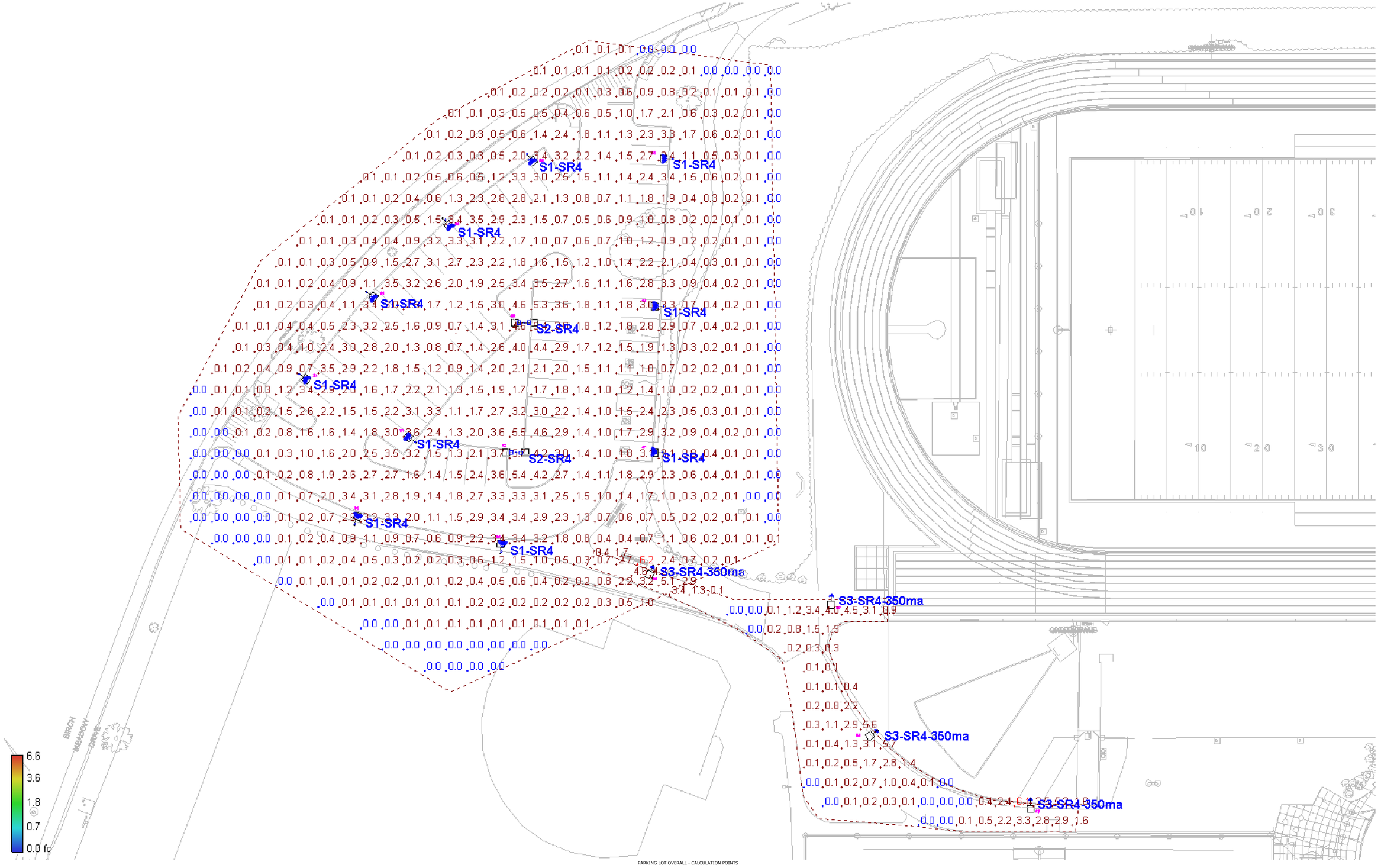
NO.	DATE	DESCRIPTION

SCALE: NTS
PROJECT NO.: 0220154
FILE:
DRAWN: MVM
CHECKED: KEG

SEAL:

SHEET TITLE:
ELECTRICAL DETAILS

SHEET NO:
E2.0



Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Lumens Per Lamp	Light Loss Factor	Description	Wattage	Notes
	S1-SR4	10	Lithonia Lighting	MR1 LED 42C 350 40K SR4 MVOLT	5074	1	MR1 AREA LIGHT 42 LEDs 350 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	49	
	S2-SR4	2	Lithonia Lighting	MR1 LED 42C 350 40K SR4 MVOLT	5074	1	MR1 AREA LIGHT 42 LEDs 350 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	98	
	S3-SR2-350ma	20	Lithonia Lighting	MRP LED 42C 700 40K SR2 MVOLT	8026	0.5	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 40K COLOR TEMP TYPE 2 DISTRIBUTION	100	
	S3-SR4-350ma	4	Lithonia Lighting	MRP LED 42C 700 40K SR4 MVOLT	7943	0.5	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	100	

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Parking Lot	+	2.1 fc	5.2 fc	0.1 fc	52.0:1	21.0:1
Parking Lot Overall	+	1.2 fc	6.2 fc	0.0 fc	N/A	N/A
Walkway #1	+	1.3 fc	6.1 fc	0.0 fc	N/A	N/A
Walkway #2	+	2.4 fc	6.8 fc	0.0 fc	N/A	N/A
Calc Zone #5	+	0.8 fc	6.6 fc	0.0 fc	N/A	N/A

READING BIRCH MEADOW PARK

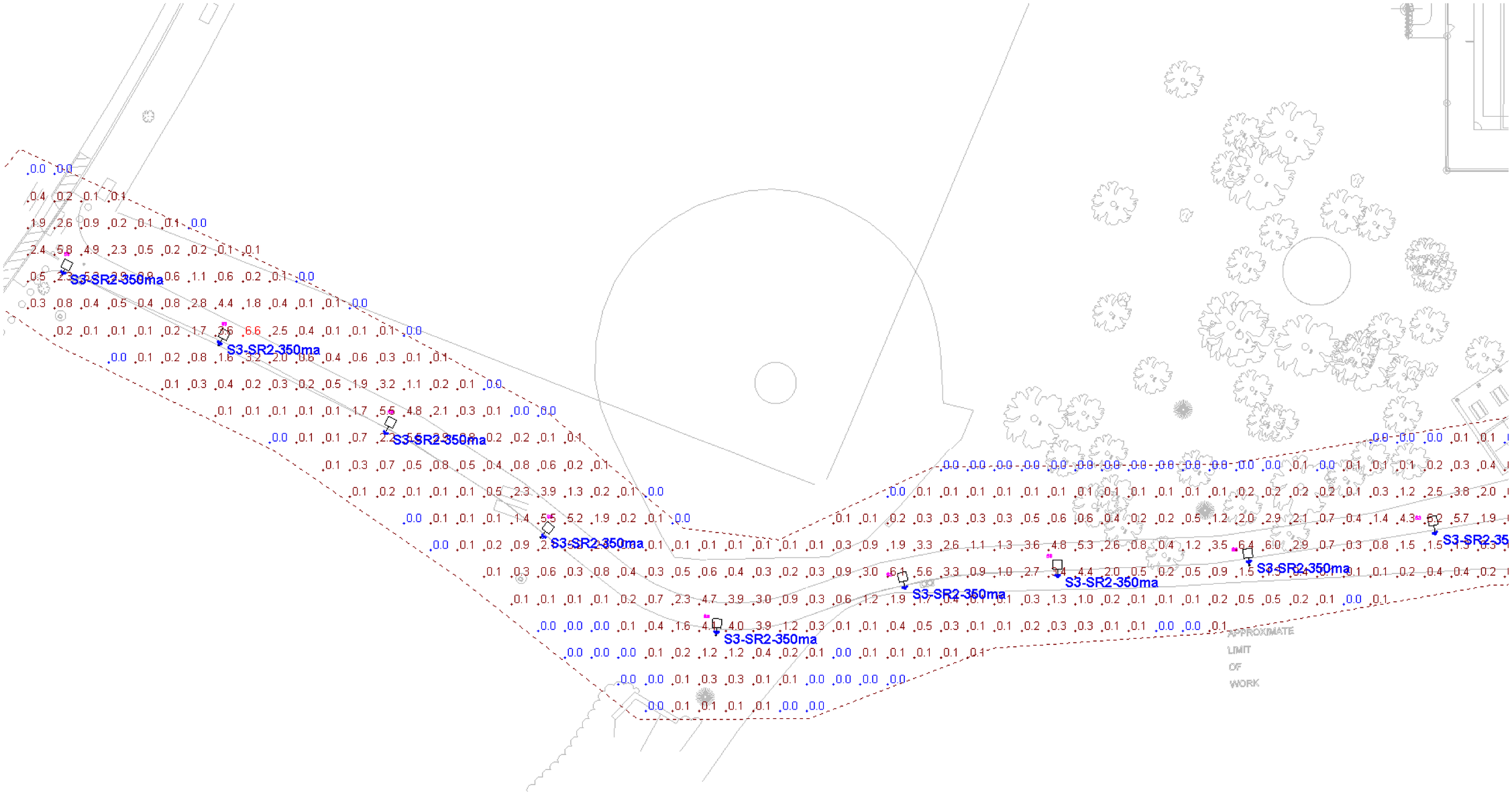
Designer

Date
11/11/2022

Scale
Not to Scale

Drawing No.

Summary



6.2
3.4
1.7
0.6
0.0 fc

WALKWAY OVERALL - PART 1 - CALCULATION POINTS

Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Lumens Per Lamp	Light Loss Factor	Description	Wattage	Notes
	S1-SR4	10	Lithonia Lighting	MR1 LED 42C 350 40K SR4 MVOLT	5074	1	MR1 AREA LIGHT 42 LEDs 350 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	49	
	S2-SR4	2	Lithonia Lighting	MR1 LED 42C 350 40K SR4 MVOLT	5074	1	MR1 AREA LIGHT 42 LEDs 350 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	98	
	S3-SR2-350ma	20	Lithonia Lighting	MRP LED 42C 700 40K SR2 MVOLT	8026	0.5	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 40K COLOR TEMP TYPE 2 DISTRIBUTION	100	
	S3-SR4-350ma	4	Lithonia Lighting	MRP LED 42C 700 40K SR4 MVOLT	7943	0.5	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	100	

Statistics

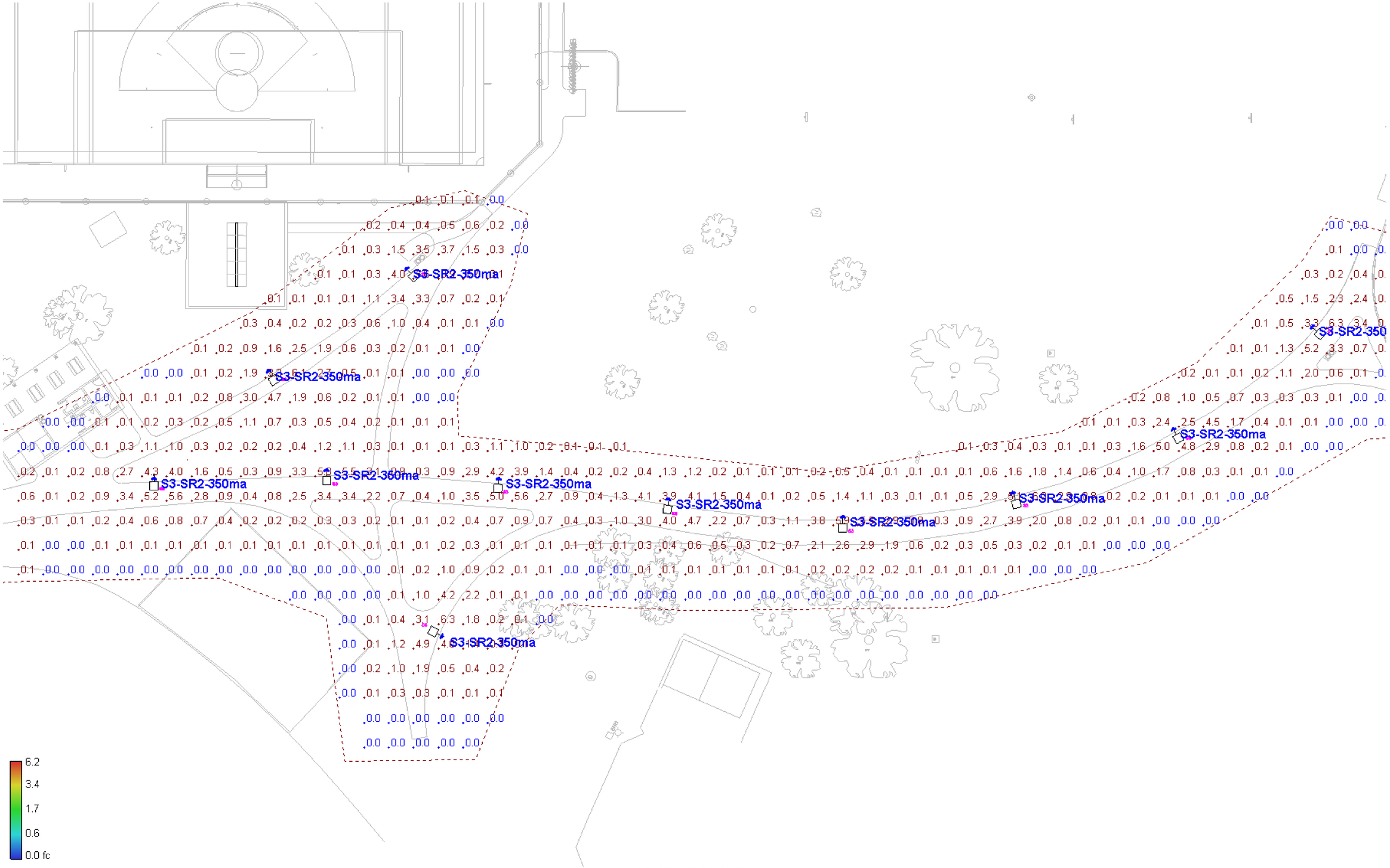
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Parking Lot	+	2.1 fc	5.2 fc	0.1 fc	52.0:1	21.0:1
Parking Lot Overall	+	1.2 fc	6.2 fc	0.0 fc	N/A	N/A
Walkway #1	+	1.3 fc	6.1 fc	0.0 fc	N/A	N/A
Walkway #2	+	2.4 fc	6.8 fc	0.0 fc	N/A	N/A
Calc Zone #5	+	0.8 fc	6.6 fc	0.0 fc	N/A	N/A

READING BIRCH MEADOW PARK

Designer

Date
11/11/2022
Scale
Not to Scale
Drawing No.

Summary



WALKWAY OVERALL - PART 2 - CALCULATION POINTS

Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Lumens Per Lamp	Light Loss Factor	Description	Wattage	Notes
	S1-SR4	10	Lithonia Lighting	MR1 LED 42C 350 40K SR4 MVOLT	5074	1	MR1 AREA LIGHT 42 LEDs 350 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	49	
	S2-SR4	2	Lithonia Lighting	MR1 LED 42C 350 40K SR4 MVOLT	5074	1	MR1 AREA LIGHT 42 LEDs 350 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	98	
	S3-SR2-350 ma	20	Lithonia Lighting	MRP LED 42C 700 40K SR2 MVOLT	8026	0.5	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 40K COLOR TEMP TYPE 2 DISTRIBUTION	100	
	S3-SR4-350 ma	4	Lithonia Lighting	MRP LED 42C 700 40K SR4 MVOLT	7943	0.5	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	100	

Statistics

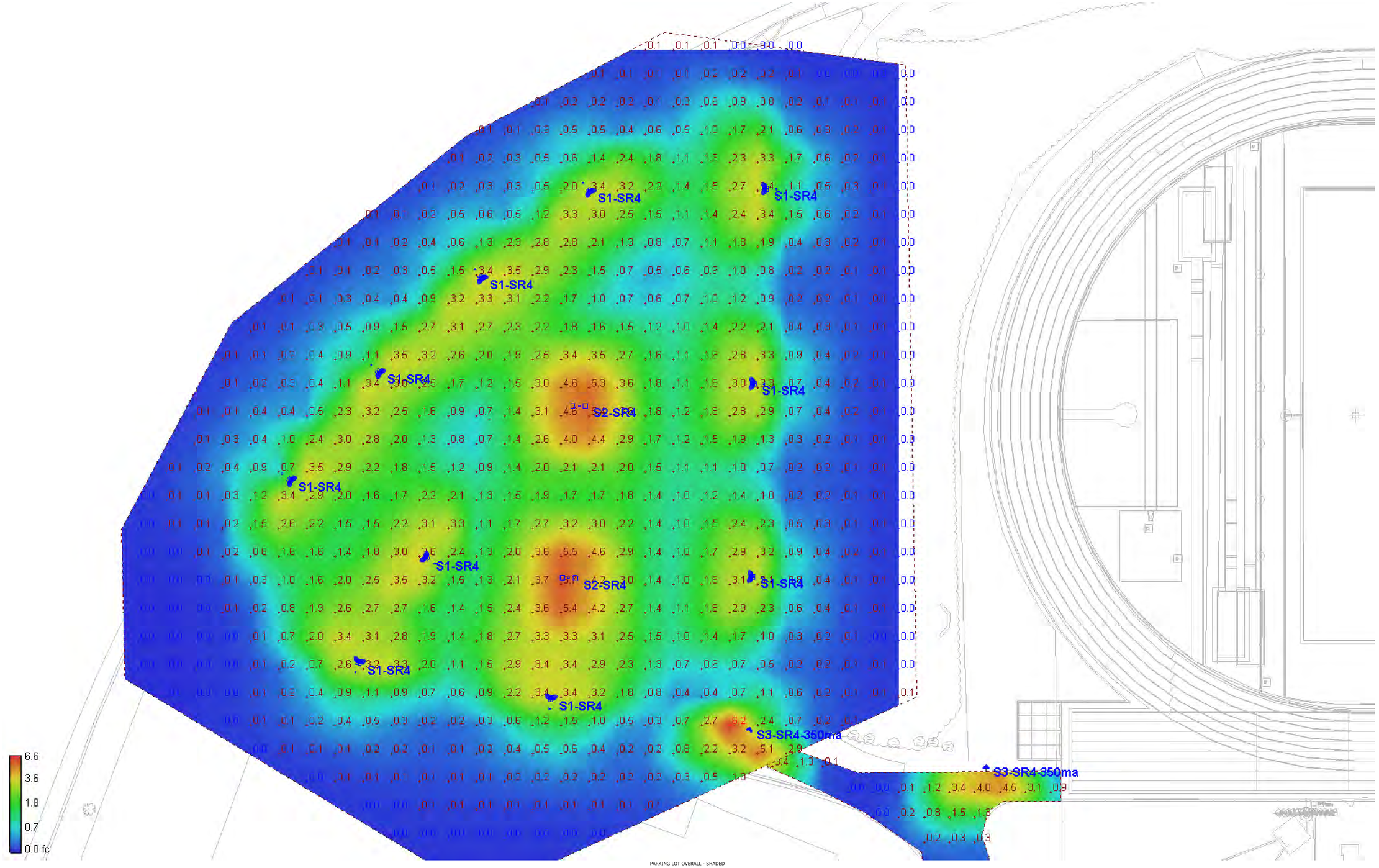
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Parking Lot	+	2.1 fc	5.2 fc	0.1 fc	52.0:1	21.0:1
Parking Lot Overall	+	1.2 fc	6.2 fc	0.0 fc	N/A	N/A
Walkway #1	+	1.3 fc	6.1 fc	0.0 fc	N/A	N/A
Walkway #2	+	2.4 fc	6.8 fc	0.0 fc	N/A	N/A
Calc Zone #5	+	0.8 fc	6.6 fc	0.0 fc	N/A	N/A

READING BIRCH MEADOW PARK

Designer

Date
11/11/2022
Scale
Not to Scale
Drawing No.

Summary



PARKING LOT OVERALL - SHADED

Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Lumens Per Lamp	Light Loss Factor	Description	Wattage	Notes
	S1-SR4	10	Lithonia Lighting	MR1 LED 42C 350 40K SR4 MVOLT	5074	1	MR1 AREA LIGHT 42 LEDs 350 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	49	
	S2-SR4	2	Lithonia Lighting	MR1 LED 42C 350 40K SR4 MVOLT	5074	1	MR1 AREA LIGHT 42 LEDs 350 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	98	
	S3-SR2-350 ma	20	Lithonia Lighting	MRP LED 42C 700 40K SR2 MVOLT	8026	0.5	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 40K COLOR TEMP TYPE 2 DISTRIBUTION	100	
	S3-SR4-350 ma	4	Lithonia Lighting	MRP LED 42C 700 40K SR4 MVOLT	7943	0.5	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	100	

Statistics

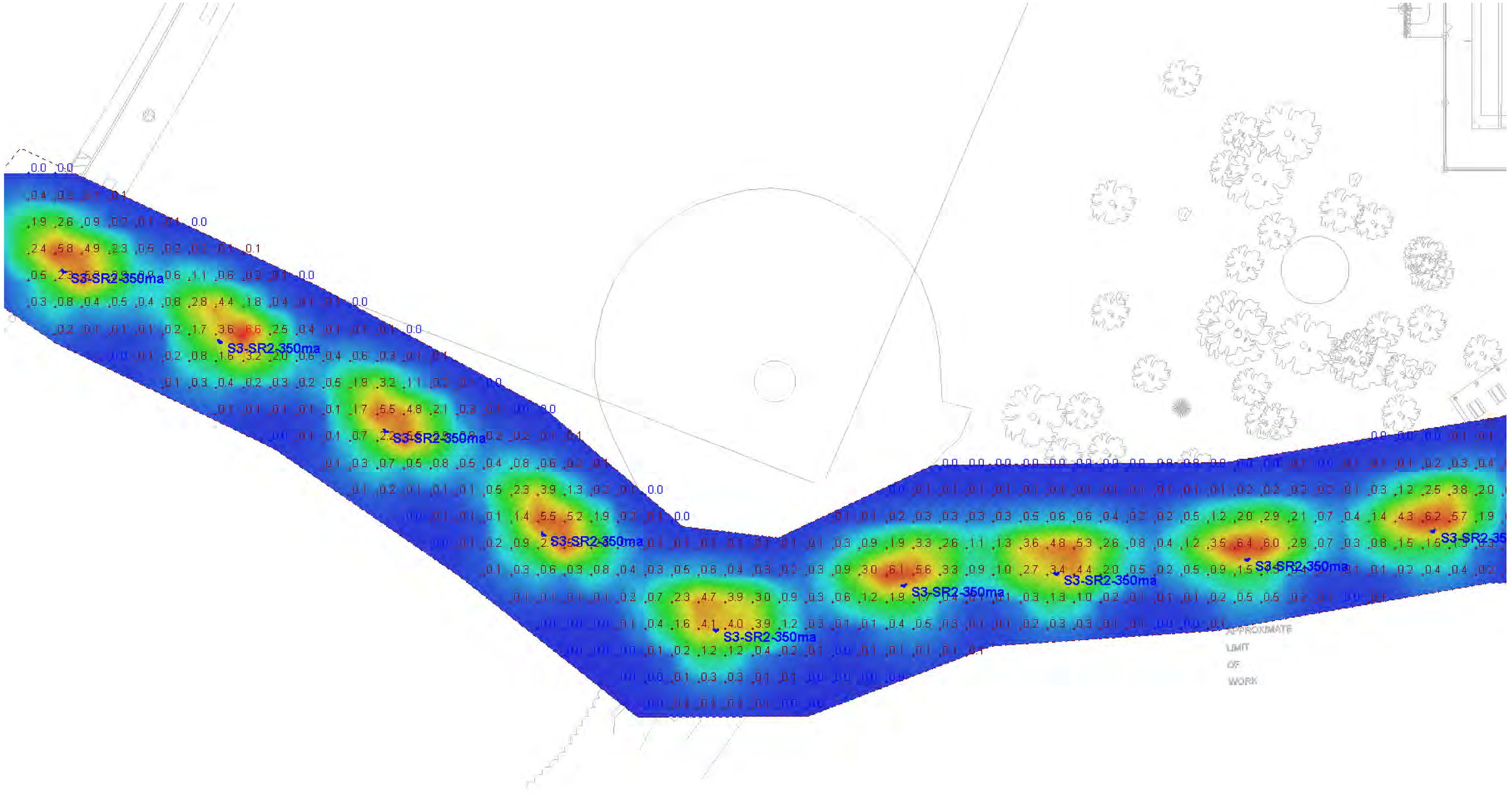
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Parking Lot	+	2.1 fc	5.2 fc	0.1 fc	52.0:1	21.0:1
Parking Lot Overall	+	1.2 fc	6.2 fc	0.0 fc	N/A	N/A
Walkway #1	+	1.3 fc	6.1 fc	0.0 fc	N/A	N/A
Walkway #2	+	2.4 fc	6.8 fc	0.0 fc	N/A	N/A
Calc Zone #5	+	0.8 fc	6.6 fc	0.0 fc	N/A	N/A

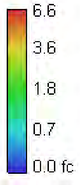
READING BIRCH MEADOW PARK

Designer

Date
11/11/2022
Scale
Not to Scale
Drawing No.

Summary





WALKWAY OVERALL - PART 1 - SHADED

Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Lumens Per Lamp	Light Loss Factor	Description	Wattage	Notes
	S1-SR4	10	Lithonia Lighting	MR1 LED 42C 350 40K SR4 MVOLT	5074	1	MR1 AREA LIGHT 42 LEDs 350 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	49	
	S2-SR4	2	Lithonia Lighting	MR1 LED 42C 350 40K SR4 MVOLT	5074	1	MR1 AREA LIGHT 42 LEDs 350 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	98	
	S3-SR2-350 ma	20	Lithonia Lighting	MRP LED 42C 700 40K SR2 MVOLT	8026	0.5	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 40K COLOR TEMP TYPE 2 DISTRIBUTION	100	
	S3-SR4-350 ma	4	Lithonia Lighting	MRP LED 42C 700 40K SR4 MVOLT	7943	0.5	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	100	

Statistics

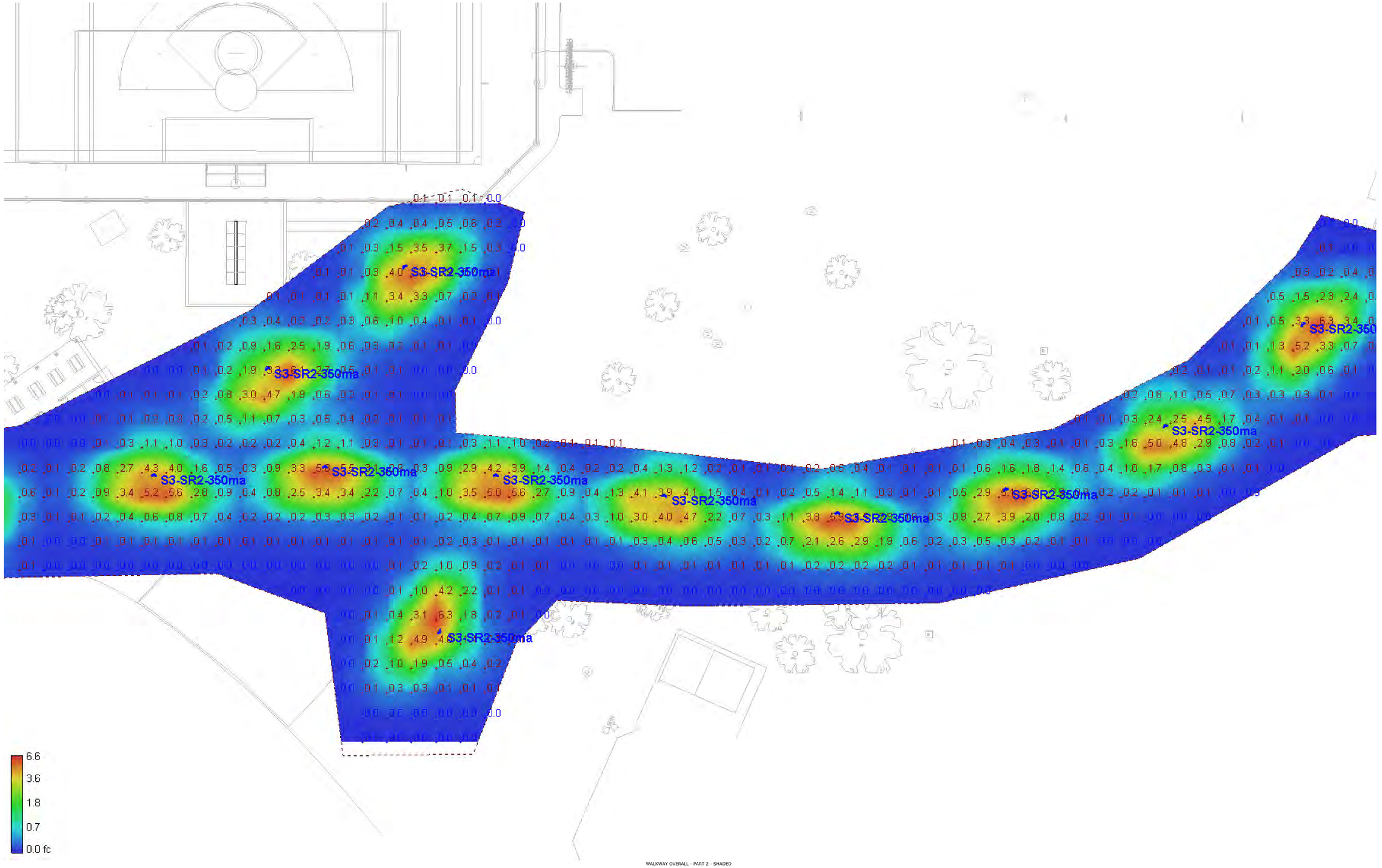
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Parking Lot	+	2.1 fc	5.2 fc	0.1 fc	52.0:1	21.0:1
Parking Lot Overall	+	1.2 fc	6.2 fc	0.0 fc	N/A	N/A
Walkway #1	+	1.3 fc	6.1 fc	0.0 fc	N/A	N/A
Walkway #2	+	2.4 fc	6.8 fc	0.0 fc	N/A	N/A
Calc Zone #5	+	0.8 fc	6.6 fc	0.0 fc	N/A	N/A

READING BIRCH MEADOW PARK

Designer

Date
11/11/2022
Scale
Not to Scale
Drawing No.

Summary



WALKWAY OVERALL - PART 2 - SHADED

Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Lumens Per Lamp	Light Loss Factor	Description	Wattage	Notes
	S1-SR4	10	Lithonia Lighting	MR1 LED 42C 350 40K SR4 MVOLT	5074	1	MR1 AREA LIGHT 42 LEDs 350 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	49	
	S2-SR4	2	Lithonia Lighting	MR1 LED 42C 350 40K SR4 MVOLT	5074	1	MR1 AREA LIGHT 42 LEDs 350 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	98	
	S3-SR2-350 ma	20	Lithonia Lighting	MRP LED 42C 700 40K SR2 MVOLT	8026	0.5	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 40K COLOR TEMP TYPE 2 DISTRIBUTION	100	
	S3-SR4-350 ma	4	Lithonia Lighting	MRP LED 42C 700 40K SR4 MVOLT	7943	0.5	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 40K COLOR TEMP TYPE 4 DISTRIBUTION	100	

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Parking Lot	+	2.1 fc	5.2 fc	0.1 fc	52.0:1	21.0:1
Parking Lot Overall	+	1.2 fc	6.2 fc	0.0 fc	N/A	N/A
Walkway #1	+	1.3 fc	6.1 fc	0.0 fc	N/A	N/A
Walkway #2	+	2.4 fc	6.8 fc	0.0 fc	N/A	N/A
Calc Zone #5	+	0.8 fc	6.6 fc	0.0 fc	N/A	N/A

VISUAL

READING BIRCH MEADOW PARK

Designer

Date
11/11/2022
Scale
Not to Scale
Drawing No.

