AGENDA

Lexington Planning Board

Wednesday, May 7, 2025
Remote on Zoom: https://www.lexingtonma.gov/377/Access-Virtual-Meetings
6:00 PM

Development Administration

1. **166 Spring Street Limited Site Plan Review for Muslim Community Center**

   Continued public hearing for limited site plan review to convert existing dwelling to the Muslim American Community Center (continued from 2/26 & 3/27)

2. **217, 229, 233, 241 Massachusetts Avenue - Public hearing**

   Continued public hearing for a major site plan review proposal for mixed-use multi-family development in the village overlay district (continued from 9/25 & 11/20, 1/30, 3/5). The Board may close the hearing and deliberate on this application.

3. **952 Waltham Street - Public Hearing**

   Public hearing for a major site plan review proposal for a multi-family development in the village overlay district.

4. **407 Waltham Street – Public Meeting**

   Public meeting for a preliminary subdivision to subdivide the property into two lots

5. **162 Bedford St. & 5 Reed Street - Public Meeting**

   Public meeting for a preliminary subdivision to subdivide the property into three lots

6. **450 Marrett Road - Public Meeting**

   Public meeting for a preliminary subdivision to subdivide the property into two lots

7. **5-7 Piper Road - Public Meeting**

   Public meeting for a preliminary subdivision to subdivide the properties into three lots

8. **7-9 Muzzey Street, 11-13 Muzzey Street, 1834-1840 Massachusetts Avenue - Public meeting**

Public meeting for a preliminary subdivision to subdivide the properties into three lots

Board Administration

1. **Board reorganization**

   Review Chair, Vice Chair, Clerk and liaisons to other committees and subcommittees. The list of Committee liaison assignments from last year attached.
2. **Board Member & Staff Updates**
3. **Review of Draft Meeting Minutes: 4/10 & 4/17**
4. **Upcoming Meetings**

   Wednesdays 5/28, 6/11, 6/25, 7/16

Adjourn

1. **Adjourn – The meeting will continue until all items are finished. The estimated adjournment time is 10:00 pm.**

Zoom Details

1. **Zoom Details - https://www.lexingtonma.gov/377/Access-Virtual-Meetings**

   Planning is inviting you to a scheduled Zoom meeting.
   Topic: Planning's Zoom Meeting
   Time: May 7, 2025 05:30 PM Eastern Time (US and Canada)

   Join Zoom Meeting
   https://lexingtonma.zoom.us/j/87554796189?pwd=b4T57680v3JFPeGmwb86ewDHAKNUnG.1

   Meeting ID: 875 5479 6189
   Passcode: 357969

Meeting broadcast by LexMedia

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

166 Spring Street Limited Site Plan Review for Muslim Community Center

PRESENTER:

Applicant: Muslim American Community Center

ITEM NUMBER:

SUMMARY:

An application by Isam Hijazi for the Muslim American Community Center for a limited site plan review under §9.5.6 [Limited Site Plan Review] of the Zoning Bylaw and Article VI of §181-71 Stormwater Management Regulations. Application is to expand and convert existing dwelling into a religious center with worship and study areas. The religious use is permitted under the Dover Amendment (MGL Chapter 40A, §3), and therefore shall go through the limited site plan review process.

The property is located at 166 Spring Street, Lexington, MA also known as Map 12, Lot 8B in the RO [One Family Dwelling] zoning districts.

Application materials may be viewed online at https://lexingtonma.portal.opengov.com/records/99902.

Revised plans dated February 24. An updated staff memo is attached. The applicant is still working on a submission to the Conservation Commission. Staff recommends approval with a condition that any modifications to the site plan relative to the Conservation Commission's application may need to return to the Planning Board.

SUGGESTED MOTION:

Move to close the public hearing on the limited site plan review application for 166 Spring Street.

Move to approve the limited site plan review application with the draft 6 conditions of approval in the draft prepared by staff and as may be modified this evening.

Move to have the Chair sign the decision and make any non-substantive corrections as necessary.

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025

ATTACHMENTS:

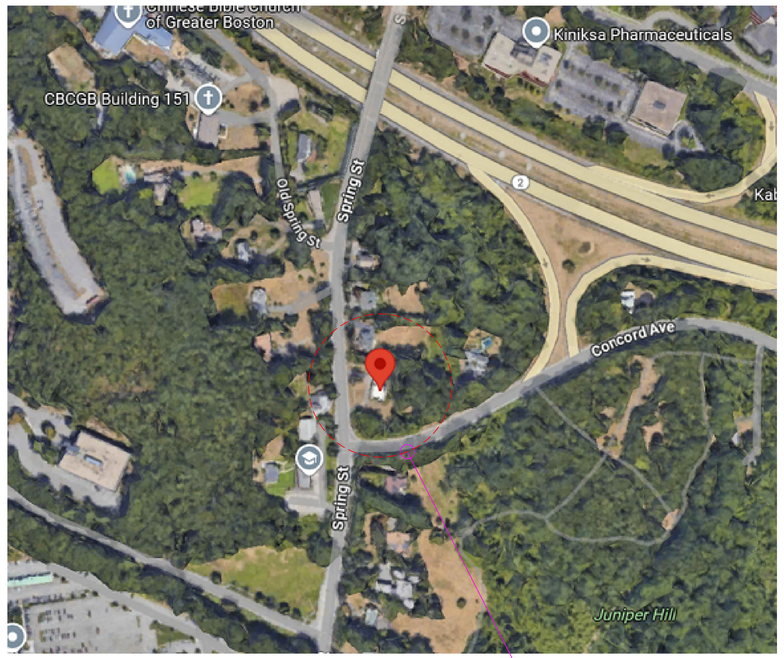
Description	Type
Rev Plan Set 2.24.2025	Exhibit
Applicant's Response to Staff Memo	Cover Memo
Stormwater Report 2.23.25	Exhibit
Staff Memo 5.1.2025	Cover Memo
Engineering Memo 5.1.25	Cover Memo

PROPOSED IMPROVEMENTS FOR MUSLIM AMERICAN COMMUNITY CENTER OF LEXINGTON MASSACHUSETTS

166 SPRING STREET
LEXINGTON, MA

DRAWING INDEX

SHEET NO.	TITLE
C1	GENERAL NOTES
C2	SITE PREPARATION PLAN
C3	LAYOUT PLAN
C4	GRADING PLAN
C5	UTILITY AND DRAINAGE PLAN
C6	SITE WORK DETAILS I
C7	SITE WORK DETAILS II
C8	JELLY FISH JS10404 DETAILS
C9	JELLY FISH JS10408 DETAILS
C10	RECHARGE SYSTEM DETAILS
E1	ELECTRICAL LEGEND AND NOTES
E2	ELECTRICAL SITE PLAN
E3	PHOTOMETRICS PLAN
F1	FIRE TRUCK TURNING PLAN
L1	LANDSCAPE PLAN



LOCUS PLAN
N.T.S

PERMIT SET 2/24/2025

PREPARED BY:

BCD DESIGN GROUP
ISAM HIJAZI
617-799-1133

ADEL M. SHAHIN
CIVIL
No. 41054
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

GENERAL CONSTRUCTION REQUIREMENTS

1. ALL CONSTRUCTION DEBRIS SHALL BE DISPOSED OF LEGALLY OFF SITE.
2. CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL. DUST CONTROL SHALL INCLUDE THE WATERING OF UNPAVED ROAD SURFACES AND STREET SWEEPING OF PAVED SURFACES. STREET SWEEPING SHALL OCCUR ON THE PAVED SURFACES WITHIN THE SITE AND OFF THE SITE WHERE VEHICLE TRACKING OF SEDIMENTS HAS OCCURRED BEFORE THE END OF EACH DAY'S WORK. THE CONTRACTOR SHALL CONTROL DUST FROM CONSTRUCTION OPERATIONS THROUGHOUT THE DURATION OF THE PROJECT.
3. DURING CONSTRUCTION, TRENCHES ARE NOT TO BE LEFT IN A CONDITION THAT WOULD DIRECT RUNOFF AROUND TREATMENT AND DETENTION FACILITIES.
4. ALL SITE WORK SHOULD BE SECURED AT THE END OF THE WORK DAY TO PREVENT EROSION AND SEDIMENT MOVEMENT. THIS INCLUDES AS APPLICABLE, COVERING STOCKPILES OF SOIL MATERIAL, INSTALLING TEMPORARY VEGETATION OR BY USING GEOTEXTILES TO COVER DISTURBED AREAS WITH STEEP SLOPES.
5. DEWATERING OPERATION SHALL COMPLY WITH THE REQUIREMENTS OF THE U.S. EPA NPDES PHASE I CONSTRUCTION ACTIVITY GENERAL PERMIT FOR CONSTRUCTION SITES THAT ARE GREATER THAN 1 ACRE.

SITE GRADING NOTES

1. GRADE DISTURBED AREAS. PROPOSED GRADING SHALL MATCH EXISTING GRADES AT THE LIMIT OF WORK. 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.
2. GRADE ALL AREAS TO DRAIN.
3. PROPOSED WALKWAYS SHALL BE CONSTRUCTED WITH A CROSS SLOPE OF NO LESS THAN 1% AND NO MORE THAN 1.5% AND A LONGITUDINAL SLOPE OF NO MORE THAN 4.75%.
4. LANDINGS AT BUILDING ENTRANCES SHALL BE CONSTRUCTED WITH SLOPES NO LESS THAN 1% AND NO MORE THAN 1.5% IN ANY DIRECTION.
5. CONTRACTORS SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS AND STRUCTURES.
6. CONTRACTOR SHALL ADJUST UTILITY CASTINGS AND/OR COVERS MEANT TO BE FLUSH WITH GRADE (I.E. UTILITY MANHOLES, CATCH BASINS, ETC.) THAT ARE AFFECTED BY SITE WORK OR GRADE CHANGES, WHETHER SPECIFICALLY NOTED ON PLANS OR NOT.

SITE PREPARATION NOTES

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES AND PROCEDURES; AND FOR THE SAFETY PRECAUTIONS AND PROGRAMS REQUIRED FOR THE WORK UNDER THIS CONTRACT. THE CONTRACT DOCUMENTS DO NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY AND THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING ALL SAFETY BARRIERS, WARNING FLASHERS, AND THE LIKE AS REQUIRED FOR THE PROTECTION OF WORKERS AND THE PUBLIC. COMPLY WITH OSHA REQUIREMENTS.
2. THE CONTRACTOR SHALL MAINTAIN EROSION CONTROL MEASURES AT ALL TIMES UNTIL ALL EARTHWORK OPERATIONS ARE COMPLETE AND ALL AREAS ARE STABILIZED TO PREVENT THE MOVEMENT OF SOIL, SILT, SEDIMENT, AND DEBRIS INTO THE DRAINAGE SYSTEM ON AND NEAR THE SITE. THE CONTRACTOR SHALL REMOVE ALL EROSION CONTROL DEVICES UPON COMPLETION AND ACCEPTANCE OF THE WORK.
3. PRIOR TO THE START OF WORK, INSTALL SILTSACK WOVEN POLYPROPYLENE GEOTEXTILE FILTER BAGS IN CATCH BASINS AND/OR DRYWELL STRUCTURES ON AND NEAR THE SITE. WHEN INSTALLING FILTER BAGS, HOLD APPROXIMATELY SIX INCHES OUTSIDE THE FRAME AND REPLACE THE GRATE, USING THE WEIGHT OF THE GRATE TO HOLD THE FILTER BAG IN PLACE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY CONSTRUCTION PERMITS REQUIRED FOR THIS PROJECT.
5. THE CONTRACTOR SHALL PERFORM ALL WORK IN THE STREET IN CONFORMANCE WITH THE TOWN OF LEXINGTON DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS.
6. INSTALL TEMPORARY CONSTRUCTION ENTRANCES AS INDICATED.
7. REMNANTS OF PREVIOUS BUILDING FOUNDATION, UTILITY STRUCTURES AND UNDERGROUND UTILITIES MAY BE ENCOUNTERED DURING EXCAVATION AND SHALL BE REMOVED AND DISPOSED LEGALLY OFF SITE.
15. PROVIDE TREE PROTECTION FOR ALL TREES INDICATED TO REMAIN OR PROPOSED WITHIN 20' OF L.O.W. OR TEMPORARY STOCKPILES.
16. CONTRACTOR SHALL USE EXTREME CAUTION IN REMOVING PAVEMENT AND SUB-BASE WITHIN DRIP LINE OF EXISTING TREES TO AVOID DAMAGE TO ROOTS AND OVERHEAD BRANCHES.
17. CONTRACTOR SHALL NOT STORE OR STOCKPILE EQUIPMENT OR MATERIALS WITHIN TREE DRIP LINES.
18. CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION FENCE AS NOTED ON PLANS.
19. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) WILL BE REQUIRED FOR THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING THE SWPPP IN ACCORDANCE WITH THE EPA'S NPDES CONSTRUCTION GENERAL PERMIT (CGP) AND FILING A NOTICE OF INTENT TO THE EPA PURSUANT TO THE NPDES PHASE I STORMWATER PROGRAM. THE CONTRACTOR SHALL PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) PER THE NPDES GENERAL PERMIT.

UTILITY NOTES

1. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ON THIS PLAN SHALL BE CONSIDERED APPROXIMATE. THEREFORE, PRIOR TO THE START OF ANY WORK ON THE SITE, THE CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION OF ALL UTILITIES, SHOWN OR NOT SHOWN ON THIS PLAN. CONTACT DIG-SAFE AT 811 OR 1-888-344-7233 (1-888-DIG-SAFE) AT LEAST 72 HOURS PRIOR TO THE START OF EXCAVATION. GREEN PROVIDES NO WARRANTY AS TO THE EXACT LOCATION OR COMPLETENESS OF EXISTING UNDERGROUND UTILITIES.
2. UTILITY WORK WITHIN THE ZONE 10 FT OUTSIDE OF FOUNDATION WALL OF THE BUILDING SHALL CONFORM TO EFFECTIVE BUILDING CODE REQUIREMENTS, TOWN OF LEXINGTON REQUIREMENTS AND THE MECHANICAL, ELECTRICAL AND PLUMBING SPECIFICATIONS. UTILITIES, WITHIN THIS AREA (10 FT FROM THE FOUNDATION WALL), ARE SHOWN ON THIS DRAWING FOR COORDINATION PURPOSES. REFER TO THE MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS AND SPECIFICATIONS FOR PIPE SIZES AND MATERIALS.
3. EXISTING UTILITY INFORMATION IS TAKEN FROM THE EXISTING CONDITIONS SURVEY PREPARED BY HAWK CONSULTING, INC, DOUGLAS MA, DATED OCTOBER 10, 2024.
4. THE CONTRACTOR SHALL VERIFY THE DEPTHS OF ALL UTILITIES LOCATED WITHIN THE PROPOSED TRENCHES. NOTIFY THE DESIGNER OF ANY EXISTING CONFLICT WITH THE DESIGN PLANS AND AN EXISTING UTILITY. THE DESIGNER RESERVES THE RIGHT TO REALIGN STRUCTURE AND PIPING LOCATIONS TO SUIT ACTUAL FIELD CONDITIONS ENCOUNTERED. THE CONTRACTOR SHALL NOT BACKFILL THE TRENCH UNTIL THE CIVIL ENGINEER HAS OBSERVED AND APPROVED THE NEW UTILITY SERVICES INSTALLATIONS.
5. THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE STRUCTURES AS NECESSARY FOR CHANGES IN GRADE, AND RESET ALL WATER AND DRAINAGE FRAMES, GRATES, AND BOXES TO THE PROPOSED FINISH SURFACE GRADE.
6. AREA 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. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES FROM DAMAGE AND UNDERMINING DURING EXCAVATION.