Summary

25 HAVEN ST.

READING, MA

O'SULLIVAN ARCHITECTS, INC.
ARCHITECTURE ▪ INTERIORS ▪ PLANNING

SUBMISSION DRAWING LIST

~~REVISED: 10/24/2022~~

REVISED 2: 11/28/2022

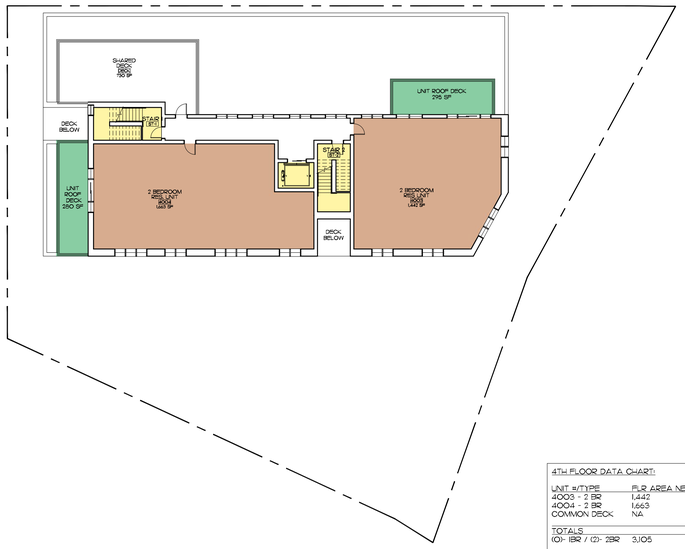
REGISTERED ARCHITECT
DAVID M. O'SULLIVAN
No. 8009
READING, MA
COMMONWEALTH OF MASSACHUSETTS

ARCHITECT
O'SULLIVAN ARCHITECTS
606 MAIN STREET, SUITE 3001
READING, MA 01867-3009
Voice: (781) 439-6166
Fax: (781) 439-6170

DEVELOPER
25 HAVEN STREET LLC
611 SALEM STREET
WAKEFIELD, MA 01880
Voice: (781) 572-3033

PERMITTING ATTORNEY
LATHAM LAW OFFICES LLC
643 MAIN STREET
READING, MA 01867-3009
Voice: (781) 942-4400
Fax: (781) 989-3239

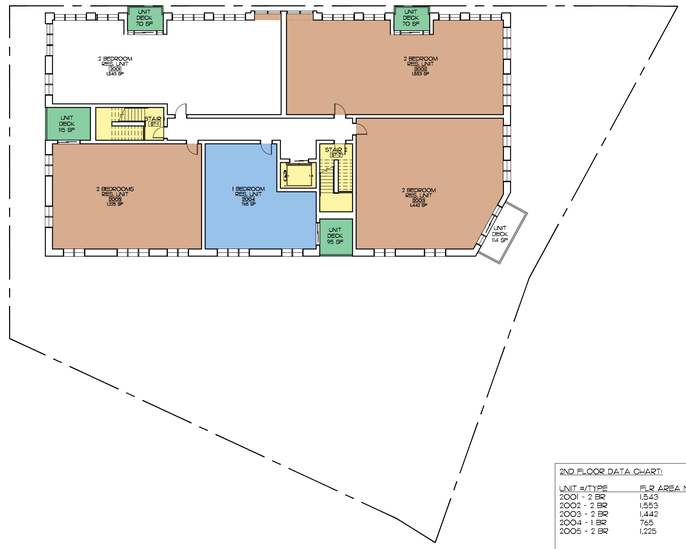
CIVIL ENGINEER
HAYES ENGINEERING
303 SALEM STREET
WAKEFIELD, MA 01880
Voice: (781) 246-2800
Fax: (781) 246-7596



4 FOURTH FLOOR
Scale: 1 to 20

4TH FLOOR DATA CHART:

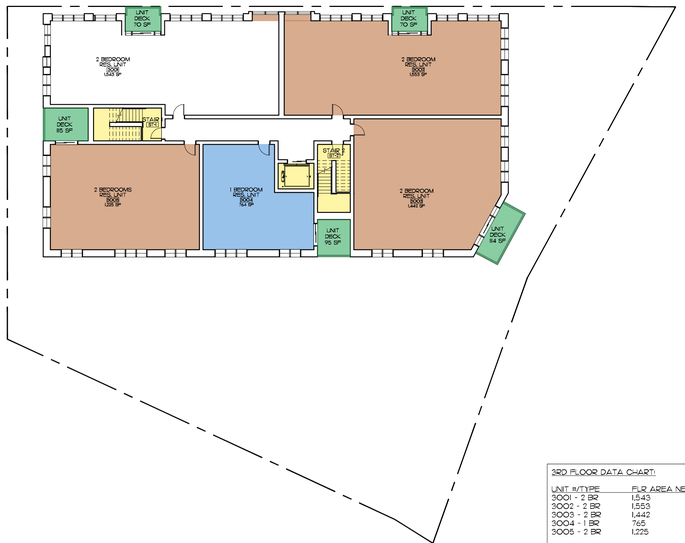
UNIT #/TYPE	FLR AREA NET SF	OPEN SP. SF
4003 - 2 BR	1,442	295
4004 - 2 BR	1,663	280
COMMON DECK	NA	730
TOTALS		
(0)- 1BR / (2)- 2BR	3,105	1,305



2 SECOND FLOOR
Scale: 1 to 20

2ND FLOOR DATA CHART:

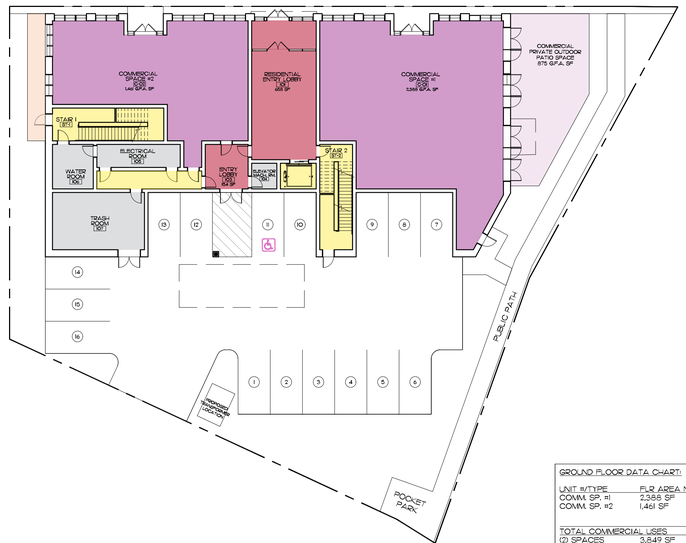
UNIT #/TYPE	FLR AREA NET SF	OPEN SP. SF
2001 - 2 BR	1,543	70
2002 - 2 BR	1,553	70
2003 - 2 BR	1,442	114
2004 - 1 BR	765	95
2005 - 2 BR	1,225	115
TOTALS		
(1)- 1BR / (4)- 2BR	6,528	464 SF



3 THIRD FLOOR
Scale: 1 to 20

3RD FLOOR DATA CHART:

UNIT #/TYPE	FLR AREA NET SF	OPEN SP. SF
3001 - 2 BR	1,543	70
3002 - 2 BR	1,553	70
3003 - 2 BR	1,442	114
3004 - 1 BR	765	95
3005 - 2 BR	1,225	115
TOTALS		
(1)- 1BR / (4)- 2BR	6,528	464 SF



1 GROUND FLOOR
Scale: 1 to 20

GROUND FLOOR DATA CHART:

UNIT #/TYPE	FLR AREA NET SF	OPEN SP. SF
COMM. SP. #1	2,588 SF	675
COMM. SP. #2	1,461 SF	0
TOTAL COMMERCIAL USES		
(2) SPACES	3,549 SF	675
(TOTAL COMMERCIAL SPACE ON SITE)	4,724 (65.1% VS. GROSS FL. AREA)	
RESIDENT LOBBY	658 SF	
TOTAL FLOOR AREA NET (INCLUDING GARAGE)	8,637 SF	
PUBLIC USE OPEN SPACE		1,308 SF
PRIVATE AMENITY OPEN SPACE:		675 SF
GROUND LEVEL OPEN SPACE:		3,392 SF
TOTAL OPEN SPACE		5,575 SF
PARKING:	16 PROVIDED (1.33 PER UNIT)	

TOTAL BUILDING DATA CHART:

EXISTING BUILDING SIZE: +/-7,953 SF COMMERCIAL USE
EXISTING BUILDING PARKING COUNT: 18 SPACES

NEW BUILDING:

ITEM	TOTAL FLR AREA NET SF
GROUND	8,637
SECOND	8,416
THIRD	8,416
FOURTH	4,540
TOTAL	30,009 SF

FAR:	1.58 (+/-18,935 LOT AREA)
LOT COVERAGE:	13,070 SF (69%) (INCLUDES SURFACE PARKING)
HEIGHT:	44' PROVIDED (45' ALLOWED)
SETBACKS -	
FRONT:	2' (0' MIN - 10' MAX)
SIDE:	10' & 16' MIN. (15' ALLOWED)
REAR:	NA OR 25' MIN. (15' ALLOWED)
(REAR & SIDE 15' WHEN ABUTTING RESIDENT USE/ZONE)	
CUMULATIVE:	53' PROVIDED
PARKING:	16 PROVIDED (1.33 PER UNIT)

OPEN SPACE -

FLR	PRIVATE	GREEN
1	875	4,700
2	464	
3	464	
4	1,305	
SUB-TOTAL:	3,108	4,700
TOTAL	7,808 SF (651 SF/UNIT)	

UNIT DENSITY PER ACRE: (20 PER ACRE REQUIRED)
PROPOSED: 27.9 UNIT/ACRE (*)

(*) WAIVER REQUESTED

TOTAL UNITS: 2 (1-BR) 10 (2-BR) = 12 TOTAL

RELIEF REQUEST CHART

ITEM	REQUIRED	PROVIDED	RELIEF (Y/N)
MAX F.A.R.	2.5 (MIXED USE)	1.58	N
MIN. LOT FRONTAGE	50'	186'-9"	N
MAX LOT COVERGE	NA	69%	N
MIN. LOT AREA	NA	+/-18,935	N
MAX. BLDG FRONTAGE	300'	158'-6"	N
YARD SETBACKS:			
FRONT (MIN/MAX)	0'/10'	2'	N
MIN. SIDE	0' (OR 15')	10' /16' MIN.	N
MIN. REAR	0' (OR 15')	25' MIN	N
INTERIOR BETWEEN BLDGS MIN.	15'	NA	N
DWELLING UNIT PER ACRE:	20	27.9	Y
MIN. PARKING:	1.25 (15)	1.33 (16)	N

GRAPHIC KEY:

- 2 BR UNIT TYPE
- 1 BR UNIT TYPE
- EGRESS/CIRCULATION
- COMMERCIAL SPACE
- RESIDENT LOBBY
- UTILITY/MECHANICAL SPACE

OPEN SPACE TYPES:

- PRIVATE OPEN SPACE FOR BUILDING TENANT USE
- OPEN SPACE
- SEMI-PUBLIC OPEN SPACE

O'SULLIVAN ARCHITECTS, INC.
ARCHITECTURE ▪ INTERIORS ▪ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

Project Data Page

REGISTERED ARCHITECT DAVID M. O'SULLIVAN No. 6028 READING, MA COMMONWEALTH OF MASSACHUSETTS

SCALE: As Noted

ISSUED / DRAWN BY
4/29/2022

REVISED / REVISED BY
10/24/2022 - REV SUBMISSIONS
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A0.01

SCHEMATIC LANDSCAPE LAYOUT PLAN

Scale: 1/8" = 1'

N

0 1 2 3 5 10 15 25

GENERAL LANDSCAPE NOTES

1. AREAS NOT OTHERWISE DEVELOPED SHALL RECEIVE MIN. 6" COMPACTED DEPTH SCREENED LOAM.
2. EXISTING LOAM, IF ANY, SHALL BE STOCKPILED FOR LATER USE.
3. FINISH COVER OVER PLANTING BEDS SHALL INCLUDE 3" MIN. DEPTH PINE MULCH.
4. FINISH SURFACE SHALL BE GRADED FROM A HIGH POINT AT CENTER OF ISLAND OUT TO THE BACK OF CURB, SEE GRADING, DRAINAGE, AND PAVIGN PLAN FOR FINISHES AND GRADES.
5. AT A MIN. TREES AND SHRUBS SHALL BE WATERED BY FLOODING AS FOLLOWS:
   - 0-3 MONTHS - ONCE PER WEEK
   - 3-6 MONTHS - TWICE PER MONTH
   - 6-12 MONTHS - ONCE PER MONTH
6. NUMBER OF PLANT TYPE AND SIZE PROVIDED IN THE PLANT LIST IS FOR CONTRACTORS CONVENIENCE ONLY. IF DISCREPANCY EXISTS BETWEEN THE NUMBER OF PLANTS ON THE LIST AND THE NUMBER SHOWN ON THE DRAWINGS, THE GREATER NUMBER SHALL APPLY.
7. ALL PLANT MATERIAL SHALL BE APPROVED THE LANDSCAPE ARCHITECT OR OWNERS REP PRIOR TO ARRIVAL ON SITE.
8. PLANT MATERIAL SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL PLANTING GRADE.
9. CONTRACTORS SHALL LOCATE AND MARK ALL UTILITIES PRIOR TO PLANTING. ANY CONFLICTS BETWEEN PLANTING AND UTILITIES SHALL BE IMMEDIATELY REPORTED TO THE LANDSCAPE ARCHITECT SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
10. NO SUBSTITUTIONS OF PLANT MATERIALS WILL BE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTS AGAINST DAMAGE FROM ON GOING CONSTRUCTION . PROTECTION SHALL BEGIN AT THE TIME THE PLAN IS INSTALLED AND CONTINUE UNTIL FORMAL ACCEPTANCE OF ALL PLANTING.
12. ALL DISTURBED AREAS OUTSIDE THE LIMIT OF USE AREA SHALL BE SEEDED WITH CONSERVATION SEED MIX AND 4" LOAM.

BASIS OF DESIGN PRELIMINARY PLANT SCHEDULE

	QTY.	KEY	BOTANICAL NAME	COMMON NAME	SIZE
			TREES		
	5	RM	ACER RUBRUM 'RED SUNSET	RED SUNSET MAPLE	2.5-3"
	6	GIN	GINKGO BILOBA 'AUTUMN GOLD'	MAIDENHAIR TREE	2.5-3"
			SHRUBS		
	3	ACP	AZALEA 'CORNELL PINK'	CORNELL PINK AZALEA	2-3"
	8	GVBX	BUXUS KOREANA 'GREEN VELVET'	GREEN VELVET BOXWOOD	2-2.5"
	4	KOR	ROSA 'KNOCKOUT' (IN PLANTERS)	KNOCKOUT ROSE	2 GAL.
	4	OLHY	HYDRANGEA QUERCIFOLIA	OAK LEAF HYDRANGEA	3 GAL.
			PERENNIALS		
	30	FG	PENNISETUM ALOPECURIODES	FOUNTAIN GRASS	1 GAL.
	28	GER	GERANIUM MACRORRHIZUM 'SPESSART'	CRANESBILL GERANIUM	1 GAL.

O'SULLIVAN ARCHITECTS, INC.
ARCHITECTURE ▪ INTERIORS ▪ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

Schematic Landscape Layout Plan

REGISTERED ARCHITECT DAVID M. O'SULLIVAN No. 6589 READING MA COMMONWEALTH OF MASSACHUSETTS

SCALE: As Noted

ISSUED / DRAWN BY
4/29/2022

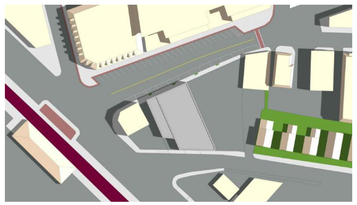
REVISED / REVISED BY
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A0.02

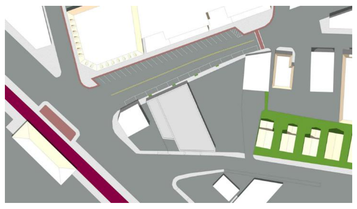
SUMMER SOLSTICE

N



S9 EXISTING: +/- 9AM
Scale: 1 to 20

S9 PROPOSED: +/- 9AM
Scale: 1 to 20



S12 EXISTING: +/- NOON
Scale: 1 to 20

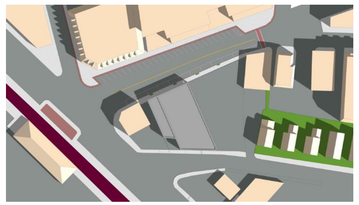
S12 PROPOSED: +/- NOON
Scale: 1 to 20

S4 EXISTING: +/- 4 PM
Scale: 1 to 20

S4 PROPOSED: +/- 4PM
Scale: 1 to 20

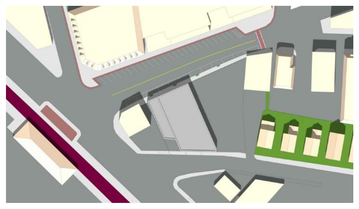
FALL/SPRING EQUINOX

N



F9 EXISTING: +/- 9AM
Scale: 1 to 20

F9 PROPOSED: +/- 9AM
Scale: 1 to 20



F12 EXISTING: +/- NOON
Scale: 1 to 20

F12 PROPOSED: +/- NOON
Scale: 1 to 20

F4 EXISTING: +/- 4 PM
Scale: 1 to 20

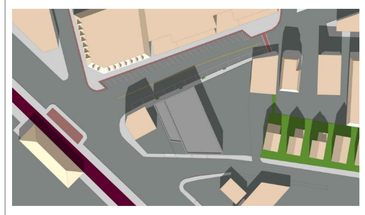
F4 PROPOSED: +/- 4PM
Scale: 1 to 20

WINTER SOLSTICE

N

W9 EXISTING: +/- 9AM
Scale: 1 to 20

W9 PROPOSED: +/- 9AM
Scale: 1 to 20



W12 EXISTING: +/- NOON
Scale: 1 to 20

W12 PROPOSED: +/- NOON
Scale: 1 to 20

W4 EXISTING: +/- 4 PM
Scale: 1 to 20

W4 PROPOSED: +/- 4PM
Scale: 1 to 20

O'SULLIVAN ARCHITECTS, INC.

ARCHITECTURE ▪ INTERIORS ▪ PLANNING

606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867

Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

SHADOW STUDIES

REGISTERED ARCHITECT
DAVID M. O'SULLIVAN
No. 8018
READING, MA
COMMONWEALTH OF MASSACHUSETTS

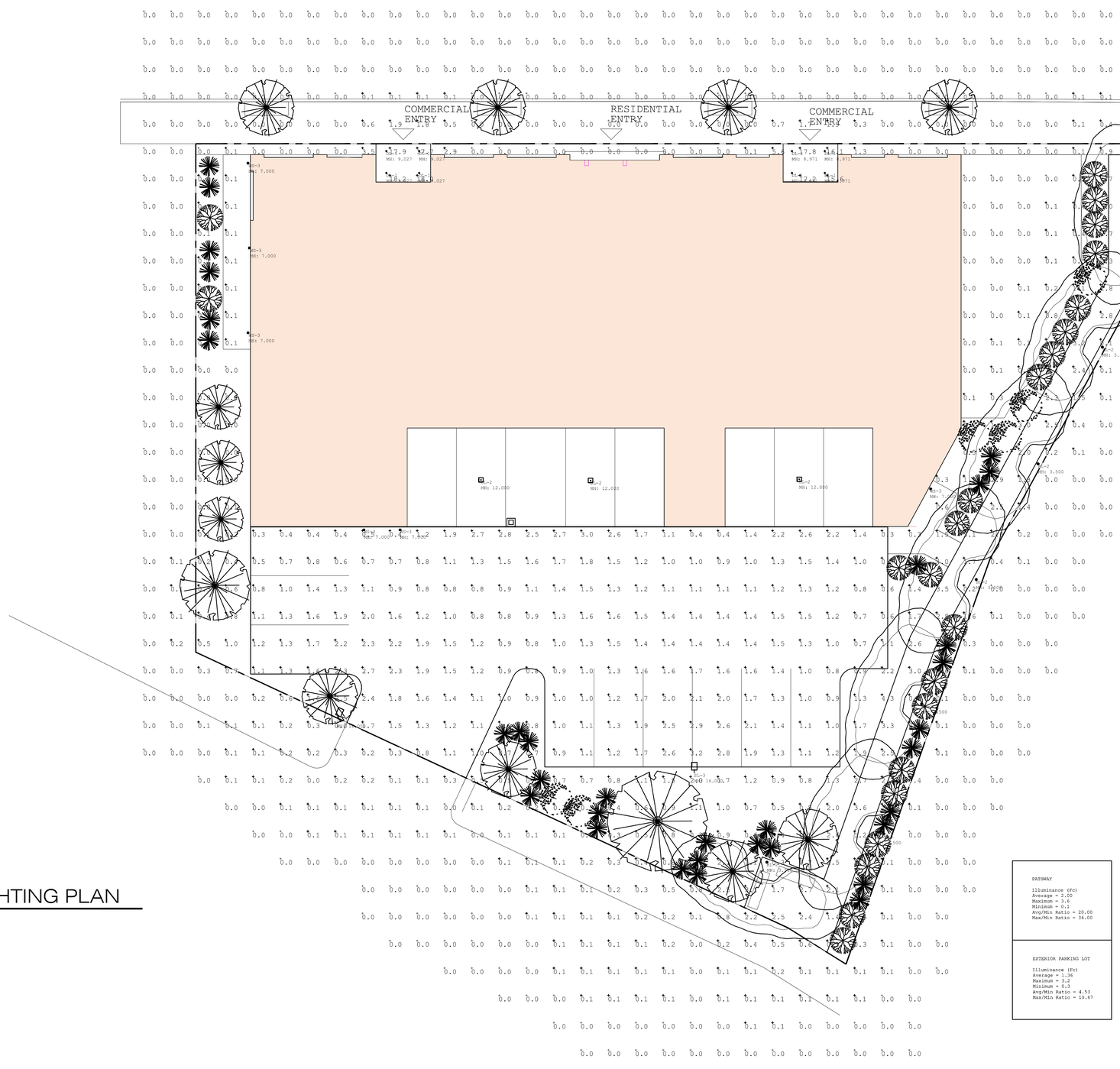
SCALE: As Noted

ISSUED / DRAWN BY
4/29/2022

REVISED / REVISED BY
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A0.03



L SCHEMATIC LIGHTING PLAN

Scale: 1 to 10'

N

0 1 2 3 5 10 15 25

Luminaire Schedule								
Symbol	Tag	Qty	Label	Arrangement	LLF	Description	Lum. Watts	Lum. Lumens
		7	BL-2	Single	0.900	PA7R-NU3HS-12L-010-4K7	14	744
		8	DL-1	Single	0.900	ENCL2SF-L081, ENCL2SFD-930W-W	7.4	648
		3	DL-2	Single	0.900	LSQ1-25-4K7-UNV-X	24.3	3170
		1	SL-1	Single	0.900	VP-1-160L-35-4K7-4F-BC	34.9	2687
		1	SL-3	Single	0.900	VP-1-160L-35-4K-4F	34.9	4567
		6	WS-3	Single	0.900	BRIAN MT2	33.51	193

Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	Grid Z
GRID AT GRADE	Illuminance	Fc	0.67	18.2	0.0	N.A.	N.A.	0
EXTERIOR PARKING LOT	Illuminance	Fc	1.36	3.2	0.3	4.53	10.67	
PATHWAY	Illuminance	Fc	2.00	3.6	0.1	20.00	36.00	

O'SULLIVAN ARCHITECTS, INC.
ARCHITECTURE ▪ INTERIORS ▪ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

omnilite illuminate

25 Haven Street
Reading, MA

Schematic Light Layout & Photometric

PREPARED BY
OTHERS

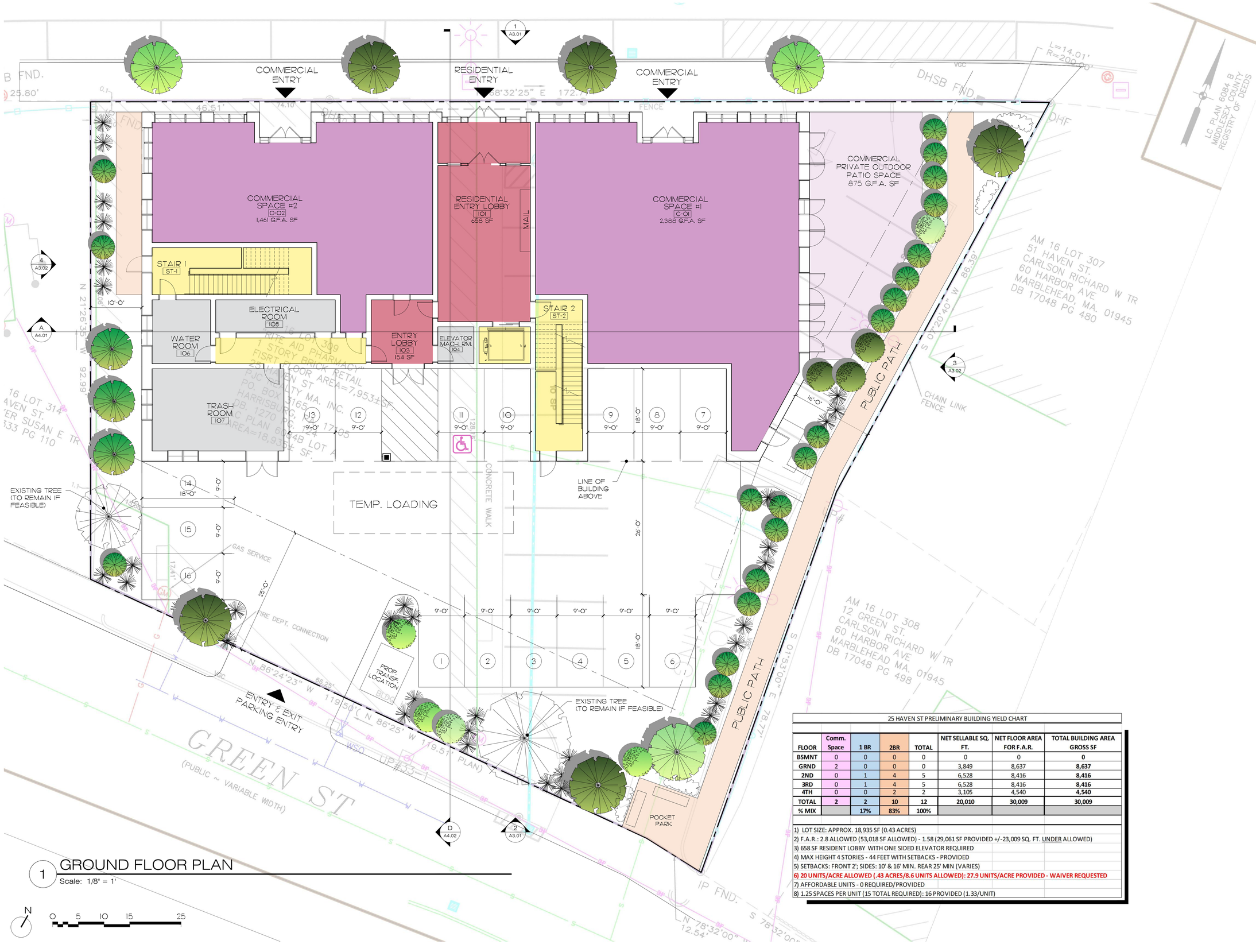
SCALE: As Noted

ISSUED / DRAWN BY
04/29/2022

REVISED / REVISED BY
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A0.04



1 GROUND FLOOR PLAN

Scale: 1/8" = 1'

N 0 5 10 15 25

25 HAVEN ST PRELIMINARY BUILDING YIELD CHART

FLOOR	Comm. Space	1 BR	2BR	TOTAL	NET SELLABLE SQ. FT.	NET FLOOR AREA FOR F.A.R.	TOTAL BUILDING AREA GROSS SF
BSMNT	0	0	0	0	0	0	**0**
GRND	2	0	0	0	3,849	8,637	**8,637**
2ND	0	1	4	5	6,528	8,416	**8,416**
3RD	0	1	4	5	6,528	8,416	**8,416**
4TH	0	0	2	2	3,105	4,540	**4,540**
TOTAL	**2**	**2**	**10**	**12**	**20,010**	**30,009**	**30,009**
% MIX		**17%**	**83%**	**100%**			

1) LOT SIZE: APPROX. 18,935 SF (0.43 ACRES)
2) F.A.R.: 2.8 ALLOWED (53,018 SF ALLOWED) - 1.58 (29,061 SF PROVIDED +/-23,009 SQ. FT. UNDER ALLOWED)
3) 658 SF RESIDENT LOBBY WITH ONE SIDED ELEVATOR REQUIRED
4) MAX HEIGHT 4 STORIES - 44 FEET WITH SETBACKS - PROVIDED
5) SETBACKS: FRONT 2'; SIDES: 10' & 16' MIN. REAR 25' MIN (VARIES)
6) 20 UNITS/ACRE ALLOWED (.43 ACRES/8.6 UNITS ALLOWED): 27.9 UNITS/ACRE PROVIDED - WAIVER REQUESTED
7) AFFORDABLE UNITS - 0 REQUIRED/PROVIDED
8) 1.25 SPACES PER UNIT (15 TOTAL REQUIRED): 16 PROVIDED (1.33/UNIT)

O'SULLIVAN ARCHITECTS, INC.
ARCHITECTURE ▪ INTERIORS ▪ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

Ground Floor Plan

REGISTERED ARCHITECT DAVID B. O'SULLIVAN NO. 6088 READING, MA COMMONWEALTH OF MASSACHUSETTS

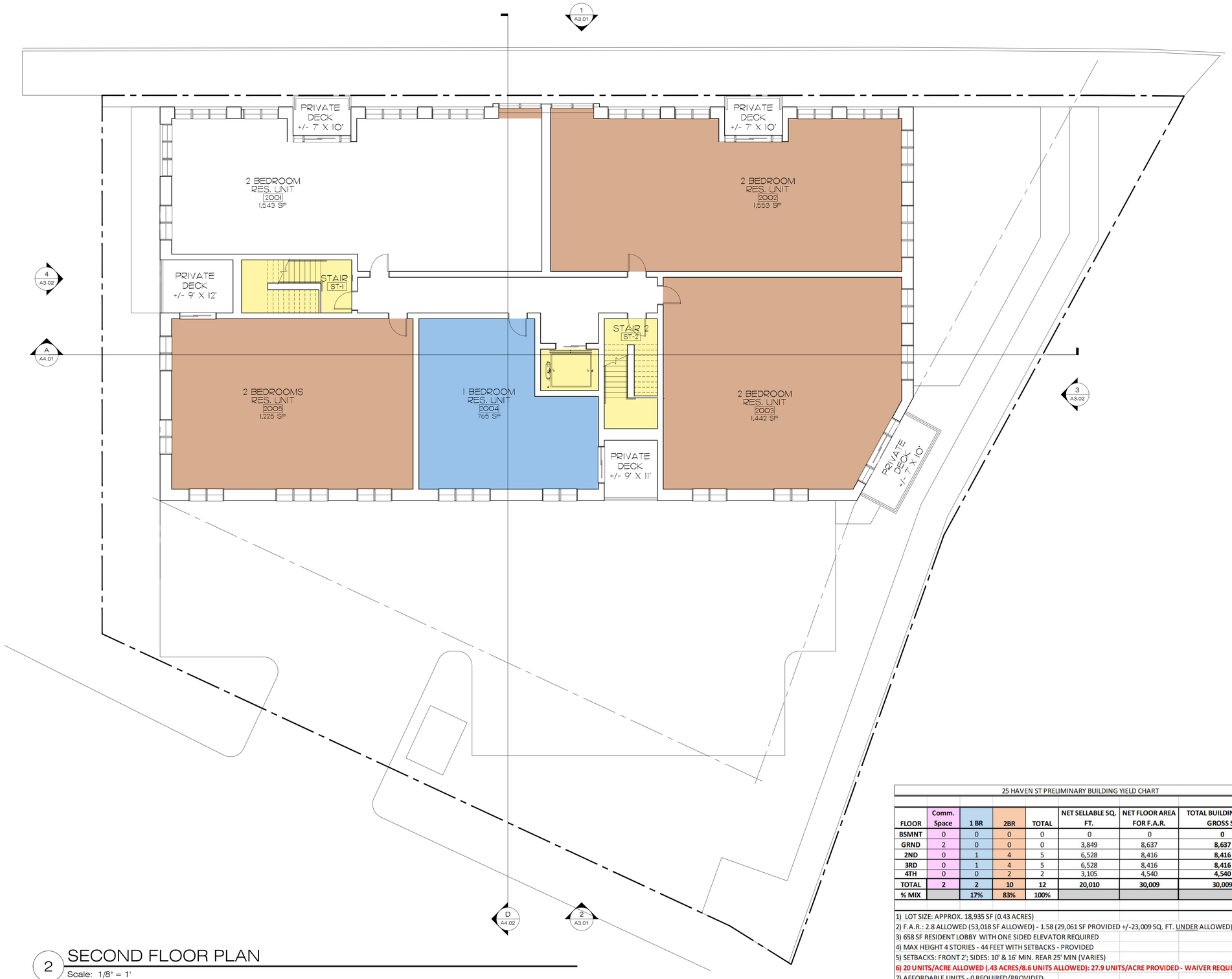
SCALE: As Noted

ISSUED / DRAWN BY
04/29/2022
© O'Sullivan Architects Inc.