EROSION AND SEDIMENT CONTROLS

1. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING THE EROSION AND SEDIMENT DURING THE CONSTRUCTION PROCESS. SITE SPECIFIC CONDITIONS MAY REQUIRE MODIFICATIONS IN THE FIELD, BUT THE CONTRACTOR MUST ENSURE THAT THE PROJECT SPECIFICATIONS THAT ARE DEVELOPED IN THE FIELD MEET THE MINIMUM REQUIREMENTS OF THIS PLAN.
2. IN ORDER TO MINIMIZE EROSION AND SEDIMENT RUNOFF FROM THE SITE, THE CONTRACTOR SHOULD MAINTAIN EXISTING VEGETATION WHERE POSSIBLE AND STABILIZE THE DISTURBED PORTIONS OF THE SITE AS QUICKLY AS POSSIBLE. THIS MAY INCLUDE PHASING THE PROJECT AS NEEDED TO MINIMIZE THE SIZE OF THE DISTURBED AREAS ON THE SITE.
3. THE CONTRACTOR MUST ALSO ANTICIPATE INCREASED RUNOFF FROM STEEPER SLOPES AND DURING HIGH GROUNDWATER CONDITIONS. THIS MAY OCCUR DURING THE WET SEASON (TYPICALLY MARCH THROUGH APRIL) OR AFTER SIGNIFICANT PRECIPITATION EVENTS.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF SILT FENCES, DRAINAGE SWALES, EARTH DIKES, TEMPORARY SETTLING BASINS, CHECK DAMS AND TEMPORARY OR PERMANENT SEDIMENT BASINS. THESE PRACTICES DIVERT FLOWS FROM EXPOSED SOILS, LIMIT RUNOFF AND THE DISCHARGE OF POLLUTANTS FROM EXPOSED AREAS OF THE SITE TO THE DEGREE ATTAINABLE.
5. ALL DISTURBED SURFACES SHALL BE STABILIZED WITHIN 14 DAYS AFTER CONSTRUCTION IN ANY PORTION OF THE SITE THAT HAS BEEN COMPLETED OR WHERE CONSTRUCTION HAS TEMPORARILY CEASED.
6. THE CONTRACTOR SHALL, AT ALL TIMES, HAVE A STOCKPILE OF STRAW BALES AND SILT FENCE ADEQUATE TO REINFORCE/REPLACE EROSION AND SEDIMENT CONTROL AS NEEDED.
7. ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY OR FINAL STABILIZATION WITHIN 14 DAYS OF THE INITIAL DISTURBANCE. AFTER THIS TIME, ANY DISTURBANCE IN THE AREA MUST BE STABILIZED AT THE END OF EACH WORK DAY. THE FOLLOWING EXCEPTIONS APPLY:
   i) STABILIZATION IS NOT REQUIRED IF WORK IS TO CONTINUE IN THE AREA WITHIN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS.
   ii) STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION WITH A DEPTH OF 2 FEET OR GREATER.
8. MINIMIZE TOTAL AREA OF DISTURBANCE AND MINIMIZE UNNECESSARY CLEARING AND GRADING FROM ALL CONSTRUCTION SITES. CLEARING AND GRADING SHALL ONLY BE PERFORMED WITHIN AREAS NEEDED TO BUILD THE PROJECT, INCLUDING STRUCTURES, UTILITIES, ROADS, RECREATIONAL AMENITIES, POST-CONSTRUCTION STORMWATER MANAGEMENT FACILITIES, AND RELATED INFRASTRUCTURE.
9. PRIOR TO ANY LAND DISTURBANCE ACTIVITIES COMMENCING ON THE SITE, THE DEVELOPER SHALL PHYSICALLY MARK LIMITS OF THE ALLOWABLE DISTURBANCE ON THE SITE WITH TAPE, SIGNS, OR ORANGE CONSTRUCTION FENCE, SO THAT WORKERS CAN SEE THE AREAS TO BE PROTECTED. THE PHYSICAL MARKERS SHALL BE INSPECTED DAILY BY THE PERMITTEE.
10. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND GOOD ENGINEERING PRACTICES TO ENSURE THEY PERFORM AS INTENDED.
11. STORMWATER RUNOFF VELOCITIES SHALL BE MINIMIZED TO THE GREATEST EXTENT PRACTICABLE. INCREASES IN RUNOFF VELOCITIES DUE TO THE REMOVAL OF EXISTING VEGETATIVE COVER DURING DEVELOPMENT AND THE RESULTING INCREASE IN IMPERMEABLE SURFACE AREA AFTER DEVELOPMENT MUST BE TAKEN INTO ACCOUNT WHEN PROVIDING FOR EROSION CONTROL.
12. PROTECT DISTURBED AREAS FROM STORMWATER RUNOFF. BEST MANAGEMENT PRACTICES (BMPS) CAN BE UTILIZED TO PREVENT WATER FROM ENTERING AND RUNNING OVER THE DISTURBED AREA. DIVERSIONS AND OTHER CONTROL PRACTICES TO INTERCEPT RUNOFF FROM HIGHER WATERSHED AREAS, STORE OR DIVERT IT AWAY FROM VULNERABLE AREAS, AND DIRECT IT TOWARD STABILIZED OUTLETS MAY BE USED.
13. SEDIMENT TRAPPING AND SETTLING DEVICES SHALL BE EMPLOYED TO TRAP AND/OR RETAIN SUSPENDED SEDIMENTS AND ALLOW TIME FOR THEM TO SETTLE OUT IN CASES WHERE PERIMETER SEDIMENT CONTROLS (E.G., SILT FENCE AND HAY BALES) ARE DEEMED TO BE INEFFECTIVE IN TRAPPING SUSPENDED SEDIMENTS ON-SITE.
14. STORMWATER MANAGEMENT FACILITIES TO BE USED AFTER CONSTRUCTION SHALL NOT BE USED AS BMPS DURING CONSTRUCTION UNLESS OTHERWISE APPROVED BY THE STORMWATER AGENCY. MANY TECHNOLOGIES ARE NOT DESIGNED TO HANDLE THE HIGH CONCENTRATIONS OF SEDIMENTS TYPICALLY FOUND IN CONSTRUCTION RUNOFF, AND THUS MUST BE PROTECTED FROM CONSTRUCTION RELATED SEDIMENT LOADINGS.
15. SEDIMENT SHALL BE REMOVED ONCE THE VOLUME REACHES 1/4 TO 1/2 THE HEIGHT OF A PERIMETER SEDIMENT CONTROL SYSTEM. SEDIMENT SHALL BE REMOVED FROM SILT FENCE PRIOR TO REACHING THE LOAD-BEARING CAPACITY OF THE SILT FENCE WHICH MAY BE LOWER THAN 1/4 TO 1/2 THE HEIGHT.
16. SEDIMENT FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS SHALL BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
17. ON AND OFF-SITE MATERIAL STORAGE AREAS, INCLUDING CONSTRUCTION AND WASTE MATERIALS, SHALL BE PROPERLY PROTECTED AND MANAGED.
18. SOIL STOCKPILES MUST BE STABILIZED OR COVERED AT THE END OF EACH WORKDAY. STOCKPILE SIDE SLOPES SHALL NOT BE GREATER THAN 2:1. ALL STOCKPILES SHALL BE SURROUNDED BY SEDIMENT CONTROLS.
19. PROJECTS MUST COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS, INCLUDING WASTE DISPOSAL, SANITARY SEWER OR SEPTIC SYSTEM REGULATIONS, AND AIR QUALITY REQUIREMENTS, INCLUDING DUST AND DEBRIS CONTROL.
20. INTERIM AND PERMANENT STABILIZATION MEASURES SHALL BE INSTITUTED ON A DISTURBED AREA IMMEDIATELY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED ON THAT PORTION OF THE SITE. TWO METHODS ARE AVAILABLE FOR STABILIZING DISTURBED AREAS: MECHANICAL (OR STRUCTURAL) METHODS AND VEGETATIVE METHODS. IN SOME CASES, BOTH ARE COMBINED IN ORDER TO CONTROL EROSION.
21. TEMPORARY SEDIMENT TRAPPING DEVICES MUST NOT BE REMOVED UNTIL PERMANENT STABILIZATION IS ESTABLISHED IN ALL CONTRIBUTORY DRAINAGE AREAS.
22. THE DURATION OF THE EXPOSURE OF DISTURBED AREAS DUE TO REMOVAL OF VEGETATION AND/OR REGRADING SHALL BE STATED IN WRITING IN A SCHEDULE THAT WILL BE PREPARED AT THE TIME OF APPLICATION FOR PERMIT AND MAINTAINED AS PART OF THE PROJECT RECORDS.
23. DUST CONTROL SHALL BE USED DURING GRADING OPERATIONS. DUST CONTROL METHODS MAY CONSIST OF GRADING FINE SOILS ON CALM DAYS ONLY OR DAMPENING THE GROUND WITH WATER.
24. DURING CONSTRUCTION, ALL DISTURBED AREAS SHALL BE ENCLOSED WITH COMPOST FILTER SOCKS IN THE DOWN GRADIENT DIRECTION OR IN ANY DIRECTION TO WHICH EROSION CAN OCCUR.
25. DURING CONSTRUCTION, ANY SITE ENTRANCE FROM A PAVED, PUBLIC WAY SHALL BE IMPROVED WITH A TEMPORARY CONSTRUCTION ENTRANCE BUILT IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE *MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS* TO PREVENT SOIL FROM BEING TRANSPORTED ONTO THE STREET.
26. DURING CONSTRUCTION, CATCH BASIN OR OTHER DRAINAGE SYSTEM INLET STRUCTURES DOWN GRADIENT OF THE CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH SILT SACKS OR OTHER INLET PROTECTION DEVICE.
27. IF THE WORK PRODUCES OR DISTRIBUTES SOIL ON PUBLIC OR PRIVATE WAYS, THAT SOIL SHALL BE CLEANED UP BY THE RESPONSIBLE PARTY AS SOON AS POSSIBLE BUT IN ALL CASES WITHIN 24 HOURS.
28. IF THE WORK CAUSES THE DISCHARGE OF SOIL TO TOWN DRAINAGE STRUCTURES, ALL AFFECTED DOWNSTREAM PIPES SHALL BE CLEANED BY THE RESPONSIBLE PARTY WITHIN THREE DAYS.

PROJECT: 166 SPRING STREET
PROPOSED IMPROVEMENTS

DESIGN SUBMISSION: PERMIT SUBMISSION

DRAWING TITLE: GENERAL NOTES

PREPARED FOR:
MACCLM
344 LOWELL
LEXINGTON, MASSACHUSETTS

ADEL M. SHAHIN
CIVIL
No. 41554
REGISTERED
PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

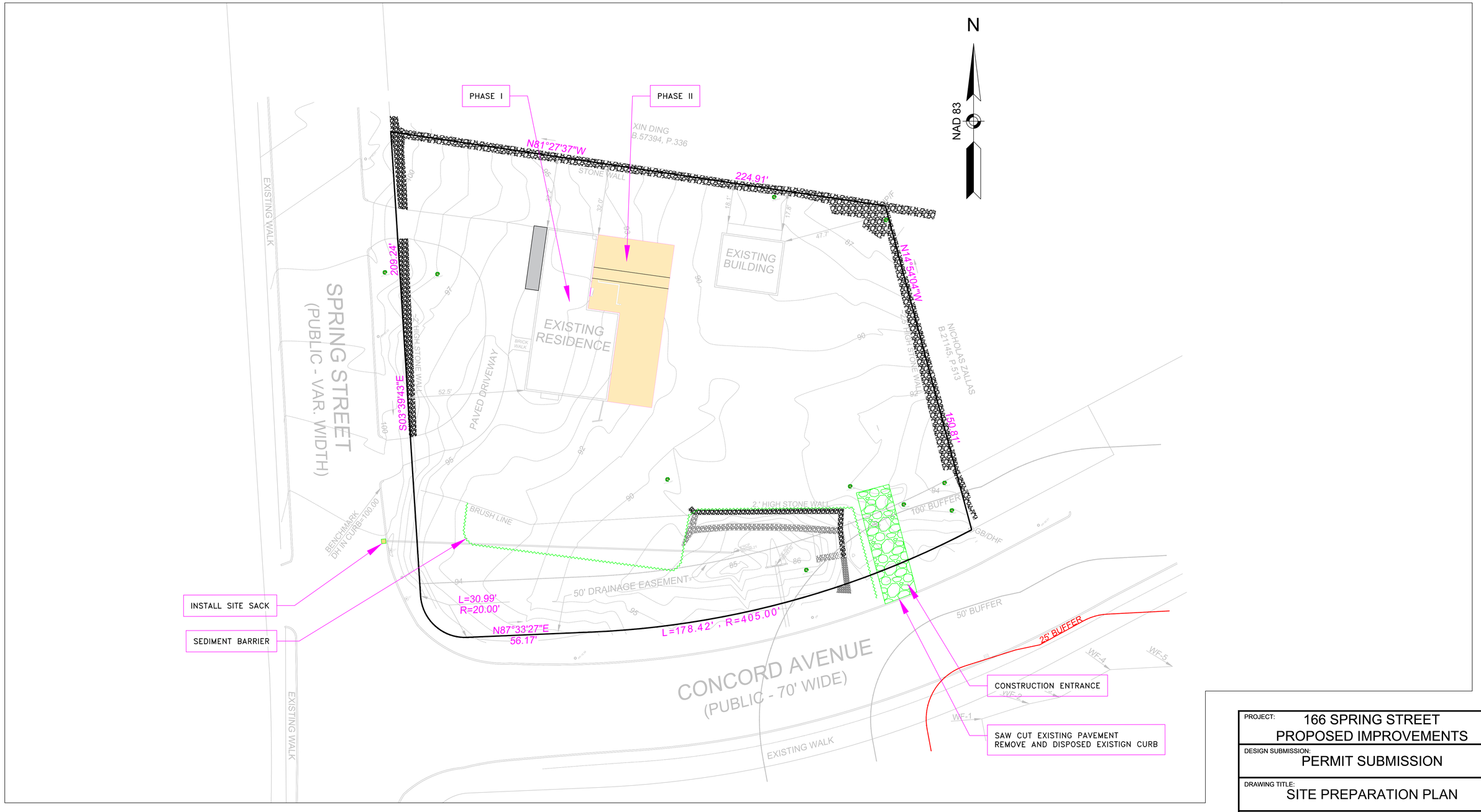
NO.	DATE	REVISIONS

PREPARED BY:
BCD DESIGN GROUP
ISAM HIJAZI
617-799-1133

SCALE: AS NOTED
DATE: 2/24/2025
PROJECT NO. 24-001

DESIGNED BY: EY
DRAWN BY: EY
CHECKED BY: IH

SHEET NO. 1 OF 10



PROJECT: 166 SPRING STREET
PROPOSED IMPROVEMENTS

DESIGN SUBMISSION: PERMIT SUBMISSION

DRAWING TITLE: SITE PREPARATION PLAN

PREPARED FOR:
MACCLM
344 LOWELL
LEXINGTON, MASSACHUSETTS

PREPARED BY:
BCD DESIGN GROUP
ISAM HIJAZI
617-799-1133

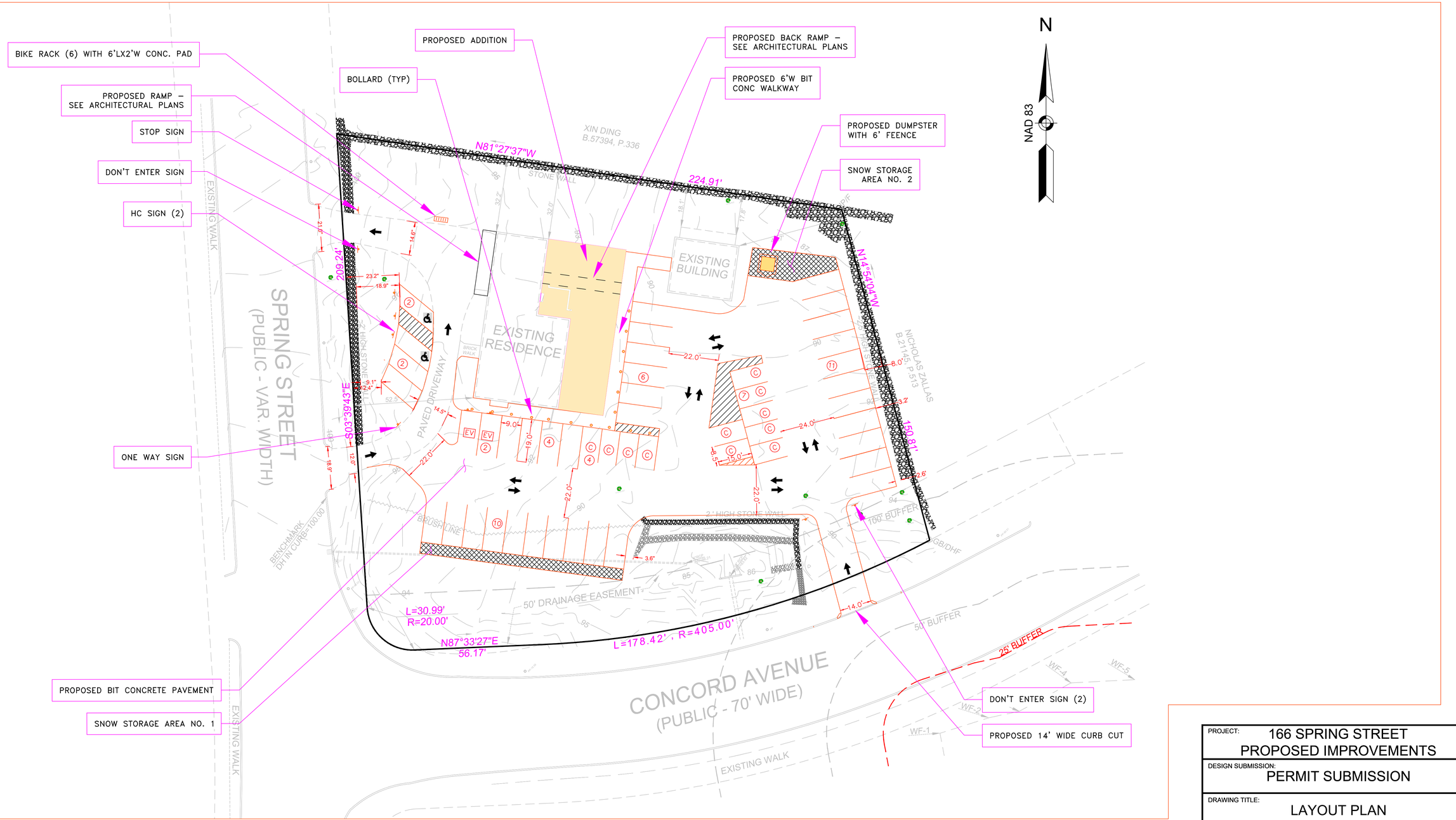
ADEL M. SHAHIN
CIVIL
No. 41054
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

NO.	DATE	REVISIONS

SCALE: AS NOTED
DATE: 2/24/2025
PROJECT NO. 24-001

DESIGNED BY: EY
DRAWN BY: EY
CHECKED BY: IH

SHEET NO. 2 OF 10



PROJECT: 166 SPRING STREET
PROPOSED IMPROVEMENTS

DESIGN SUBMISSION: PERMIT SUBMISSION

DRAWING TITLE: LAYOUT PLAN

PREPARED FOR:
MACCLM
344 LOWELL
LEXINGTON, MASSACHUSETTS

PREPARED BY:
BCD DESIGN GROUP
ISAM HIJAZI
617-799-1133

COMMONWEALTH OF MASSACHUSETTS
ADEL M. SHAHIN
CIVIL
No. 41854
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS

SCALE: AS NOTED
DATE: 2/24/2025
PROJECT NO. 24-001

DESIGNED BY: EY
DRAWN BY: EY
CHECKED BY: IH

SHEET NO. 3 OF 10

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SCALE: 1" = 20'

ADEL M. SHAHIN
CIVIL
No. 41054
REGISTERED
PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