REVISED / REVISED BY
10/24/2022 - REV SUBMISSION
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A1.01



2 SECOND FLOOR PLAN

Scale: 1/8" = 1'

N

0 5 10 15 25

25 HAVEN ST PRELIMINARY BUILDING YIELD CHART

FLOOR	Comm. Space	1 BR	2BR	TOTAL	NET SELLABLE SQ. FT.	NET FLOOR AREA FOR F.A.R.	TOTAL BUILDING AREA GROSS SF
BSMNT	0	0	0	0	0	0	**0**
GRND	2	0	0	0	3,849	8,637	**8,637**
2ND	0	1	4	5	6,528	8,416	**8,416**
3RD	0	1	4	5	6,528	8,416	**8,416**
4TH	0	0	2	2	3,105	4,540	**4,540**
TOTAL	2	2	10	12	20,010	30,009	30,009
% MIX		17%	83%	100%			

1) LOT SIZE: APPROX. 18,935 SF (0.43 ACRES)
2) F.A.R.: 2.8 ALLOWED (53,018 SF ALLOWED) - 1.58 (29,061 SF PROVIDED +/-23,009 SQ. FT. UNDER ALLOWED)
3) 658 SF RESIDENT LOBBY WITH ONE SIDED ELEVATOR REQUIRED
4) MAX HEIGHT 4 STORIES - 44 FEET WITH SETBACKS - PROVIDED
5) SETBACKS: FRONT 2'; SIDES: 10' & 16' MIN. REAR 25' MIN (VARIES)
6) 20 UNITS/ACRE ALLOWED (.43 ACRES/8.6 UNITS ALLOWED): 27.9 UNITS/ACRE PROVIDED - WAIVER REQUESTED
7) AFFORDABLE UNITS - 0 REQUIRED/PROVIDED
8) 1.25 SPACES PER UNIT (15 TOTAL REQUIRED): 16 PROVIDED (1.33/UNIT)

O'SULLIVAN ARCHITECTS, INC.
ARCHITECTURE ▪ INTERIORS ▪ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

Second Floor Plan

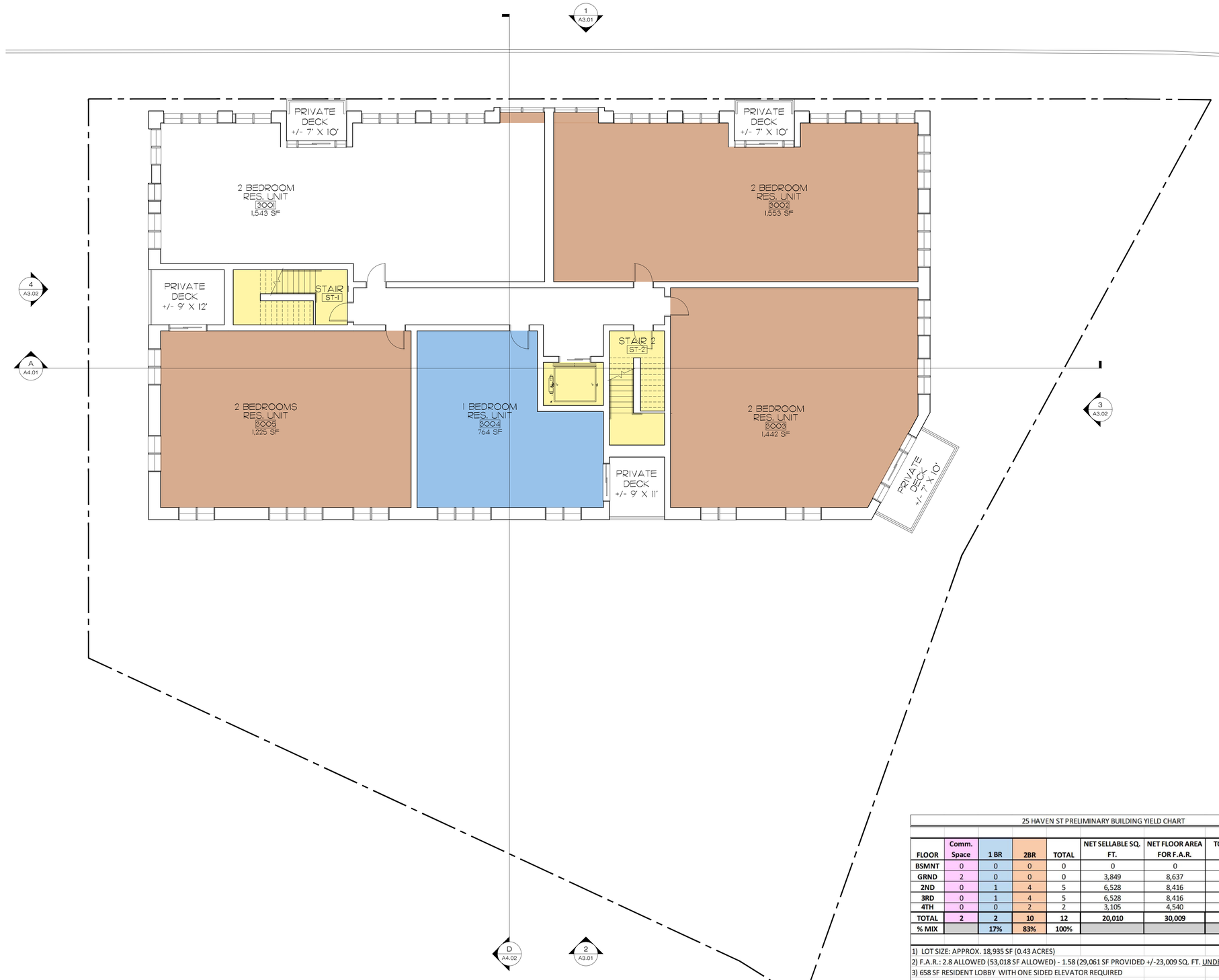
SCALE: As Noted

ISSUED / DRAWN BY
4/29/2022
© O'Sullivan Architects Inc.

REVISED / REVISED BY
10/24/2022 - REV SUBMISSION
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A1.02



3 THIRD FLOOR PLAN

Scale: 1/8" = 1'

N

0 5 10 15 25

25 HAVEN ST PRELIMINARY BUILDING YIELD CHART

FLOOR	Comm. Space	1 BR	2BR	TOTAL	NET SELLABLE SQ. FT.	NET FLOOR AREA FOR F.A.R.	TOTAL BUILDING AREA GROSS SF
BSMNT	0	0	0	0	0	0	**0**
GRND	2	0	0	0	3,849	8,637	**8,637**
2ND	0	1	4	5	6,528	8,416	**8,416**
3RD	0	1	4	5	6,528	8,416	**8,416**
4TH	0	0	2	2	3,105	4,540	**4,540**
TOTAL	**2**	**2**	**10**	**12**	**20,010**	**30,009**	**30,009**
% MIX		**17%**	**83%**	**100%**			

1) LOT SIZE: APPROX. 18,935 SF (0.43 ACRES)
2) F.A.R.: 2.8 ALLOWED (53,018 SF ALLOWED) - 1.58 (29,061 SF PROVIDED +/-23,009 SQ. FT. UNDER ALLOWED)
3) 658 SF RESIDENT LOBBY WITH ONE SIDED ELEVATOR REQUIRED
4) MAX HEIGHT 4 STORIES - 44 FEET WITH SETBACKS - PROVIDED
5) SETBACKS: FRONT 2'; SIDES: 10' & 16' MIN. REAR 25' MIN (VARIES)
6) 20 UNITS/ACRE ALLOWED (.43 ACRES/8.6 UNITS ALLOWED): 27.9 UNITS/ACRE PROVIDED - WAIVER REQUESTED
7) AFFORDABLE UNITS - 0 REQUIRED/PROVIDED
8) 1.25 SPACES PER UNIT (15 TOTAL REQUIRED): 16 PROVIDED (1.33/UNIT)

O'SULLIVAN ARCHITECTS, INC.
ARCHITECTURE ▪ INTERIORS ▪ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

Third Floor Plan

REGISTERED ARCHITECT DAVID M. O'SULLIVAN No. 6918 READING, MA COMMONWEALTH OF MASSACHUSETTS

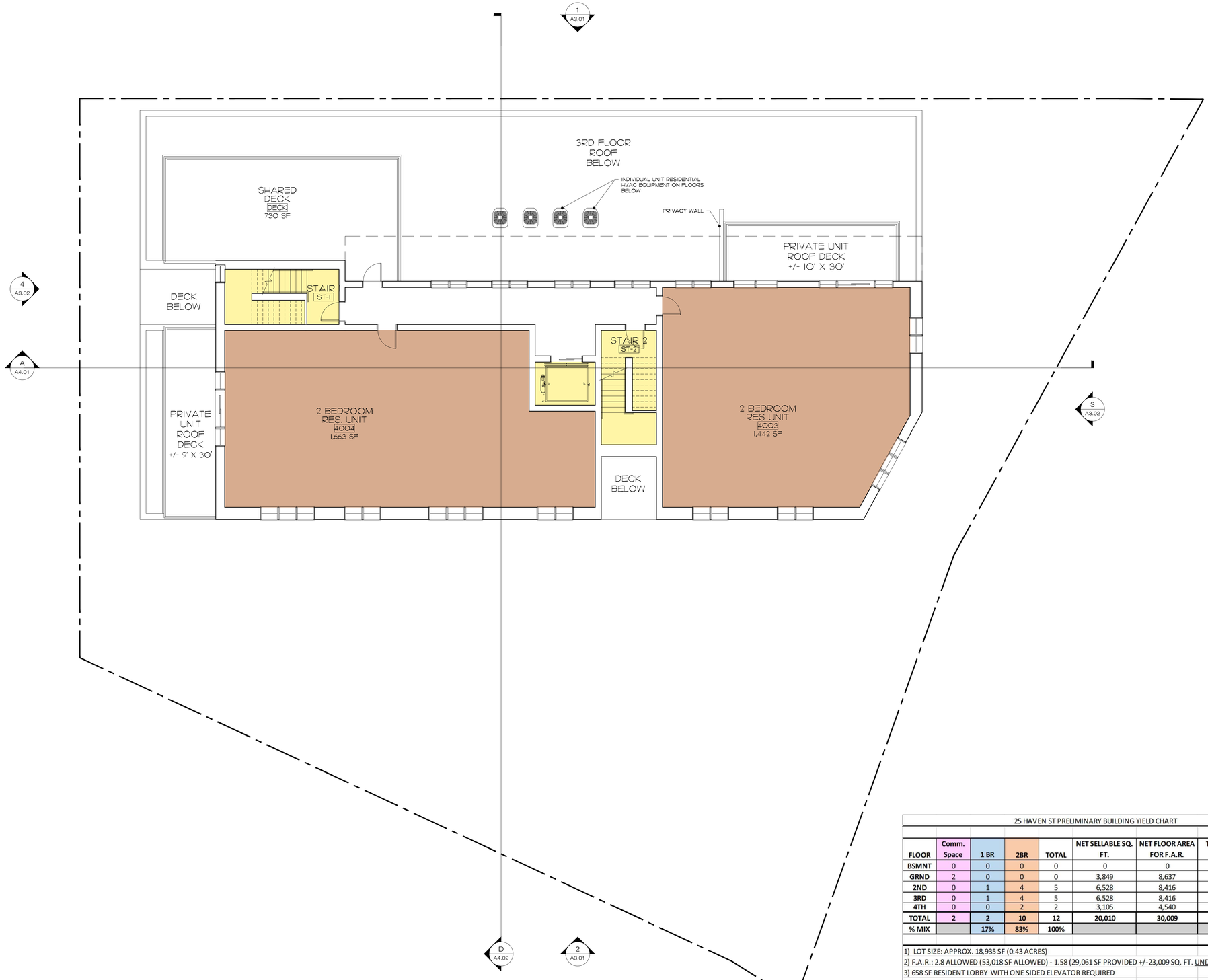
SCALE: As Noted

ISSUED / DRAWN BY
4/29/2022

REVISED / REVISED BY
10/24/2022 - REV SUBMISSION
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A1.03



4 FOURTH FLOOR PLAN

Scale: 1/8" = 1'

N

0 5 10 15 25

25 HAVEN ST PRELIMINARY BUILDING YIELD CHART

FLOOR	Comm. Space	1 BR	2BR	TOTAL	NET SELLABLE SQ. FT.	NET FLOOR AREA FOR F.A.R.	TOTAL BUILDING AREA GROSS SF
BSMNT	0	0	0	0	0	0	**0**
GRND	2	0	0	0	3,849	8,637	**8,637**
2ND	0	1	4	5	6,528	8,416	**8,416**
3RD	0	1	4	5	6,528	8,416	**8,416**
4TH	0	0	2	2	3,105	4,540	**4,540**
TOTAL	**2**	**2**	**10**	**12**	**20,010**	**30,009**	**30,009**
% MIX		**17%**	**83%**	**100%**			

1) LOT SIZE: APPROX. 18,935 SF (0.43 ACRES)
2) F.A.R.: 2.8 ALLOWED (53,018 SF ALLOWED) - 1.58 (29,061 SF PROVIDED +/-23,009 SQ. FT. UNDER ALLOWED)
3) 658 SF RESIDENT LOBBY WITH ONE SIDED ELEVATOR REQUIRED
4) MAX HEIGHT 4 STORIES - 44 FEET WITH SETBACKS - PROVIDED
5) SETBACKS: FRONT 2'; SIDES: 10' & 16' MIN. REAR 25' MIN (VARIES)
6) 20 UNITS/ACRE ALLOWED (.43 ACRES/8.6 UNITS ALLOWED): 27.9 UNITS/ACRE PROVIDED - WAIVER REQUESTED
7) AFFORDABLE UNITS - 0 REQUIRED/PROVIDED
8) 1.25 SPACES PER UNIT (15 TOTAL REQUIRED): 16 PROVIDED (1.33/UNIT)

O'SULLIVAN
ARCHITECTS, INC.
ARCHITECTURE ▪ INTERIORS ▪ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

Fourth Floor Plan

REGISTERED ARCHITECT DAVID M. O'SULLIVAN No. 6028 COMMONWEALTH OF MASSACHUSETTS

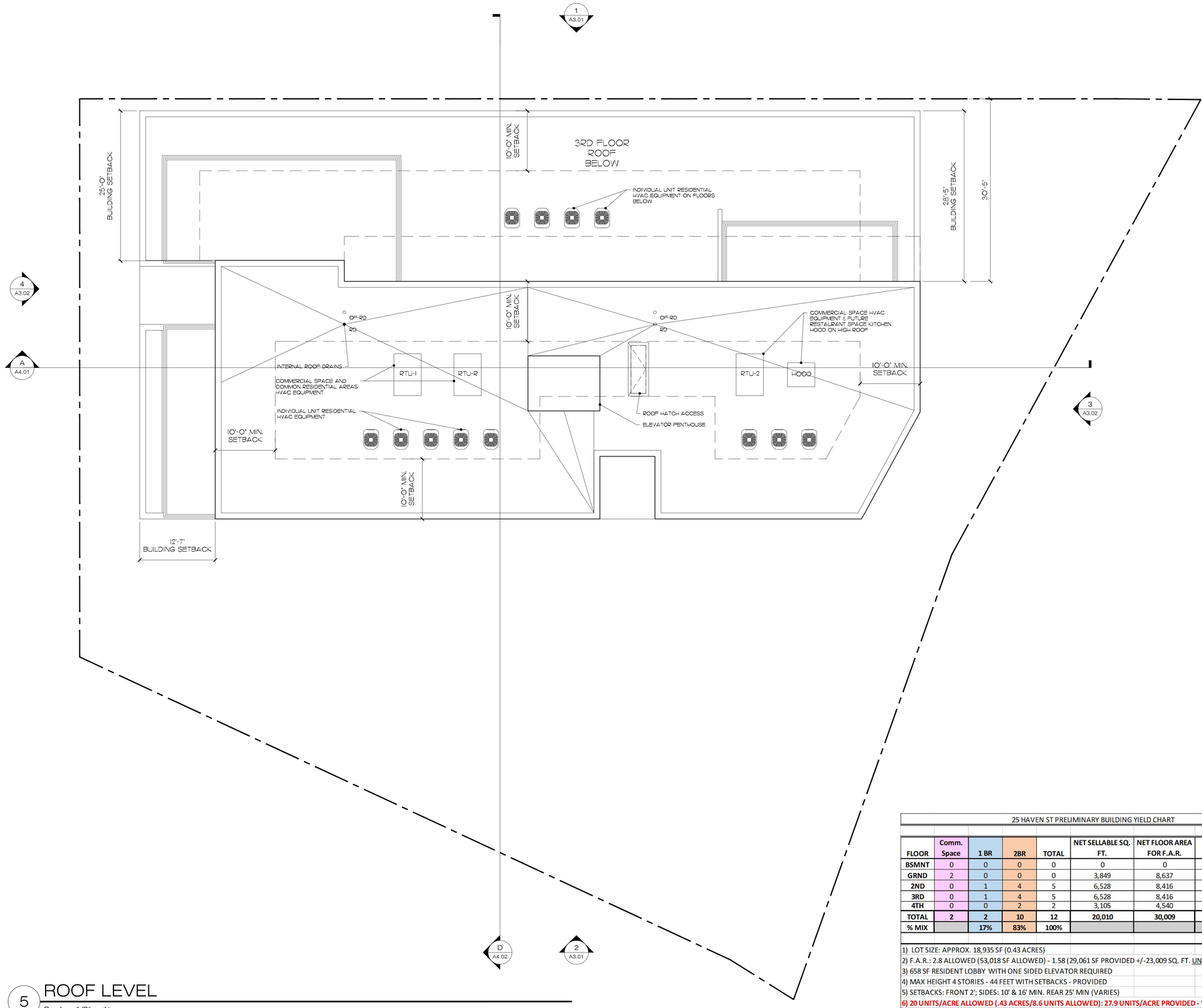
SCALE: As Noted

ISSUED / DRAWN BY
4/29/2022

REVISED / REVISED BY
10/24/2022 - REV SUBMISSION
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A1.04



5 ROOF LEVEL

Scale: 1/8" = 1'

N

0 5 10 15 25

25 HAVEN ST PRELIMINARY BUILDING YIELD CHART

FLOOR	Comm. Space	1 BR	2BR	TOTAL	NET SELLABLE SQ. FT.	NET FLOOR AREA FOR F.A.R.	TOTAL BUILDING AREA GROSS SF
BSMNT	0	0	0	0	0	0	**0**
GRND	2	0	0	0	3,849	8,637	**8,637**
2ND	0	1	4	5	6,528	8,416	**8,416**
3RD	0	1	4	5	6,528	8,416	**8,416**
4TH	0	0	2	2	3,105	4,540	**4,540**
TOTAL	2	2	10	12	20,010	30,009	30,009
% MIX		17%	83%	100%			

1) LOT SIZE: APPROX. 18,935 SF (0.43 ACRES)
2) F.A.R.: 2.8 ALLOWED (53,018 SF ALLOWED) - 1.58 (29,061 SF PROVIDED +/-23,009 SQ. FT. UNDER ALLOWED)
3) 658 SF RESIDENT LOBBY WITH ONE SIDED ELEVATOR REQUIRED
4) MAX HEIGHT 4 STORIES - 44 FEET WITH SETBACKS - PROVIDED
5) SETBACKS: FRONT 2'; SIDES: 10' & 16' MIN. REAR 25' MIN (VARIES)
6) 20 UNITS/ACRE ALLOWED (.43 ACRES/8.6 UNITS ALLOWED): 27.9 UNITS/ACRE PROVIDED - WAIVER REQUESTED
7) AFFORDABLE UNITS - 0 REQUIRED/PROVIDED
8) 1.25 SPACES PER UNIT (15 TOTAL REQUIRED): 16 PROVIDED (1.33/UNIT)

O'SULLIVAN ARCHITECTS, INC.
ARCHITECTURE ▪ INTERIORS ▪ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

Roof Level Plan

REGISTERED ARCHITECT DAVID R. O'SULLIVAN No. 6028 READING COMMONWEALTH OF MASSACHUSETTS

SCALE: As Noted

ISSUED / DRAWN BY
4/29/2022

REVISED / REVISED BY
10/24/2022 - REV SUBMISSION
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A1.05

1 FRONT ELEVATION (HAVEN STREET)

Scale: 1/8" = 1'

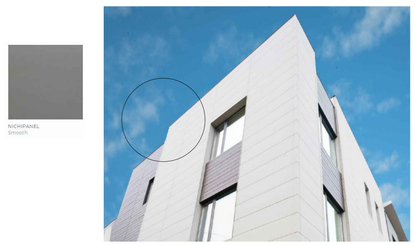
2 REAR ELEVATION (GREEN STREET)

Scale: 1/8" = 1'

EXTERIOR SIDING FINISHES KEY
(AT UPPER LEVELS)

BASIS OF DESIGN NICHIHA PANEL RAIN SCREEN SYSTEMS:
SMOOTH & RIBBED PANEL SYSTEMS

(EXAMPLE PHOTOS ATTACHED)



0 1 2 3 5 10 15 25

O'SULLIVAN ARCHITECTS, INC.
ARCHITECTURE ▮ INTERIORS ▮ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

Elevations

REGISTERED ARCHITECT DAVID W. O'SULLIVAN No. 6002 READING, MA COMMONWEALTH OF MASSACHUSETTS

SCALE: As Noted

ISSUED / DRAWN BY
4/29/2022
© O'Sullivan Architects Inc.

REVISED / REVISED BY
10/24/2022 - REV SUBMISSION
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A3.01

3 LEFT ELEVATION

Scale: 1/8" = 1'

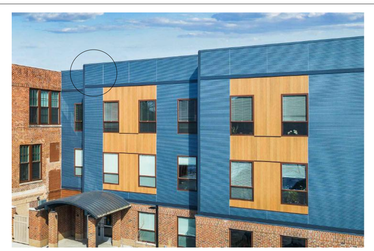
4 RIGHT ELEVATION

Scale: 1/8" = 1'

EXTERIOR SIDING FINISHES KEY (AT UPPER LEVELS)

BASIS OF DESIGN NICHIHA PANEL RAIN SCREEN SYSTEMS:
SMOOTH & RIBBED PANEL SYSTEMS

(EXAMPLE PHOTOS ATTACHED)



0 1 2 3 5 10 15 25

O'SULLIVAN ARCHITECTS, INC.
ARCHITECTURE ▪ INTERIORS ▪ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

Elevations

REGISTERED ARCHITECT DAVID N. O'SULLIVAN No. 6302 READING, MA COMMONWEALTH OF MASSACHUSETTS

SCALE: As Noted

ISSUED / DRAWN BY
4/29/2022
© O'Sullivan Architects Inc.

REVISED / REVISED BY
10/24/2022 - REV SUBMISSION
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A3.02

1 VIEW 1 FROM HAVEN ST.
Scale: N.T.S.

2 VIEW 2 FROM HAVEN ST.
Scale: N.T.S.

O'SULLIVAN
ARCHITECTS, INC.
ARCHITECTURE ▪ INTERIORS ▪ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

Perpectives

SCALE: As Noted

ISSUED / DRAWN BY
4/29/2022

REVISED / REVISED BY
10/24/2022 - REV SUBMISSION
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A3.10

3 VIEW 3 FROM GREEN ST. @ PUBLIC PATH
Scale: N.T.S.

4 VIEW 4 FROM DEPOT
Scale: N.T.S.

O'SULLIVAN
ARCHITECTS, INC.
ARCHITECTURE ▪ INTERIORS ▪ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

Perpectives

SCALE: As Noted

ISSUED / DRAWN BY
4/29/2022
© O'Sullivan Architects Inc.

REVISED / REVISED BY
10/24/2022 - REV SUBMISSION
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A3.11

5 VIEW 5 WEST SIDE ELEVATION
Scale: N.T.S.

6 VIEW 6 FROM HAVEN
Scale: N.T.S.

O'SULLIVAN
ARCHITECTS, INC.
ARCHITECTURE ▮ INTERIORS ▮ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

Perpectives

SCALE: As Noted

ISSUED / DRAWN BY
4/29/2022

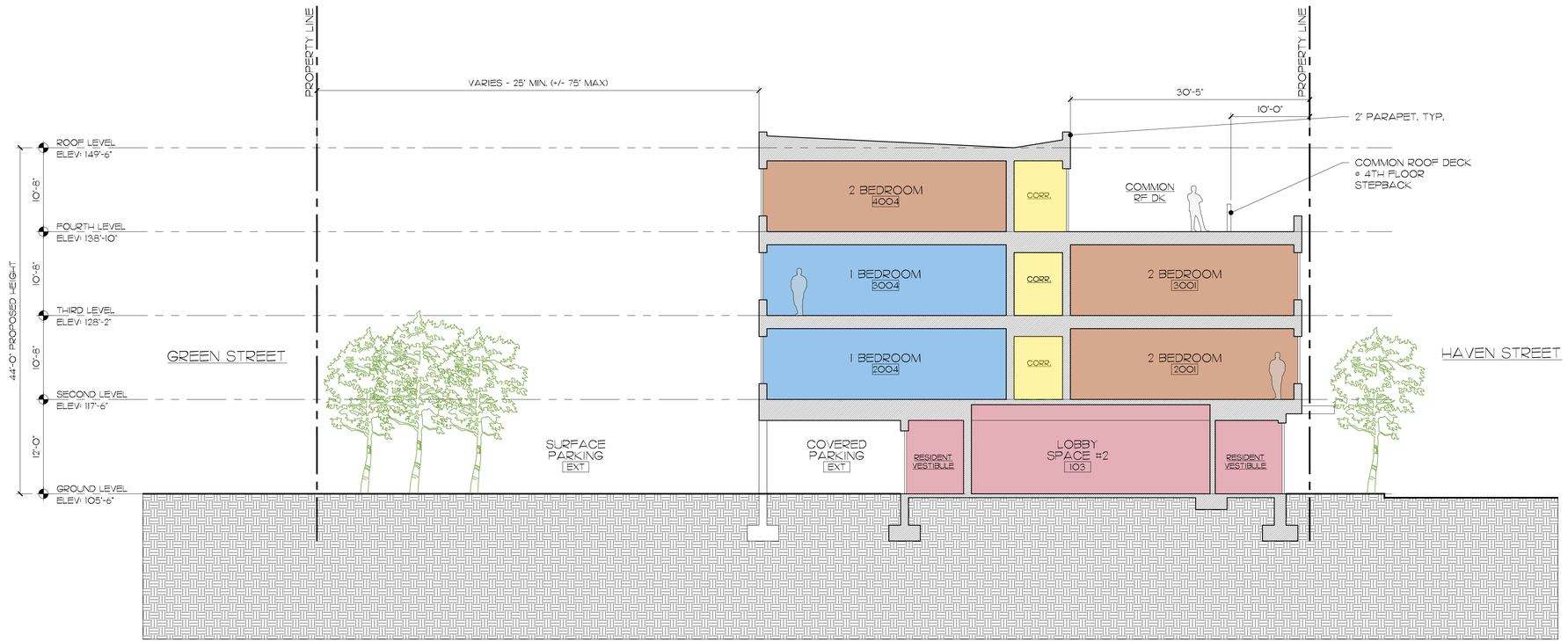
REVISED / REVISED BY
10/24/2022 - REV SUBMISSION
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A3.12

B SECTION

Scale: 1/8" = 1'



0 1 2 3 5 10 15 25

A SECTION

Scale: 1/8" = 1'

O'SULLIVAN ARCHITECTS, INC.
ARCHITECTURE ▮ INTERIORS ▮ PLANNING
606 MAIN STREET, SUITE 3001
READING, MASSACHUSETTS 01867
Tel: (781) 439-6166 Fax: (781) 439-6170
www.osullivanarchitects.com

25 Haven Street
Reading, MA

Sections

REGISTERED ARCHITECT COMMONWEALTH OF MASSACHUSETTS DAVID M. O'SULLIVAN No. 9030 READING, MA

SCALE: As Noted

ISSUED / DRAWN BY
4/29/2022
© OSullivan Architects Inc.

REVISED / REVISED BY
10/24/2022 - REV SUBMISSION
11/28/2022 - REV 2 SUBMISSION

JOB NO: 21015

SHEET NUMBER
A4.01

Town of Reading

16 Lowell Street, Reading, MA 01867

Public Services Department
Phone 781-942-6613 / Fax 781-942-9071
Monday, Wednesday, Thursday: 7:30 AM- 5:30 PM
Tuesday: 7:30 AM-7:00 PM - Closed on Fridays

Application for Permit to Erect a Sign

All signs shall comply with Section 8.0 of the Reading Zoning By-Laws and any State Requirements

The undersigned hereby applies for a permit to: Erect: ☐ Alter: ☐ Repair: ☐ a sign at the following location:

Property Address: _____ **Name of Business**: _____

Is there an approved Master Signage Plan? Yes ☐ (please attach) No ☐ Total Number of Signs Proposed: _____

Zoning District: Residential: _____ **Business:** A ☐ B ☐ C ☐ **Industrial:** ☐ **Overlay:** ☐

Property Owner: _____ Address: _____

Telephone: _____ Email: _____

Business Owner: _____ Address: _____

Telephone: _____ Email: _____

Sign Mechanic: _____ Address: _____

Telephone: _____ Email: _____

Sign 1 – Type:	**Sign 2 – Type:**	**Sign 3 – Type:**
Sign Material:	Sign Material:	Sign Material:
Sign Dimensions: Length: _____ Width: _____ Depth: _____ Total Area: _____ Illuminated: Y ☐ / N ☐ Type of Illumination:	Sign Dimensions: Length: _____ Width: _____ Depth: _____ Total Area: _____ Illuminated: Y ☐ / N ☐ Type of Illumination:	Sign Dimensions: Length: _____ Width: _____ Depth: _____ Total Area: _____ Illuminated: Y ☐ / N ☐ Type of Illumination:

Estimated Cost of Sign(s): $_____ Display Dates of Temporary/Banner Sign: _____

Total Sign Area of All Signs: _____ Total length of front façade on which wall sign will be affixed: _____

Awning and Projecting/Blade Sign: Projection/height over sidewalk (must be at least 8-feet): _____

Free-Standing Sign:
Distance from ground to bottom of sign: _____ To top of sign: _____ Side Yard Setback: _____

Business Owner Signature: _____ Date: _____

Property Owner Signature: _____ Date: _____

The following are required to be submitted with the sign application:

- Dimensioned designs of each sign;
- Building elevation(s);
- Proposed sign location(s);
- Photographs or mock-ups;
- Sign colors & materials;
- Installation details;
    - A side view of how the sign will be attached for wall & blade signs;
    - Foundation details for free-standing signs;
- Internally illuminated signs must have an opaque signboard background. If the illumination shines through more than the letters and graphics, you will be asked to replace the sign. A sample of the sign material must be submitted to the Planning Division for approval; and
- Other information upon request.

All signs in the Business-B Zoning District (downtown and the commercial area on Salem Street), and applications for Master Signage Plans, require approval from the Community Planning & Development Commission (CPDC).

What to submit to the CPDC (through the Community Development Director):
Seven (7) copies and an electronic copy (jpeg, PDF, or word doc) of the following materials:

- A completed sign permit application;
- The required documentation listed above; and
- Specification sheets for any proposed external light fixtures.

The CPDC meets monthly. To be placed on a CPDC meeting agenda please contact the Planning Division.

- The sign permit fee is $12 per $1,000 total value of construction, with a minimum fee of $110.
- Temporary banner signs are $30 and are allowed for 56 days total per calendar year.
- An electrical permit is required for illuminated signs
- After the CPDC approves the proposed sign, the application will be forwarded to the Building Inspector for review and approval.
- **A building permit must be obtained before work commences.**

BARE MEADOW

CONSERVATION AREA

TRAILHEAD & PARKING

721 PEARL STREET

Total Height with posts will be 5’ or less. The finished sign will be red with no black border. The lettering will not be carved


MATTERA
CABIN
CONSERVATION AREA
1481 MAIN STREET

Property Information

Property ID	056.0-0000-0085.0
Location	0 PEARL ST
Owner	TOWN OF READING CONS.

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Reading, MA makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 1/1/2020
Data updated 1/1/2020

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Map Theme Legends

Historic

Historic Site

Historic District

MHC Historic Inventory

MHC Inventory Areas

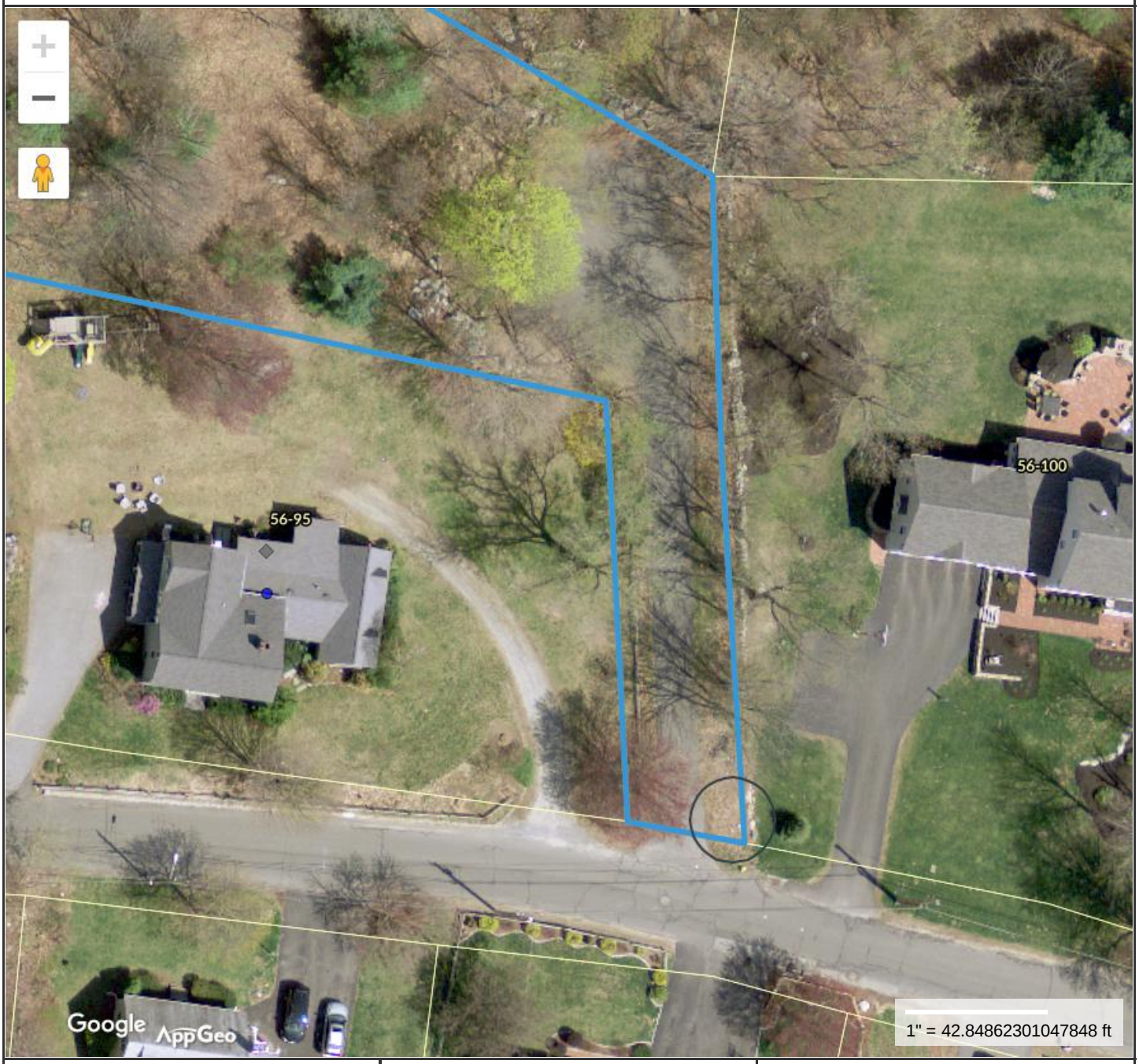
- National Register Historic Places
- Preservation Restriction
- Local Historic District
- National Register Historic Places & Local Historic District
- Massachusetts Historic Landmark
- Inventoried Area

MHC Inventory Points

- National Register Historic Places
- Preservation Restriction
- Local Historic District
- National Register Historic Places & Local Historic District
- Massachusetts Historic Landmark
- Inventoried Property

MHC Update Status

- Updates Pending
- Completed



Property Information

Property ID	056.0-0000-0085.0
Location	0 PEARL ST
Owner	TOWN OF READING CONS.

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Reading, MA makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 1/1/2020
Data updated 1/1/2020

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Map Theme Legends

Historic

Historic Site

Historic District

MHC Historic Inventory

MHC Inventory Areas

- National Register Historic Places
- Preservation Restriction
- Local Historic District
- National Register Historic Places & Local Historic District
- Massachusetts Historic Landmark
- Inventoried Area

MHC Inventory Points

- National Register Historic Places
- Preservation Restriction
- Local Historic District
- National Register Historic Places & Local Historic District
- Massachusetts Historic Landmark
- Inventoried Property

MHC Update Status

- Updates Pending
- Completed

BARE MEADOW

CONSERVATION AREA

TRAILHEAD & PARKING

721 PEARL STREET

Total Height with posts will be 5’ or less. The finished sign will be red with no black border. The lettering will not be carved. The installation will be a minimum of a 3-foot radius from the fire hydrant (aiming for a 5 foot radius)


MATTERA
CABIN
CONSERVATION AREA
1481 MAIN STREET

Property Information

Property ID	056.0-0000-0085.0
Location	0 PEARL ST
Owner	TOWN OF READING CONS.

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Reading, MA makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 1/1/2020
Data updated 1/1/2020

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Map Theme Legends

Historic

Historic Site

Historic District

MHC Historic Inventory

MHC Inventory Areas

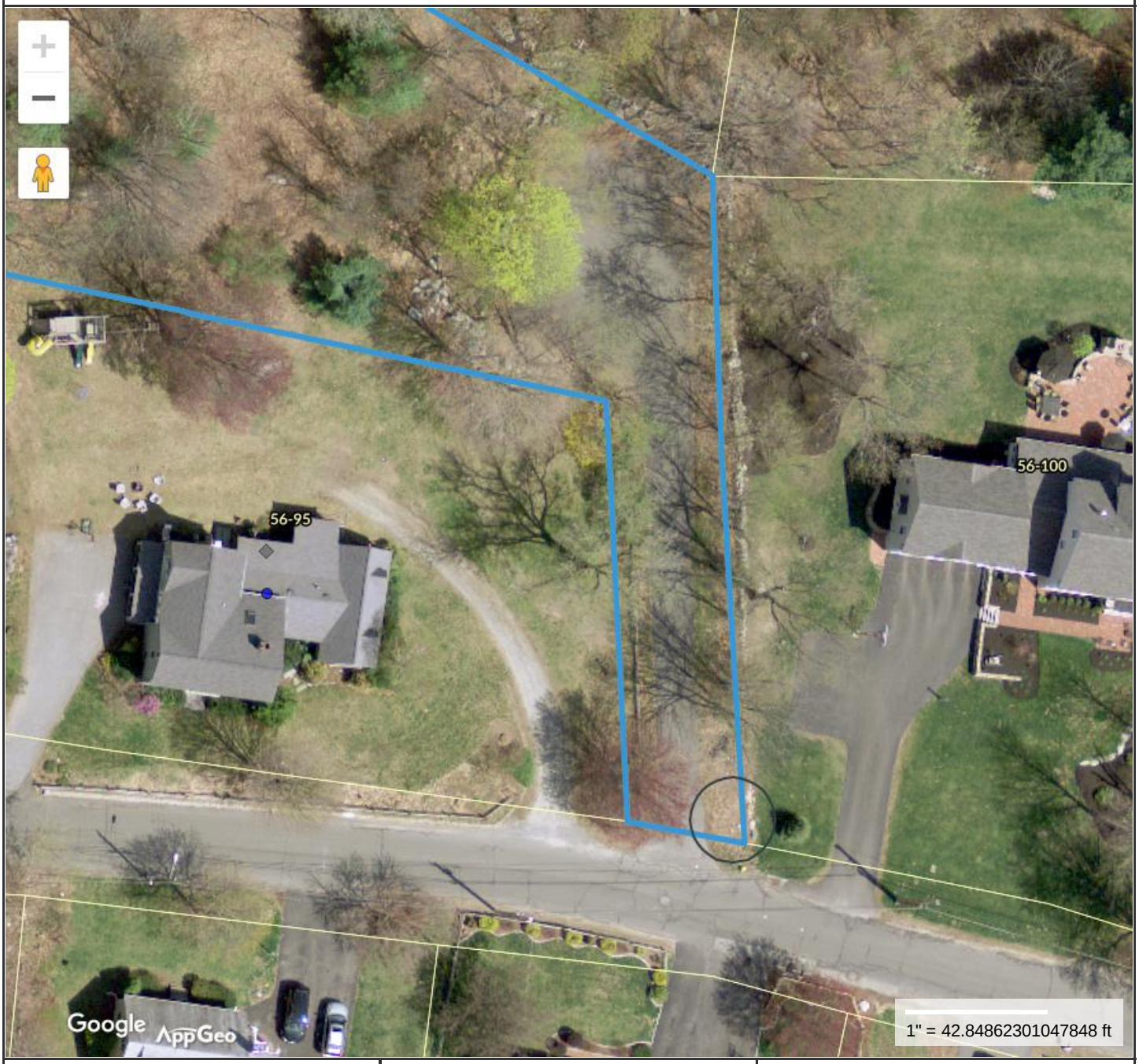
- National Register Historic Places
- Preservation Restriction
- Local Historic District
- National Register Historic Places & Local Historic District
- Massachusetts Historic Landmark
- Inventoried Area

MHC Inventory Points

- National Register Historic Places
- Preservation Restriction
- Local Historic District
- National Register Historic Places & Local Historic District
- Massachusetts Historic Landmark
- Inventoried Property

MHC Update Status

- Updates Pending
- Completed



Property Information

Property ID	056.0-0000-0085.0
Location	0 PEARL ST
Owner	TOWN OF READING CONS.

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Reading, MA makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 1/1/2020
Data updated 1/1/2020

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Map Theme Legends

Historic

Historic Site

Historic District

MHC Historic Inventory

MHC Inventory Areas

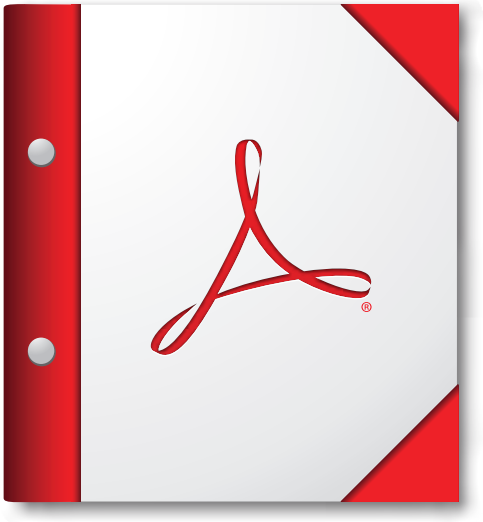
- National Register Historic Places
- Preservation Restriction
- Local Historic District
- National Register Historic Places & Local Historic District
- Massachusetts Historic Landmark
- Inventoried Area

MHC Inventory Points

- National Register Historic Places
- Preservation Restriction
- Local Historic District
- National Register Historic Places & Local Historic District
- Massachusetts Historic Landmark
- Inventoried Property

MHC Update Status

- Updates Pending
- Completed



For the best experience, open this PDF portfolio in Acrobat X or Adobe Reader X, or later.

Get Adobe Reader Now!

ACTIVITAS
landscape architecture | civil engineering

PROJECT NARRATIVE

Subject: Minor Site Plan Review Application

Project: **Town of Reading**
Birch Meadow Park - Phase I Renovations

Project No. 22014.00

Date: 30 November 2022

To: Andrew MacNichol
Staff Planner
Planning Division, Town of Reading
16 Lowell Street
Reading, MA 01867

By: Stephen Crisafulli, RLA
Project Manager

Delivery: via email *(amacnichol@ci.reading.ma.us)*

BIRCH MEADOW PARK - PHASE I

The first phase of renovations at Birch Meadow Park focuses on the following improvements:

- Full renovation of the existing gravel parking lot
  (also known as the old "Imagination Station" Playground)
- A new centralized walkway connecting Birch Meadow Drive to the High School
- Storage, restrooms, and picnic pavilion/building
- Lacrosse practice wall
- Site lighting, circulation, and landscape improvements

Note: All fields will have a minimum of 10' of safety run out space at each side and end line.

PARKING LOT

The renovations will provide upgraded facility amenities that include accessible parking and universal access to the park, 3 electric vehicle charging stations, parking lot and path lighting, curbed walkways, wayfinding and educational signage (along wetland restoration areas) landscape improvements, along with benches and other site furnishings to provide a "gateway" into the Birch Meadow Park complex.

Including the additional project scope listed hereafter, the total existing impervious surface area is roughly 296,098 square feet versus the proposed impervious surface area of 310,671 square feet shows an increase of approximately 14,573 square feet. These numbers are based on a wider analysis area for our stormwater management design and engineering, however the delta of impervious is reflects that actual amount being added.

CENTRAL WALKWAY

The walkway will provide a wide accessible path from the High School to Birch Meadow Drive. Along with connector paths the walkway will include benches, trash and recycling receptacles, lighting and other landscape improvements for users to safely navigate and enjoy the park.

PAVILION / BUILDING

The proposed pavilion building between Turf II and Morton Field will provide much desired restrooms and storage for recreational clubs. It will also provide a covered shelter with picnic tables for gathering. The total proposed covered (roof) area is 1,696 square feet. The actual building (restrooms and storage) area is 640 square feet.

LACROSSE PRACTICE WALL

The proposed lacrosse practice wall is 12' high by 26' wide and made of precast cement concrete. This wall would be located directly behind Turf II and would be set within a 41'x43' synthetic turf area which would also be connected to the existing turf field perimeter curb.

Below are images of the site where the improvements listed above are being proposed.

ACTIVITAS

ACTIVITAS

ACTIVITAS

ACTIVITAS

If you have any questions or comments on the enclosed information, please do not hesitate to contact me directly at (781) 355-7041 or by email at src@activitas.com.

Respectfully,

ACTIVITAS

Stephen Crisafulli, RLA
Project Manager
src@activitas.com

Town of Reading
16 Lowell Street
Reading, MA 01867

Andrew MacNichol
Community Development Director
Phone: 781.942-6670
Fax: 781.942-9071
Website: www.readingma.gov

December 12, 2022

Minor Site Plan Review
DECISION

Project/Site: 0 Birch Meadow Drive – Birch Meadow Park

To the Town Clerk:
This is to certify that, at a meeting of the Community Planning and Development Commission on December 12, 2022, by a motion duly made and seconded, it was voted:

"We, the Reading Community Planning and Development Commission, upon request from Activitas, Inc., on behalf of the Town of Reading, for Minor Site Plan Review for the property located at 0 Birch Meadow Drive (Assessors Map 33, Lots 52, 56, 57, and 91) for an increase of over 500 square feet of Gross Floor Area in new floor area, an increase in impervious area and associated parking improvements, as presented in the application materials enumerated below, do hereby vote XXX, to _____ the project under Minor Site Plan Review in accordance with Section 4.6.3 of the Reading Zoning Bylaw, subject to the Findings and Conditions below."

Materials Submitted:
The following materials were submitted into the public record:

1. Certified Abutters List, dated 11/23/22;
2. Minor Site Plan Review Courtesy Notice of Public Meeting to Abutters;
3. Minor Site Plan Review Application, received 11/30/22;
4. Project Narrative, prepared by Activitas Inc., dated 11/30/22;
5. Civil Plan Set Birch Meadow Park Phase I, prepared by Activitas Inc., prepared for the Town of Reading, and including:
    a. Cover Sheet and Locus Map, dated November 2022
    b. Sheet One: Topographic Survey, prepared by Reed Land Surveying, Inc., dated 7/28/22;
    c. Sheet Two: Topographic Survey, prepared by Reed Land Surveying, Inc., dated 7/28/22;
    d. Sheet L0.1: Key Plan Sheet, dated November 2022;
    e. Sheet SP1.1: Site Preparation Sheet One, dated November 2022;
    f. Sheet SP1.2: Site Preparation Sheet Two, dated November 2022;
    g. Sheet SP1.3: Site Preparation Detail Sheet, dated November 2022;
    h. Sheet L1.1: Layout and Materials Plan Sheet One, dated November 2022;
    i. Sheet L1.2: Layout and Materials Plan Sheet Two, dated November 2022;
    j. Sheet L2.1: Grading and Utility Plan Sheet One, dated November 2022;

k. Sheet L2.2: Grading and Utility Plan Sheet Two, dated November 2022;
l. Sheet L2.3: Grading and Utility Detail Sheet, dated November 2022;
m. Sheet L3.1: Planting Plan Sheet One, dated November 2022;
n. Sheet L3.2: Planting Plan Sheet Two, dated November 2022;
o. Sheet L3.3: Planting Details and Schedule, dated November 2022;
p. Sheet L4.1: Enlargement Sheet, dated November 2022;
q. Sheet L5.1: Detail Sheet One, dated November 2022;
r. Sheet L5.2: Detail Sheet Two, dated November 2022;
s. Sheet L5.3: Detail Sheet Three, dated November 2022;
t. Sheet A1.1: Fire Floor Plan, dated November 2022;
u. Sheet A1.2: Elevations, dated November 2022;
v. Sheet A1.3L Renderings, dated November 2022;

6. Colorized Site Renderings, prepared by Actvitas Inc., received 11/30/22;
7. Draft Decision, dated 12/12/22;

Findings:

1) Applicability: The proposed work requires Minor Site Plan Review approval under Zoning Bylaw Section 4.6.2.3(a), "***An increase in gross floor area of 500 square feet or more either by the creation of new floor area or by the expansion of an existing use into adjacent space within an existing structure***" and Section 4.6.2.3(b), "***…an increase in pavement of more than 300 square feet...***"
2) Zoning/Site: The site is located in the S-15 Residential Zoning District. The abutting/local area also includes the Coolidge Middle School, Reading Memorial High School and the Burbank YMCA.
3) Existing Conditions: The site maintains a public educational use with associated parking and open space/recreational amenities. The Birch Meadow School is primarily accessed off of Arthur B Lord Drive; though the park amenities and additional parking is primarily accessed through the 'Imagination Station' parking lot to the south and off of Birch Meadow Drive. The existing parking lot is currently gravel based and maintains unformalized parking spaces, it also includes a graveled pathway to the fields and parks.
4) Overview: The proposal is considered as Phase I of improvements to the Birch Meadow Park complex. It includes the renovation and improvement of the existing gravel parking lot, a new walkway/path system that will connect the Birch Meadow Drive to the High School, site lighting and landscape/drainage improvements, as well as the construction of restroom/storage facilities and a new lacrosse wall. The proposed improvements result in an approximate increase of 14,573 square feet of impervious area.

    a. Parking Lot Improvements: The parking lot will be paved over and formalized into a total of fifty-five (56) striped spaces. Included in the fifty-five spaces is fifty (50) standard 9'x18' spaces, two (2) ADA accessible parking spaces, one (1) ADA van accessible space, and two (2) Electric Vehicle (EV) charging stalls, one of which will serve the ADA van accessible as well. Van accessible spaces measure 11'x18'.

       The lot will allow two-way vehicle traffic flow by maintaining 24' wide drive aisles. The two (2) existing curb cuts along Birch Meadow Drive shall be maintained but improved with accessible ramps and crosswalks. Curb cuts measure 24' wide and both will allow entry and exit; however, the northern most curb cut will be prohibited to Right Turn Only when exiting the site.

    b. Walkway/Path System Improvements: The existing gravel path will be expanded, paved and curbed to allow for improved accessibility and drainage. It will be

Commented [MA1]: Expectations for Phase II or beyond?

Commented [MA2]: Turning movements to be discussed…

constructed of bituminous concrete Along the path will be benches, lighting, retaining walls, signage and site amenities to serve as a gateway into the park complex. Paths will range from 4' to 10' wide but all will be accessible with flush connections to adjacent areas.

c. Lighting, Landscape and Drainage Improvements: A series of light fixtures will be provided in the parking lot, along the path system and on/within the new facilities. A series of shrubs, trees, upland and wetland plantings will be conducted, with input from the Conservation Commission. All new impervious area will be graded and directed to stormwater collection systems designed with BMP and LID features such as raingardens and bioretention areas.

Commented [MA3]: Not noted on the plans though.. Conditioned below.

d. New Structures: A new facility building will be constructed, along with a lacrosse wall/practice area, between Turf II and Morton Field.

The facility building will be separated into two restroom facilities and storage for the Town and Recreation needs. The building's roof will expand to cover a series of picnic tables for gathering. A water fountain will also be provided. The building will measure 47'x16' and will be constructed of CMU Block walls. The metal roof will be pitched to collect stormwater in a gutter system.

The lacrosse facility will measure 43'x41' and be constructed of synthetic turf. The precast concrete wall will measure 12' high and 26' long for practice use.

5) Trash: A series of trash and recycle receptacles will be provided within the parking area, facility building and along the walkway/path system.

6) Conservation: The proposed improvements will require a Notice of Intent application with the local Conservation Commission. Educational signage, constructed of natural materials, will be strategically located along wetland buffer areas and stormwater features.

Conditions:

General:

1. **Limitations / Future Uses:** The Decision herein does not include approval for any future uses or site renovations that may – on their own merits and design – trigger the requirements of future site plan review, and/or require a special permit.
2. **Public Health, Safety and Welfare:** If, at any time, the site becomes a nuisance to public health, safety or welfare (i.e., traffic spillover, excessive noise, unreasonable site illumination beyond the hours of operation, etc.) – as shall be evidenced by substantiated complaints to the Police Department or Public Services Office – the Applicant/Owner shall agree to work with staff to rectify the problem. Should the situation warrant it, an additional Site Plan Review by the CPDC may be required.
3. **Permitting:** The approval herein is for Minor Site Plan Review only. The Applicant shall seek building, electrical, plumbing, and gas permits as required for the work.
4. **Lighting:** Light fixtures shall be installed/adjusted to minimize impacts on traffic.
5. **Conservation:** At all times throughout construction of the project and occupancy of the site, the Applicant and/or future owners shall comply with all provisions of the Order of Conditions issued for the project by the Reading Conservation Commission.

Prior to the Issuance of a Building Permit:

6. **Raingarden Detail:** Stormwater features such as raingardens, bioretention, or similar locations shall be noted on the plans. A detail of any LID features shall be submitted to the Community Development Director for review and approval.

During Construction:

7. **Construction Hours:** Construction shall be limited to the hours specified in General Bylaw Section 8.9.8.
8. **Construction Activities:** Construction activities shall be conducted in a workmanlike manner at all times. Blowing dust or debris shall be controlled by the Applicant through stabilization, wetting down, and proper storage and disposal methods, subject to the approval of the Health Agent or designee. The Applicant shall ensure that the abutting local streets are kept clear of dirt and debris, which may accumulate as a result of construction activities for the Project. Documentation shall be provided demonstrating ongoing pest management control, subject to the approval of and administration by the Health Agent.
9. **Site Inspections:** Town staff or their designee shall have reasonable access to inspect the site to determine compliance with this Decision.

Prior to the Issuance of Occupancy:

10. **Architecture:** The building façade on each elevation (north, south, east, and west) shall be substantially as indicated on the approved plans and elevations.

Conditions for Ongoing Maintenance After Occupancy:

11. **Landscaping:** Landscaping on-site shall be maintained in a healthy condition in perpetuity. In the event that landscaping is damaged during snow removal operations, the property owner shall replace such landscaping during the next growing season.

Modifications/Revisions - Plan Changes after Approval by the Approving Authority:

Contemplated future changes to the plan approved herein shall be presented to the Community Development Director and the Zoning Enforcement Officer/Building Inspector, or other relevant Town staff, for review prior to implementation of proposed changes.

1. Minor Modification: Changes that do not substantially alter the concept of the approved Plan in terms of the specific location, the proposed land use, the design of building form and approved building details and materials, site grading or egress points. These include but are not limited to small changes in site layout, topography, architectural plans, landscaping plan, traffic circulation, parking, lighting, signage, open space or other criteria set forth in Section 4.6.9.1. Requests for approval under a minor modification for future renovations/alterations to the approved site plan or for future tenant changes shall be reviewed by the Community Development Director to determine if the proposed work qualifies for review through the Minor Site Plan Review process of Section 4.6.3 of the Reading Zoning Bylaw. If the work is eligible for review under Minor Site Plan review, the Community Development Director may review and grant approval of the proposed work by administrative approval of the Minor Modification. At the determination of the Community Development Director, the Applicant may be required to present the proposed project at a public meeting of the CPDC.

2. Major Modification: Substantial additions, deletions or deviations from the approved plan, including but not limited to changes in site layout, topography, architectural plan, landscaping plans, traffic circulation, parking, lighting plan, signage, open space or other criteria set forth in Section 4.6.9.1 of the Reading Zoning Bylaw. (Note: Approval of the major modification shall be grounds for reconsideration of the Site Plan application. Denial of proposed major modifications shall not invalidate the Site Plan in conformance with the previously approved Plan).

Signed as to the accuracy of the vote as reflected in the minutes:

_____

Andrew MacNichol, Community Development Director Date

Cc: Applicant, Town Clerk, CPDC, Development Review Team, Building Inspector, planning file

MacNichol, Andrew

From: Percival, Ryan
Sent: Thursday, December 8, 2022 12:54 PM
To: MacNichol, Andrew
Subject: RE: Birch Meadow Minor Site Plan Review

Hi Andrew,

As you are aware I am part of the design team for this project. As such I will refrain from reviewing. As part of the team I believe this plan provides structured parking and dedicated ADA accessibility, of which is not currently present. The project will include LID stormwater design were applicable and I will continue to work with the consultants on the drainage design. As you are aware a walkable path has been incorporated along the wetlands to help improve passive recreation and provide an educational opportunity to the surround schools.

Located in the center of the area is what we refer to as the core or spin. This path will provide a central spin that connects the entire facility. The path will be large enough to maintain with machinery. Facilities is part of the team as well and has weighed in on the building design.

Please let me know if you have any further questions.

Thank you,

Ryan Percival, P.E.
Town Engineer
Town of Reading, Engineering Division
16 Lowell Street
Reading, MA 01867
Phone: 781-942-6690

From: MacNichol, Andrew <amacnichol@ci.reading.ma.us>
Sent: Wednesday, November 30, 2022 2:18 PM
To: Delsignore, Anthony <adelsignore@ci.reading.ma.us>; Amendola, Christine <camendola@ci.reading.ma.us>; Bennett, Bret <bbennett@ci.reading.ma.us>; Burns, Greg <gburns@ci.reading.ma.us>; Clark, David <dclark@ci.reading.ma.us>; Cole, Christopher <ccole@ci.reading.ma.us>; Delios, Jean <jdelios@ci.reading.ma.us>; Greg Phipps <gphipps@rmld.com>; Hamid Jaffari <hjaffari@rmld.com>; John McDonagh <jmcdonagh@rmld.com>; Jones, Christopher <cjones@ci.reading.ma.us>; Kinsella, Jane <jkinsella@ci.reading.ma.us>; Kraunelis, Matthew <mkraunelis@ci.reading.ma.us>; Maltez, Fidel <fmaltez@ci.reading.ma.us>; Nelson, Richard <rnelson@ci.reading.ma.us>; O'Brien, Coleen <cobrien@rmld.com>; O'Shaughnessy, Kristen <koshaughnessy@ci.reading.ma.us>; Percival, Ryan <rpercival@ci.reading.ma.us>; Redmond, Glen <gredmond@ci.reading.ma.us>; Rozycki, Alexander <arozycki@ci.reading.ma.us>; Saunders, Kim <ksaunders@ci.reading.ma.us>; Scouten, Michael <mscouten@ci.reading.ma.us>; Solarin, Adetokunbo <asolarin@ci.reading.ma.us>; Tirone, Charles <ctirone@ci.reading.ma.us>; Velazquez, Jennifer <jvelazquez@ci.reading.ma.us>; Fiorente, Genevieve <gfiorente@ci.reading.ma.us>
Subject: Birch Meadow Minor Site Plan Review

Good afternoon all,

Many may already be aware – this year Birch Meadow School Complex is undergoing a series of improvements related to parking, drainage and facilities. Phase I of the plans has been developed and will be coming to the CPDC on their

meeting of Monday December 12, 2022. The application does trigger a Minor Site Plan Review which will provide a public face/process for such.