NO.	DATE	REVISIONS

PROJECT: 166 SPRING STREET
PROPOSED IMPROVEMENTS

DESIGN SUBMISSION:
PERMIT SUBMISSION

DRAWING TITLE:
GRADING PLAN

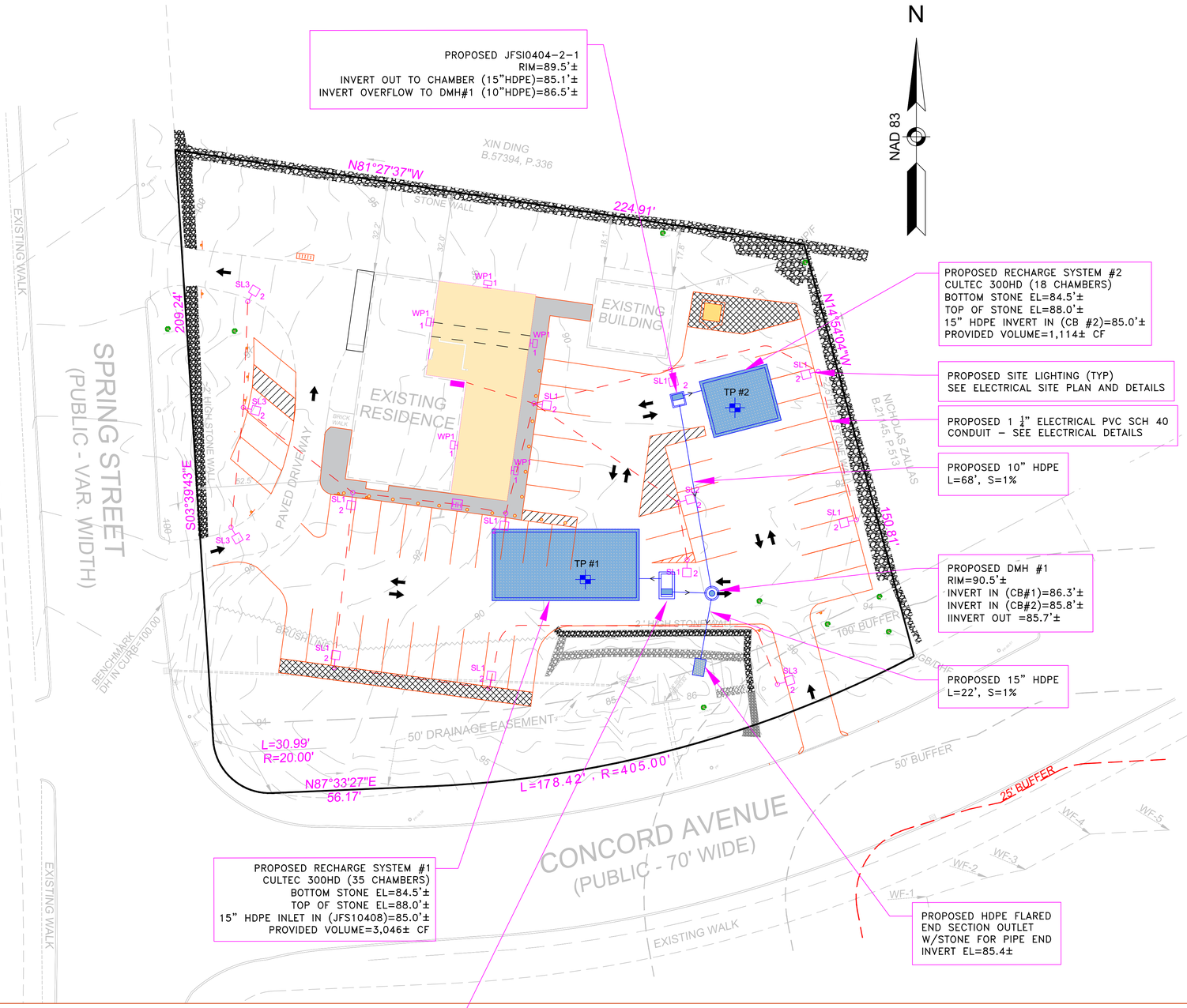
PREPARED FOR:
MACCLM
344 LOWELL
LEXINGTON, MASSACHUSETTS

PREPARED BY:
BCD DESIGN GROUP
ISAM HIJAZI
617-799-1133

SCALE: AS NOTED
DATE: 2/24/2025
PROJECT NO. 24-001

DESIGNED BY: EY
DRAWN BY: EY
CHECKED BY: IH

SHEET NO. 4 OF 10



PROJECT: 166 SPRING STREET
PROPOSED IMPROVEMENTS

DESIGN SUBMISSION: PERMIT SUBMISSION

DRAWING TITLE: UTILITY & DRAINAGE PLAN

PREPARED FOR:
MACCLM
344 LOWELL
LEXINGTON, MASSACHUSETTS

PREPARED BY:
BCD DESIGN GROUP
ISAM HIJAZI
617-799-1133

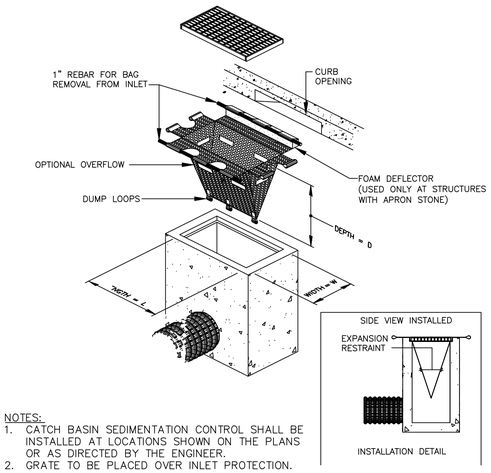
COMMONWEALTH OF MASSACHUSETTS
ADEL M. SHAHIN
CIVIL
No. 41054
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS

SCALE: AS NOTED
DATE: 2/24/2025
PROJECT NO. 24-001

DESIGNED BY: EY
DRAWN BY: EY
CHECKED BY: IH

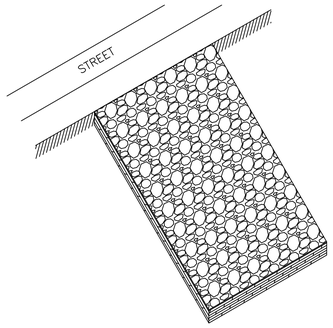
SHEET NO. 5 OF 10



NOTES:
1. CATCH BASIN SEDIMENTATION CONTROL SHALL BE INSTALLED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
2. GRATE TO BE PLACED OVER INLET PROTECTION.
3. INLET PROTECTION SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.

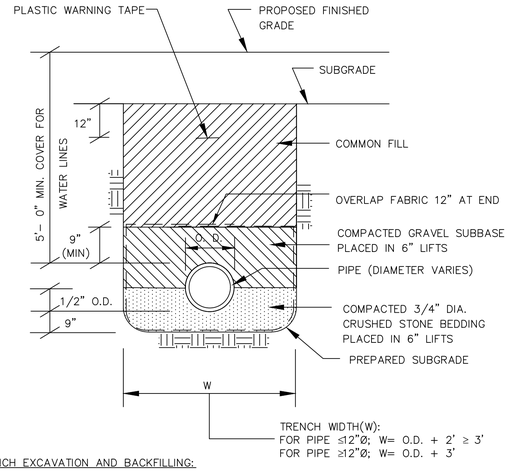
INLET PROTECTION FILTER BAG

NOT TO SCALE



TEMPORARY CONSTRUCTION ENTRANCE

NOT TO SCALE

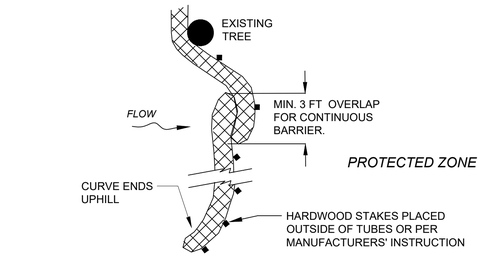


TRENCH EXCAVATION AND BACKFILLING:

1. EXCAVATE TRENCH BOTTOMS AS INDICATED. REMOVE STONES AND SHARP OBJECTS TO AVOID POINT LOADING. PLACE CRUSHED STONE PIPE BEDDING AS INDICATED.
2. PLACE AND COMPACT INITIAL BACKFILL OF SAND–GRAVEL MATERIAL, FREE OF PARTICLES GREATER THAN 1 INCH, TO A HEIGHT OF 12" ABOVE THE UTILITY LINE OR CONDUIT.
3. CAREFULLY COMPACT MATERIAL UNDER PIPE HAUNCHES AND BACKFILL EVENLY ON BOTH SIDES ALONG FULL LENGTH OF LINE TO AVOID DAMAGE OR DISPLACEMENT OF UTILITY SYSTEM.
4. COMPACT TRENCH BACKFILL IN 6" LIFTS WITH A HAND OPERATED (VIBRATOR PLATE) TAMPER AS FOLLOWS: UNDER PAVEMENT AND STRUCTURES; TO 95% MAX. DRY DENSITY PER ASTM D1557. UNDER LAWNS; 90% MAXIMUM DRY DENSITY PER ASTM D1557.

TYPICAL PIPE TRENCH DETAIL

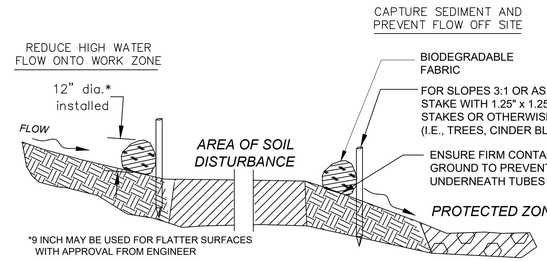
NOT TO SCALE



PLACE TUBE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE, ALONG CONTOURS, AND PERPENDICULAR TO FLOW.

ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLAN VIEW

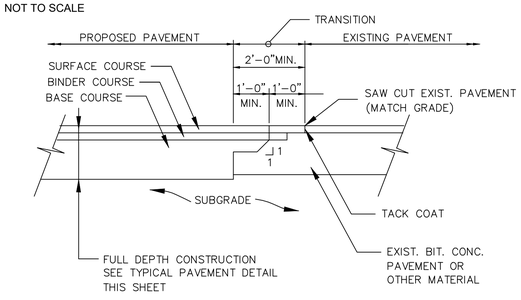


*9 INCH MAY BE USED FOR FLATTER SURFACES WITH APPROVAL FROM ENGINEER

SECTION

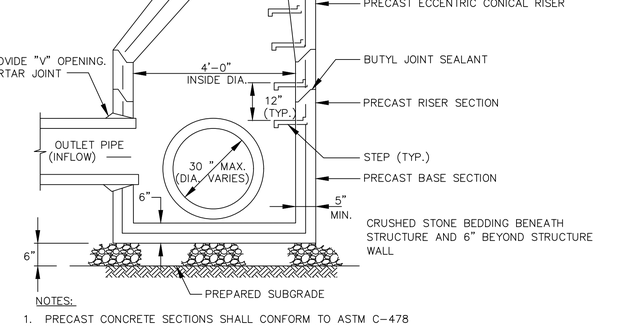
SEDIMENT BARRIER - COMPOST FILTER TUBE

NOT TO SCALE



TYPICAL SAW CUT DETAIL

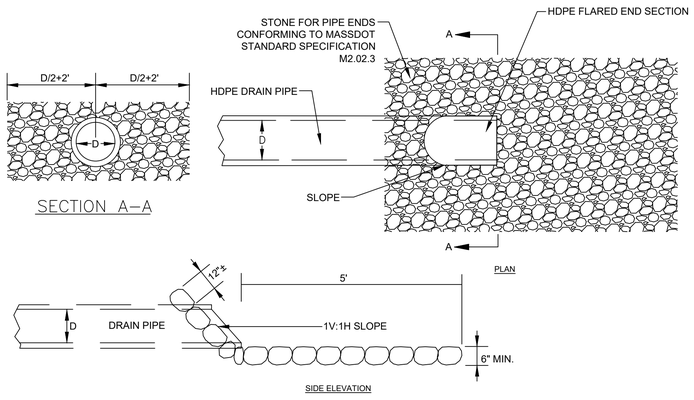
NOT TO SCALE



NOTES:
1. PRECAST CONCRETE SECTIONS SHALL CONFORM TO ASTM C–478
2. STEEL REINFORCING SHALL CONFORM TO ASTM A185
3. MANHOLE STEPS SHALL BE 14" WIDE STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC AND SHALL BE CAST INTO MANHOLE SECTIONS BY THE PRECAST MANHOLE MANUFACTURER
4. STRUCTURE SHALL MEET H–20 LOADING.

TYPICAL PRECAST CONCRETE DRAIN MANHOLE DETAIL

NOT TO SCALE



FLARED END SECTION DETAIL

NOT TO SCALE

0 20 50 100

SCALE: 1" = 20'

PROJECT: 166 SPRING STREET PROPOSED IMPROVEMENTS

DESIGN SUBMISSION: PERMIT SUBMISSION

DRAWING TITLE: SITE WORK DETAILS I

PREPARED FOR:
MACCLM
344 LOWELL
LEXINGTON, MASSACHUSETTS

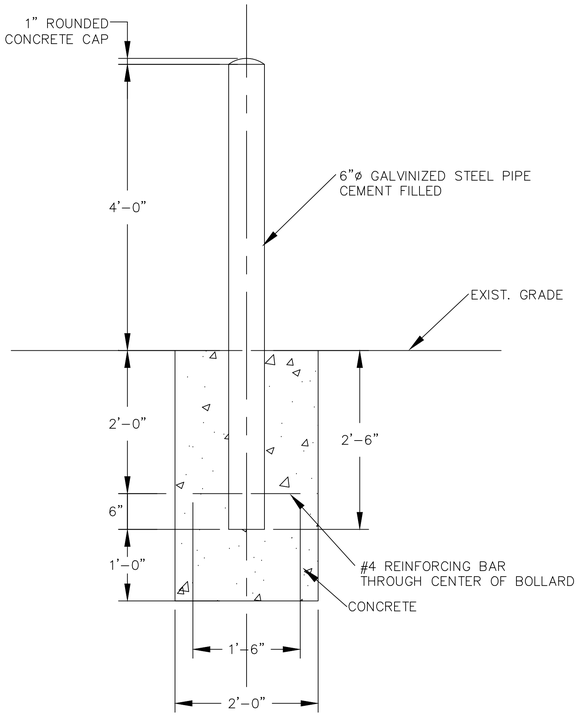
PREPARED BY:

COMMONWEALTH OF MASSACHUSETTS
ADEL M. SHAHIN
CIVIL
No. 41554
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS

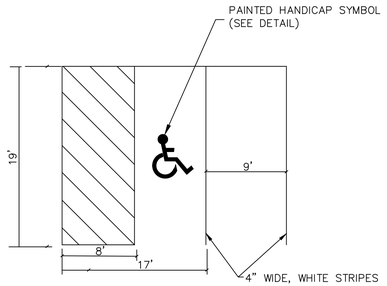
SCALE: AS NOTED
DATE: 2/24/2025
PROJECT NO. 24-001
DESIGNED BY: EY
DRAWN BY: EY
CHECKED BY: IH

SHEET NO. 6 OF 10



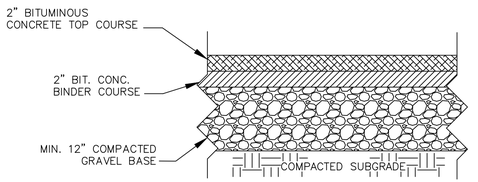
TYPICAL BOLLARD DETAIL

NOT TO SCALE



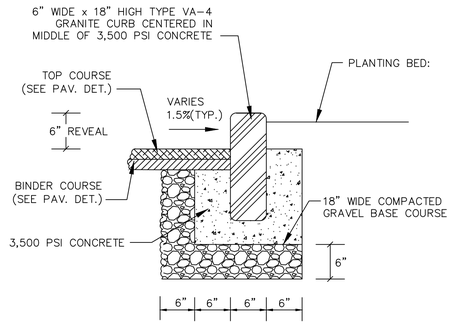
TYPICAL PARKING STALL STRIPING

NOT TO SCALE



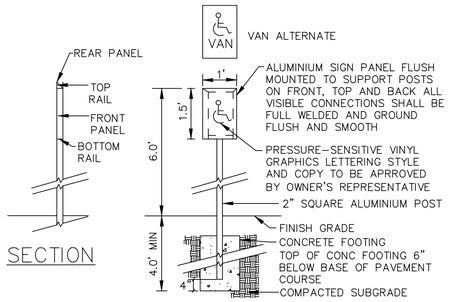
BITUMINOUS CONCRETE PAVEMENT

NOT TO SCALE



VERTICAL GRANITE CURB

NOT TO SCALE



SECTION

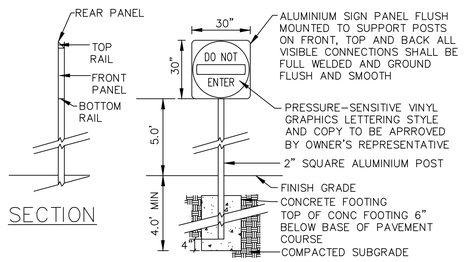
NOTE: ALL HANDICAP SIGNS MUST MEET 2009 MUTCD.

HANDICAP SIGN

NOT TO SCALE

PAINTED HANDICAP SYMBOL

NOT TO SCALE



SECTION

NOTE: ALL DO NOT ENTER SIGNS MUST MEET 2009 MUTCD.

DO NOT ENTER SIGN

NOT TO SCALE

0 20 50 100

SCALE: 1" = 20'

COMMONWEALTH OF MASSACHUSETTS
ADEL M. SHAHIN
CIVIL
No. 41054
REGISTERED
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS

PROJECT: 166 SPRING STREET
PROPOSED IMPROVEMENTS

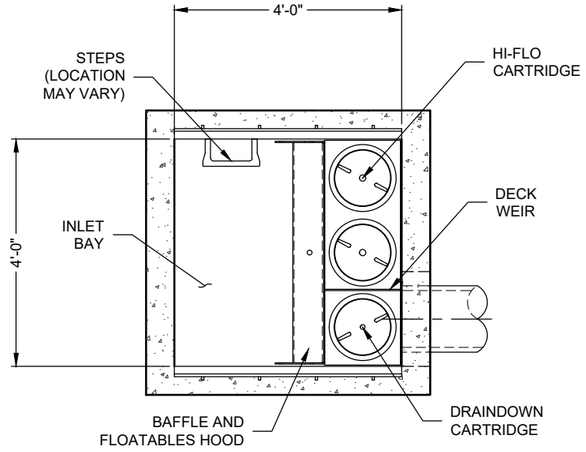
DESIGN SUBMISSION:
PERMIT SUBMISSION

DRAWING TITLE:
SITE WORK DETAILS II

PREPARED FOR:
MACCLM
344 LOWELL
LEXINGTON, MASSACHUSETTS

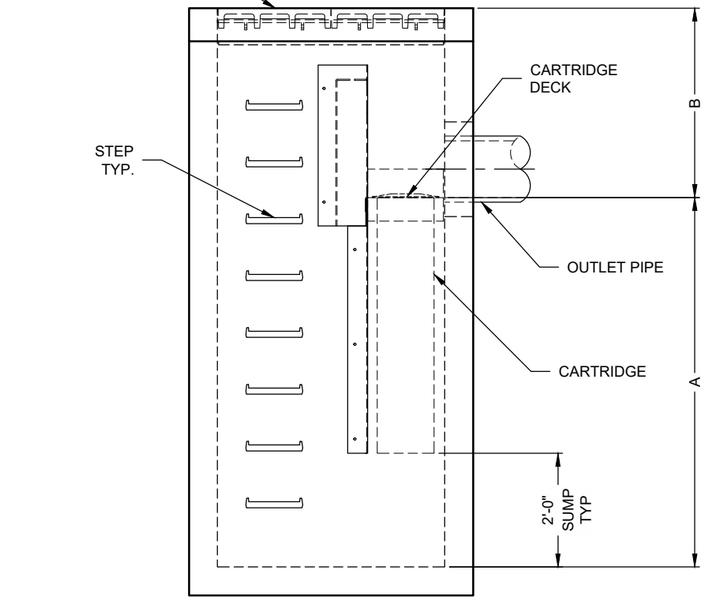
PREPARED BY:

SCALE: AS NOTED	DESIGNED BY: EY	SHEET NO.
DATE: 2/24/2025	DRAWN BY: EY	7 OF 10
PROJECT NO. 24-001	CHECKED BY: IH	



PLAN VIEW

(TOP SLAB NOT SHOWN FOR CLARITY)



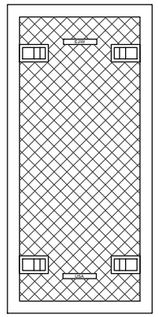
ELEVATION VIEW

JELLYFISH DESIGN NOTES

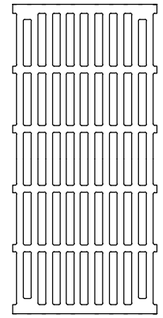
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD SURFACE INLET STYLE WITH TRENCH GRATE AND COVER IS SHOWN. ALTERNATE CURB INLET OR PIPE INLET OPTIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HIGH-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	0.45	0.33	0.22	0.12
OUTLET INVERT TO RIM (MIN) (B)	3'-4"	3'-4"	3'-4"	3'-4"



24"
TRENCH COVER
N.T.S.