If you have any comments/questions/concerns on the design please forward to me by Thursday 12/8 at the latest. I am sure we will be working closely with Recreation, Conservation and Engineering for a number of the improvement items but wanted to provide info and opportunity from all.

Please reach out if you need anything.

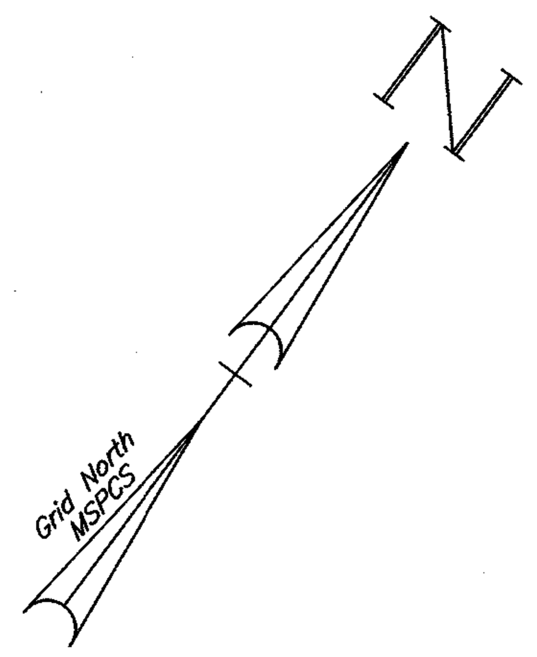
Much thanks,
Andrew

Andrew MacNichol
Senior Planner
Town of Reading
16 Lowell Street
Reading, MA 01867

amacnichol@ci.reading.ma.us
781-942-6670

Office Hours
Mon, Wed, Thur: 7:00AM – 4:30PM
Tue: 7:00AM – 6:00PM
Friday-CLOSED

SITE PLAN REVIEW & SPECIAL PERMIT SET
25 HAVEN STREET
(MIXED-USE DEVELOPMENT)
Reading, MA



Vicinity Map

Scale: 1"=200'±

RECORD OWNER:

25 HAVEN STREET, LLC
25 HAVEN STREET, READING, MASSACHUSETTS
-ASSESSORS MAP 16 LOT 309
-BOOK 1557 PAGE 74
-LOT B ON LCC 6084B

PLAN REFERENCES:

- LCC 6084B
- LCC 19824A
- PLAN 221 OF 1956

NOTES:

1. *THIS PLAN IS BASED ON AN ACTUAL ON-THE-GROUND FIELD SURVEY CONDUCTED BY HAYES ENGINEERING, INC. ON MARCH 4, 2022.*
2. *THE ELEVATIONS DEPICTED HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) BASED UPON MACORS REAL-TIME NETWORK NAD 83 (2011) (EPOCH 2010.00) DATUM USING GEOID 12B FOR ORTHOMETRIC HEIGHTS.*
3. *THIS PROPERTY DOES NOT LIES WITHIN A FLOOD HAZARD AREA (ZONE A OR V) AS SHOWN ON FLOOD INSURANCE RATE MAP NUMBER 25017C0313E; EFFECTIVE DATE: 06/04/2010*

SHEET INDEX	
PLAN TITLE	
INDEX	C1
EXISTING CONDITION	C2
DEMO/RELOCATION	C3
SITE LAYOUT PLAN	C4
DRAINAGE AND GRADING	C5
UTILITIES	C6
DETAILS	C7
DETAILS	C8

REQUESTED WAIVERS AND VARIANCES:

ZONING BYLAW:

- SECTION 9.1.1.7 OFF-STREET LOADING REQUIREMENTS
- SECTION 10.5.6.1 RESIDENTIAL DENSITY ALLOWANCES

SITE PLAN REVIEW PROCEDURES:

- H9: OUTDOOR LIGHTING
- H11: SIGNAGE
- I4: LIMIT OF WORK DELINEATION
- J4: TELEPHONE AND CABLE
- Q: TRAFFIC STUDY

READING COMMUNITY PLANNING AND DEVELOPMENT COMMISSION

____

____

____

____

____

DATE: ____________________

Prepared For:

25 HAVEN STREET, LLC

25 HAVEN STREET
READING, MASSACHUSETTS
REGISTRY BOOK 1557/74
ASSESSORS MAP 16 LOT 309

Prepared By:

Hayes Engineering, Inc.
603 Salem Street
Wakefield, MA 01880
Ph: 781.246.2800
Fax: 781.246.7596
www.hayeseng.com

Design By: JG
Drawn By: JG
Checked By: PJO
Project File: REA-0419
Comp. No: REA175

☒ Issued For Permit
☐ Issued For Review
☐ Issued For Bid
☐ Issued For Construction
☒ Not For Construction

No.	Revision	Date
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Scale: 1"=200'

0' 100' 200' 400'

Date: November 22, 2022

Drawing Title:

INDEX PLAN
25 HAVEN STREET
MIXED-USE DEVELOPMENT
READING, MASS.

Seal

Drawing No.:

C1

SHEET 1 OF 8

LOCUS MAP:
(1"=100')
STRUCTURES AND BOUNDARIES COMPILED FROM
MASSMAPPER GIS INFORMATION

RECORD OWNER:

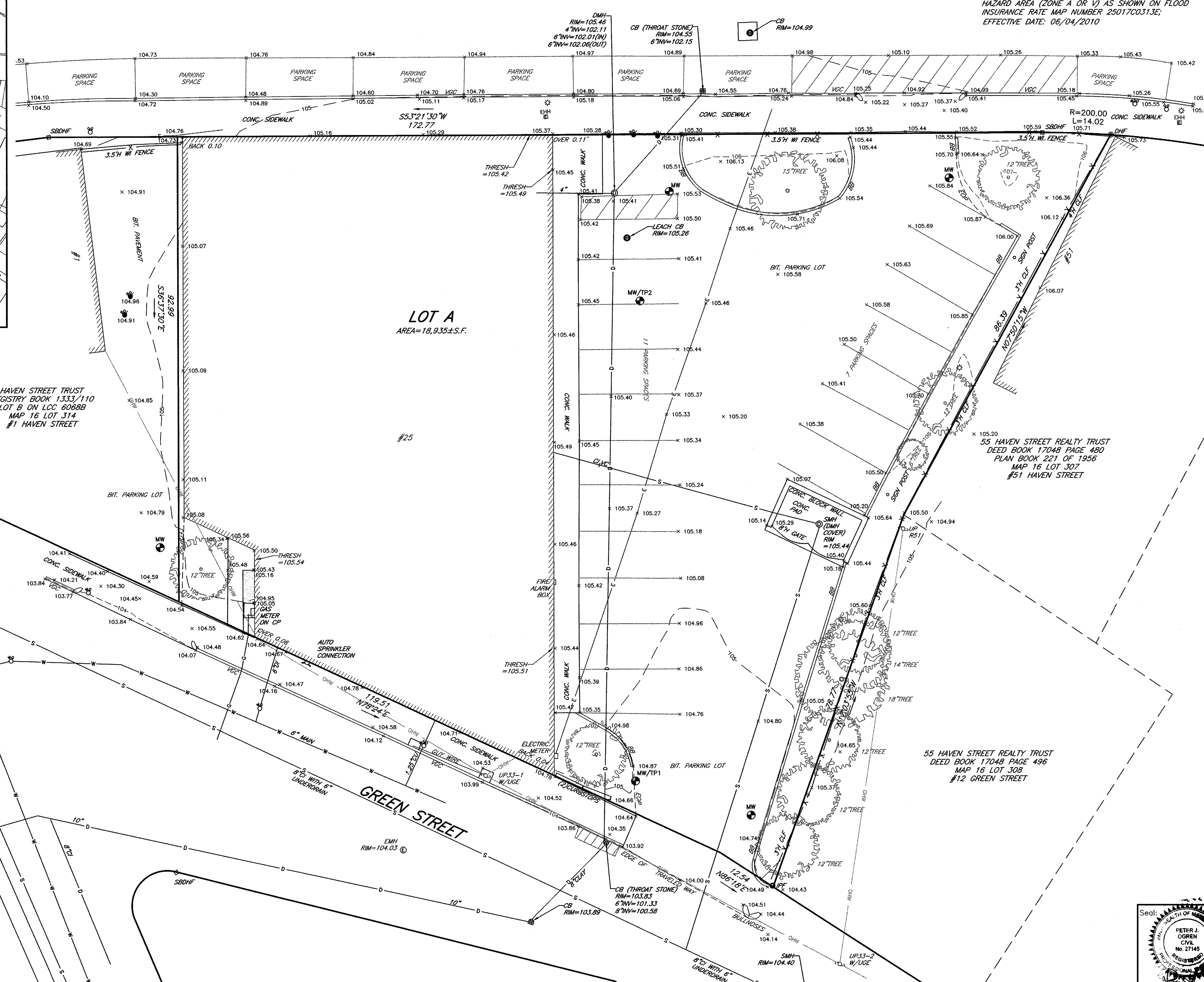
25 HAVEN STREET, LLC
25 HAVEN STREET, READING, MASSACHUSETTS
-ASSESSORS MAP 16 LOT 309
-BOOK 1557 PAGE 74
-LOT B ON LCC 6084B

PLAN REFERENCES:

- LCC 6084B
- LCC 19824A
- PLAN 221 OF 1956

NOTES:

1. THIS PLAN IS BASED ON AN ACTUAL ON-THE-GROUND FIELD SURVEY CONDUCTED BY HAYES ENGINEERING, INC. ON MARCH 4, 2022.
2. THE ELEVATIONS DEPICTED HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) BASED UPON MACORS REAL-TIME NETWORK NAD 83 (2011) (EPOCH 2010.00) DATUM USING GEOID 12B FOR ORTHOMETRIC HEIGHTS.
3. THIS PROPERTY DOES NOT LIES WITHIN A FLOOD HAZARD AREA (ZONE A OR V) AS SHOWN ON FLOOD INSURANCE RATE MAP NUMBER 25017C0313E; EFFECTIVE DATE: 06/04/2010



LEGEND:

Symbol	Description
——104——	MINOR CONTOUR
——105——	MAJOR CONTOUR
——X——	FENCE
——W——	WATER LINE
	SPRINKLER CONNECT
WG	WATER GATE
WSO	WATER SHUTOFF
——S——	SEWER LINE
Ⓢ	SEWER MANHOLE
——D——	DRAIN LINE
Ⓓ	DRAIN MANHOLE
	CATCH BASINS
——G——	GAS LINE
GG	GAS GATE
——E——	ELECTRIC LINE
—— OHW ——	OVERHEAD WIRE
Ⓔ	ELECTRIC MANHOLE
EHH	ELECTRIC HANDHOLE
	UTILITY POLE
	LIGHTPOLE
DHF	DRILL HOLE FOUND
SBDHF	STONE BOUND DRILL HOLE FOUND
IRF/IPF	IRON ROD/PIPE FOUND
	DECIDUOUS TREE
	BOLLARD
MW	MONITORING WELL
3'H	3 FEET HIGH
BB	BITUMINOUS BERM
BIT.	BITUMINOUS
CI	CAST IRON
CLF	CHAINLINK FENCE
CONC.	CONCRETE
CP	CONCRETE PAD
CU	COPPER
DI	DUCTILE IRON
EOP	EDGE OF PAVEMENT
INV	INVERT
THRESH	THRESHOLD
UGE	UNDERGROUND ELECTRIC
VC	VITRIFIED CLAY
VGC	VERTICAL GRANITE CURB
WI	WROUGHT IRON

Prepared For:
25 HAVEN STREET, LLC
25 HAVEN STREET
READING, MASSACHUSETTS
REGISTRY BOOK 1557/74
ASSESSORS MAP 16 LOT 309

Prepared By:
Hayes Engineering, Inc.
603 Salem Street
Wakefield, MA 01880
Ph: 781.246.2800
Fax: 781.246.7596
www.hayeseng.com

Design By: JG
Drawn By: JG
Checked By: PJO
Project File: REA-0419
Comp. No: REA175
☒ Issued For Permit
☐ Issued For Review
☐ Issued For Bid
☐ Issued For Construction
☒ Not For Construction

No.	Revision	Date
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

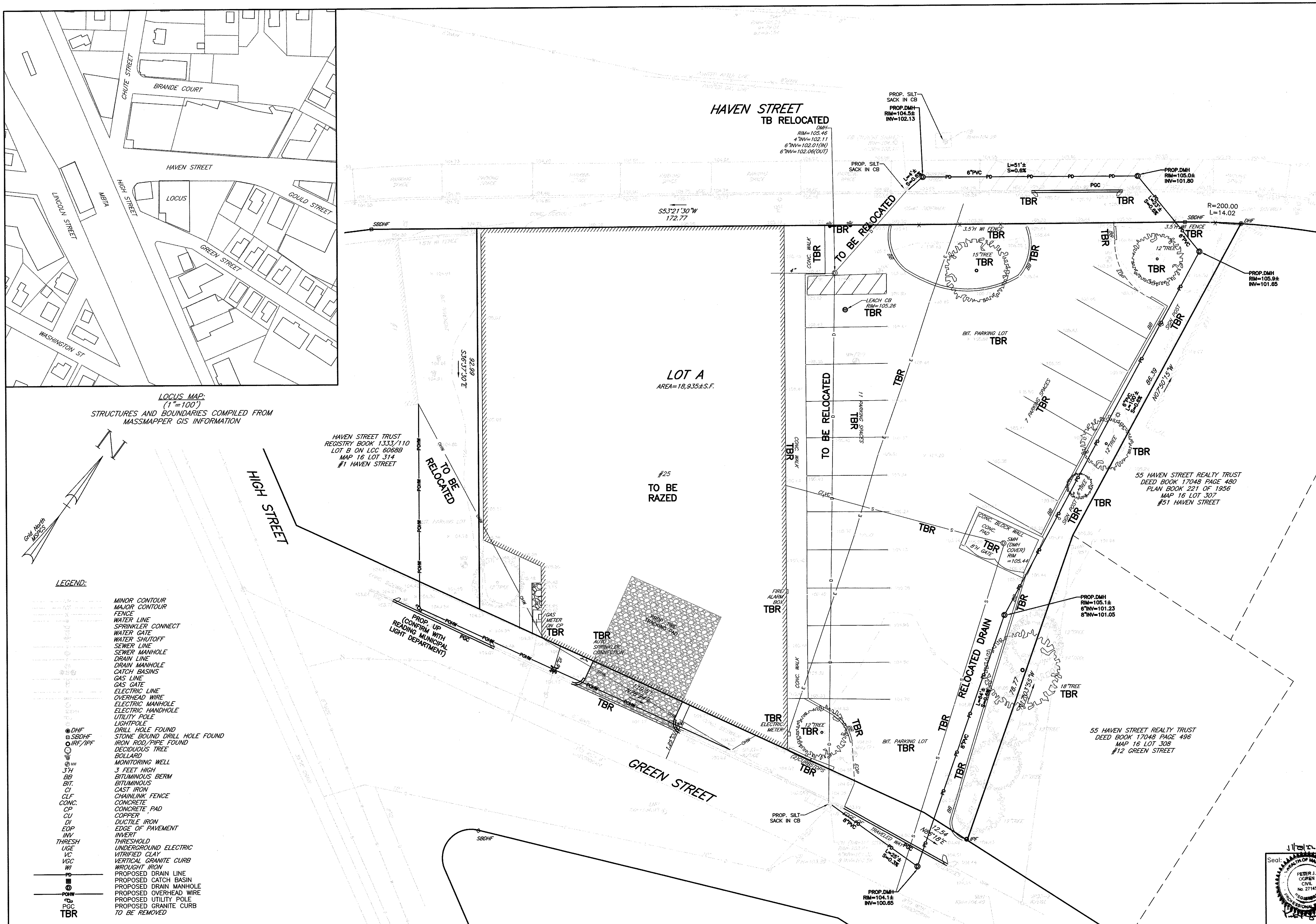
Scale: 1"=10'
0' 5' 10' 20'
Date: November 22, 2022

Drawing Title:
EXISTING CONDITIONS PLAN
25 HAVEN STREET
MIXED-USE DEVELOPMENT
READING, MASS.

Seal:
PETER J. OGREN CIVIL No. 27145 REGISTERED PROFESSIONAL ENGINEER

Drawing No.:
C2

SHEET 2 OF 8



HAVEN STREET
TB RELOCATED
LOT A
AREA=18,935±S.F.
#25
TO BE RAZED
TO BE RELOCATED
HIGH STREET
GREEN STREET
RELOCATED DRAIN
BIT. PARKING LOT
11 PARKING SPACES
7 PARKING SPACES
CONC. BLOCK WALL
FIRE ALARM BOX
ELECTRIC METER
GAS METER ON CP
PROP. TIRE TRACKING PAD
PROP. SILT SACK IN CB
PROP. UP (CONFIRM WITH READING MUNICIPAL LIGHT DEPARTMENT)
S53°21'30"W 172.77
S36°37'30"E 92.99
N07°50'15"W 86.39
R=200.00
L=14.02
PROP.DMH RIM=104.5± INV=102.13
PROP.DMH RIM=105.0± INV=101.80
PROP.DMH RIM=105.9± INV=101.65
PROP.DMH RIM=105.1± 6"INV=101.23 8"INV=101.05
PROP.DMH RIM=104.1± INV=100.65
DMH RIM=105.46 4"INV=102.11 6"INV=102.01(IN) 6"INV=102.06(OUT)
LEACH CB RIM=105.26
L=51'± S=0.6%
HAVEN STREET TRUST
REGISTRY BOOK 1333/110
LOT B ON LCC 6068B
MAP 16 LOT 314
#1 HAVEN STREET
55 HAVEN STREET REALTY TRUST
DEED BOOK 17048 PAGE 480
PLAN BOOK 221 OF 1956
MAP 16 LOT 307
#51 HAVEN STREET
55 HAVEN STREET REALTY TRUST
DEED BOOK 17048 PAGE 496
MAP 16 LOT 308
#12 GREEN STREET
Grid North MSPCS
LOCUS MAP:
(1"=100')
STRUCTURES AND BOUNDARIES COMPILED FROM MASSMAPPER GIS INFORMATION
CHUTE STREET
BRANDE COURT
HAVEN STREET
LOCUS
GOULD STREET
LINCOLN STREET
MBTA
HIGH STREET
GREEN STREET
WASHINGTON ST
LEGEND:
MINOR CONTOUR
MAJOR CONTOUR
FENCE
WATER LINE
SPRINKLER CONNECT
WATER GATE
WATER SHUTOFF
SEWER LINE
SEWER MANHOLE
DRAIN LINE
DRAIN MANHOLE
CATCH BASINS
GAS LINE
GAS GATE
ELECTRIC LINE
OVERHEAD WIRE
ELECTRIC MANHOLE
ELECTRIC HANDHOLE
UTILITY POLE
LIGHTPOLE
DHF DRILL HOLE FOUND
SBDHF STONE BOUND DRILL HOLE FOUND
IRF/IPF IRON ROD/PIPE FOUND
DECIDUOUS TREE
BOLLARD
MONITORING WELL
3'H 3 FEET HIGH
BB BITUMINOUS BERM
BIT. BITUMINOUS
CI CAST IRON
CLF CHAINLINK FENCE
CONC. CONCRETE
CP CONCRETE PAD
CU COPPER
DI DUCTILE IRON
EOP EDGE OF PAVEMENT
INV INVERT
THRESH THRESHOLD
UGE UNDERGROUND ELECTRIC
VC VITRIFIED CLAY
VGC VERTICAL GRANITE CURB
WI WROUGHT IRON
PROPOSED DRAIN LINE
PROPOSED CATCH BASIN
PROPOSED DRAIN MANHOLE
PROPOSED OVERHEAD WIRE
PROPOSED UTILITY POLE
PGC PROPOSED GRANITE CURB
TBR TO BE REMOVED

Prepared For:

25 HAVEN STREET, LLC
25 HAVEN STREET
READING, MASSACHUSETTS
REGISTRY BOOK 1557/74
ASSESSORS MAP 16 LOT 309

Prepared By:

Hayes Engineering, Inc.
603 Salem Street
Wakefield, MA 01880
Ph: 781.246.2800
Fax: 781.246.7596
www.hayeseng.com

Design By: JG
Drawn By: JG
Checked By: PJO
Project File: REA-0419
Comp. No: REA175

- [x] Issued For Permit
- [ ] Issued For Review
- [ ] Issued For Bid
- [ ] Issued For Construction
- [x] Not For Construction

No.	Revision	Date
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Scale: 1"=10'
0' 5' 10' 20'
Date: November 22, 2022

Drawing Title:

DEMOLITION & RELOCATION PLAN
25 HAVEN STREET
MIXED-USE DEVELOPMENT
READING, MASS.

Seal: PETER J. OGREN CIVIL No. 27145 REGISTERED PROFESSIONAL ENGINEER

Drawing No.:

C3

SHEET 3 OF 8

ZONING TABLE: SECTION 10.5.6

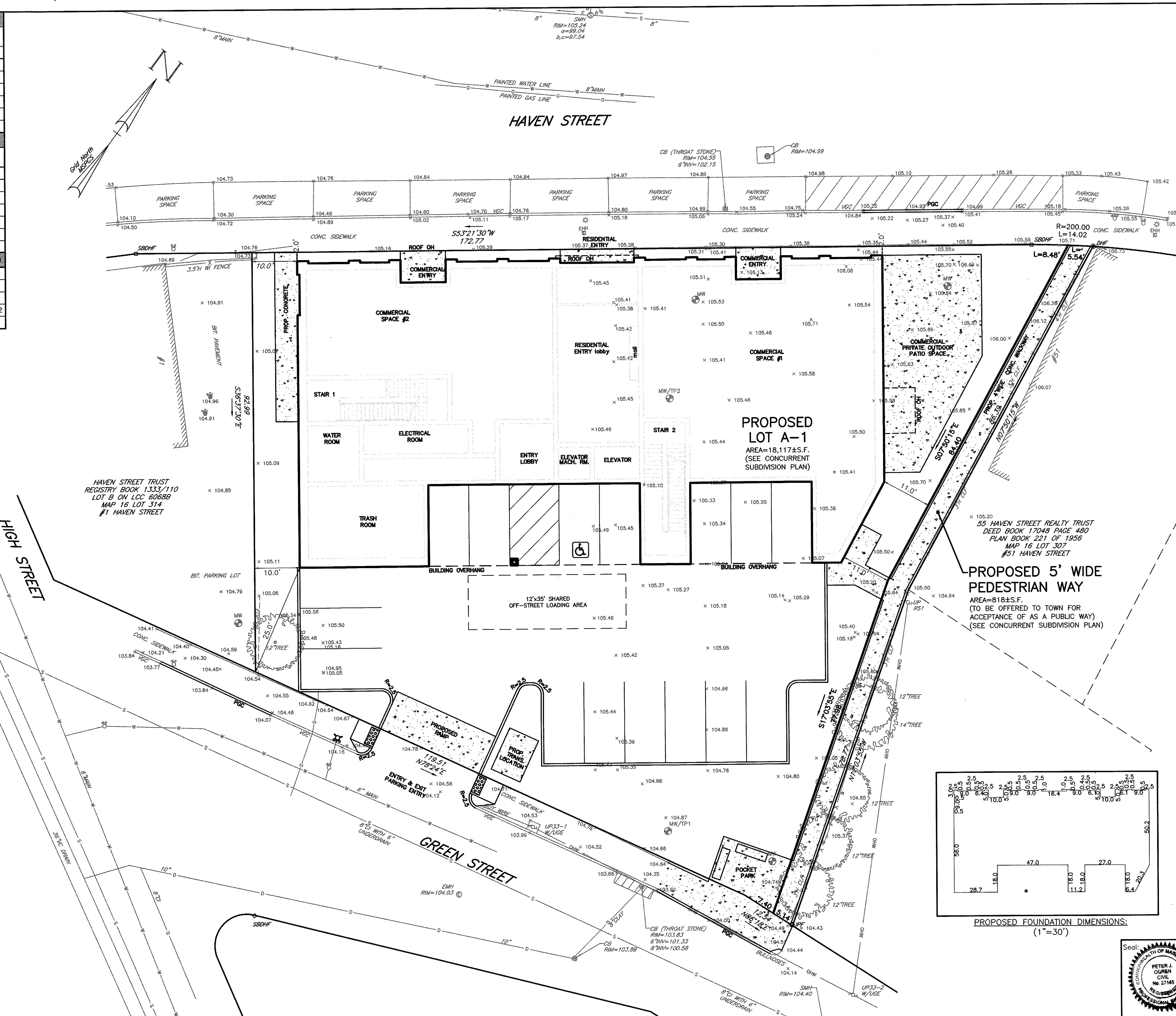
ZONE DSGD OVERLAY	MIXED USE WITH COMMERCIAL 1ST FLOOR	
DIMENSIONAL CONTROLS	REQUIRED/ALLOWED	EXISTING
FRONT YARD SETBACK	MIN 0 MAX 10	0
SIDE YARD SETBACK	0	1.0
REAR YARD SETBACK	0	0
MIN. FRONTAGE	50	181.25
MIN. LOT AREA	6,000	18,935
MAX. LOT COVERAGE (bldgs.)	N/A	47.5%

ZONING TABLE: SECTION 10.5.6

ZONE DSGD OVERLAY	MIXED USE WITH COMMERCIAL 1ST FLOOR	
DIMENSIONAL CONTROLS	REQUIRED/ALLOWED	LOT A-1
FRONT YARD SETBACK	MIN 0 MAX 10	2.0
SIDE YARD SETBACK	0	10.0
REAR YARD SETBACK	0	25.0
MIN. FRONTAGE	50	181.25
MIN. LOT AREA	6,000	18,117
MAX. LOT COVERAGE (bldgs.)	N/A	47.5%

PARKING CALCULATIONS: SECTIONS 10.5.8.1 & 9.0

REQUIRED RETAIL/RESTAURANT: = 0 spaces
REQUIRED RESIDENTIAL UNITS: (1.25 per unit)*(12 units) = 15 spaces
TOTAL SPACES PROVIDED: (16) 9'x18' including 1 handicap van accessible
OFF-STREET LOADING REQUIRED: (1 SPACES PER 2,000S.F.)*(3,885S.F.)= 2
OFF-STREET LOADING PROVIDED: 1 space



LEGEND:

- MINOR CONTOUR
- MAJOR CONTOUR
- FENCE
- WATER LINE
- WATER GATE
- WATER SHUTOFF
- SEWER LINE
- SEWER MANHOLE
- DRAIN LINE
- DRAIN MANHOLE
- CATCH BASINS
- GAS LINE
- GAS GATE
- ELECTRIC LINE
- OVERHEAD WIRE
- ELECTRIC MANHOLE
- ELECTRIC HANDHOLE
- UTILITY POLE
- LIGHTPOLE
- DHF — DRILL HOLE FOUND
- SBDHF — STONE BOUND DRILL HOLE FOUND
- IRF/IPF — IRON ROD/PIPE FOUND
- DECIDUOUS TREE
- BOLLARD
- MONITORING WELL
- 3'H — 3 FEET HIGH
- BB — BITUMINOUS BERM
- BIT. — BITUMINOUS
- CI — CAST IRON
- CLF — CHAINLINK FENCE
- CONC. — CONCRETE
- DI — DUCTILE IRON
- EOP — EDGE OF PAVEMENT
- INV — INVERT
- UGE — UNDERGROUND ELECTRIC
- VGC — VERTICAL GRANITE CURB
- PROPOSED WATER LINE
- PROPOSED SEWER LINE
- PROPOSED GREASE TRAP
- PROPOSED CATCH BASIN
- PROPOSED DRAIN LINE
- PROPOSED ROOF DRAIN LINE
- PROPOSED DRAIN MANHOLE
- PROPOSED OVERHEAD WIRE
- PROPOSED ELECTRIC LINE
- PROPOSED UTILITY POLE
- PROPOSED GAS LINE
- PROPOSED SPOT ELEVATION
- PROPOSED FLOW
- PGC — PROPOSED GRANITE CURB
- PROP. — PROPOSED

Prepared For:
25 HAVEN STREET, LLC
25 HAVEN STREET
READING, MASSACHUSETTS
REGISTRY BOOK 1557/74
ASSESSORS MAP 16 LOT 309

Prepared By:
Hayes Engineering, Inc.
603 Salem Street
Wakefield, MA 01880
Ph: 781.246.2800
Fax: 781.246.7596
www.hayeseng.com

Design By: JG
Drawn By: JG
Checked By: PJO
Project File: REA-0419
Comp. No: REA175
- [x] Issued For Permit
- [ ] Issued For Review
- [ ] Issued For Bid
- [ ] Issued For Construction
- [x] Not For Construction

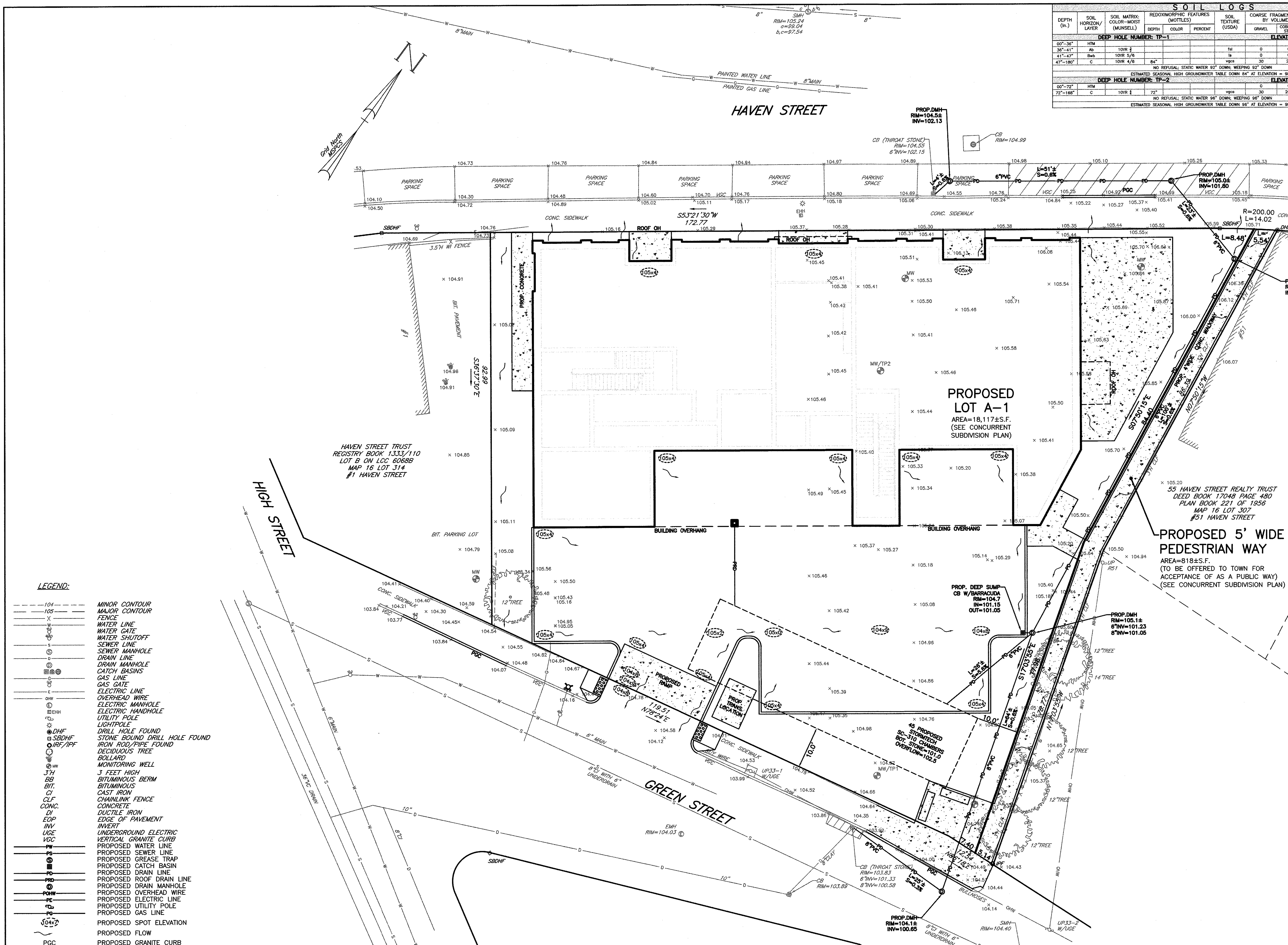
Revision / Date / No. 1–10

Scale: 1" = 10'
Date: November 22, 2022

Drawing Title:
SITE LAYOUT PLAN
25 HAVEN STREET
MIXED-USE DEVELOPMENT
READING, MASS.