24"
TRENCH GRATE
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	*
CARTRIDGE LENGTH	*

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION AND SITE SPECIFIC EARTH COVER REQUIREMENT. TYPICAL CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE (WHERE APPLICABLE) AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

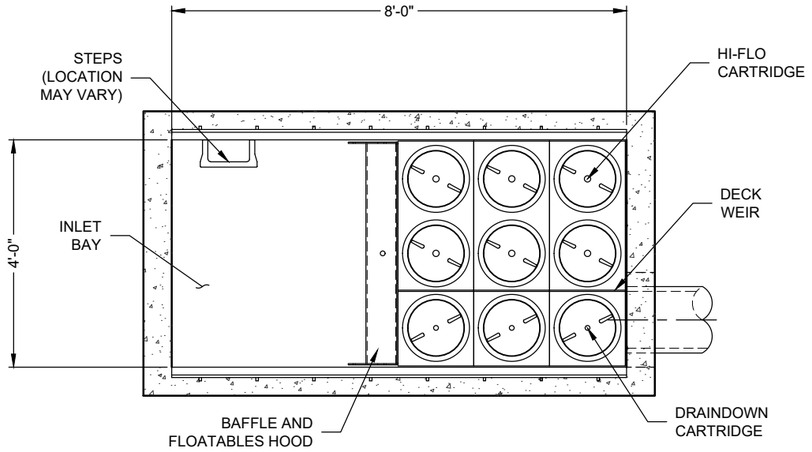
INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish Filter

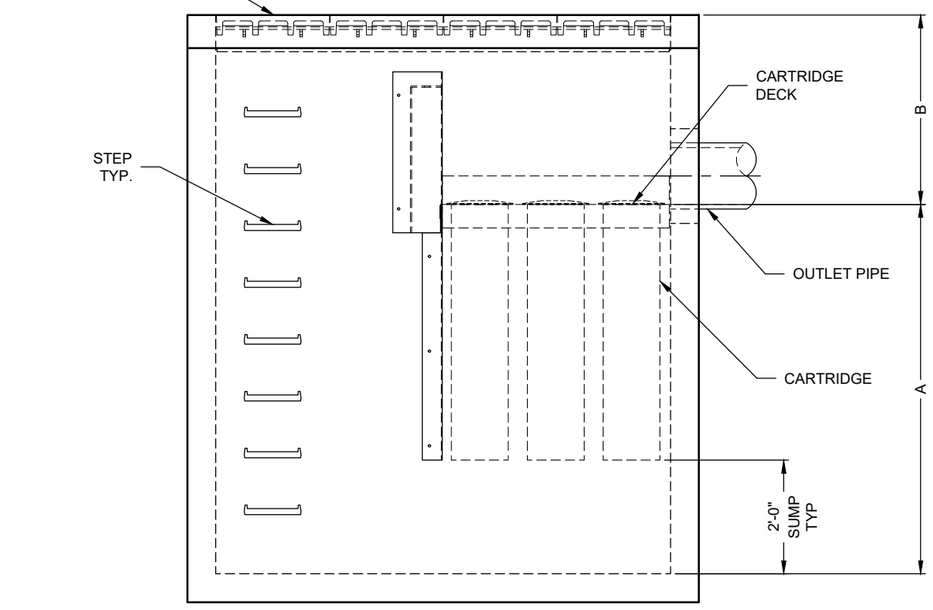
CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFSI0404
STANDARD DETAIL
SURFACE INLET CONFIGURATION



PLAN VIEW

(TOP SLAB NOT SHOWN FOR CLARITY)



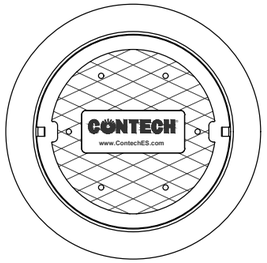
ELEVATION VIEW

JELLYFISH DESIGN NOTES

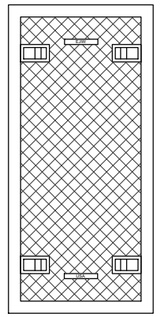
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD SURFACE INLET STYLE WITH TRENCH GRATE AND COVER IS SHOWN. ALTERNATE CURB INLET, PIPE INLET, OR SLAB TOP WITH EARTH COVER OPTIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SELECTION

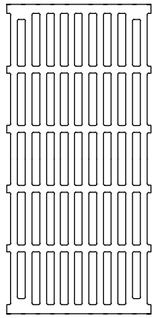
CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HIGH-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	1.34	1.00	0.67	0.37
OUTLET INVERT TO RIM (MIN) (B)	3'-4"	3'-4"	3'-4"	3'-4"



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



24"
TRENCH COVER
N.T.S.



24"
TRENCH GRATE
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	*
CARTRIDGE LENGTH	*

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION AND SITE SPECIFIC EARTH COVER REQUIREMENT. TYPICAL CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE (WHERE APPLICABLE) AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES

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B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish Filter

CONTECH
ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFSI0408
STANDARD DETAIL
SURFACE INLET CONFIGURATION

CULTEC RECHARGER® 300HD SPECIFICATIONS

GENERAL

CULTEC RECHARGER® 300HD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS

1. THE CHAMBERS SHALL BE MANUFACTURED IN THE U.S.A. BY CULTEC, OF BROOKFIELD, CT (CULTEC.COM, 203-775-4416).
2. THE CHAMBERS SHALL BE DESIGNED AND TESTED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". THE LOAD CONFIGURATION SHALL INCLUDE:
   A. INSTANTANEOUS AASHTO DESIGN TRUCK LIVE LOAD AT MINIMUM COVER
   B. MAXIMUM PERMANENT (50-YEAR) COVER LOAD
   C. 1-WEEK PARKED AASHTO DESIGN TRUCK LOAD
3. THE CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12, WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS. THE STRUCTURAL DESIGN OF THE CHAMBERS SHALL INCLUDE THE FOLLOWING:
   A. THE CREEP MODULUS SHALL BE 50-YEAR AS SPECIFIED IN ASTM F2418
   B. THE MINIMUM SAFETY FACTOR FOR LIVE LOADS SHALL BE 1.75
   C. THE MINIMUM SAFETY FACTOR FOR DEAD LOADS SHALL BE 1.95
5. THE INSTALLED CHAMBER SYSTEM SHALL BE STRUCTURALLY DESIGNED TO PROVIDE RESISTANCE TO LIVE LOADS AS DEFINED BY THE AASHTO H-20/HL-93 SPECIFICATION WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
6. THE CHAMBER SHALL BE INJECTION MOLDED OF BLUE VIRGIN IMPACT-MODIFIED POLYPROPYLENE.
7. THE CHAMBER SHALL BE ARCHED IN SHAPE.
8. THE CHAMBER SHALL BE OPEN-BOTTOMED.
9. THE CHAMBER SHALL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS.
10. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER® 300HD SHALL BE 30 INCHES (762 MM) TALL, 51 INCHES (1295 MM) WIDE AND 90.5 INCHES (2299 MM) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER® 300HD SHALL BE 7.08 FEET (2.159 M).
11. MULTIPLE CHAMBERS MAY BE CONNECTED TO FORM DIFFERENT LENGTH ROWS. EACH ROW SHALL BEGIN AND END WITH A SEPARATELY FORMED CULTEC RECHARGER® 300HD END CAP. MAXIMUM INLET OPENING ON THE END CAP IS 24 INCHES (600 MM) HDPE.
12. THE CHAMBER SHALL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV™ FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. MAXIMUM ALLOWABLE PIPE SIZE IN THE SIDE PORTAL IS 10 INCHES (250 MM) HDPE AND 12 INCHES (300 MM) PVC.
13. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV™ FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 MM) TALL, 16 INCHES (406 MM) WIDE AND 24.2 INCHES (615 MM) LONG.
14. THE NOMINAL STORAGE VOLUME OF THE RECHARGER® 300HD CHAMBER SHALL BE 6.53 FT³ / FT (.607 M³ / M) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER® 300HD SHALL BE 46.27 FT³ / UNIT (1.310 M³ / UNIT) - WITHOUT STONE.
15. THE RECHARGER 300HD CHAMBER SHALL HAVE 14 CORRUGATIONS.
16. THE CHAMBER SHALL BE CAPABLE OF ACCEPTING A 6 INCH (150 MM) INSPECTION PORT OPENING AT THE TOP CENTER OF EACH CHAMBER, CENTERED ON THE CORRUGATION CREST.
17. THE CHAMBER SHALL BE MANUFACTURED IN A FACILITY EMPLOYING CULTEC'S QUALITY CONTROL AND ASSURANCE PROCEDURES.
18. MAXIMUM ALLOWABLE COVER OVER THE TOP OF THE CHAMBER SHALL BE 12.0 FEET (3.66 M).

END CAP PARAMETERS

1. THE CULTEC RECHARGER® 300HD END CAP (REFERRED TO AS 'END CAP') SHALL BE MANUFACTURED IN THE U.S.A. BY CULTEC, OF BROOKFIELD, CT (CULTEC.COM, 203-775-4416).
2. THE END CAP SHALL BE INJECTION MOLDED OF BLUE VIRGIN IMPACT-MODIFIED POLYETHYLENE COPOLYMERS.
3. THE END CAP SHALL BE ARCHED IN SHAPE.
4. THE END CAP SHALL BE JOINED AT THE BEGINNING AND END OF EACH ROW OF CHAMBERS USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS.
5. THE NOMINAL DIMENSIONS OF THE END CAP SHALL BE 29.3 INCHES (744 MM) TALL, 45.9 INCHES (1166 MM) WIDE AND 12.2 INCHES (310 MM) LONG. WHEN JOINED WITH A RECHARGER 300HD CHAMBER, THE INSTALLED LENGTH OF THE END CAP SHALL BE 9.6 INCHES (244 MM).THE NOMINAL STORAGE VOLUME OF THE END CAP SHALL BE 3.32 FT³/ FT (0.31 M³ / M) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF AN INTERLOCKED END CAP SHALL BE 2.66 FT³ / UNIT (0.08 M³ / UNIT) - WITHOUT STONE.
6. MAXIMUM INLET OPENING ON THE END CAP IS 24 INCHES (600 MM) HDPE.
7. THE CHAMBER SHALL BE MANUFACTURED IN A FACILITY EMPLOYING CULTEC'S QUALITY CONTROL AND ASSURANCE PROCEDURES.
8. THE END CAP SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12.

CULTEC HVLV FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS

GENERAL

CULTEC HVLV FC-24 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER MODEL 300HD STORMWATER CHAMBERS.

CHAMBER PARAMETERS

1. THE CHAMBERS SHALL BE MANUFACTURED IN THE U.S.A. BY CULTEC, OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR SHALL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
7. THE HVLV FC-24 FEED CONNECTOR CHAMBER SHALL HAVE 2 CORRUGATIONS.
8. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2015 CERTIFIED FACILITY.

CULTEC NO. 410™ NON-WOVEN GEOTEXTILE

CULTEC NO. 410™ NON-WOVEN GEOTEXTILE MAY BE USED WITH CULTEC CONTACTOR® AND RECHARGER® STORMWATER INSTALLATIONS TO PROVIDE A BARRIER THAT PREVENTS SOIL INTRUSION INTO THE STONE.

GEOTEXTILE PARAMETERS

1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TYPICAL WEIGHT OF 4.5 OZ/SY (142 G/M).
4. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH VALUE OF 120 LBS (533 N) PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE AN ELONGATION @ BREAK VALUE OF 50% PER ASTM D4632 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A MULLEN BURST VALUE OF 225 PSI (1551 KPA) PER ASTM D3786 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE STRENGTH VALUE OF 65 LBS (289 N) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE VALUE OF 340 LBS (1513 N) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A TRAPEZOID TEAR VALUE OF 50 LBS (222 N) PER ASTM D4533 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A AOS VALUE OF 70 U.S. SIEVE (0.212 MM) PER ASTM D4751 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY VALUE OF 1.7 SEC-1 PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATE VALUE OF 135 GAL/MIN/SF (5500 L/MIN/SM) PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A UV STABILITY @ 500 HOURS VALUE OF 70% PER ASTM D4355 TESTING METHOD.

CULTEC AFAB-HPF™ WOVEN GEOTEXTILE

CULTEC AFAB-HPF WOVEN GEOTEXTILE IS DESIGNED AS A UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE. IT MAY ALSO BE USED AS A COMPONENT OF THE CULTEC SEPARATOR ROW TO ACT AS A BARRIER TO PREVENT SOIL/CONTAMINANT INTRUSION INTO THE STONE WHILE ALLOWING FOR MAINTENANCE AND TSS REMOVAL.

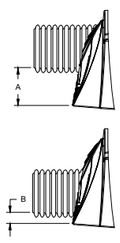
GEOTEXTILE PARAMETERS

1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK AND WHITE IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 320 X 320 LBS (1,420 X 1,420 N) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A ELONGATION @ BREAK RESISTANCE OF 15 X 15% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE OF 3,563 X 3,563 LBS/FT (52 X 52 KN/M) PER ASTM D4595 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 1,500 LBS (6,670 N) PER ASTM D6241 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A TRAPEZOIDAL TEAR RESISTANCE OF 120 X 120 LBS (540 X 540 N) PER ASTM D4533 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 30 US STD. SIEVE (0.60 MM) PER ASTM D4751 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.2 SEC-1 PER ASTM D4491 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 22 GPM/FT2 (900 LPM/M2) PER ASTM D4491 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 70% @ 500 HRS. PER ASTM D4355 TESTING METHOD.

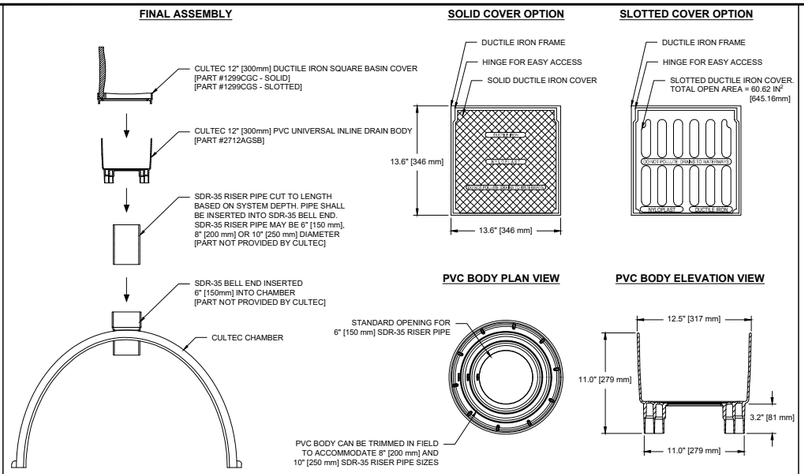
GENERAL NOTES

PIPE	A	B
6" [150 mm]	18.50" [470 mm]	0.50" [13 mm]
8" [200 mm]	16.50" [420 mm]	0.75" [20 mm]
10" [250 mm]	14.50" [369 mm]	1.00" [26 mm]
12" [300 mm]	12.50" [318 mm]	1.25" [32 mm]
15" [375 mm]	9.00" [229 mm]	1.50" [39 mm]
18" [450 mm]	5.00" [127 mm]	1.75" [45 mm]
24" [600 mm]	N/A	2.50" [64 mm]

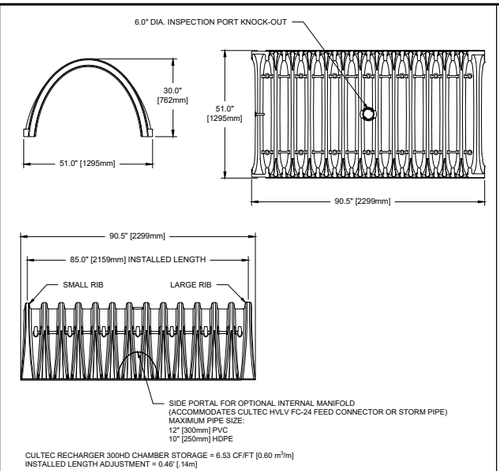
*THE TYPICAL INVERT TABLE ABOVE IS BASED ON THE INSIDE DIAMETER OF STANDARD CORRUGATED PLASTIC PIPE. THE HEAVY DUTY END CAP HAS PRE-MARKED TRIM LINES FOR PIPE DIAMETERS 6" (150mm), 8" (200mm), 10" (250mm), 12" (300mm), 15" (375mm), 18" (450mm) AND 24" (600mm). PIPES OF ANY SIZE AND MATERIAL UP TO 24" (600mm) MAY BE PLACED AT CUSTOM LOCATIONS AND CUSTOM INVERTS. THE CROWN OF THE PIPE MUST REMAIN A MINIMUM OF 3" (75mm) FROM THE EDGE OF THE HEAVY DUTY END CAP.



CULTEC RECHARGER 300HD TYPICAL PIPE INVERTS

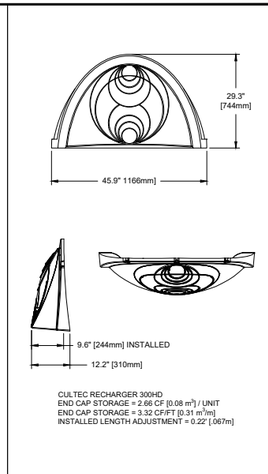


CULTEC UNIVERSAL INSPECTION PORT KIT DETAIL



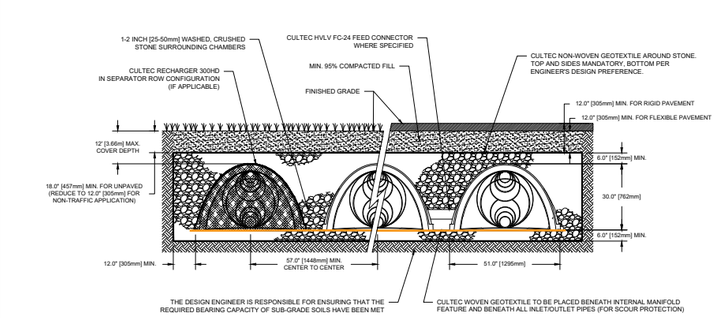
CULTEC RECHARGER 300HD CHAMBER STORAGE = 6.53 CF/FT [0.60 m³/m]
INSTALLED LENGTH ADJUSTMENT = 0.46' [.14m]

CULTEC RECHARGER 300HD HEAVY DUTY THREE VIEW



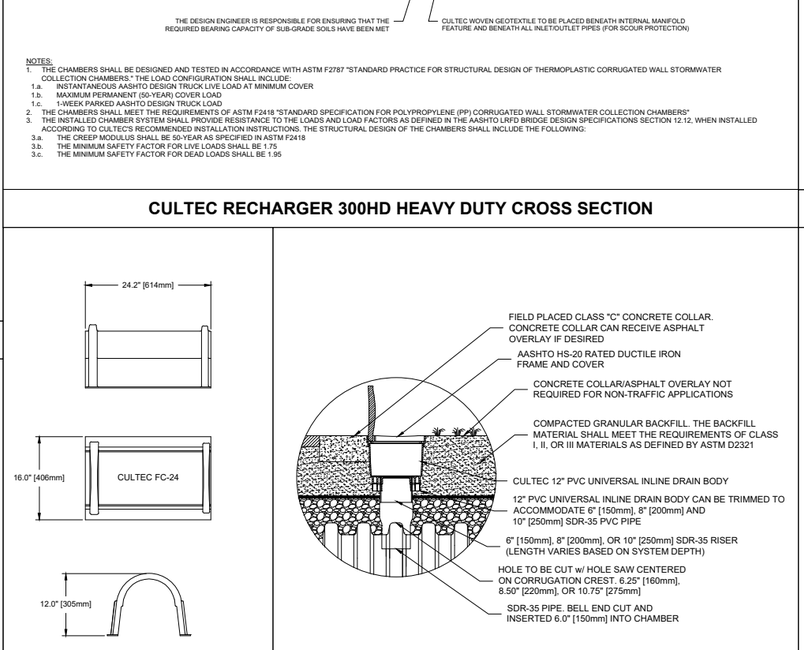
CULTEC RECHARGER 300HD
END CAP STORAGE = 2.66 CF [0.08 m³] / UNIT
END CAP STORAGE = 3.32 CF/FT [0.31 m³/m]
INSTALLED LENGTH ADJUSTMENT = 0.22' [.067m]

CULTEC RECHARGER 300HD HEAVY DUTY END CAP THREE VIEW



NOTES:
1. THE CHAMBERS SHALL BE DESIGNED AND TESTED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS." THE LOAD CONFIGURATION SHALL INCLUDE:
   1.a. INSTANTANEOUS AASHTO DESIGN TRUCK LIVE LOAD AT MINIMUM COVER
   1.b. MAXIMUM PERMANENT (50-YEAR) COVER LOAD
   1.c. 1-WEEK PARKED AASHTO DESIGN TRUCK LOAD
2. THE CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"
3. THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12, WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS. THE STRUCTURAL DESIGN OF THE CHAMBERS SHALL INCLUDE THE FOLLOWING:
   3.a. THE CREEP MODULUS SHALL BE 50-YEAR AS SPECIFIED IN ASTM F2418
   3.b. THE MINIMUM SAFETY FACTOR FOR LIVE LOADS SHALL BE 1.75
   3.c. THE MINIMUM SAFETY FACTOR FOR DEAD LOADS SHALL BE 1.95

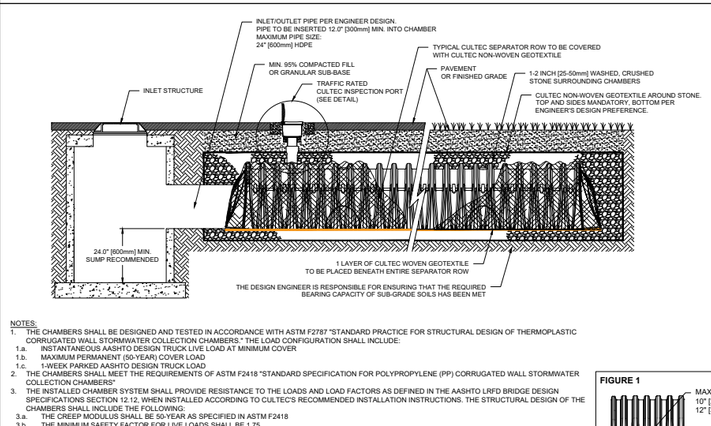
CULTEC RECHARGER 300HD HEAVY DUTY CROSS SECTION



CULTEC RECHARGER 300HD HEAVY DUTY TYPICAL INTERLOCK

CULTEC HVLV FC-24 FEED CONNECTOR THREE VIEW

OPTIONAL CULTEC INSPECTION PORT - ZOOM DETAIL



NOTES:
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   1.a. INSTANTANEOUS AASHTO DESIGN TRUCK LIVE LOAD AT MINIMUM COVER
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   1.c. 1-WEEK PARKED AASHTO DESIGN TRUCK LOAD
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3. THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12, WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS. THE STRUCTURAL DESIGN OF THE CHAMBERS SHALL INCLUDE THE FOLLOWING:
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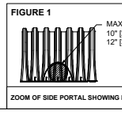
   3.b. THE MINIMUM SAFETY FACTOR FOR LIVE LOADS SHALL BE 1.75
   3.c. THE MINIMUM SAFETY FACTOR FOR DEAD LOADS SHALL BE 1.95

FIGURE 1



ZOOM OF SIDE PORTAL SHOWING MAX. PIPE O.D.

CULTEC SEPARATOR ROW - CULTEC INSPECTION PORT DETAIL (IF APPLICABLE)

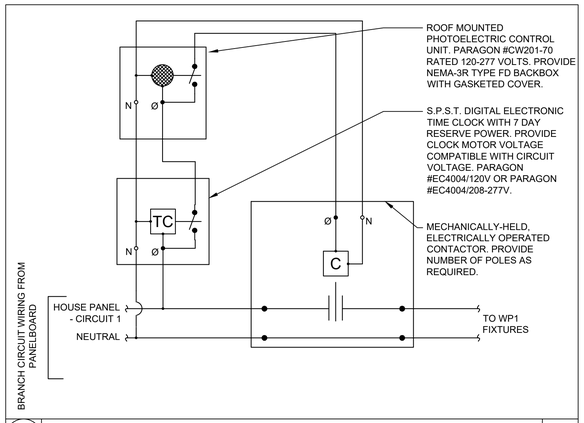
CULTEC STORMWATER CHAMBER

PROJECT NO:	-	DESIGNED BY:	TECH
DATE:	06/2024	CHECKED BY:	DPG
SCALE:	N.T.S.	SHEET NO:	1 OF 1

RECHARGER 300HD
DETAIL SHEET

CULTEC
Subsurface Stormwater Management Systems
P.O. Box 280
878 Federal Road
Brookfield, CT 06804
www.cultec.com
PH: 1(203) 775-4416
PH: 1(800) 4-CULTEC
CT-tech@cultec.com

1.02



1 TYPICAL TIMECLOCK "OFF", PHOTOCELL "ON" WIRING NTS

PLAN SYMBOLS – ELECTRICAL

SL1 SITE LIGHTING LUMINAIRE TYPE SL1 AND POLE
LUMINAIRE SHALL BE BEACON #VP-1-160L-35-3K7-4W-HSS-90-B
POLE SHALL BE BEACON #RSS-B-9/11-4-A-1-UDP-RBC

SL2 SITE LIGHTING LUMINAIRE TYPE SL2 AND POLE
LUMINAIRE SHALL BE BEACON #VP-1-160L-35-3K7-5QW
POLE SHALL BE BEACON #RSS-B-9/11-4-A-1-UDP-RBC

SL3 SITE LIGHTING LUMINAIRE TYPE SL3 AND POLE
LUMINAIRE SHALL BE BEACON #VP-1-160L-35-3K7-3-BC
POLE SHALL BE BEACON #RSS-B-9/11-4-A-1-UDP-RBC

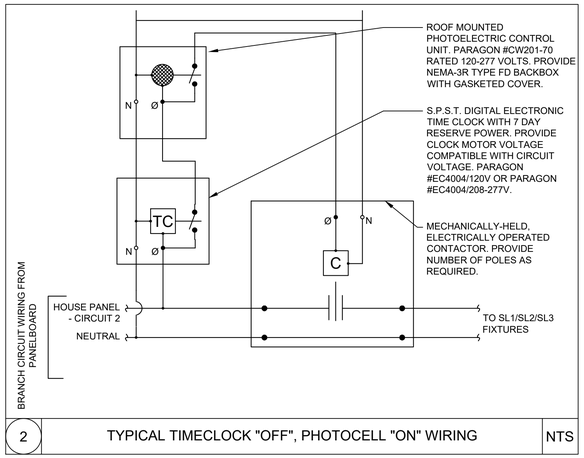
POLE NOTE: PROVIDE POLE HEIGHTS FOR LUMINAIRES TO HAVE A MOUNTING HEIGHT OF 12-FEET ABOVE FINISHED GRADE (AFG). DIFFERENT POLE HEIGHTS WILL BE REQUIRED TO BE ORDERED. COORDINATE POLE HEIGHTS WITH ASSOCIATED CONCRETE BASE HEIGHTS PRIOR TO ORDERING POLES.

WP1 WALL PACK LUMINAIRE TYPE WP1
LUMINAIRE SHALL BE BEACON #QSP1-24L-20-3K7-3-UNV
MOUNTED AT 10-FT AFG

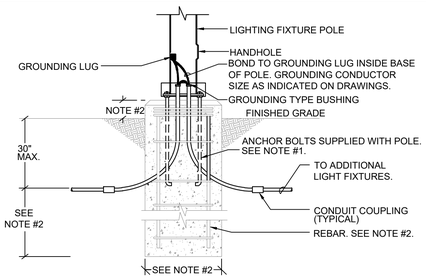
HH HANDHOLE – PROVIDE QUANTITY AND LOCATIONS AS NEEDED. HUBBELL QUAZITE TYPE SIZED AND RATED AS REQUIRED

ELECTRICAL SITE PLAN NOTES

1. CONTRACTOR SHALL COORDINATE SITE POLE LAYOUTS, HANDHOLE LOCATIONS AND CONDUIT RUNS WITH CIVIL DRAWINGS.
2. ALL CONDUITS PENETRATING INTO THE BUILDING SHALL BE SEALED WITH THRU-WALL FITTINGS.
3. ALL SITE LIGHTING POLE FIXTURES SHALL BE PROVIDED WITH CONCRETE BASES AND WITH MINIMUM 2#10 & 1#10G IN 1 1/4" C. FOR BRANCH CIRCUIT WIRING.
4. CONCRETE BASES SHALL BE PROVIDED FOR ALL SITE POLES. COORDINATE BASES SIZES WITH POLE BOLT LAYOUT FROM POLE MANUFACTURER. CONCRETE BASES SHALL BE 12" ABOVE FINISHED GRADE (AFG) IN NON-DRIVING AREAS AND 36" AFG IN DRIVING AREAS AS NOTED ON SITE PLAN.
5. CONTRACTOR SHALL PROVIDE HANDHOLES AS REQUIRED FOR EXTERIOR UNDERGROUND BRANCH CIRCUIT WIRING. HANDHOLES SHALL BE RATED FOR VEHICLE TRAFFIC PER FIELD CONDITIONS AND SIZED AS REQUIRED.
6. ALL MATERIALS UNDERGROUND SHALL BE NON-METALLIC TYPE INCLUDING ALL ACCESSORIES AND HARDWARE. CONDUIT SHALL BE SCHEDULE 40 PVC DIRECT BURIED IN DEPTHS AS REQUIRED PER THE NATIONAL ELECTRIC CODE. PROVIDE COMPACTED CLEAN FILL FOR DIRECT BURIED TRENCHES.
7. SITE LIGHTING POLE FIXTURES AND WALLPACK FIXTURES SHALL BE CONTROLLED BY A TIMECLOCK/PHOTOCELL. PROVIDE 24/7 PROGRAMMABLE DIGITAL TIMECLOCK AND PHOTOCELL MOUNTED ON BUILDING. PROVIDE SEPARATE CONTROL FOR SITE POLE LIGHTING (FIXTURES SL1/SL2/SL3) AND FOR BUILDING WALLPACK FIXTURES (WP1) TO ALLOW DIFFERENT SCHEDULE CONTROL. TIMECLOCK/PHOTOCELL CONTROL SHALL BE PHOTOCELL-ON; AND TIMECLOCK-OFF CONTROL. REFER TO DETAIL ON THIS DRAWING.
8. THE CONTRACTOR SHALL FURNISH LABOR, MATERIALS, TOOLS AND OTHER EQUIPMENT REQUIRED TO INSTALL THE WORK SHOWN AND SPECIFIED. THE CONTRACTOR SHALL FURNISH AND INSTALL ITEMS NECESSARY FOR A COMPLETE ELECTRICAL SYSTEM. MATERIALS SHALL BE NEW AND SHALL BEAR THE REGISTERED UL MARK. WORK SHALL CONFORM WITH THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 70 (NEC), THE NATIONAL ELECTRICAL CODE (NEC), AND APPLICABLE FEDERAL, STATE AND LOCAL CODES. CONTRACTOR SHALL SECURE PERMITS AND PAY THE FEES REQUIRED TO CARRY OUT HIS WORK. THE CONTRACTOR SHALL FURNISH COPIES OF CERTIFICATES AND PERMITS TO THE ENGINEER AND OWNER.



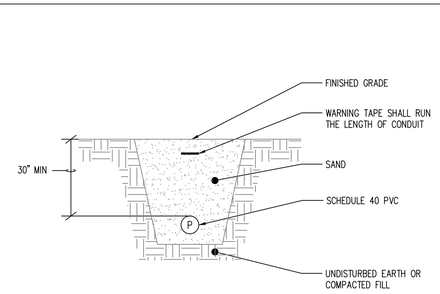
2 TYPICAL TIMECLOCK "OFF", PHOTOCELL "ON" WIRING NTS



NOTES:

1. FURNISH GENERAL CONTRACTOR WITH POLE BASE BOLT TEMPLATE PRIOR TO CONCRETE POUR.
2. REFER TO SITE CIVIL ENGINEER FOR POLE BASE HEIGHT, SIZE AND REBAR REQUIREMENTS .

3 SITE LIGHTING POLE BASE DETAIL NTS



CONDUIT DENOTATIONS:

(P) 1.25" POWER - SITE LIGHTING BRANCH CIRCUITS

4 TYPICAL DIRECT BURIED CONDUIT DETAIL NTS

COMMONWEALTH OF MASSACHUSETTS
MICHAEL D TRICKETT
ELECTRICAL
No. 41072
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS

PROJECT: 166 SPRING STREET
PROPOSED IMPROVEMENTS

DESIGN SUBMISSION: PERMIT SUBMISSION

DRAWING TITLE: ELECTRICAL LEGEND & NOTES

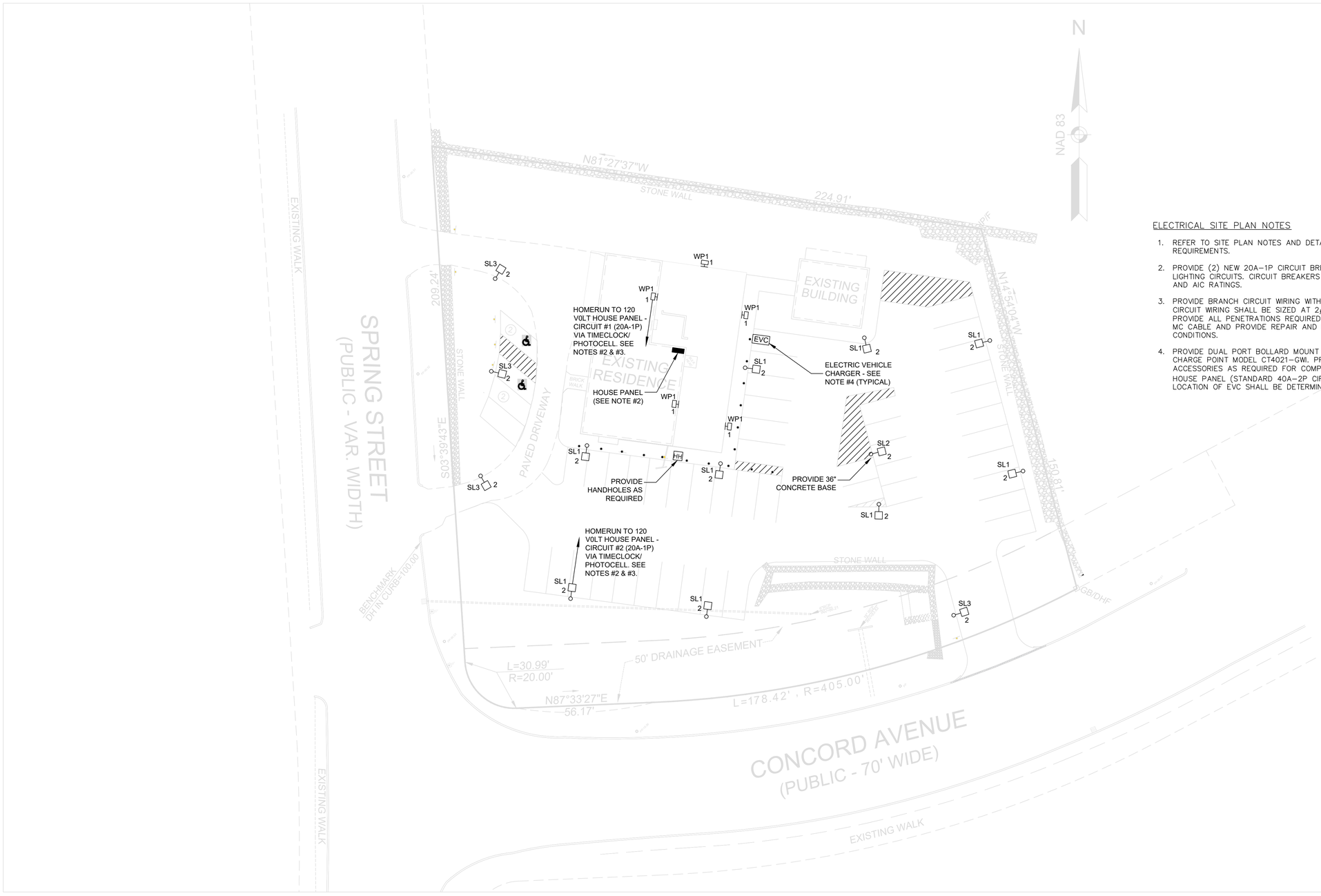
PREPARED FOR:
MACCLM
344 LOWELL
LEXINGTON, MASSACHUSETTS

PREPARED BY:
BCD DESIGN GROUP
ISAM HIJAZI
617-799-1133

SCALE: AS NOTED
DATE: 02/22/2025
PROJECT NO. 24-001

DESIGNED BY: MT
DRAWN BY: MT
CHECKED BY: MT

SHEET NO. E1 OF 2



ELECTRICAL SITE PLAN NOTES

1. REFER TO SITE PLAN NOTES AND DETAILS ON DRAWING E1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. PROVIDE (2) NEW 20A–1P CIRCUIT BREAKERS IN EXISTING HOUSE PANEL TO FEED NEW SITE LIGHTING CIRCUITS. CIRCUIT BREAKERS SHALL MATCH THE EXISTING CIRCUIT BREAKERS IN TYPE AND AIC RATINGS.
3. PROVIDE BRANCH CIRCUIT WIRING WITHIN THE BUILDING CONSISTING OF TYPE MC CABLE. BRANCH CIRCUIT WIRING SHALL BE SIZED AT 2#10 & 1#10 G. – 3/4"C. INSTALL MC CABLE PER CODE. PROVIDE ALL PENETRATIONS REQUIRED IN THE EXISTING STRUCTURE TO INSTALL AND ROUTE THE MC CABLE AND PROVIDE REPAIR AND PATCHING OF ALL PENETRATIONS TO MATCH EXISTING CONDITIONS.
4. PROVIDE DUAL PORT BOLLARD MOUNT TYPE LEVEL 2 ELECTRIC VEHICLE CHARGER EQUAL TO CHARGE POINT MODEL CT4021–GWI. PROVIDE BOLLARD CONCRETE MOUNTING KIT AND ALL ACCESSORIES AS REQUIRED FOR COMPLETE INSTALLATION. PROVIDE (2) 40A–2P FEEDS FROM HOUSE PANEL (STANDARD 40A–2P CIRCUIT BREAKERS) WITH 4#8 & 1#8G – 1 ¼"C. EXACT LOCATION OF EVC SHALL BE DETERMINED BY OWNER.