Seal: COMMONWEALTH OF MASSACHUSETTS PETER J. OGREN CIVIL No. 27145 REGISTERED PROFESSIONAL ENGINEER

Drawing No.: C4
SHEET 4 OF 8


HAVEN STREET
HIGH STREET
GREEN STREET
PROPOSED LOT A-1
AREA=18,117±S.F.
(SEE CONCURRENT SUBDIVISION PLAN)
PROPOSED 5' WIDE PEDESTRIAN WAY
AREA=818±S.F.
(TO BE OFFERED TO TOWN FOR ACCEPTANCE OF AS A PUBLIC WAY)
(SEE CONCURRENT SUBDIVISION PLAN)
HAVEN STREET TRUST
REGISTRY BOOK 1333/110
LOT B ON LCC 6068B
MAP 16 LOT 314
#1 HAVEN STREET
55 HAVEN STREET REALTY TRUST
DEED BOOK 17048 PAGE 480
PLAN BOOK 221 OF 1956
MAP 16 LOT 307
#51 HAVEN STREET
BUILDING OVERHANG
PROPOSED RAMP
PROP. TRANS. LOCATION
PROP. DEEP SUMP CB W/BARRACUDA
RIM=104.7
IN=101.15
OUT=101.05
PROPOSED 45 STORMTECH SC-310 CHAMBERS
BOT. STONE=101.0
OVERFLOW=102.5
PROP.DMH
RIM=104.5±
INV=102.13
PROP.DMH
RIM=105.0±
INV=101.80
PROP.DMH
RIM=105.9±
INV=101.65
PROP.DMH
RIM=105.1±
8"INV=101.23
8"INV=101.05
PROP.DMH
RIM=104.1±
INV=100.65
CB (THROAT STONE)
RIM=104.55
6"INV=102.15
CB
RIM=104.99
CB (THROAT STONE)
RIM=103.83
6"INV=101.33
8"INV=100.58
CB
RIM=103.89
SMH
RIM=105.24
c=99.04
b,c=97.54
SMH
RIM=104.40
EMH
RIM=104.03
PARKING SPACE
CONC. SIDEWALK
BIT. PARKING LOT
BIT. PAVEMENT
PAINTED WATER LINE
PAINTED GAS LINE
Grid North MSPCS
N

LEGEND:

—104—	MINOR CONTOUR
—105—	MAJOR CONTOUR
—X—	FENCE
—W—	WATER LINE
	WATER GATE
	WATER SHUTOFF
—S—	SEWER LINE
	SEWER MANHOLE
—D—	DRAIN LINE
	DRAIN MANHOLE
	CATCH BASINS
—G—	GAS LINE
	GAS GATE
—E—	ELECTRIC LINE
—OHW—	OVERHEAD WIRE
	ELECTRIC MANHOLE
EHH	ELECTRIC HANDHOLE
	UTILITY POLE
	LIGHTPOLE
DHF	DRILL HOLE FOUND
SBDHF	STONE BOUND DRILL HOLE FOUND
IRF/IPF	IRON ROD/PIPE FOUND
	DECIDUOUS TREE
	BOLLARD
MW	MONITORING WELL
3'H	3 FEET HIGH
BB	BITUMINOUS BERM
BIT.	BITUMINOUS
CI	CAST IRON
CLF	CHAINLINK FENCE
CONC.	CONCRETE
DI	DUCTILE IRON
EOP	EDGE OF PAVEMENT
INV	INVERT
UGE	UNDERGROUND ELECTRIC
VGC	VERTICAL GRANITE CURB
PW	PROPOSED WATER LINE
PS	PROPOSED SEWER LINE
	PROPOSED GREASE TRAP
	PROPOSED CATCH BASIN
PD	PROPOSED DRAIN LINE
PRD	PROPOSED ROOF DRAIN LINE
	PROPOSED DRAIN MANHOLE
POHW	PROPOSED OVERHEAD WIRE
PE	PROPOSED ELECTRIC LINE
	PROPOSED UTILITY POLE
PG	PROPOSED GAS LINE
104x7	PROPOSED SPOT ELEVATION
	PROPOSED FLOW
PGC	PROPOSED GRANITE CURB
PROP.	PROPOSED

SOIL LOGS

DEPTH (In.)	SOIL HORIZON/ LAYER	SOIL MATRIX: COLOR-MOIST (MUNSELL)	REDOXIMORPHIC FEATURES (MOTTLES)			SOIL TEXTURE (USDA)	COARSE FRAGMENTS % BY VOLUME		SOIL STRUCTURE	SOIL CONSISTENCE (MOIST)
			DEPTH	COLOR	PERCENT		GRAVEL	COBBLES & STONES		
DEEP HOLE NUMBER: TP-1						ELEVATION=105.1'				
00"-36"	HTM									
36"-41"	Ab	10YR 3/2				fsl	0	0/0	gr	mfr
41"-47"	Bwb	10YR 5/6				ls	0	0/0	m	mfr
47"-180"	C	10YR 4/6	84"			vgcs	30	20/0	sq	mvfr
NO REFUSAL; STATIC WATER 92" DOWN; WEEPING 92" DOWN										
ESTIMATED SEASONAL HIGH GROUNDWATER TABLE DOWN 84" AT ELEVATION = 98.1'										
DEEP HOLE NUMBER: TP-2						ELEVATION=106.5'				
00"-72"	HTM						0	0/0		
72"-168"	C	10YR 4/4	72"			vgcs	30	20/10	sq	mvfr
NO REFUSAL; STATIC WATER 96" DOWN; WEEPING 96" DOWN										
ESTIMATED SEASONAL HIGH GROUNDWATER TABLE DOWN 96" AT ELEVATION = 98.5'										

Prepared For:

25 HAVEN STREET, LLC

25 HAVEN STREET
READING, MASSACHUSETTS
REGISTRY BOOK 1557/74
ASSESSORS MAP 16 LOT 309

Prepared By:

Hayes Engineering, Inc.
603 Salem Street
Wakefield, MA 01880
Ph: 781.246.2800
Fax: 781.246.7596
www.hayeseng.com

Design By: JG
Drawn By: JG
Checked By: PJO
Project File: REA-0419
Comp. No: REA175

- [x] Issued For Permit
- [ ] Issued For Review
- [ ] Issued For Bid
- [ ] Issued For Construction
- [x] Not For Construction

No.	Revision	Date
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Scale: 1"=10'
0' 5' 10' 20'

Date: November 22, 2022

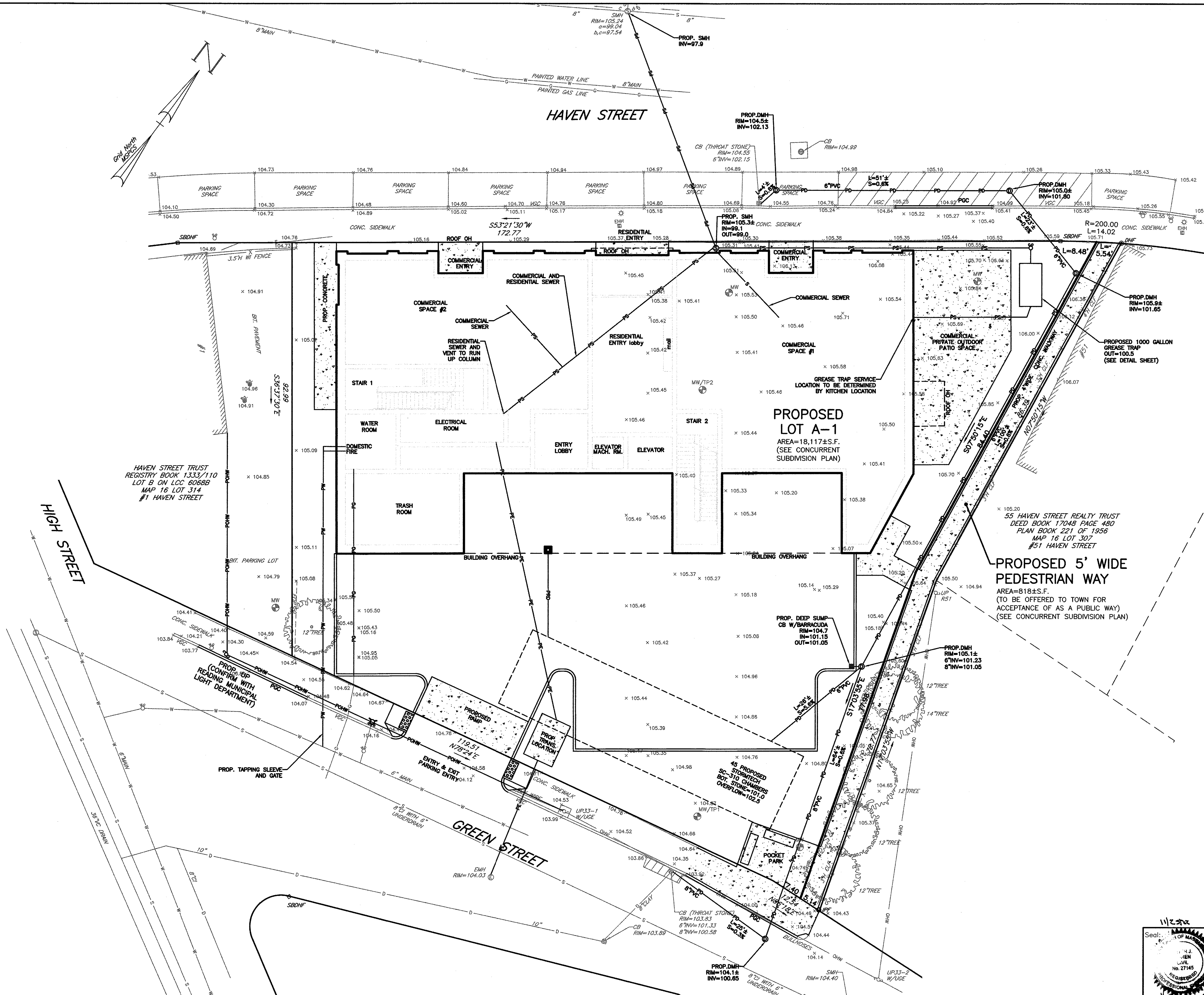
Drawing Title:

GRADING AND DRAINAGE PLAN
25 HAVEN STREET
MIXED-USE DEVELOPMENT
READING, MASS.

Seal:

COMMONWEALTH OF MASSACHUSETTS
PETER OGREN
No.
REGISTERED PROFESSIONAL ENGINEER
11/22/22

Drawing No.: C5



LEGEND:

——104——	MINOR CONTOUR
——105——	MAJOR CONTOUR
——X——	FENCE
——W——	WATER LINE
	WATER GATE
	WATER SHUTOFF
——S——	SEWER LINE
	SEWER MANHOLE
——D——	DRAIN LINE
	DRAIN MANHOLE
	CATCH BASINS
——G——	GAS LINE
	GAS GATE
——E——	ELECTRIC LINE
——OHW——	OVERHEAD WIRE
	ELECTRIC MANHOLE
EHH	ELECTRIC HANDHOLE
	UTILITY POLE
	LIGHTPOLE
DHF	DRILL HOLE FOUND
SBDHF	STONE BOUND DRILL HOLE FOUND
IRF/IPF	IRON ROD/PIPE FOUND
	DECIDUOUS TREE
	BOLLARD
MW	MONITORING WELL
3'H	3 FEET HIGH
BB	BITUMINOUS BERM
BIT.	BITUMINOUS
CI	CAST IRON
CLF	CHAINLINK FENCE
CONC.	CONCRETE
DI	DUCTILE IRON
EOP	EDGE OF PAVEMENT
INV	INVERT
UGE	UNDERGROUND ELECTRIC
VGC	VERTICAL GRANITE CURB
——PW——	PROPOSED WATER LINE
——PS——	PROPOSED SEWER LINE
	PROPOSED GREASE TRAP
	PROPOSED CATCH BASIN
——PD——	PROPOSED DRAIN LINE
——PRD——	PROPOSED ROOF DRAIN LINE
	PROPOSED DRAIN MANHOLE
——POHW——	PROPOSED OVERHEAD WIRE
——PE——	PROPOSED ELECTRIC LINE
	PROPOSED UTILITY POLE
——PG——	PROPOSED GAS LINE
104x7	PROPOSED SPOT ELEVATION
	PROPOSED FLOW
PGC	PROPOSED GRANITE CURB
PROP.	PROPOSED

Prepared For:

25 HAVEN STREET, LLC

25 HAVEN STREET
READING, MASSACHUSETTS
REGISTRY BOOK 1557/74
ASSESSORS MAP 16 LOT 309

Prepared By:

Hayes Engineering, Inc.
603 Salem Street
Wakefield, MA 01880
Ph: 781.246.2800
Fax: 781.246.7596
www.hayeseng.com

Design By: JG
Drawn By: JG
Checked By: PJO
Project File: REA–0419
Comp. No: REA175

☒ Issued For Permit
☐ Issued For Review
☐ Issued For Bid
☐ Issued For Construction
☒ Not For Construction

No.	Revision	Date
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Scale: 1"=10'
0' 5' 10' 20'

Date: November 22, 2022

Drawing Title:

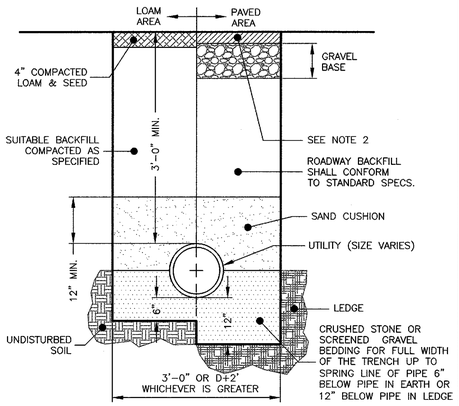
UTILITY PLAN
25 HAVEN STREET
MIXED–USE DEVELOPMENT
READING, MASS.

Seal: COMMONWEALTH OF MASSACHUSETTS ... No. 27145 REGISTERED PROFESSIONAL ENGINEER
11/23/22

Drawing No.:

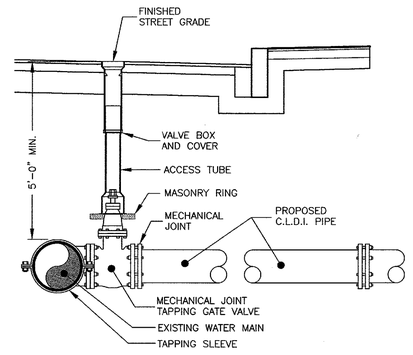
C6

SHEET 6 OF 8



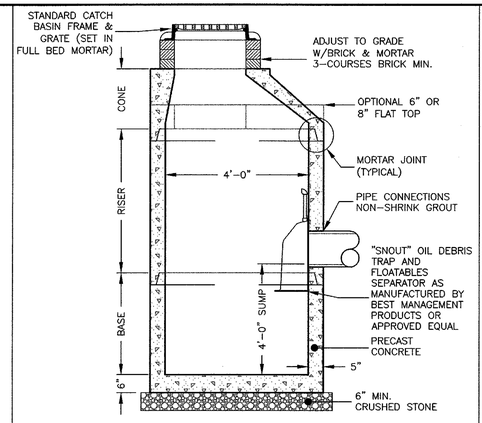
UTILITY TRENCH
NOT TO SCALE

NOTES:
1. ALL MATERIAL SHALL CONFORM TO CITY/TOWN OF DEPARTMENT OF PUBLIC WORKS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO CITY/TOWN SPECIFICATIONS.
3. IN LIEU OF THE 12" GRAVEL COURSE AND 9" OF CRUSHED GRAVEL, 18" OF CRUSHED GRAVEL OR RECLAIMED STABILIZED BASE MAY BE USED AS A BASE FOR THE PAVEMENT REPAIR.
4. MATERIAL SHALL BE REPLACED IN KIND WHENEVER POSSIBLE.
5. A MINIMUM 2' CUTBACK IS REQUIRED AT THE TOP OF THE TRENCH WALL OVER UNDISTURBED MATERIAL.



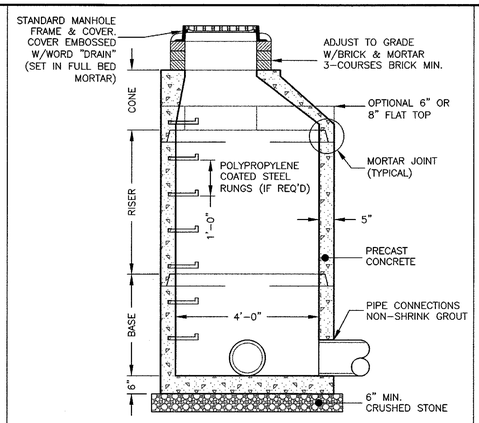
TAPPING SLEEVE & GATE
NOT TO SCALE

NOTES:
1. CONCRETE THRUST BLOCK TO BE USED ONLY WHERE IT WILL BEAR ON UNDISTURBED EARTH.
2. USE RESTRAINED JOINT FITTINGS OR TIE RODS WHERE CONCRETE THRUST BLOCK IS UNACCEPTABLE.
3. SIZE OF BLOCK OR MEGALUG TO BE DESIGNED FOR SPECIFIC CONDITIONS.



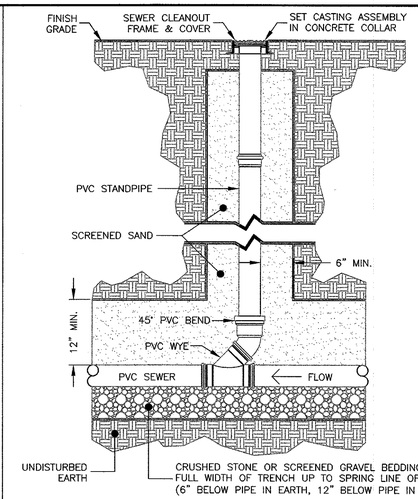
PRE-CAST CATCH BASIN
NOT TO SCALE

NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. REINFORCED STEEL CONFORMS TO LATEST ASTM A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.
3. H-20 DESIGN LOADING PER AASHTO HS-20-44; ASTM C478 SPEC FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."

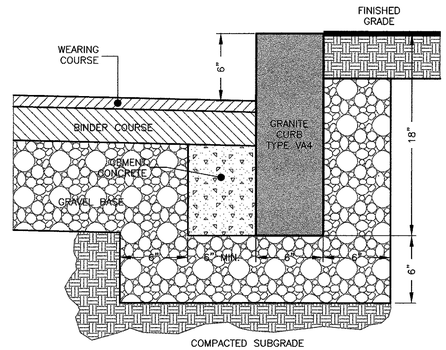


PRE-CAST DRAIN MANHOLE
NOT TO SCALE

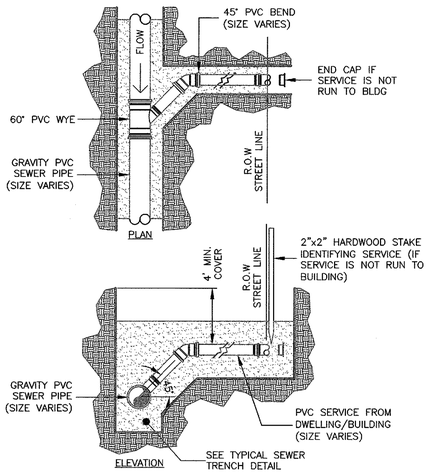
NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. REINFORCED STEEL CONFORMS TO LATEST ASTM A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.
3. H-20 DESIGN LOADING PER AASHTO HS-20-44; ASTM C478 SPEC FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."



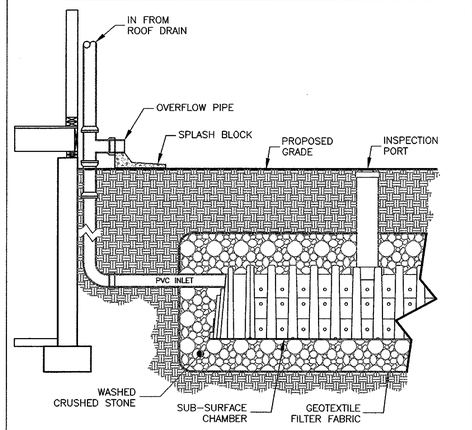
SEWER SERVICE CLEANOUT
NOT TO SCALE



VERTICAL GRANITE CURB
NOT TO SCALE

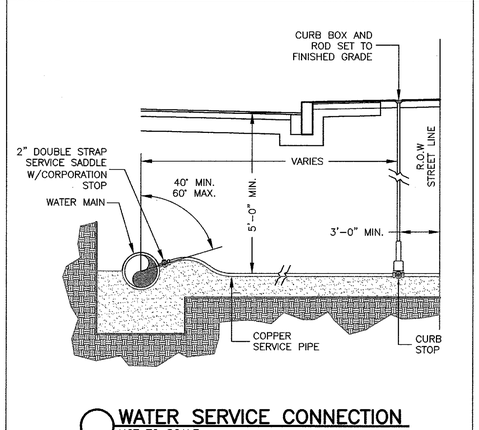


SEWER SERVICE CONNECTION
NOT TO SCALE



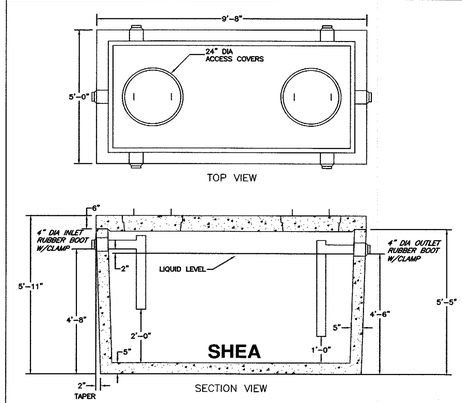
ROOF DRAIN TO SUB-SURFACE CHAMBER
NOT TO SCALE

NOTE:
1. CHAMBERS SHALL BE INSTALLED A MINIMUM OF 10' FROM STRUCTURE.



WATER SERVICE CONNECTION
NOT TO SCALE

NOTES:
1. CORPORATIONS 1-1/2" DIA. AND GREATER SHALL BE INSTALLED USING A TAPPING SADDLE AND SHELL CUTTER.
2. WHERE WATER SERVICE MUST CROSS SEWER MAIN, MAINTAIN A MINIMUM 18" CLEARANCE ABOVE THE SEWER MAIN WHILE MAINTAINING A DEPTH OF 5'-0" BELOW SURFACE. TO MAINTAIN 18" OF CLEARANCE FROM SEWER, THE 5'-0" DEPTH MAY BE REDUCED BY INSTALLING A 2" LAYER OF RIGID FOAM INSULATION ABOVE THE WATER SERVICE FOR EVERY FOOT THE DEPTH IS REDUCED.
3. ACTUAL SERVICE LOCATIONS WILL BE DETERMINED IN FIELD TO SAVE SPECIMEN TREES.

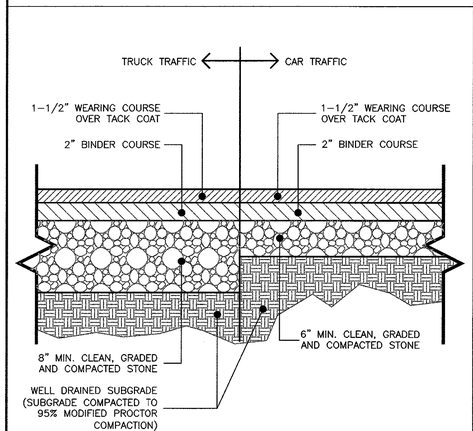


NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. CONSTRUCTION OF GREASE TRAPS CONFORMS WITH 310 CMR, SECTION 15.00 DEP TITLE 5 REGS.
3. ALL REINFORCEMENT PER ASTM C1227.
4. TEES AND BAFFLES SOLD SEPARATELY.
5. TONGUE & GROOVE JOINT SEALED WITH BUTYL RESIN.
6. DESIGNED FOR AASHTO HS-20 LOADING, 1 TO 5 FT COVER.

WEIGHT:
BOTTOM = 11,250#
10" TOP = 5,950#
6" TOP = 3,575#

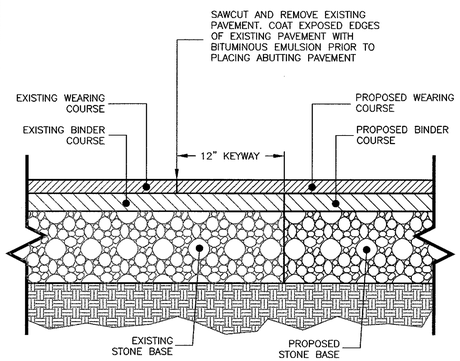
ITEM NO.		
M1000H	H-20 (6" TOP)	
M1000HT10	H-20 (10" TOP)	

1000 GALLON GREASE TRAP
NOT TO SCALE



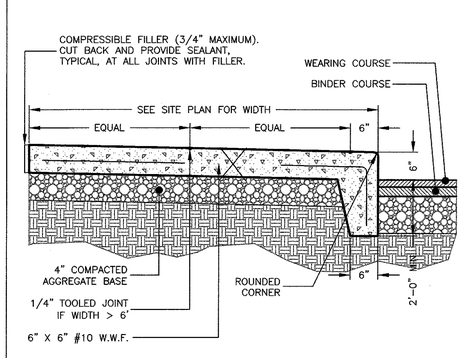
PAVEMENT SECTION
NOT TO SCALE

NOTE:
THIS PAVEMENT SECTION DETAIL REFLECTS MINIMUM REQUIREMENTS. ENGINEER TO DETERMINE DESIGN BASED ON GEOTECHNICAL DATA.

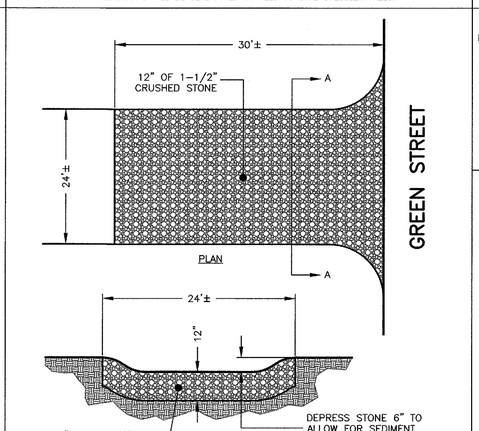


PAVEMENT KEYWAY
NOT TO SCALE

NOTE:
THIS PAVEMENT SECTION DETAIL REFLECTS MINIMUM REQUIREMENTS. ENGINEER TO DETERMINE DESIGN BASED ON GEOTECHNICAL DATA.

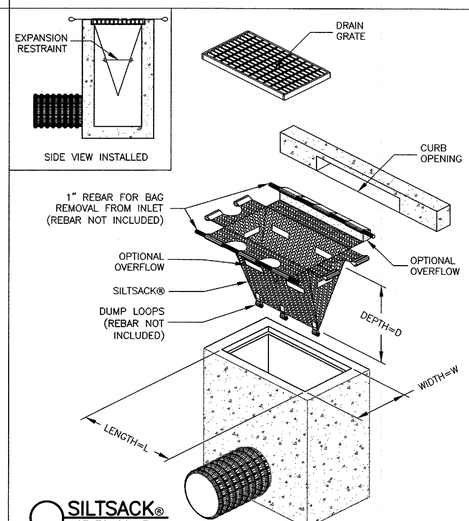


CONCRETE SIDEWALK (BUILDING PERIMETER)
NOT TO SCALE



TIRE TRACKING PAD
NOT TO SCALE

NOTE:
PROVIDE TRANSITION BETWEEN CONSTRUCTION ENTRANCE AND PUBLIC RIGHT-OF-WAY. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT THE TRACKING OF SEDIMENT INTO PUBLIC RIGHT-OF-WAY



SILTSACK®
NOT TO SCALE

Prepared For:

25 HAVEN STREET, LLC

25 HAVEN STREET
READING, MASSACHUSETTS
REGISTRY BOOK 1557/74
ASSESSORS MAP 16 LOT 309

Prepared By:

Hayes Engineering, Inc.
603 Salem Street
Wakefield, MA 01880
Ph: 781.246.2800
Fax: 781.246.7596
www.hayeseng.com

Design By: JC
Drawn By: JG
Checked By: PJO
Project File: REA-0419
Comp. No: REA175

- [x] Issued For Permit
- [ ] Issued For Review
- [ ] Issued For Bid
- [ ] Issued For Construction
- [x] Not For Construction

No.	Revision	Date
10		
9		
8		
7		
6		
5		
4		
3		
2		
1		

Scale: NOT TO SCALE

DATE: NOVEMBER 22, 2022

Drawing Title:

DETAIL SHEET
25 HAVEN STREET
MIXED-USE DEVELOPMENT
READING, MASS.

Drawing No.:

C7

ADVANCED DRAINAGE SYSTEMS, INC.