COMMONWEALTH OF MASSACHUSETTS
MICHAEL D TRICKETT
ELECTRICAL
No. 41072
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS

PROJECT: 166 SPRING STREET
PROPOSED IMPROVEMENTS

DESIGN SUBMISSION:
PERMIT SUBMISSION

DRAWING TITLE:
ELECTRICAL SITE PLAN

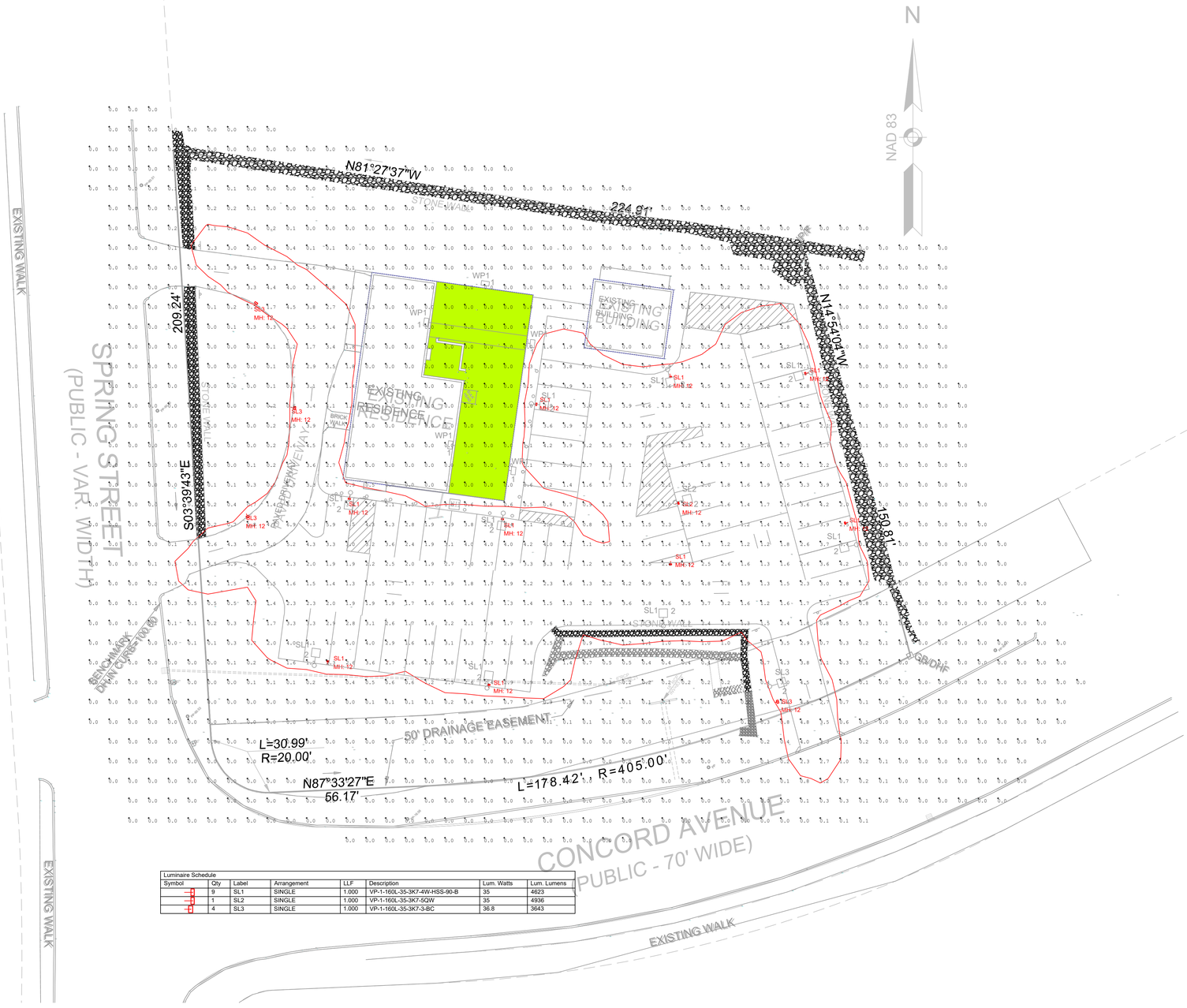
PREPARED FOR:
MACCLM
344 LOWELL
LEXINGTON, MASSACHUSETTS

PREPARED BY:
8CD DESIGN GROUP
ISAM HIJAZI
617-799-1133

SCALE: AS NOTED
DATE: 02/22/2025
PROJECT NO. 24-001

DESIGNED BY: MT
DRAWN BY: MT
CHECKED BY: MT

SHEET NO.
E2 OF 2



Luminaire Schedule

Symbol	Qty	Label	Arrangement	LLF	Description	Lum. Watts	Lum. Lumens
	9	SL1	SINGLE	1.000	VP-1-160L-35-3K7-4W-HSS-90-B	35	4623
	1	SL2	SINGLE	1.000	VP-1-160L-35-3K7-5QW	35	4936
	4	SL3	SINGLE	1.000	VP-1-160L-35-3K7-3-BC	36.8	3643

COMMONWEALTH OF MASSACHUSETTS
MICHAEL D TRICKETT
ELECTRICAL
No. 41072
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS

PROJECT: 166 SPRING STREET
PROPOSED IMPROVEMENTS

DESIGN SUBMISSION: PERMIT SUBMISSION

DRAWING TITLE: PHOTOMETRICS PLAN

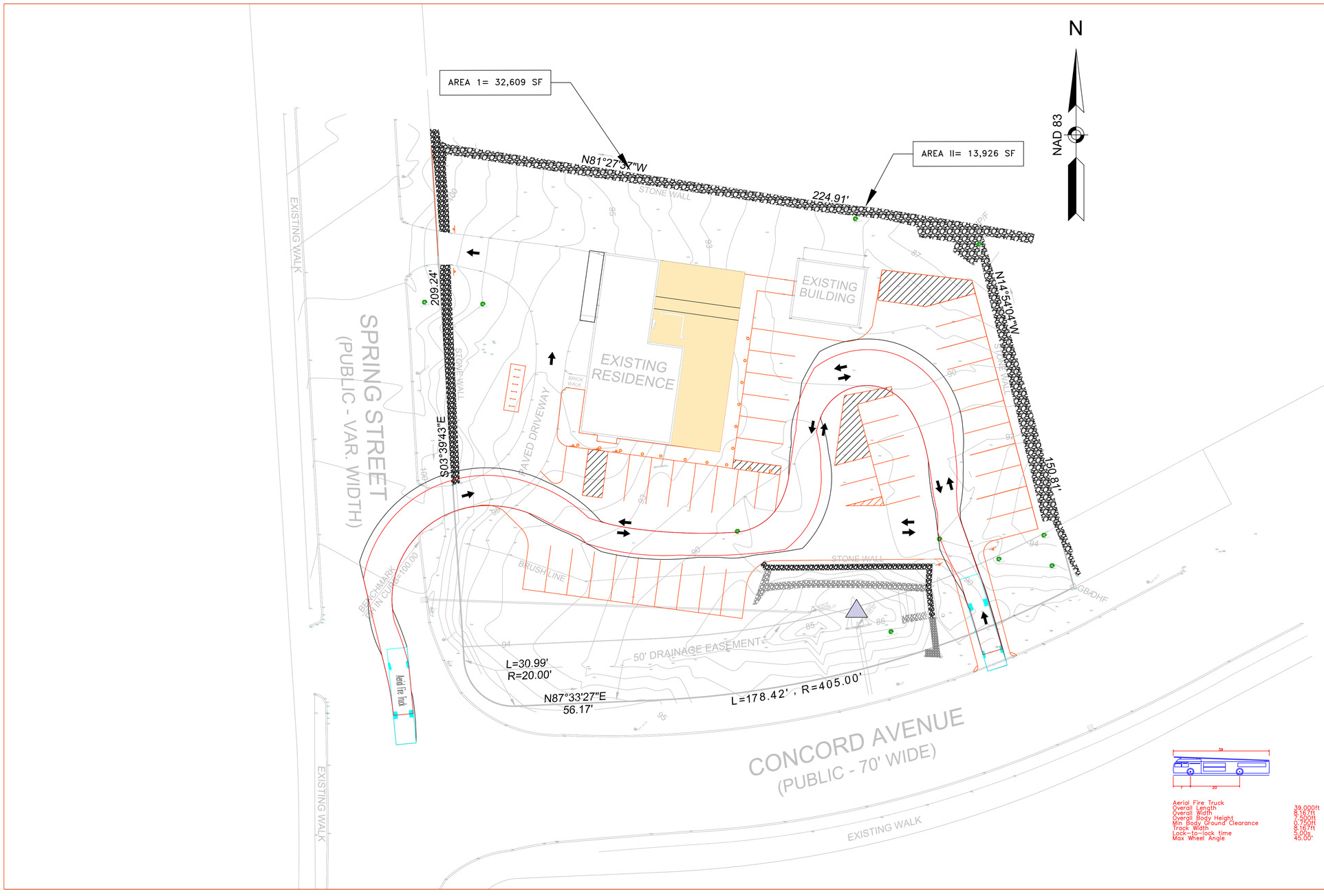
PREPARED FOR:
MACCLM
344 LOWELL
LEXINGTON, MASSACHUSETTS

PREPARED BY:
BCD DESIGN GROUP
ISAM HIJAZI
617-799-1133

SCALE: AS NOTED
DATE: 12/20/2024
PROJECT NO. 24-001

DESIGNED BY: MT
DRAWN BY: MT
CHECKED BY: MT

SHEET NO.
E3 OF 3



Aerial Fire Truck	
Overall Length	39.000ft
Overall Width	8.167ft
Overall Body Height	7.500ft
Min Body Ground Clearance	0.750ft
Track Width	8.167ft
Lock-to-lock time	5.0s
Max Wheel Angle	45.00°

PROJECT: 166 SPRING STREET
PROPOSED IMPROVEMENTS

DESIGN SUBMISSION:
PERMIT SUBMISSION

DRAWING TITLE:
FIRE TRUCK TURNING PLAN

PREPARED FOR:
MACCLM
344 LOWELL
LEXINGTON, MASSACHUSETTS

PREPARED BY:
BCD DESIGN GROUP
ISAM HIJAZI
617-799-1133

ADEL M. SHAHIN
COMMONWEALTH OF MASSACHUSETTS
CIVIL
No. 41854
REGISTERED
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS

SCALE: AS NOTED
DATE: 11/24/2024
PROJECT NO. 24-001

DESIGNED BY: EY
DRAWN BY: EY
CHECKED BY: IH

SHEET NO. 2 OF 9

a Blade of Grass LLC

- landscape design
- installation
- maintenance

9 Old County Rd Sudbury MA 01776
508 358 4500 | abladeofgrass.com

PLANT LIST

TREES
(3) Betula nigra 'Heritage' 3" Cal.
(4) Cornus florida 'Cherokee Princess' 3" Cal.
(7) Liquidambar styraciflua 'Emerald Sentinel' 3 " C

SHRUBS
(13) Diervilla lonicera 'Cool Splash' 3 Gal.
(12) Ilex glabra 'Shamrock' 5 Gal.
(13) Vaccinium corymbosum 5 Gal.

MACCLM
166 Spring Street,
Lexington, MA

GRAPHIC SCALE IN FEET

0 5 10 20 40

SCALE $\frac{1}{8}$"=1'-0" DATE 02.11.2024
DESIGN JM DRAWNMD

SHEET TITLE

Landscape & Planting Plan

SHEET NUMBER

1

We responded to this report 2-23-2025
Our feedback is noted below

TOWN OF LEXINGTON
PLANNING OFFICE

1625 Massachusetts Avenue
Lexington, Massachusetts 02420
Tel: 781-698-4560
planning@lexingtonma.gov
www.lexingtonma.gov/planning

Abby McCabe, Planning Director
Meghan McNamara, Assistant Director
Aaron Koepper, Planner
Carolyn Morrison, Planning Coordinator

To: **Planning Board Members**

From: **Aaron Koepper, Planner**

Re: **Project Review for 166 Spring Street: Limited Site Plan Review**

Date: **February 20, 2025**

Property Information	
Project Address	166 Spring Street
Parcel ID	Map 12, Lot 8B
Permit #	PLAN-5
Applicant/Owner Name	Isam Hijazi on behalf of the Muslim American Community Center of Lexington, Massachusetts
Type of Review	Limited Site Plan Review
Zoning District	RO – Single Family
Property Size	49,602 square feet or 1.14 acres
Existing Conditions	The lot currently holds one (1) single family house, an attached garage with a paved driveway, and one (1) stand-alone brick building located behind the house. Majority of landscaping and vegetation on the lot has been cleared; some tree growth is present around the periphery of the property. Located at the corner of Spring Street and Concord Avenue.
Environmental Conditions	The property is within Surface Water Protection Zones B and C. There is wetland resource area on this site and needs to be evaluated by a professional wetland scientist for delineating the resource areas on and near the site to determine next steps with the Conservation Commission. Based on aerial imagery, significant tree cutting was preformed on the site within the last year.

Important Dates/Timelines	
Public Meeting	February 26, 2025
Filed with Town Clerk	February 5, 2025
Decision Deadline **150 days following submittal to Town Clerk**	July 5, 2025

Approval Information	
Action Required at Decision Deadline	The Planning Boardmay approve an application subject to such reasonable conditions as may be necessary or appropriate to:

	1. Enforce compliance with substantive requirements of this chapter, unless waived; and 2. Protect the health, safety, convenience, and general welfare of the inhabitants of the Town of Lexington.
Applicability	Site plan review of uses protected under § 135-9.5.6 shall require only limited review. Site plan review shall be limited in such circumstances to the imposition of reasonable regulations concerning the bulk and height of structures, yard sizes, lot area, setbacks, open space, off-street parking, and building coverage requirements.
Waivers	No waivers are requested.

Project Summary

The proposed project would typically fall under a major site plan review, but because of the religious use of the site, the project is subject to only a limited site plan review due to the Dover Amendment (MGL Chapter 40A, Section 3) which prohibits the regulation or restriction of land or structures used for religious or educational purposes apart from:

- Bulk and height of structures
- Lot area
- Yard size and setbacks
- Open space
- Parking
- Building coverage
- Stormwater management, pursuant to §181 consolidated into the Planning Board's Site Plan Review approval

A limited site plan review is allowable but must not regulate beyond the bulleted list above.

The Applicant proposes changing the use of the existing single family to a place of worship / community building with exterior parking for forty-six (46) cars, as well as two (2) ADA accessible, totaling forty-eight (48) spaces. The applicant proposes the constructing of two (2) ADA ramps, a second means of egress, and an emergency exit on the building, as well as the installation of subsurface stormwater management systems, lighting, site grading, a bicycle rack and stone walls.

Project narrative references future two (2) story building expansion without affecting the existing structure, but plans show a large increase in building footprint. Applicant may need to return to the Planning Board for future expansion if they plan to change expand the existing building structure beyond what is shown for the future addition.

Site Photos

Photo 1: GIS Map showing 166 Spring Street lot and surrounding area.

Photo 2: View from Spring Street showing current single-family house and driveway.

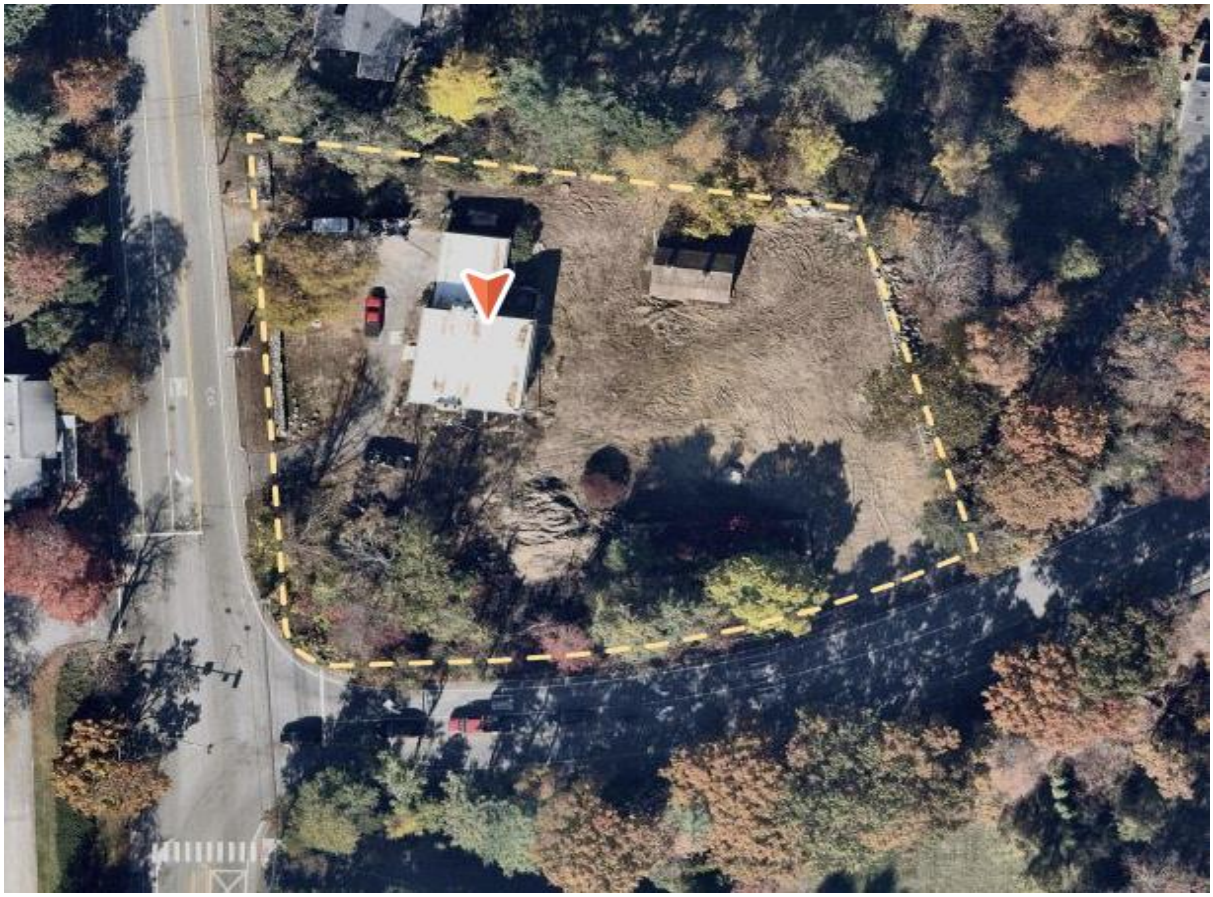
Photo 3: Staff site visit, 2/20/2025, 1 of 3

Photo 4: Staff site visit, 2/20/2025, 2 of 3

Photo 5: Staff site visit, 2/20/2025, 3 of 3

Photo 6: Arial photo, 10/2/2023

Photo 7: Arial photo, 10/19/2024



Staff Comments

Planning

- Provide a more detailed project narrative noting the phasing of project (parking first, expansion in a few years, etc.). Revised and submitted
- Engineering Staff will review the application, and we will want to make sure the new curb cut is OK over the drainage easement. Open
- Applicant proposing parking spaces in a residential neighborhood, we recommend best efforts towards eliminating noise, automobile headlight, and other neighborhood impacts. See site plan
- Institutional, Educational and Recreational use buildings require 1 parking space per 6 seats in the largest assembly area. Plans show the largest assembly area being 115 prayer places, which would require minimum 20 parking spaces. Plans show 48, this complies. Closed
- Per §135-5.1.13.2, applicant cannot have more than 13 compact spaces with proposed parking, current plans show 11, this complies. Closed
- Plans show 6-8 bicycle parking spaces, we recommend parking be 6' by 2' and located away from vehicular traffic. Revised to 6 spaces
- Per §135-5.1.13.11, a parking lot with 25 or more new parking spaces shall include minimum 4% Level 2 EV charging stations. 2 Spaces required. And shall be constructed with appropriate conduits and space to allow for future installation of EV charging stations at 50% of spaces. 2 on site plan
- Per §135-5.1.13.12, no surface parking is permitted between a building and street except if screened, or required for accessible and temporary parking. Request landscaping screening to minimize glare of headlights and parking lot lighting. See Landscaping Plan
- The four parking spaces in front of the building do not appear to meet the required 22' maneuvering aisle required. Applicant will need to update the plans to meet requirement, or request a special permit. One Way Traffic
- The setback distance of the Spring Street parking spaces from the right of way line is shown as 12.4', shall be minimum 25'. Applicant will need to update the plans to meet requirement, or request a special permit. Applicant will request special permit
- Per §135-4.3.1.2, show that a setback distance for stone walls equal to height on rear and side lot lines. Stone walls are existing need of some repairs
- Stone walls are shown on plans, however, no heights provided. Per §135-4.3.1, if greater than 4' in height, the retaining wall will need to be setback a distance equal to height on front lot line.
- Show on plans the locations for snow storage. Per §135-5.1.13.6, "A strip of land not less than five feet in width shall be provided on at least two sides of a parking lot or loading area and designated on the off-street parking and loading plan for the storage of snow plowed or removed from the surface area of the parking lot or loading area; such snow storage area may not encroach on the area required for off-street parking or loading but may be located in the area of required setback from a lot line or building." See revised site plans
- Plans do not show location of a dumpster. If a dumpster is needed in the future we recommend that it is placed in an enclosure and screened from view. See revised site plans
- Provide stamped stormwater management report that meets the MassDEP stormwater standards and Town of Lexington Stormwater Bylaw for an above threshold project. When disturbing more than 10,000 SF the stormwater permit is consolidated into the Planning Board's Site Plan Review approval. **Report is present but not stamped. ** Done, see revised plans
- We recommend planting at least one tree for every 8 parking spaces abutting the perimeter of the parking area and trees be planted every 30 ft. along streets. Planning Board's preferred Planting list is here: https://www.lexingtonma.gov/DocumentCenter/View/1862/Amended-Section-12-Lexington-Preferred-Planting-List---Amended-October-6-2021-PDF?bidId= See landscap plan

- Allowable height in the RO zone is 40' or 2.5 stories, architectural plans provided appear to satisfy regulation but the building commissioner will review prior to issuing building permit. Complies
- Applicant shall comply with §135-5.2 for any proposed signage. See site plans

Conservation

- There are depressions on the site that may meet isolated wetlands definition under local code or that may meet isolated land subject to flooding under state or local code or that may actually flow into a larger bordering vegetated wetland system on 164 Spring and/or 575 Concord Ave, and thus meeting state and local bordering wetlands. See survey plan
- If no wetlands are found on site, there are wetlands offsite that appear to fall within 100 feet of some areas of the property that would need be considered for future development, and a work zone established outside the jurisdictional 100-foot buffer zone. Unfortunately, it is not a clear response without having a field evaluation performed on site. See survey plan
- Based on the plan set dated 11/24/2024 attached, the topography and existing drainage pipe (within a drain easement) along Spring Street confirms there is wetland resource area on this site and the site needs to be evaluated by a professional wetland scientist for delineating the resource areas on and near the site to determine next steps with the Conservation Commission.

Engineering See survey plan

- Engineering released a memo under separate letterhead, see attached. Plans revised
- Will review and provide comments once stamped plans and design calculations are received. Provided

Submitted Documents

166 Spring Street Project Narrative 1, dated January 25, 2025

Planset titled "Proposed Improvements for Muslim American Community Center of Lexington Massachusetts, 166 Spring Street Lexington, Ma" prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, consisting of 14 pages, dated January 17, 2025

1. Cover Sheet
2. Plan titled "General Notes" prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, dated November 24, 2024 **(missing stamp and signature)** Provided
3. Plan titled "Site Preparation Plan" prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, dated November 24, 2024 **(missing stamp and signature)** Provided
4. Plan titled "Layout Plan" prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, dated November 24, 2024 **(missing stamp and signature)** Provided
5. Plan titled "Grading Plan" prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, dated November 24, 2024 **(missing stamp and signature)** Provided
6. Plan titled "Utility & Drainage Plan" prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, dated November 24, 2024 **(missing stamp and signature)** Provided
7. Plan titled "Site Work Details I" prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, dated November 24, 2024 **(missing stamp and signature)** Provided

See revised plans

8. Plan titled “Site Work Details II” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, dated November 24, 2024 **(missing stamp and signature)** Provided
9. Plan titled “Site Work Details III” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, dated November 24, 2024 **(missing stamp and signature)** Provided
10. Page titled “Cul Tec Stormwater Chamber” dated June, 2024
11. Plan titled “Electrical Legend & Notes” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, signed and stamped by Professional Engineer, Michael D. Trickett, No.41072, dated December 20, 2024
12. Plan titled “Electrical Site Plan” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, signed and stamped by Professional Engineer, Michael D. Trickett, No.41072, dated December 20, 2024
13. Plan titled “Photometrics Plan” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, dated November 24, 2024 **(missing stamp and signature)** Provided
14. Plan titled “Fire Truck Turning Plan” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, dated November 24, 2024 **(missing stamp and signature)** Provided

166_Spring_St_02.01.25, titled “Proposed Improvements for Muslim American Community Center of Lexington Massachusetts, 166 Spring Street Lexington, Ma BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, consisting of 8 sheets, revised to February 1, 2025

1. Plan titled “Title” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts
2. Plan titled “Existing Floor Plans” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts
3. Plan titled “Proposed Basement Plan” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts
4. Plan titled “Proposed Ground Floor Plan” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts
5. Plan titled “Proposed Upper Floor Plan” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts
6. Plan titled “Proposed Elevations” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts
7. Plan titled “Proposed Elevations” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts
8. Plan titled “General Notes” prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts

More plans provided, Life safety and fire alarm

Stormwater Management for 166 Spring Street Lexington, Massachusetts, prepared by BCD Design Group, prepared for the Muslim American Community Center of Lexington, Massachusetts, dated November 24, 2024 **(missing stamp and signature)** Provided

Owner Authorization Letter, dated November 9, 2024

See revised plans

MEMORANDUM

TO: Planning Director, Planning

FROM: Marissa Liggiero, Engineering

DATE: February 12, 2025

SUBJECT: 166 Spring Street Comments

The Engineering Division has reviewed the Site Plans at 166 Spring Street. We submit the following:

General Comment:

Engineering will review and provide comments once stamped plans and design calculations are received Provided, see revised plans.

Stormwater note:

- Full review of the stormwater will be reviewed upon receipt of the full application to Conservation. As designed, the stormwater management design and calculations do not meet the Lexington Standards. See revised plans.
- If not under conservation jurisdiction, then the Lexington Stormwater Above Threshold regulations should be followed. Phosphorous removal calculations should be shown and TSS removal should be 90%. See revised plans.
- Project name on the second page of the O&M plan shows a different address. There is no PE stamp on the report. See revised plans.

Utility note:

- Water and sewer utilities not shown on plan set. Requested surveyor to provide information.

Roadway note:

See general comments above

STORMWATER MANAGEMENT

FOR

166 SPRING STREET
LEXINGTON, MASSACHUSETTS

PREPARED FOR

MUSLIM AMERICAN COMMUNITY CENTER OF LEXINGTON
344 Lowell St, Lexington, MA 02420
Lexington, Massachusetts 02421

PREPARED BY:

BCD DESIGN GROUP

BCD DESIGN GROUP
ISAM HIJAZI
617-799-1133

DATE: February 24, 2025

COMMONWEALTH OF MASSACHUSETTS
ADEL M. SHAHIN
CIVIL
No. 41854
REGISTERED
PROFESSIONAL ENGINEER

Adel Shahin

TABLE OF CONTENTS

Stormwater Management Standards

Project Narrative:

The project is located at South West of Lexington at Spring St. and Concord Ave. intersection on 2 parcels, combined 2 parcels 49,602 Sq. Ft. The property currently a single family. Located in South West Lexington, the project is 3000 LF from the CBCGB Building and Chinese Bible Church of Greater Boston. This project is located in Residential One zoning. Total disturbed area is approximately 32,000 Sq. Ft.

Proposed Conditions

The owner proposes the following improvements under this project:

- Interior demolition of some walls to make it feasible for their use.
- New ADA bathrooms
- New ADA access from front and back of building.
- Create second means of egress from the second floor to ground level.
- Future 2 Story Building Expansion without affecting the existing structure.
- Site Improvements to support the project included Parking Lot for 48 cars, Walkways, Landscaping, Site Lighting, Bicycle Rack, Utility Service and Hardscape.

This proposal utilizes conventional stormwater management techniques including deep sump double catch basins with hoods and subsurface infiltration systems for the treatment and mitigation of stormwater.

The following is a summary of how the proposed project meets the DEP Stormwater Standards:

Standard 1: No new stormwater conveyances may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

There is no untreated stormwater conveyances proposed to discharge to wetlands or waters of the Commonwealth from the project.

Standard 2: Peak Rate Attenuation - Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre- development peak discharge rates. This standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

For the purpose of analyzing pre- and post-development stormwater peak rates of runoff, one (1) design point was selected based on existing topographic conditions which were used for both the pre- and the post-peak rate calculations.

The storm events that were used to calculate peak runoff rates for pre- and post- construction conditions are compiled from the NOAA Atlas 14 which contains the latest rainfall data.A full detail of peak rate attenuation along with supplemental stormwater calculations utilizing HydroCAD as well as pre- and post-drainage site plans have been submitted with the Definitive Subdivision Application. The details of this report will show that the peak rates of runoff for the 2-year, 10-year and 100-year events have been either maintained or reduced from pre- to post-development conditions through the use of deep sump catch basins and subsurface infiltration systems.

The hydrologic calculations from HydroCAD have been included in this report and are located in the section tab entitled "Hydrologic Calculations". Based on these results there will be no increase in peak flows for the three design storms as shown on the table below.

Design Point #1:

Design Point #1 (DP#1) is the abutting property southeast of the site. The contributing area to the Design Point consists of Sub catchment 1 & 2.

Storm Event	**Existing Conditions (Pre) Peak Flow (CFS)**	**Proposed Conditions (Post) Peak Flow (CFS)**
2-Year (3.26 in./hr.)	2.51	2.02
10-Year (4.90 in./hr.)	4.28	4.27
100-Year (8.83 in./hr.)	8.50	8.08

Standard 3: Recharge - Loss of annual recharge to groundwater shall be eliminated or minimized.at a minimum, the annual recharge from the post- development site shall approximate the annual recharge from pre-development conditions based on soil type. This standard is met when the stormwater management system is designed to infiltrate the required recharge volume in accordance with the Mass Stormwater Handbook.

Loss of annual recharge to groundwater has been minimized through the use of stormwater Best Management Practices (BMP's), two (2) subsurface infiltration systems, and a proposed operation and maintenance program. The two (2) subsurface infiltration systems have been designed for recharging groundwater.

Based on soil maps provided by U.S. Department of Agriculture Soil Conservation Service (map located in the Appendix to the narrative) the majority of the site contained sandy loam sand and falls within a hydrologic group of C and a small portion is within a hydrologic group of A. Onsite soil testing was conducted by Boston Contractors and Developers LLC. (BCD) on January 31, 2025 in the areas depicted on the attached plan. This testing revealed the underlying soil within the site consists of Urban Land and Hinckley Loamy Sand. Soil testing was performed by BCD as recommended by the design engineer and water table was not observed at elevation 82' which 2.5' below the proposed subsurface infiltration systems.

Utilizing the current regulations, the proposed design will meet this standard as per the following calculation:

R_v = Required Recharge Volume = F*x

F = Target Depth Factor associated with hydrologic soil groups located in table 2.3.2 in Volume 3 of the Stormwater Management Handbook Required recharge volume depth factor for C type soils: 0.25 inches

x = Total impervious area proposed Impervious area within project area (HSG C): 25,484 square feet (sf)

Therefore, R_v = (25,484)*(0.25inches)/(12 inches per foot) = > **R_v=531 cubic feet (cf)**

The proposed subsurface infiltration systems provide a total recharge storage volume of 3,936 cf of stormwater within the two (2) systems.

In accordance with the Stormwater Handbook, a capture area adjustment calculation has been provided in the appendix of this report to ensure a minimum of 65% of the site impervious areas are directed into recharge facilities. The calculation demonstrates the proposed project will direct 100% of the site's proposed impervious surface areas toward recharge facilities.

Standard 4: Water Quality – Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). The standard is met with pollution prevention plans, stormwater BMP's sized to capture required water quality volume, and pretreatment measures.

The stormwater management system has been designed to remove a minimum of 90% of the average annual post-construction load of Total Suspended Solids (TSS). TSS Removal Calculation Worksheets are included in the Stormwater Analysis and Calculations Report noted herein. These percentages have been achieved by the use of jellyfish filters and subsurface infiltration systems.

The Stormwater Management Handbook assigns TSS removal percentages to each treatment BMP. Each treatment BMP is sized to capture the required water quality volume as calculated in accordance with the Handbook in order to achieve the assigned TSS removal rates.

General Equation from Stormwater Management Handbook

V_{WQ} = Required Water Quality Volume = $(D_{WQ})(A)$
D_{WQ} = Water Quality Depth (1" for critical areas, 0.5" for non-critical areas) A = Impervious Area

The following are treatment sizing calculations for portions of the treatment trains based on the 1'' for critical areas:

Area 1 (PJF-1 to PRS-1)

Vwq = (16,007)(1"/12) = 1,334 cf
Provided = 2,917 cf

Area 2 (PJF-2 to PRS-2)

Vwq = (9,477)(1"/12) = 790 cf
Provided = 1,019 cf

A separate document entitled "Operation and Maintenance & Erosion and Sedimentation Control Program for a Proposed Stormwater Management System" dated December 1

The utilization of pretreatment and treatment BMP's combined with the operation and maintenance plan provides compliance with this standard.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs) – Source control and pollution prevention shall be implemented in accordance with the Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.

Stormwater Standard 5 is not applicable to this project. The proposed development will not subject the site to higher potential pollutant loads as defined in the Massachusetts Department of Environmental Protection Wetlands and Water Quality Regulations.

LUHPPLs are identified in 310 CMR 22.20B(2) and C(2)(a)-(k) and (m) and CMR 22.21(2)(a)(1)-(8) and (b)(1)-(6), areas within a site that are the location of activities that are subject to an individual National Pollutant Discharge Elimination System (NPDES) permit or the NPDES Multi-sector General Permit; auto fueling facilities, exterior fleet storage areas, exterior vehicle service and equipment cleaning areas; marinas and boatyards; parking lots with high-intensity-use; confined disposal facilities and disposal sites.

Standard 6: Critical Areas – Stormwater discharges to critical areas require the use of specific source control and pollution prevention measures and specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas.

There are wetlands offsite that appear to fall within 100 feet of southeasterly side of the property that and a work. Thes wetlands are within an area of critical environmental concerns based on the Town's GIS. Stormwater discharges to or near a critical area require specific source control technologies and pollution prevention management. The stormwater management system for this project is designed for the more stringent 1-inch water quality volume as documented in Standard #4 above. The selected stormwater BMP technologies conform to Table CA 2: Standard 6 in the DEP Stormwater Management Guidebook.

Standard 7: Redevelopments – A redevelopment project is required to meet Standards 1-6 only to the maximum extent practicable. Remaining standards shall be met as well as the project shall improve the existing conditions.

Stormwater Standard 7 is not applicable to this project. Within the Stormwater Management Handbook (volume 1 chapter 1 page 20), the definition of a redevelopment project includes, "development, rehabilitation, expansion and phased projects on previously developed sites, provided the redevelopment results in no net increase in impervious area".

This project will not result in a reduction of impervious area in the proposed conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan shall be implemented.

An *Operation and Maintenance & Erosion and Sediment Control Program for a Proposed Stormwater Management System* is included with this report. The program

details the construction period operation and maintenance plan and sequencing for pollution

prevention measures and erosion and sedimentation controls. Locations of erosion control measures for the project are depicted on the site plan set accompanying this report.