SiteASSIST® StormTech — FOR STORMTECH INSTRUCTIONS, DOWNLOAD THE INSTALLATION APP

SC-310 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-310.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418-16a (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2922 SHALL BE GREATER THAN OR EQUAL TO 400 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2922 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310 SYSTEM

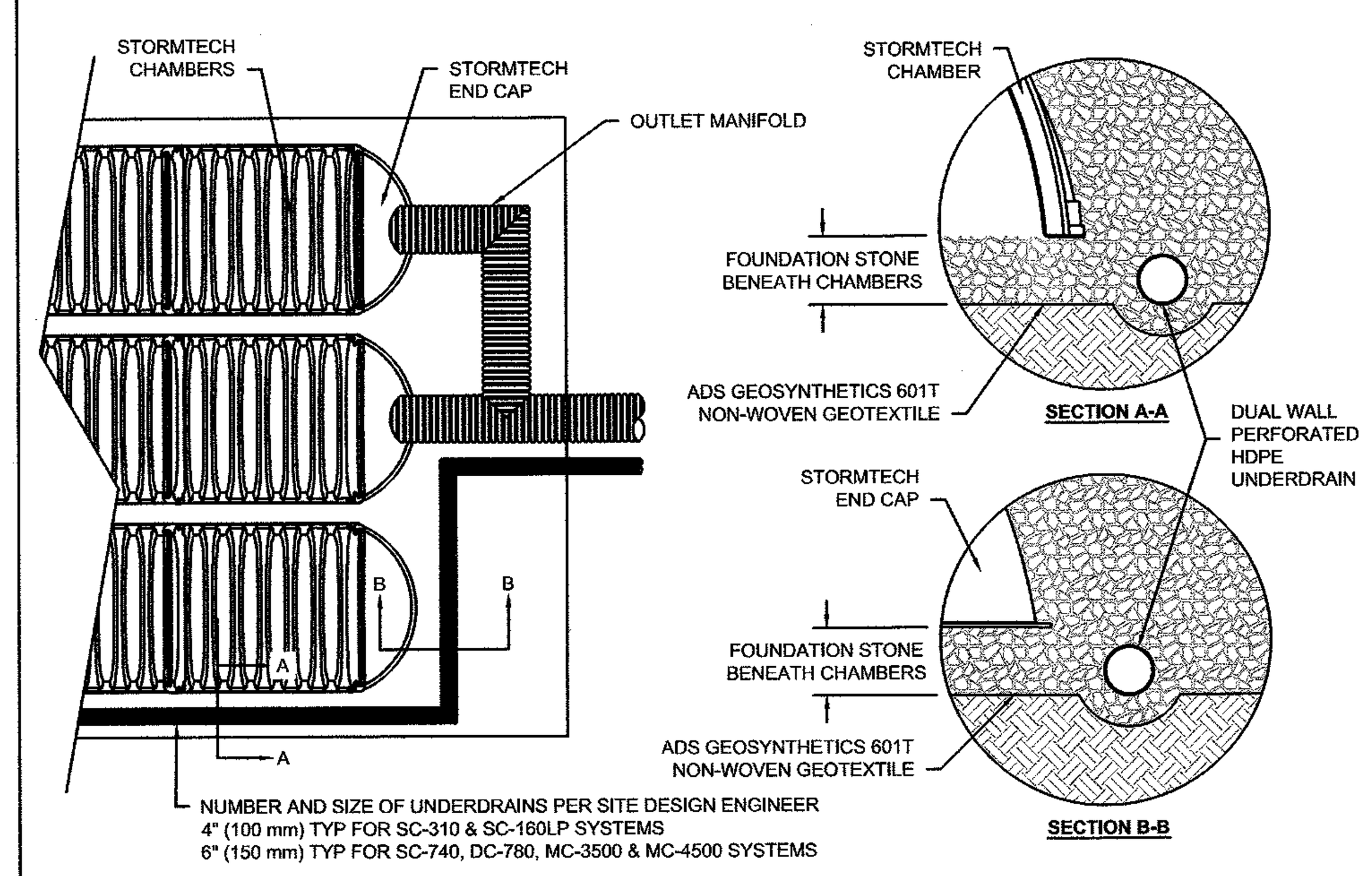
1. STORMTECH SC-310 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS.
   STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

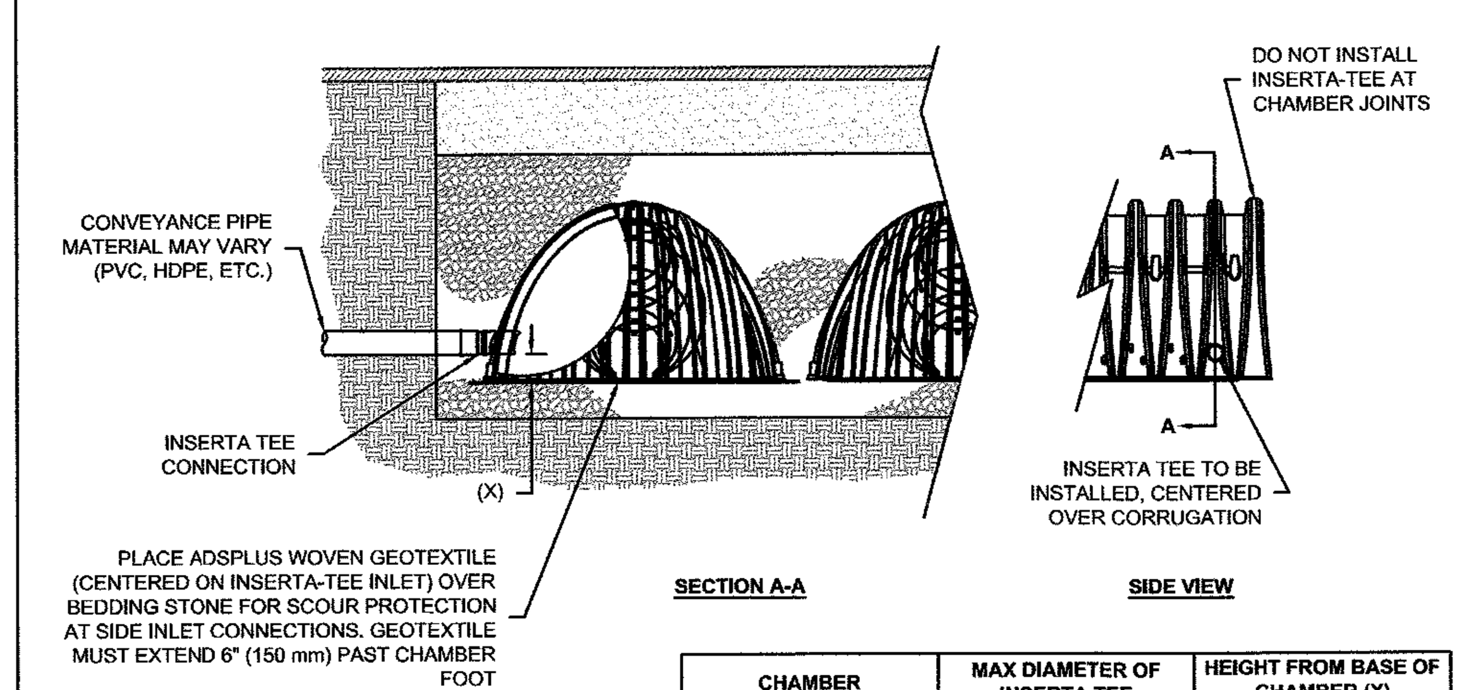
1. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



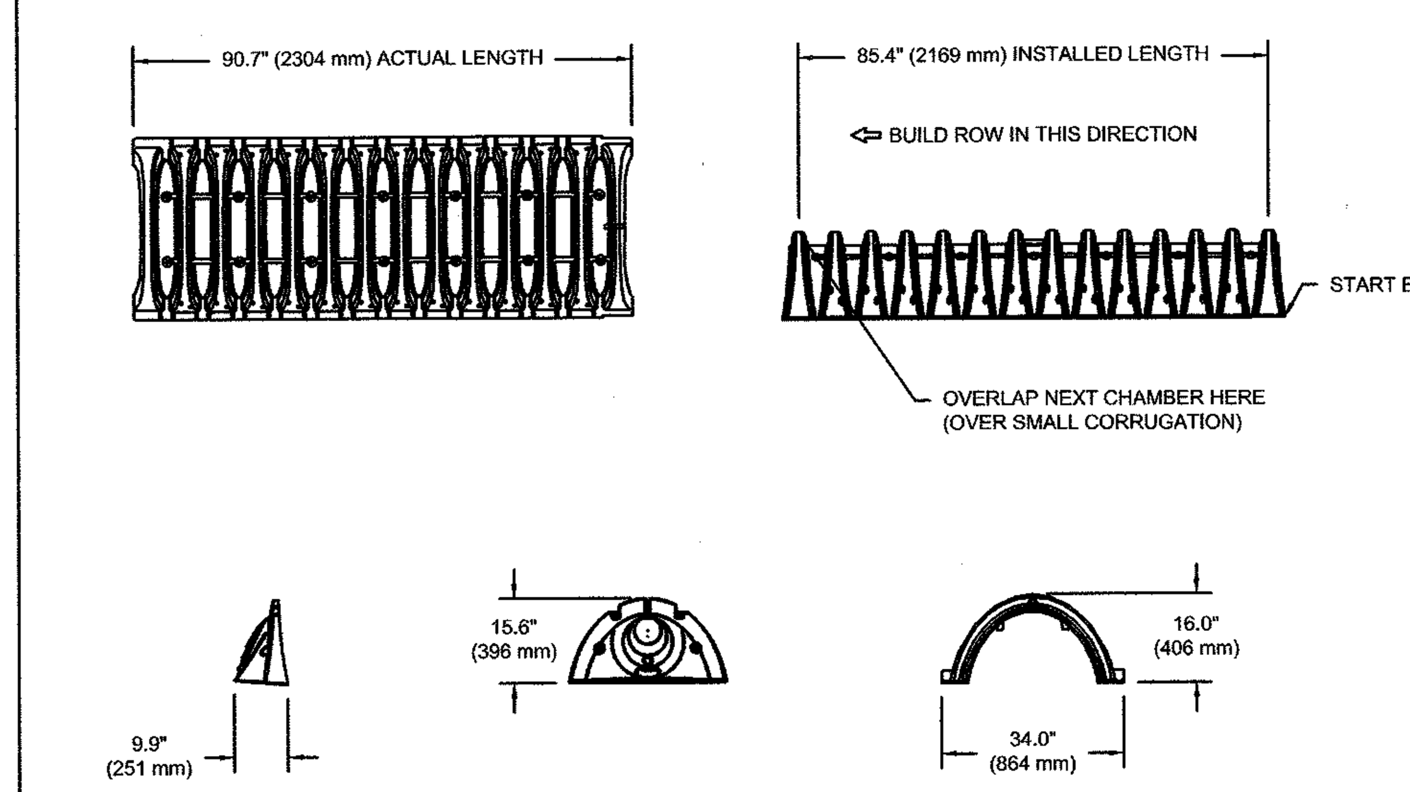
5 UNDERDRAIN DETAIL



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

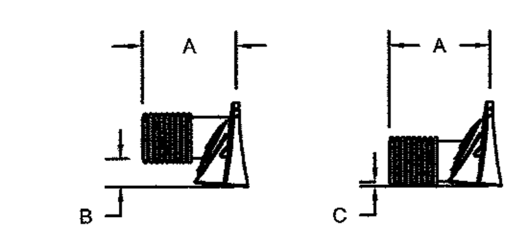
6 INSERTA-TEE SIDE INLET DETAIL



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	34.0" X 16.0" X 85.4"	(864 mm X 406 mm X 2169 mm)
CHAMBER STORAGE	14.7 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	31.0 CUBIC FEET	(0.88 m³)
WEIGHT	35.0 lbs.	(16.8 kg)

*ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUB AT BOTTOM OF END CAP WITH FLAMP END WITH "BR"
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE CORED END CAPS END WITH "PC"

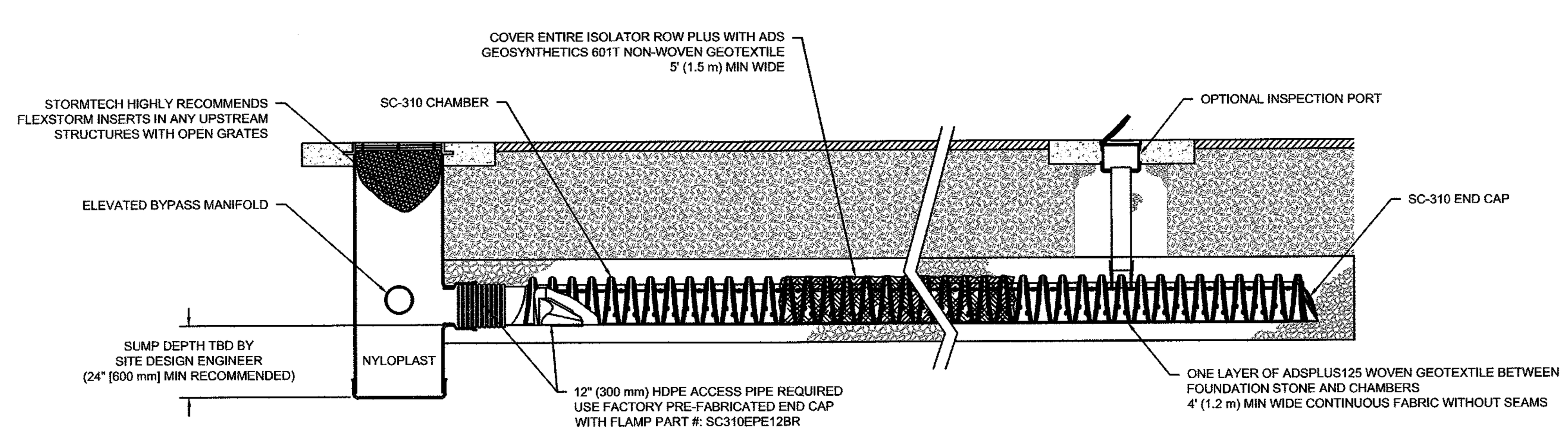
PART #	STUB	A	B	C
SC310EPE06T / SC310EPE06TPC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	—
SC310EPE06B / SC310EPE06BPC			—	0.5" (13 mm)
SC310EPE08T / SC310EPE08TPC	8" (200 mm)	11.9" (302 mm)	3.5" (89 mm)	—
SC310EPE08B / SC310EPE08BPC			—	0.6" (15 mm)
SC310EPE10T / SC310EPE10TPC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	—
SC310EPE10B / SC310EPE10BPC			—	0.7" (18 mm)
SC310EPE12B	12" (300 mm)	13.5" (343 mm)	—	0.9" (23 mm)
SC310EPE12BR	12" (300 mm)	13.5" (343 mm)	—	0.9" (23 mm)

ALL STUBS, EXCEPT FOR THE SC310EPE12B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

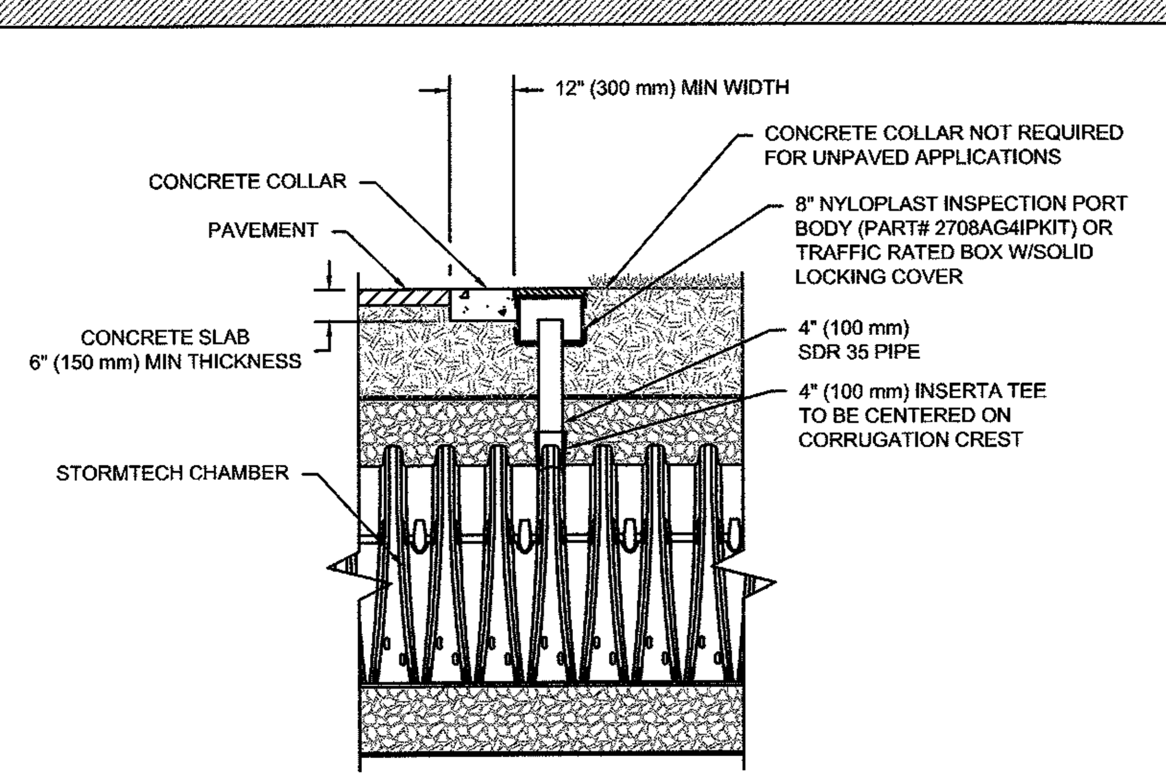
* FOR THE SC310EPE12B THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

2 SC-310 TECHNICAL SPECIFICATIONS



3 SC-310 ISOLATOR ROW PLUS DETAIL



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

4 4" PVC INSPECTION PORT DETAIL (SC SERIES CHAMBER)

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

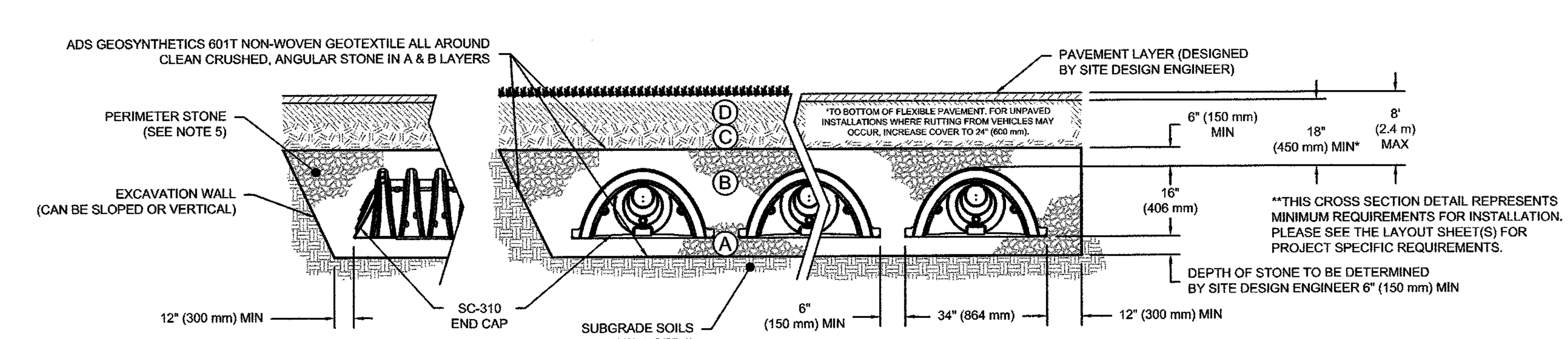
NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418-16a (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2922 SHALL BE GREATER THAN OR EQUAL TO 400 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

1 SC-310 CROSS SECTION DETAIL

DRAWN: | DATE:
REVIEWED: | PROJECT NO:
REV: | NOT TO SCALE

SC-310 STANDARD DETAILS

ADVANCED DRAINAGE SYSTEMS, INC.
4640 TRUEMAN BLVD
HILLIARD, OH 43026

StormTech
70 INWOOD ROAD, SUITE 3 | ROCKY HILL | CT | 06067
860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

SHEET

Prepared For:
25 HAVEN STREET, LLC
25 HAVEN STREET
READING, MASSACHUSETTS
REGISTRY BOOK 1557/74
ASSESSORS MAP 16 LOT 309

Prepared By:
Hayes Engineering, Inc.
603 Salem Street
Wakefield, MA 01880
Ph: 781.246.2800
Fax: 781.246.7596
www.hayeseng.com

Design By:
Drawn By:
Checked By:
Project File: REA-0419
Comp. No: REA175
☒ Issued For Permit
☐ Issued For Review
☐ Issued For Bid
☐ Issued For Construction
☒ Not For Construction

No.	Revision	Date
10		
9		
8		
7		
6		
5		
4		
3		
2		
1		

Scale: NOT TO SCALE

DATE: NOVEMBER 22, 2022

Drawing Title:
DETAIL SHEET
25 HAVEN STREET
MIXED-USE DEVELOPMENT
READING, MASS.

Drawing No.:
C8

SHEET 8 OF 8

Town of Reading
16 Lowell Street
Reading, MA 01867

Andrew MacNichol
Community Development Director
Phone: 781.942-6670
Fax: 781.942-9071
Website: www.readingma.gov

December 12, 2022

Downtown Smart Growth District (DSGD) Plan Review
M.G.L. Chapter 40R
DECISION

Project: 25 Haven Street
Applicant: 25 Haven Street, LLC

To the Town Clerk:
This is to certify that, at a public hearing of the Community Planning and Development Commission opened on June 13, 2022, continued to November 7, 2022, December 12, 2022 and closed on XXX by a motion duly made and seconded, it was voted:

"We, the Reading Community Planning and Development Commission, upon request from 25 Haven Street, LLC, under Section 10.5 of the Zoning Bylaws of the Town of Reading, and MGL Chapter 40R, to consider the application for 40R Development Plan Review to construct a 4-story mixed-use building with 12 housing units, and approximately 3,850 square feet of interior commercial space with 16 at-grade parking spaces, at 25 Haven Street (Assessors Map 16, Lot 309) – as shown on the architectural plans prepared by O'Sullivan Architects, Inc. and the site plans prepared by Hayes Engineering, Inc., and listed below – do hereby vote XXX, to _____the 40R Development Plan, inclusive of the listed waivers, subject to the Findings and Conditions below."

Materials Submitted:
The following materials were submitted into the public record:

a) Certified List of Abutters, dated 4/19/22;
b) DSGD Development Application Form, Project Narrative and Requested Waivers, dated 5/2/22;
c) Legal Notice, published in the Daily Times Chronicle on 5/25/22 and 6/1/22, and posted with the Town Clerk on 5/25/22;
d) Civil Engineering Plan Set for 25 Haven Street Proposed 40R Development, Reading, MA, prepared by Hayes Engineering, Inc., and prepared for 25 Haven Street, LLC., consisting of:
    a. Sheet C-1: Index Plan, dated 11/22/22;
    b. Sheet C-2: Existing Conditions Plan, 11/22/22;
    c. Sheet C-3: Demolition and Relocation Plan, dated 11/22/22;
    d. Sheet C-4: Site Layout Plan, dated 11/22/22;
    e. Sheet C-5: Grading and Drainage Plan, dated 11/22/22;
    f. Sheet C-6: Utility Plan, dated 11/22/22;

g. Sheet C-7: Details Sheet, dated 11/22/22;
h. Sheet C-8: Details Sheet, dated 11/22/22;

e) Architectural Plan Set for 25 Haven Street Redevelopment, Reading, MA, prepared by O'Sullivan Architects, Inc., and prepared for 25 Haven Street, LLC, consisting of:
   a. Sheet A0.01: Project Data, originally dated 4/29/22, most recently revised 11/28/22;
   b. Sheet A0.02: Schematic Landscape Layout Plan, originally dated 4/29/22, most recently revised 11/28/22;
   c. Sheet A0.03: Shadow Studies, originally dated 4/29/22, most recently revised 11/28/22;
   d. Sheet A0.04: Layout and Photometric Plan, originally dated 4/29/22, most recently revised 11/28/22;
   e. Sheet A1.01: Ground Floor Plan, originally dated 4/29/22, most recently revised 11/28/22;
   f. Sheet A1.02: Second Floor Plan, originally dated 4/29/22, most recently revised 11/28/22;
   g. Sheet A1.03: Third Floor Plan, originally dated 4/29/22, most recently revised 11/28/22;
   h. Sheet A1.04: Fourth Floor Plan, originally dated 4/29/22, most recently revised 11/28/22;
   i. Sheet A1.05: Roof Level Plan, originally dated 4/29/22, most recently revised 11/28/22;
   j. Sheet A3.01: Elevations Front and Rear, originally dated 4/29/22, most recently revised 11/28/22;
   k. Sheet A3.02: Elevations Left and Right, originally dated 4/29/22, most recently revised 11/28/22;
   l. Sheet A3.10: Perspectives, originally dated 4/29/22, most recently revised 11/28/22;
   m. Sheet A3.11: Perspectives, originally dated 4/29/22, most recently revised 11/28/22;
   n. Sheet A3.12: Perspectives, originally dated 4/29/22, most recently revised 11/28/22;
f) Sheet A4.01: Sections, originally dated 4/29/22, most recently revised 11/28/22;
g) Stormwater Management Report: 25 Haven Street Mixed-Use Development in Reading, MA, dated 11/22/22;
h) Transportation Impact Assessment, 25 Haven Street Mixed-Use Development, prepared by Vanasse & Associates, Inc., dated October 2020;
i) Staff Input:
   a. Email from Reading Fire Department Captain Nelson, dated 11/30/22;
   b. Memo from Town Engineer, dated XXX;
j) Abutter Input:
   a. Email from Ilene Bornstein, dated 5/31/22;
   b. Email from Jonathan Barnes, dated 11/3/22;
   c. Email from Jonathan Barnes, dated 11/30/22;
   d. Email from Samantha Couture, dated 12/2/22;
k) Draft Decision, dated 12/12/22.

General Findings:

1) Zoning: The site is located within the underlying Business-B Zoning District and the Downtown Smart Growth District (DSGD) / 40R Overlay District. Sites and areas located to the north, south, east and west are also located in the Business-B and DSGD Zoning Districts.

   The site is considered a Transitional Area (directly abutting a lot containing single-family dwelling).

   →Therefore, Section 10 of the Design Guidelines applies to this redevelopment.

Commented [MJ1]: Look for language in DG re: RHC review/approval

"7.2.5 Existing building facades with architectural significance are to be incorporated into new construction wherever feasible. Protected buildings can be changed only with the approval of the Reading Historical Commission."

2) Overview: The land totals 18,935 square feet in area and maintains ~186.78 linear feet of frontage along Haven Street to the north and ~119.51 linear feet of frontage along Green Street to the south. The site is abutted by: Haven Street to the north; both a single-family dwelling and a one-story commercial building to the east; Green Street to the south, and; a two-story commercial building to the west.

   The existing site contains a vacant ~7,953 square-foot, single-story commercial structure and associated parking. It was formerly a Reading Municipal Light Department building, and subsequently owned and occupied by a series of convenience stores, the most recent of which was Rite Aid (which was then bought by Walgreens). The site contains one curb cut along Haven Street and another curb cut along Green Street.

   The Applicant proposes to redevelop the site into a Mixed-Use 40R Development including twelve (12) residential dwelling units. The project is proposed as homeownership units, and is under the unit threshold so does not require any deed-restricted affordable units. It will also include a total of ~3,850 square-feet of interior commercial space on the first-floor, with an 875 square-foot commercial patio area, and sixteen (16) associated parking spaces located at-grade. All sixteen (16) parking spaces are located in an at-grade parking lot; seven (7) of the spaces are located under the building roof line and the remaining nine (9) spaces are fully exposed to the elements. The parking lot is accessed by a 26-foot wide two-way driveway on Green Street.

   The Applicant is seeking Development Plan approval from the CPDC under Section 10.5 of the Reading Zoning Bylaw and the Downtown Smart Growth District Design Standards & Guidelines, pursuant to M.G.L. Chapter 40R.

3) Historic: The existing building is listed on the local Reading Historical Inventory and is subject to a demolition delay. On July 28, 2021 the Reading Historical Commission (RHC) voted to impose a demolition delay on the property for up to six (6) months. On January 28, 2022 the demolition delay elapsed and was lifted.

4) Setbacks and Dimensional Requirements: The proposed building will have a 2' front yard setback from the northern lot line (Haven Street); a 10' side yard setback from the western lot line (adjacent to 1 Haven Street); a minimum 16' side yard setback from the eastern property line (adjacent to 51 Haven Street and 12 Green Street); and a minimum 25' rear yard setback from Green Street.

   Building Height: For structures with flat roofs, 'height' is defined in Section 2.0 of the Reading Zoning Bylaw as "*The vertical distance from the average grade around the perimeter of a building to the top of a flat roof, including any parapet…*" Height is not defined separately or differently for 40R projects within ZBL Section 10.5, and mixed-use 40R projects are allowed a maximum height of 45' unless a height waiver can be justified.

   Design of a flat roof with a metal roof coping is utilized. The elevator penthouse and mechanical units are proposed to be located on the roof and be setback and/or screened from view.

Section 10.4.1 of the Design Guidelines requires the following: "*building height shall be measured from the pre-development site grade."* The maximum building height, to the parapet, based off of the pre-development site grade, is 44'. While not accounting towards maximum height requirements it should be noted that the elevator penthouse measures X' in height and the stairwell measures X' in height bringing maximum building height to X'.

Commented [MJ2]: Does it extend above the roofline?

Building Step-backs:

Lot Coverage: The lot totals ~18,935 square-feet of area, 8,994 square feet will be covered by the building, resulting in a 47.5% Lot Coverage calculation. Including associated parking, which is exempt under the definition, total impervious area calculates to 13,070 square feet (69%).

5) Interior/Exterior Space: The proposed project will comprise +/-30,009 net enclosed square feet, as follows: +/-8,637 (1st floor); +/-8,416 (2nd floor); +/-8,416 (3rd floor); +/-4,540 (4th floor); and +/-0 (roof). The first-floor/garage level includes seven (7) parking spaces dedicated the residential use, along with a residential lobby, a parking lot lobby, a trash room, a water room, an electrical room, the elevator, an elevator machine room, two stairwells, and the commercial spaces.

Commented [MA3]: Garage storage areas and bike parking accommodations? More utility space needed?

Commercial Space #1 shall include 2,388 gross floor area of interior space as well as an adjacent 875 gross floor area private outdoor patio space. Commercial Space #2 shall include 1,461 gross floor area of interior space. Each commercial space will have a separate and individual entrance off of Haven Street. Commercial Space #1 shall also have exterior access through the eastern public path and Commercial Space #2 shall be provided a secondary access through the rear lobby/parking area.

Two (2) one-bedroom units and ten (10) two-bedroom units are proposed, for a total of twelve (12) units. One-bedroom units average 764.5 net square feet, and two-bedroom units average 1,463 net square feet.

All residential units shall be provided with private balconies or access to private outdoor patios. Sizes of each varies in both width and length but are a minimum of 7' x 10'. There is also a shared residential terrace on the 4th floor that totals 730 net square feet. There are no enclosed areas on the roof and there will be no public access to such.

6) Roof: Mechanical units located on the roof shall be placed so that they are not viewable from the street level or abutting residential properties. The elevator shaft is approximately X' tall.

7) Parking: The project provides 16 parking spaces, which is 1 space more than required and results in a 1.33 spaces/unit ratio. Seven (7) of the parking spaces will be covered by the building while the other nine (9) parking spaces will be fully exposed to the elements. All of the spaces are dimensioned at 9' x 18', and one (1) space within the garage will be ADA accessible. The parking lot is accessed via a 26' two-way drive on Green Street and maintains a 26' wide two-way drive aisle. All parking spaces shall be designed and future proofed for use of Electric Vehicle Charging Stations.

The curb cut on Haven Street will be closed and two (2) on-street parking spaces will be added. The existing curb cut on Green Street will be relocated to the west and will result in the net loss of XXX parking spaces.

Commercial Parking: The site is within 300' of a municipal lot (Brande Court) and is exempt from providing off-street commercial parking. Also, as the proposed commercial spaces are expected to be occupied by retail and/or restaurant uses, zero (0) off-street parking spaces are required per Reading Zoning Bylaw Section 10.5.8:

> **10.5.8.1 Off-Street Parking**
> **Off-street parking shall be provided to meet the following minimum requirements:**
>
> **Retail or Restaurant** **0 spaces**

Loading / Deliveries: **Front door and on-street deliveries are not allowed to occur on Haven Street or Green Street.** Loading is proposed to occur within the outdoor parking and includes access to the trash room. A __' x __' temporary loading zone is shown utilizing the parking aisle in front of the covered parking spaces near the entry lobby and trash room. A drive aisle of 12'-14' shall remain if a truck is utilizing the loading zone. Commercial loading and deliveries will occur during off-peak traffic hours and the size and nature of the commercial space is expected to be served by box trucks and vans, and not trailer trucks. Commercial deliveries shall be provided access to the commercial area from within the garage. The same is expected for both residential move-ins/outs, which shall be managed and scheduled by the property management company.

Bicycle Parking: none proposed.

8) Sidewalk Improvements: The existing sidewalk will be replaced with new concrete sidewalk and vertical granite curbing to match existing. Sidewalk shall be extended down Haven Street along the property's entire frontage. Vertical Granite Curbing shall also be utilized around the outdoor parking area.

9) Traffic Flow and Volume: A Transportation Impact and Access (TIA) study was completed for the project by Vanasse Associates, Inc.

   The TIA concludes with the following information/recommendations:

   -

10) Drainage and Grading: The existing site is relatively flat in grade and is nearly 100% impervious area due to the existing building and its associated parking. Redevelopment will incorporate Best Management Practices (BMP's) and Low Impact Design (LID) strategies and result in a net loss of 1,200 square feet of impervious area. LID measures include an infiltration system that mimics the natural runoff rate as the existing conditions.

    The site will be graded in a manner to avoid puddling on the premises and to promote positive sheet flow away from the building. All surface runoff from the site will be collected in the closed drainage system so that there is no direct discharge to the surface of any abutting land.

Commented [MA4]: Is this the expectation?

Commented [MA5R4]: What is height clearance in garage? Can trucks of all sizes be accommodated?

Commented [MJ6]: The trash room doors open into a parking space – how will this work if there is a car parked there?

Also, re: the temporary loading space needs to be dimensioned – If delivery access to Commercial Space #1 is proposed via the back door, then I'd think the truck would pull all the way in to the end of the drive aisle. How does it impact/impeded use of residential spaces?

Commented [MA7]: This may be difficult when allowing entry and exit.

Commented [MA8]: Plans do not indicate any upgrades to sidewalk?

Stormwater runoff will be mitigated through the on-site infiltration system. The system will be designed to capture the 100-year storm event.

Roof and surface runoff will be captured and directed to the underground retention system prior to discharging into the municipal system. Stormwater treatment will be collected by deep-sump basin with an oil water separator. This provides enhanced pollutant removal from the stormwater by separating out Total Suspended Solids (TSS) and floatable oil/grease.

A final stormwater system long-term Operations and Maintenance Plan has been prepared. The Plan details measures to be taken by the property owner to ensure long-term sustainability of the system, which shall be conditioned below. The Plan includes, but is not limited to, schedules for inspections and maintenance, estimated costs of maintenance, safety measures, and responsible entity. A separate construction phase BMP plan has been drafted and shall followed throughout permitting.

11) Utilities: All utilities will be removed and re-connected through both Haven Street and Green Street as applicable. The existing sewer line will be cut and capped at the main within the right-of-way and shall be replaced with a PVC pipe. An oil water separator will be provided within the garage level and connected to the sewer line. An existing drain line through the property will be replaced with a new ductile iron drain and be relocated within the right-of-way. The domestic water service and a new fire service will be tapped from the water main within Haven Street. Electric, telephone and fiber optic services will be extended from Green Street. Natural gas will also be extended from the main on Haven Street and will be coordinated with the utility company. A grease trap shall also be provided for the commercial uses and will be located to align with future restaurant/kitchen location(s). All proposed utilities will be underground.

12) Lighting: A series of exterior lighting fixtures on the building's façade and within the exterior parking area is proposed. All exterior lighting shall be designed to be Dark Sky compliant and mitigate impacts to abutting residential properties; limited up-lighting is allowed in accordance with Design Guidelines Section 8.4.6.

13) Property Management: The property is proposed to be managed by a property management company.

14) Transformer: An electric utility plan shall be submitted and approved by RMLD. The transformer shall be located along Green Street and be screened from the street.

15) Wetlands / Floodplain: There are no wetland resource areas or buffers on or near the site, and the site is not within a 100-year floodplain.

16) Landscaping: Eleven (11) new trees are proposed on site – four (4) of which are to be street trees within the sidewalk along Haven Street. A series of additional shrubs and plantings is proposed along the site's property line. A pocket park will be developed in the southeast corner of the site and include a series of plantings and seating areas.

17) Trash Management: Trash and recycle bins shall be located within the garage. Trash is to be managed by a private entity. Language detailing how trash and recycling will be managed on-

Commented [MA9]: Is this true?

site, including but not limited to schedule of pick-up days and times, and logistics for trash truck access to the site shall be described within the property management documents. Trash management for both the residential and retail uses shall be managed separately, as is practicable.

18) Signage: No building signage is approved herein. Any future signage shall require the submittal of a Sign Permit Application and shall comply with Section 8.0 of the Zoning Bylaw and Section 9.0 of the Downtown Smart Growth District Design Guidelines.

Findings pursuant to DSGD Design Standards & Guidelines:

7. Building Design Standards

7.1 Massing

7.1.1 Front Façade Setback – Over 60% of the Haven Street façade is setback at 2' and the space between is designed to better activate the pedestrian entries. Additional active uses (i.e. outdoor commercial patio) and landscape is proposed along the front setback.

7.1.2 Building Step-Back Requirements – The building maintains a 25'-28'5" step-back at the fourth-floor level along the front façade. The same fourth-floor level also maintains a 12'7" step-back on the western façade. The step-backs are maintained for the entirety of the fourth-floor level.

7.1.3 Mixed-Use Building Proportions – The building's commercial space is provided horizontal brick work and large glass paned windows. Residential floors above are provided projecting bays, composite vertical panels, and balconies to differentiate from the retail uses below.

7.1.4 Special Function Space Differentiation – Not applicable to the current proposal; however, the Applicant is encouraged to think about community place-making events when approaching commercial tenants.

7.2 Appearance

7.2.1 Defined Proportions – The project uses projecting bays, balconies, a composite paneling system of different colors and a flat rooftop design to define different levels of the façade.

7.2.2 Horizontal and Vertical Elements – Horizontal elements such as brick masonry, trim, and large framed windows are combined with vertical projecting bays, at different levels. Materials shall be submitted to CPDC for review.

7.2.3 Continuous Façade Elements – Façade elements and materials are used continuously around the façade.

7.2.4 Rooftop Mechanical Setbacks – Mechanical units on the rooftop level are setback so as to not be visible from the pedestrian level.

7.2.5 Incorporation of Existing Significant Building Facades – The building form adapts in scale and texture to create continuity with abutting properties.

7.2.6 Franchise Architecture – Distinctive building design that is trademarked or identified with a particular chain or corporation and is generic in nature, is not allowed in the DSGD – the Applicant shall be aware of this when recruiting tenants.

7.3 Entries

7.3.1 Articulation – Commercial spaces are provided along Haven Street and are articulated through masonry design, signage, and recessed entries. The residential entry on Haven Street is flush with the rest of the building.

7.3.2 Retail and Commercial Entry Transparency – Commercial space is designed to activate Haven Street. Commercial spaces have large glass window panels for visibility.

7.3.3 Integrated Lighting & Signage – Exterior lighting has been designed around the entire perimeter of the building. Lighting shall activate entry ways and the commercial patio and illuminate the rear parking area.

7.3.4 Upper Floor Entries – The entry to upper floor residential areas shall be made distinct upon entering through the residential lobby on Haven Street.

7.4 Fenestration

7.4.1 Commercial Horizontality & Residential Verticality – Commercial spaces are designed with over 60% of their façade length being glass window panels. Residential portions of the building have windows designed with a 2/6 muntin grid to balance verticality and horizontality.

7.4.2 Glazing – Commercial spaces are designed with over 60% of their façade length being glass window panels. Retail or restaurant uses were stated as intended tenants to provide activation of the areas and limit tint of the windows.

7.4.3 Overhanging Awnings or Canopies – Not applicable to application.

7.5 Materials

7.5.1 Exterior Finishes – A combination of horizontal brick veneer and vertical composite paneling of different colors with aluminum finishing is used on building façades.

7.5.2 Prohibited Materials – Not Applicable.

7.5.3 Changes in Materials – The first-floor will consist of a brick masonry to transition from the sidewalk to the building structure. Commercial spaces will utilize large windows inserted into the masonry storefronts. Residential spaces and entries above will differentiate themselves by utilizing the composite paneling, aluminum balconies and finishing. Recessed and projecting bays shall utilize different colors of the composite paneling. The fourth-floor will also utilize a different color of composite material than the levels below. Materials shall be submitted to CPDC for review.

7.5.4 Continuity of Materials – Façade elements and materials are used continuously around the façade.

7.5.5 Blank Facades Not Permitted –

8. Site Design Standards

8.1 Sidewalks

8.1.1 Sidewalk Continuity – The existing curb cut on Haven Street will be removed and replaced with sidewalk. The existing curb cut on Green Street will be relocated to the west and sidewalk shall be provided in its space.

8.1.2 Pedestrian Amenities – The project will provide an 875 gross square foot commercial patio along Haven Street and a separate public pocket park along Green Street. A public path will connect Green Street and Haven Street.

8.1.3 Usable Open Spaces – The open space will be programmed dependent on commercial uses, but will most likely be used for pedestrian-centric

activities such as dining and seating. A public path and pocket park shall connect Green Street and Haven Street.

8.1.4 Pedestrian Improvements – Improvements to adjacent crosswalks, curbing and sidewalks may be requested by the Town Engineer.

8.2 Driveways and Parking

8.2.1 Sidewalk Continuity – The existing sidewalk will be removed and replaced. The curb cut on Haven Street will be replaced with sidewalk while the Green Street curb cut will be relocated and replaced with sidewalk.

8.2.2 Parking Lots – The parking shall be located at the rear of the building structure and concealed from public view through landscape and screening. The entry and exit of such will be provided off of Green Street.

8.2.3 Parking Lots Behind Buildings – The ground level parking shall be screened by landscape. The parking area will be accessed through Green Street.

8.2.4 Below-grade Parking – Not Applicable to application.

8.2.5 Parking Lot Screening – The ground level parking will be screened through landscape and plantings.

8.2.6 Shared Parking – Shared use of parking between residential and commercial tenants will be encouraged. If the parking area is not fully utilized by residents the Applicant shall look to allow commercial employees or patrons parking access/use. Ride sharing services will be encouraged.

8.2.7 Pedestrian & Vehicular Safety – Future recommendations of the Traffic Impact Assessment shall be considered and discussed with the Town's Parking Traffic and Transportation Task Force (PTTTF).

8.3 Landscaping

8.3.1 Street Trees – Four (4) street trees shall be planted along Haven Street.

8.3.2 Retail Frontages – The final location of street trees shall be determined by the Tree Warden and shall not impede visibility of commercial areas or signage.

8.3.3 Parking Areas – The parking area will be screened through a series of plantings along the rear and side lot lines.

8.3.4 Public Open Spaces – The project will provide an 875 gross square foot commercial patio along Haven Street and a separate public pocket park along Green Street. A public path will connect Green Street and Haven Street.

8.3.5 Native Species – Final determination of street tree species shall be determined by the Tree Warden.

8.3.6 Preservation of Healthy 6" Caliper Trees – When feasible, healthy existing trees with a minimum 6" caliper and large canopy shall be preserved.

8.4 Lighting

8.4.1 Articulation of Building Uses & Entries – The project will incorporate lighting along the street level façade that will identify major commercial and residential entry ways. Any upper level lighting shall be Dark Sky compliant and designed to mitigate impact to residential abutters.

8.4.2 Coordination w/Town's Street Lighting & Trees – All proposed lighting will be coordinated with the Town's street lighting and street trees.

8.4.3 Light Spillover – Lighting at upper-level terraced areas shall be designed to minimize impact to abutting properties.

8.4.4 Public Safety – All lighting for public safety shall be added to the plans.

8.4.5 Sign Lighting – No signage proposed or approved herein.
8.4.6 Dark Sky Standards – All upper floor lighting shall comply with dark sky standards.

8.5 Utility Areas and Utilities

8.5.1 Location – The trash area will be provided access to/from the rear parking area. The trash area will be situated near garage entry. Mechanical units will be located on the roof and will not be visible from the street. Utility meter locations?
8.5.2 Screening – All rooftop mechanicals will be setback so they are not viewable from street level.
8.5.3 Shared Utility Areas – Not Applicable.
8.5.4 Aboveground Utilities Not Permitted – All utilities will be underground.
8.5.5 Underground Utilities Required – All utilities will be underground.

8.6 Drainage and Storm Water Management

8.6.1 BMP/LID Strategies – Roof and surface runoff will be captured and directed to the underground retention system prior to discharging into the municipal system. The project will not create new untreated discharge of stormwater runoff.
8.6.2 System Elements – Stormwater will be collected through a deep sump basin equipped with a separator to enhance treatment.
8.6.3 Operations & Maintenance Plan – A long term O&M Plan has been provided.
8.6.4 On-site Recharge – On-site recharge has been provided.
8.6.5 Pervious Paving – Not Applicable to application.
8.6.6 Site Grading – As existing, the site is proposed to remain relatively flat.

9. Signage Design Standards – No building signage has been proposed or approved herein.

10. Additional Considerations for District Edges & Transitional Areas

10.3 Applicability – The site is designated as a Transitional Area as it abuts an existing two-family structure to the east.

10.5 Design Considerations for Transitional Areas

10.5.1 Abutting Historic Structures – Not Applicable to application.
10.5.2 Density of Project away from Residential Use – The building structure is setback 16' from the eastern lot line where it abuts an existing commercial structure. Where the lot abuts the existing two-family structure to the east no structures are proposed and parking shall not directly face the structure. The parking lot is screened through a public path and series of landscape plantings.
10.5.3 Engage Existing Residential Fabric – Inviting landscape and residential amenities (i.e. pocket park, balconies) are used to engage the residential fabric of Green Street.
10.5.4 Screen for Residential Privacy – A series of landscape plantings and public amenities (i.e. path and pocket park) will screen the parking area.
10.5.5 Shadow Study – A shadow study has been provided.

10.5.6 Noise Mitigation – Mechanical units located on the roof shall be placed so that they are not heard from the street level or abutting residential properties.

Waivers pursuant to Section 10.5.12 and DSGD Design Standards & Guidelines:

Upon request of the Applicant, the Commission, in the interests of design flexibility and overall project quality, and upon a finding of consistency of such variation with the overall purpose and objectives of the DSGD and the Reading Master Plan, or if it finds that such waiver will allow the project to achieve the density, affordability, mix of uses and/or physical character allowed. The Commission shall take into consideration the following items when considering a waiver:

1. High performance energy efficient buildings and construction methods.
2. Projects with publicly accessible open space.
3. Projects that include retail and restaurants located on street level.
4. A demonstrated shared parking initiative that makes efficient use of land and existing parking supply.
5. The preservation or rehabilitation of historic properties or other buildings considered significant to the Town.

The Applicant has requested the following waivers from ZBL Section 10.5:

1. **Density:** *to allow a density of 27.9 units/acre where 20 units/acre is permitted by right.* The Applicant stated this will allow the development to be economically viable and notes that the Floor Area Ratio (FAR) of 1.58 is below the maximum of 2.80 allowed.

The CPDC voted XXX to _____ the requested waivers.

Conditions:

General:

1) **Public Health, Safety and Welfare:** If, at any time, the site becomes a nuisance to public health, safety or welfare (i.e., traffic spillover, excessive noise, unreasonable site illumination beyond the hours of operation, etc.) – as shall be evidenced by substantiated complaints to the Police Department or Public Services Office – the Applicant/Owner shall agree to work with staff to rectify the problem. Should the situation warrant it, an additional Site Plan Review by the CPDC may be required.
2) **Utilities**: All utilities, structures, frames and covers shall meet the Town of Reading standards. The electric utility plan is subject to approval by the Reading Municipal Light Department (RMLD).
3) **MS4 Permit**: The project shall comply with the most recent MS4 permit.
4) **Lighting:** The Applicant shall ensure that any proposed lighting is not occluded by the street trees along the frontage, and does not compete with existing street lighting. The Applicant shall submit specifications for each type of lighting fixture to the Community Development Director for approval.
5) **Limitations / Future Uses:** The 40R Development Plan Decision herein does not include approval for any future uses or site renovations that may – on their own merits and design – trigger the requirements of 40R plan review, or site plan review, and/or require a special permit. Pursuant to Section 10.5 of the Zoning Bylaw the following uses are permitted by

Commented [MA10]: Anything needed for historic review and input? Look at Chronice/Gould/Postmark

right within the proposed commercial spaces: office, retail, restaurant, institutional and consumer services.

6) **Commercial Spaces:** It is strongly recommended that the Applicant prep the commercial space(s) with utility connections, grease traps, etc. in anticipation of future tenants.
7) **Engineering Concerns:** In general, throughout the project, the Applicant shall work with the Town Engineer to address any outstanding comments in the memos to the Community Development Director dated XXX.
8) **Shared Parking:** The Applicant is encouraged to engage in conversations with nearby property owners regarding shared parking, and to partner with Zip Car and other shared services if possible, and to provide electric vehicle charging stations. If and when progress on shared parking is made, the Applicant shall provide more information about these amenities, and indicate which area(s) of the garage are intended for them and how they will be managed.
9) **Storage Areas:** The Applicant is encouraged to consider adding supplemental storage areas for tenants to the building if possible.
10) **Community Place-making / Creative Economy:** When approaching potential commercial tenants, the Applicant is encouraged to think about community place-making events, and/or dividing the space into smaller units that are affordable to creative economy tenants.
11) **Historic:** If possible, the Applicant shall salvage some bricks/tiles from the existing building and replicate the pattern on an accent wall in the exhibit gallery, and shall consider mimicking the existing art deco design elements in the new building's signage design.

Commented [MA11]: Can Applicant confirm such would be included in residential lobby in building not preserved?

Prior to the Issuance of Building Permits and Prior to the Start of Construction:

1) **The Applicant shall make the following plan changes, and shall submit two (2) full size (24x36) copies of the revised plans to the Community Development Director:**
2) **Other Permits:** The Owner/Applicant is responsible for obtaining all other requirements and permits including but not limited to, utility connections, sewer, water, curb cut, street opening and Jackie's Law excavation permits from the Engineering Department (prior to excavation), and Board of Health approvals.
3) **Pre-Construction Meeting:** The Owner/Applicant and contractors shall coordinate with the Community Development Director to schedule a pre-construction meeting with Town staff prior to applying for demolition and/or building permits, in order to review these conditions and any and all final construction sequencing, details and plans for this project.
4) **Construction Management Plan / Contractor Parking:** The Applicant shall submit a Construction Management Plan which includes provisions for off-site parking.
5) **Construction Documents & Fire Safety:** Full construction documents must be submitted and approved by the Fire Department at 80% design. A building permit shall not be issued until the Fire Department has approved the plans.
6) **Master Box:** The Applicant shall coordinate with the Fire Department on the requirement for a Master Box tied that is to be tied to the fire alarm system.
7) **Materials:** No colors have been approved herein. The Applicant shall return to the Commission with samples of proposed materials and colors to be used on the building prior to installation.

During Construction:

1) **Construction Hours:** Construction shall be limited to the hours stated in Section 8.9.8 "Construction Hours" of the Reading General Bylaws and said hours shall be posted in a conspicuous place at the entrance prior to any work on the site.
2) **Construction Activities:** Construction activities shall be conducted in a workmanlike manner at all times. Blowing dust or debris shall be controlled by the Applicant through stabilization, wetting down, and proper storage and disposal methods, subject to the approval of the Health Agent or designee. The Applicant shall ensure that the abutting local streets are kept clear of dirt and debris, which may accumulate as a result of construction activities for the Project. Documentation shall be provided demonstrating ongoing pest management control, subject to the approval of and administration by the Health Agent.
3) **Construction Management Plan / Contractor Parking:** Site operations shall comply with the aforementioned Construction Management Plan at all times. Contractors shall park in the locations designated and provided for within the CMP.
4) **Site Inspections:** Town staff or their designee shall have reasonable access to inspect the site to determine compliance with this Decision.
5) **Bond:** The Applicant/Owner shall furnish a bond for the final As-Built plans prior to the issuance of the final certificate of occupancy. The bond amount shall be determined by the Town Engineer consistent with the reasonable costs associated with a third party performing the work. The bond shall be returned once the requirements of this condition are met.
6) **Scaffolding:** The scaffolding at the property lines shall be completely screened 100% of the time to maintain privacy and prevent materials/debris from falling/blowing or otherwise dropping onto the abutting properties.

Prior to Vertical Construction:

1) **Covered Parking As-Built:** The Applicant shall provide, to the Building Commissioner and Community Development Director, an as-built of the foundation and covered parking area, that shows an overlay of the location and size of structural columns, fire/building/energy code requirements, and dimensioned parking striping, proving that the parking as approved can work. If the parking cannot work as approved, the Applicant shall return to CPDC for an amendment prior to starting vertical construction.

Prior to the Issuance of a Certificate of Occupancy:

1) **Architecture:** The building façade on each elevation (north, south, east, and west) shall be substantially as indicated on the approved architectural plans and elevations.
2) **Stormwater O&M Plan**: An Operations and Maintenance Plan for the stormwater system shall be provided to the Town Engineer.
3) **Property Management Documents**: A copy of the finalized Property Management Documents shall be submitted to the Community Development Director for review and approval, and shall contain the following language:

a. **Fire Safety**: Language ensuring fire safety by prohibiting gas/propane grills on balconies, etc.

b. **Delivery Vehicles & Times:** Language prohibiting commercial deliveries along Haven Street and Green Street, and prohibiting commercial deliveries to the commercial space between 10:00 PM and 5:00 AM.

c. **Management of Move-ins & Move-outs:** Language regarding management of move-ins and move-outs by the on-site property manager, specifically with regards to the size of moving vehicles allowed and the timing and use of the parking area.

d. **Drainage System Maintenance**: Language that requires the property management company to adhere to the requirements of the O&M Plan.

e. **Trash Removal:** Language detailing how trash and recycling will be managed on-site, including but not limited to schedule of pick-up days and times, and logistics for trash truck access to the site. Trash management for both the residential and retail uses shall be managed separately, as is practicable.

f. **Snow Removal:** Language detailing how snow will be managed and removed from the property, including the roof and uncovered parking area, and that snow storage shall not impact sight lines for vehicular traffic.

g. **Site Lighting:** Language that commercial lighting (including signage) shall be programmed to shut off at the close of business each day.

h. **Pedestrian Path:** Language outlining responsibility for maintaining the public path through the site, especially during inclement weather, to keep it clear of debris, trash, and snow/ice at all times.

i. **Conditions for Ongoing Maintenance after Occupancy:** Language that the property management company shall adhere to the "Conditions for Ongoing Maintenance after Occupancy" as are stated herein below.

4) **Rooftop Mechanicals:** All rooftop mechanicals shall be set back from building facades and appropriately screened from view.

5) **Pedestrian Improvements:** Improvements along Haven Street, Green Street, and abutting rights-of-way, as deemed necessary or advantageous to the Town Engineer and Community Development Director, to adjacent crosswalks, curbing and sidewalks, shall be installed at the Applicant's expense in accordance with Town standards.

6) **Streetscape Design:** The Applicant shall coordinate with the Engineering, Planning, Economic Development, and other staff departments as needed, on the final streetscape design for the Haven Street frontage and Green Street as needed. Design utilizing the Lower Haven streetscape concepts provided by the Town shall be incorporated. The Applicant shall work with Town Staff on the need for potential public easements for a portion of the sidewalk, which shall support the Lower Haven streetscape concepts.

7) **Parking Striping**: All parking spaces shall be striped in accordance with the approved plans. Dimensions shall be measured from centerline to centerline.

8) **I/I Fee:** The Applicant is subject to the required Inflow/Infiltration Fee as the proposed sewer flow usage will be greater than historical usage. The Fee is calculated as twice the flow times $4.00.

9) **Street Trees:** The Applicant shall work with the Tree Warden to locate the street trees along Haven Street to an appropriate location. Both the species and location shall be approved by the Town Tree Warden.

10) **Lighting**: All exterior building and site lighting shall comply with the dark sky initiatives (light shall shine down only) with the light source being fully shielded (with cutoff shields) so that little to no light or glare spills onto abutting properties. Spec sheets of proposed lighting fixtures shall be submitted to the Community Development Director for review and approval.

11) **Easements**: Necessary easements for the pedestrian pathway(s), streetscape and/or other shall be drafted, approved and recorded. All easements, and agreements, as reviewed by the Community Development Director, Town Engineer and Town Counsel, shall be properly written and recorded.

Conditions for Ongoing Maintenance after Occupancy:

1) **Parking Utilization Data:** The Applicant shall provide reports to the Community Development Director indicating utilization of the on-site parking and shall work with Town staff to evaluate impacts and make any necessary modifications to the parking space management system described above, including the provision of EV charging infrastructure, Zip Car spaces, etc. if evidenced to be desired by tenants.

2) **Signage:** Prior to installation of any building or tenant signage, a Sign Permit Application and/or Master Signage Plan shall be submitted for review and approval.

3) **As-Built Plans:** Two full size paper copies and electronic AutoCAD final As-Built plans showing the building footprint, drainage systems and utility connections shall be submitted to the Community Development Director and Town Engineer to ensure compliance with this decision and other applicable Town standards. The bond held for this requirement will be returned to the Applicant once this condition has been fulfilled.

4) **Landscaping:** Landscaping on-site shall be maintained in a healthy condition in perpetuity. In the event that landscaping is damaged during snow removal operations, the property owner shall replace such landscaping during the next growing season.

5) **Lighting**: All exterior building and site lighting shall comply with the dark sky initiatives (light shall shine down only) with the light source being fully shielded (with cutoff shields) so that little to no light or glare spills onto abutting properties. Any exterior lighting that is required for security purposes may be illuminated by photocells and is not required to be extinguished at the close of business. All site and building lighting for commercial purposes, beyond what is needed for security purposes, shall be programmed to shut off at the close of business each day.

6) **Trash Removal:** All trash collection and disposal are the responsibility of the owner / property manager. The Applicant shall ensure daily that exterior areas of the site remain clear of debris, trash and any equipment used in connection with any commercial activities on site.

Plan Changes after Approval by the Commission:

Contemplated future changes to the plan approved herein shall be presented to the Community Development Director and the Building Inspector, or other relevant Town staff, for review prior to implementation of proposed changes.

10.5.13.1 Minor Plan Changes: After Plan Approval, an Applicant may apply to make minor changes in a Development Project involving minor utility or building orientation adjustments, or minor adjustments to parking or other site details that do not affect the overall build out or building envelope of the site, or provision of open space, number of housing units, or housing need or affordability features. Such minor changes must be submitted to the Commission on redlined prints of the approved plan, reflecting the proposed change, and on application forms provided by the Commission. The Commission may authorize such changes at any regularly scheduled meeting, without the need to hold a public hearing. The Commission shall set forth any decision to approve or deny such minor change by motion and written decision, and provide a copy to the Applicant for filing with the Town Clerk.

10.5.13.2 Major Plan Changes: Those changes deemed by the Commission to constitute a major change in a Development Project because of the nature of the change in relation to the prior approved plan, or because such change cannot be appropriately characterized as a minor change as described above, shall be processed by the Commission as a new application for Plan Approval pursuant to Section 10.5.

Appeal:

Any person aggrieved by this Decision of the CPDC may appeal to the appropriate court in accordance with the provisions of M.G.L. Ch. 40A Section 17, pursuant to M.G.L. Ch. 40R Section 11, within twenty (20) days after the date of filing of this Decision with the Town Clerk. Notice of any appeal with a copy of the complaint must also be filed with the Town Clerk within such twenty (20) days as provided in M.G.L. Ch. 40A Section 17.

This Decision and the relief, terms, restrictions and conditions contained herein shall run with the land and all subsequent owners shall benefit from and be bound by the relief, terms, restrictions and conditions contained herein.

Signed as to the accuracy of the vote as reflected in the minutes:

_____

Andrew MacNichol, Community Development Director Date

Cc: Applicant, Town Clerk, DRT Staff, planning file

Town of Reading
Engineering Division

Memo

To: Andrew MacNichol, Community Development Director

From: Ryan A. Percival, P.E., Town Engineer;

CC: Community Planning and Development Commission;

Date: December 8, 2022

Re: Proposed 25 Haven Street Mixed-Use Development

Materials reviewed:

- Civil Engineering Site Plan Review and Special Permit Set entitled; "25 Haven Street Mixed-Use Development", 25 Haven Street Reading, Massachusetts; prepared by Hayes Engineering, Inc.; dated November 22, 2022
- Stormwater Management Report; prepared by Hayes Engineering, Inc.; dated November 22, 2022

The Engineering Division has reviewed the proposed site application for the proposed project and offers the following comments:

- The property has a DEP Reportable Release, RTN #3-0013004
- Construction stone entrance shall be a minimum of 50' in length and noted on the plan.
- The stormwater management report utilizes the NOAA Atlas 14 rainfall data.
- Post-development runoff volumes and flows have been reduced for the 2, 10, 25 and 100-year storms.
- The Engineering Division will work with the engineer to coordinate the private drain connections to the Town's system, including location, size, and material. Upgrades may be needed to the Town's drainage system.
- Test pits were performed and indicate an Estimated Seasonal High Groundwater 96" below grade at elevation 98.5
- The stormwater report shall include Phosphorous removal calculations.
- Please clarify the vertical standpipe overflow, it's unclear what this is for and its function.
- Domestic water and fire service should come off Haven Street which is currently being replaced with a 12" CLDI pipe. The current design has the services off an unlined 6" water main.
- Fire flow test shall be performed.
- Sewer flow study shall be performed.
- Label size and type of all utilities
- The plan shall show the dimensions of the driveway opening, a maximum of 24' is allowed per the Select Board Policies.
- All electric utilities shall be underground
- The design consultant shall coordinate with the Engineering Division on the updated utility improvements on Haven Street. The plan shall be updated to reflect the new utility locations.
- ADA Accessible space shall be labeled as Van space
- Trench paving in the Town ROW shall meet Town Standards for this area.
- This site is subject to a Sewer I/I Connection Fee.
- An O&M document should be developed for maintenance and inspections of the above infrastructure as well as the infiltration system.
- All utilities shall be approved materials and installed in accordance with the Department of Public Works Standards.
- Engineering Division shall be notified 72 hours in advance to mark out Town utilities.
- All water, sewer, curb cut, street opening, and Jackie's Law excavation permits shall be obtained at the Engineering Division prior to any excavations.

- All site work shall be inspected by the Engineering Division. The Applicant/Owner's contractor shall submit a construction schedule of proposed work. All inspections shall be scheduled 48 hours in advance.
- An approved site as-built shall be submitted to the Engineering Division within 60 days of certificate of occupancy. The as-built shall be submitted in mylar and electronic ACAD format.