Standard 9: A long term Operation and Maintenance Plan shall be implemented.

An *Operation and Maintenance & Erosion and Sediment Control Program for a Proposed Stormwater Management System* is included with this report. The long term operation and maintenance section of the program provides details and the schedule for routine and non-routine maintenance tasks to be implemented at the completion of the project.

Standard 10: Prohibition of Illicit Discharges – Illicit discharges to the stormwater management system are prohibited.

Illicit discharges to the stormwater management system are discharges that are not entirely comprised of stormwater. Discharges to the stormwater management system from the following activities or facilities are permissible: 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. All other illicit discharges are prohibited.

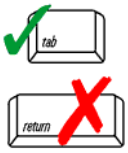
There are no known illicit discharges anticipated through the completion of this project. During construction and post construction procedures are provided to dissipate the potential for illicit discharges to the drainage system. Post construction preventions of illicit discharges are described in the Operation and Maintenance Program under the Good Housekeeping Practices section of the report.

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

Checklist for Stormwater Report

A. Introduction

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



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

The Stormwater Report must include:

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

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

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

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

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

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

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

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

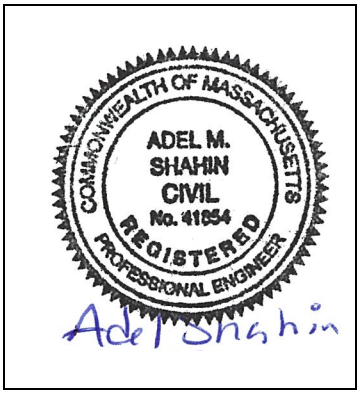
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



Adel Shahin 2/24/2025

Signature and Date

Checklist

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

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

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

☒ No disturbance to any Wetland Resource Areas

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

☐ Reduced Impervious Area (Redevelopment Only)

☒ Minimizing disturbance to existing trees and shrubs

☐ LID Site Design Credit Requested:

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

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

☐ Bioretention Cells (includes Rain Gardens)

☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)

☐ Treebox Filter

☐ Water Quality Swale

☐ Grass Channel

☐ Green Roof

☐ Other (describe): _____

Standard 1: No New Untreated Discharges

☒ No new untreated discharges

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

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

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

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

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

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

Standard 3: Recharge

☐ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

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

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

☒ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

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

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

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

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

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

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

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

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

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

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

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

Standard 4: Water Quality

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

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

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

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

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

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

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

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

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

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

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

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

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

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

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

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

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

☐ All exposure has been eliminated.

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

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

Standard 6: Critical Areas

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

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

Checklist for Stormwater Report

Checklist (continued)

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

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

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

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

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

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

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

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

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

Checklist for Stormwater Report

Checklist (continued)

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

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

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

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

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

Standard 9: Operation and Maintenance Plan

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

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

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

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

Standard 10: Prohibition of Illicit Discharges

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

☐ An Illicit Discharge Compliance Statement is attached;

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

SEDIMENT CONTROL PROGRAM

OPERATION AND MAINTENANCE & EROSION AND SEDIMENTATION CONTROL PROGRAM

For **A PROPOSED STORMWATER MANAGEMENT SYSTEM**

located at

166 SPRING STREET LEXINGTON, MASSACHUSETTS

Applicant:

MUSLIM AMERICAN COMMUNITY CENTER OF LEXINGTON
344 Lowell St, Lexington, MA 02420

Prepared by:
BCD DESIGN GROUP

DATE: February 24, 2025

Project Name: 166 Spring Street

Owner Name: Muslim American Community Center of Lexington

Party Responsible for Maintenance During Construction: Contractor

Party Responsible for Maintenance After Construction: Owner

Erosion and Sedimentation Control Measures during Construction Activities

FilterMitt (or approved equal)

FilterMitt (or approved equal) will be installed along the down gradient limit of work as depicted on the Site Plan. The FilterMitt shall be installed prior to the commencement of any work on-site and in accordance with the design plans. An additional supply of FilterMitt shall be on-site to replace and/or repair any FilterMitt that have been disturbed or are in poor condition. The line of FilterMitt shall be inspected and maintained on a weekly basis and after every major storm event (2-year) during construction. No construction activities are to occur beyond the FilterMitt at any time. Deposited sediments shall be removed when the volume of the deposition reaches approximately one-half the height of the FilterMitt.

Stockpiles

All unused debris, soil, and other material shall be stockpiled in locations of relatively flat grades, away from any trees identified to be saved and upgradient of the FilterMitt. Stockpile side slopes shall not be greater than 2:1. All stockpiles shall be surrounded by a row of FilterMitt. Surrounding FilterMitt shall be inspected and maintained on a daily basis.

Surface Stabilization

The surface of all disturbed areas shall be stabilized during and after construction. Disturbed areas remaining idle for more than 14 days shall be stabilized. Temporary measures shall be taken during construction to prevent erosion and siltation. No construction sediment shall be allowed to enter any infiltration system or formal drainage system. All disturbed slopes will be stabilized with a permanent vegetative cover. Some or all of the following measures will be utilized on this project as conditions may warrant.

a. Temporary Seeding
b. Temporary Mulching
c. Permanent Seeding
d. Placement of Sod
e. Hydroseeding
f. Placement of Hay
g. Placement of Jute Netting

Dust shall be controlled at the site.

Tree Protection

Existing trees to be saved shall be protected with orange construction fence (offset from the tree trunk by professional standard based on canopy).

Construction Tracking Pad

A construction tracking pad shall be installed at the designated entrances/exits, as shown on the Site plans, to the site to reduce the amount of sediment transported off site. The construction tracking pad shall be inspected weekly.

Silt Sacks

Silt Sacks shall be installed within the basins. The performance of the basins shall be checked after every major storm event during construction, in the event of clogging within the Silt Sack, it shall be removed and replaced with a clean Silt Sack. Stormwater quality unit shall be checked bi-weekly.

Inspection and Maintenance of Jellyfish Filters

The performance of the Jellyfish filters shall be checked after every major storm event during construction.

Subsurface Infiltration Facilities

Construction activity above and around the proposed location of the subsurface infiltration facility shall be limited to prevent compaction of the existing soil. Care shall be taken to redirect stormwater runoff from this area to prevent ponding. Installation of this system shall occur under dry weather conditions and system shall be backfilled immediately to prohibit the introduction of fines or other material that would compromise the functionality of this system.

Removal of Sediment and Erosion Controls

At the completion of construction activities and after receiving approval from the Town of Lexington, all physical sediment and erosion controls shall be removed from the site per Town of Lexington. The areas where the controls have been removed shall be seeded and stabilized immediately upon removal.

<u>Long-Term Inspection and Maintenance Measures after Construction</u>

Erosion Control

Eroded sediments can adversely affect the performance of the stormwater management system. Eroding or barren areas should be immediately re-vegetated.

Jelly Fish Filter System

Refer to attached Jellyfish Filter Owner's Manual

Subsurface Infiltration Facility

The infiltration system inspections should include inspections following the first several rainfall events or first few months after construction, after all major storms (3.26" inches of rain over a 24-hour period or greater), and on regular bi-annual scheduled dates, to ascertain whether captured runoff drains within 72 hours following the event. Ponded water inside the system (as visible from the observation well) after several dry days often indicates that the bottom of the system is clogged. If the water does not drain, then a qualified professional should be retained to determine the cause of apparent infiltration failure and recommend corrective action. Such corrective action should be immediately implemented by the owner. If depth of sediment is observed to be greater than 3" then the system should be cleaned. The owner shall contact a sewer and drain cleaning company to flood the system via pump truck so the water is forced back to the upstream cleanout where sediment can be vacuumed out.

Debris and Litter Removal

Trash may collect in the BMP's, potentially causing clogging of the facilities. All debris and litter shall be removed when necessary, and after each storm event. Sediment and debris collected from vacuuming and/or sweeping should be disposed of at a permitted waste disposal facility. Avoid disposing of this material on site, where it could be washed into the proposed subsurface infiltration systems.

Lawn Mowing

All lawn mowing to take place will be done with a mulch mower so grass clippings will not be an issue.

<u>Good Housekeeping Practices</u> (in accordance with Standard 10 of the Stormwater Management Handbook to prevent illicit discharges)

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

- All materials on site will be stored inside in a neat, orderly, manner in their appropriate containers with the original manufacturer's label.
- Only store enough material necessary. Whenever possible, all of a product shall be used up before disposing of container.
- Manufacturer, local, and State recommendations for proper use and disposal shall be followed.

Vehicle washing controls

- A commercial car wash shall be used when possible. Car washes treat and/or recycle water.
- Cars shall be washed on gravel, grass, or other permeable surfaces to allow filtration to occur.
- Use biodegradable soaps.
- A water hose with a nozzle that automatically turns off when left unattended.

Requirements for routine inspection and maintenance of stormwater BMPs

- See Inspection and Maintenance Measures after Construction.

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) Stormwater Pollution Prevention Plan (SWPPP)

Provisions for maintenance of lawns, gardens, and other landscaped areas

- Grass shall not be cut shorter than 2 to 3 inches and mulch clipping should be left on lawn as a natural fertilizer.
- Use low volume water approaches such as drip-type or sprinkler systems. Water plants only when needed to enhance root growth and avoid runoff problems.
- The use of mulch shall be utilized where possible. Mulch helps retain water and prevents erosion.

Requirements for storage and use of fertilizers, herbicides and pesticides

- Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.
- Do not fertilize before a rainstorm.
- Consider using organic fertilizers. They release nutrients more slowly.
- Pesticides shall be applied on lawns and gardens only when necessary and applied only in the minimum amounts recommended by the manufacturer.

Pet waste management

- Scoop up and seal pet wastes in a plastic bag. Dispose of properly, in the garbage.

Provisions for solid waste management

- All solid waste shall be disposed of or recycled in accordance with local town regulations.

Snow disposal and plowing plans relative to Resource Area

- Snow shall be plowed and stored on gravel, grass, or other permeable surfaces to allow filtration to occur.
- Once snow melts all sand salt and debris shall be extracted from surface and properly disposed of.
- Snow shall not be disposed of in any resource area or waterbody.
- Avoid disposing snow on top of storm drain catch Ctbasins or stormwater drainage swale.

Winter Road Salt and/or Sand use and storage restrictions

- Sand storage piles should be located outside the 100-year buffer zone and shall be covered at all times. No salt to be stored or used on site.
- Alternative materials, such as sand or gravel, should be used in especially sensitive areas.

Driveway and Parking Lot sweeping schedule

- Pavement sweeping shall be conducted at a frequency of not less than once per year.
- Removal of any accumulated sand, grit, and debris from driveway after the snow melts shall be completed shortly after snow melts for the season.

Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL

Not Applicable

Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan

To be determined by the owner.

List of Emergency contacts for implementing Long-Term Pollution Prevention Plan

To be determined by the owner.

Applicant's Certification

I certify under penalty of law that I have read, understand and agree to abide by the practices outlined in this document.

Signed: Date:

Sheldon Corporation

Contractor's Certification

I certify under penalty of law that I have read, understand and agree to abide by the practices outlined in this document.

Signed: Date:

Contractor

STORMWATER MANAGEMENT
CONSTRUCTION PHASE

INSPECTION SCHEDULE AND EVALUATION CHECKLIST

PROJECT LOCATION: 166 Spring Street, Lexington, MA **WEATHER:**

Inspection Date	*Inspector*	*Area Inspected*	*Required Inspection Frequency if BMP*	*Comments*	*Recommendation*	*Follow-up Inspection Required (yes/no)*
		FilterMitt	*Weekly and After Major Storm Events*			
		Construction Tracking Pad	*Weekly and After Major Storm Events*			
		Silt Sack	*Weekly and After Major Storm Events*			
		Jellyfish Filters	*Weekly and After Major Storm Events*			
		Subsurface Infiltration Systems	*Weekly and After Major Storm Events*			

(1) Refer to the Massachusetts Stormwater Handbook, Volume Two: Stormwater Technical Handbook (February 2008) for recommendations regarding frequency for inspection and maintenance of specific BMP's.

(2) Inspections to be conducted by a qualified professional such as an environmental scientist or civil engineer.

Limited or no use of sodium chloride salts, fertilizers or pesticides recommended.
Other notes: (Include deviations from: Con. Comm. Order of Conditions, PB Approval, Construction Sequence and Approved Plan)
Stormwater Control Manager:

STORMWATER MANAGEMENT
AFTER CONSTRUCTION

INSPECTION SCHEDULE AND EVALUATION CHECKLIST

PROJECT LOCATION: 166 Spring Street, Lexington, MA **WEATHER:**

Inspection Date	*Inspector*	*Area Inspected*	*Required Inspection Frequency if BMP*	*Comments*	*Recommendation*	*Follow-up Inspection Required (yes/no)*
		Jellyfish Filters	*4 Times a Year and After Major Storm*			
		Subsurface Infiltration Systems	*Bi-annually and After Major Storm Events*			

(3) Refer to the Massachusetts Stormwater Handbook, Volume Two: Stormwater Technical Handbook (February 2008) for recommendations regarding frequency for inspection and maintenance of specific BMP's.

(4) Inspections to be conducted by a qualified professional such as an environmental scientist or civil engineer.

Limited or no use of sodium chloride salts, fertilizers or pesticides recommended.
Other notes: (Include deviations from: Con. Comm. Order of Conditions, PB Approval, Construction Sequence and Approved Plan)
Stormwater Control Manager:

SUPPORTING DOCUMENTS AND CALCULATIONS

72-HOUR DRAW DOWN CALCULATIONS

$$\text{Time} = \frac{Rv}{(K)(BottomArea)}$$

R_v = Storage Volume
K = Saturated Hydraulic Conductivity = 1.02 Bottom Area = Bottom Area of Recharge Structure

PRS #1

R_v = 2,917 cf

Bott Area = 1,343 sf

$$\text{Time} = \frac{2{,}917}{(1.02)(1/12)1343} = 25.6 \text{ hours}$$

25.6 hours < 72 hours

PRS#2

R_v = 1,019 cf

Bott Area = 503 sf

$$\text{Time} = \frac{1{,}019}{(1.02)(1/12)(503)} = 23.8 \text{ hours}$$

23.8 hours < 72 hours

INSTRUCTIONS:

Non-automated: Mar. 4, 2008

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

Location: 166 Spring Street Lexington MA

TSS Removal Calculation Worksheet

A BMP[1]	B TSS Removal Rate[1]	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Jellyfish Filter	0.80	**1.00**	0.80	0.20
Infiltration Basin	0.80	0.20	0.16	0.04

Total TSS Removal = 0.96

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: 2401-01

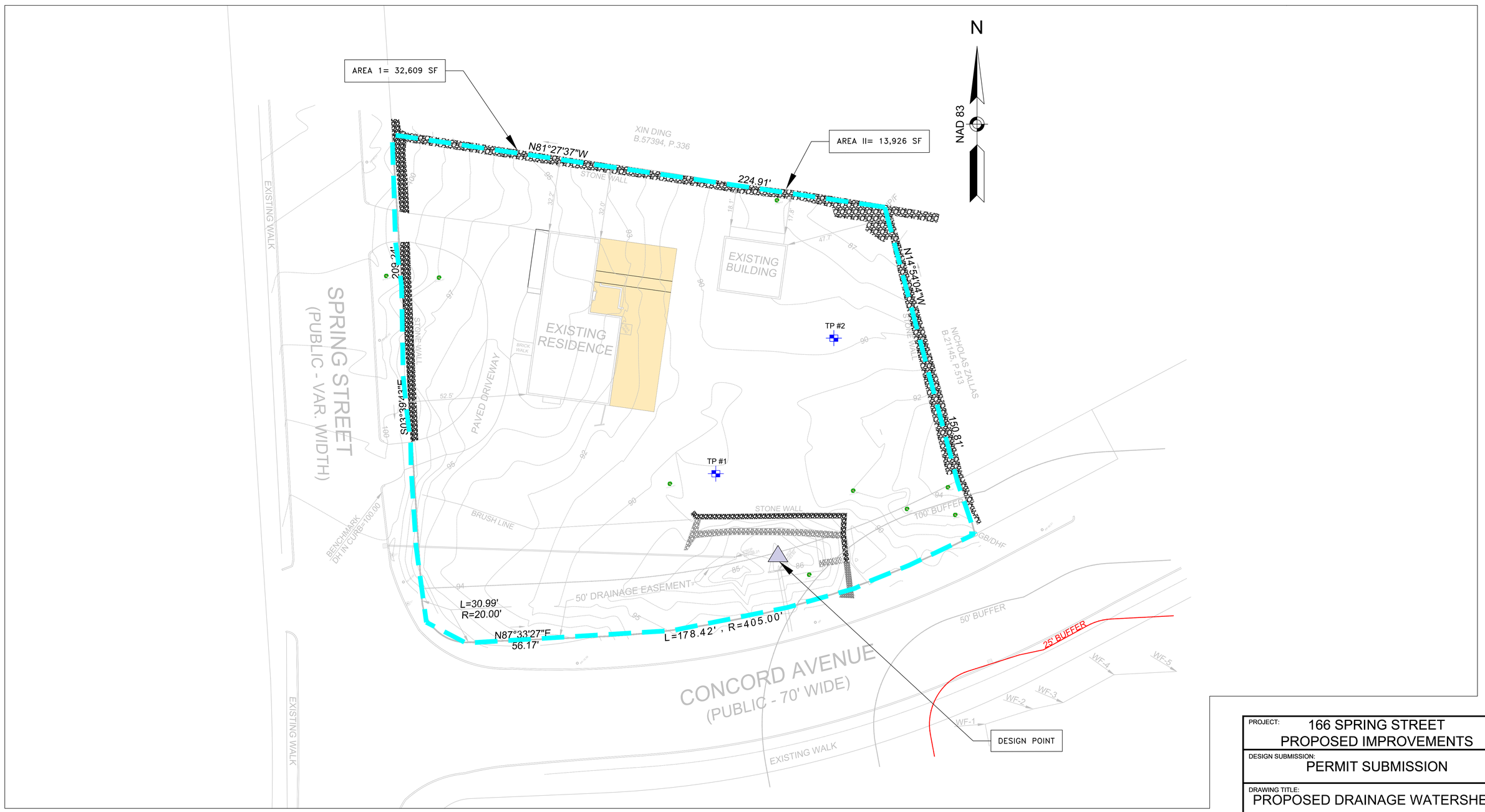
Prepared By: BCD

Date: 2/24/2025

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed

1. From MassDEP Stormwater Handbook Vol. 1



PROJECT: 166 SPRING STREET
PROPOSED IMPROVEMENTS

DESIGN SUBMISSION: PERMIT SUBMISSION

DRAWING TITLE: PROPOSED DRAINAGE WATERSHED

PREPARED FOR:
MACCLM
344 LOWELL
LEXINGTON, MASSACHUSETTS

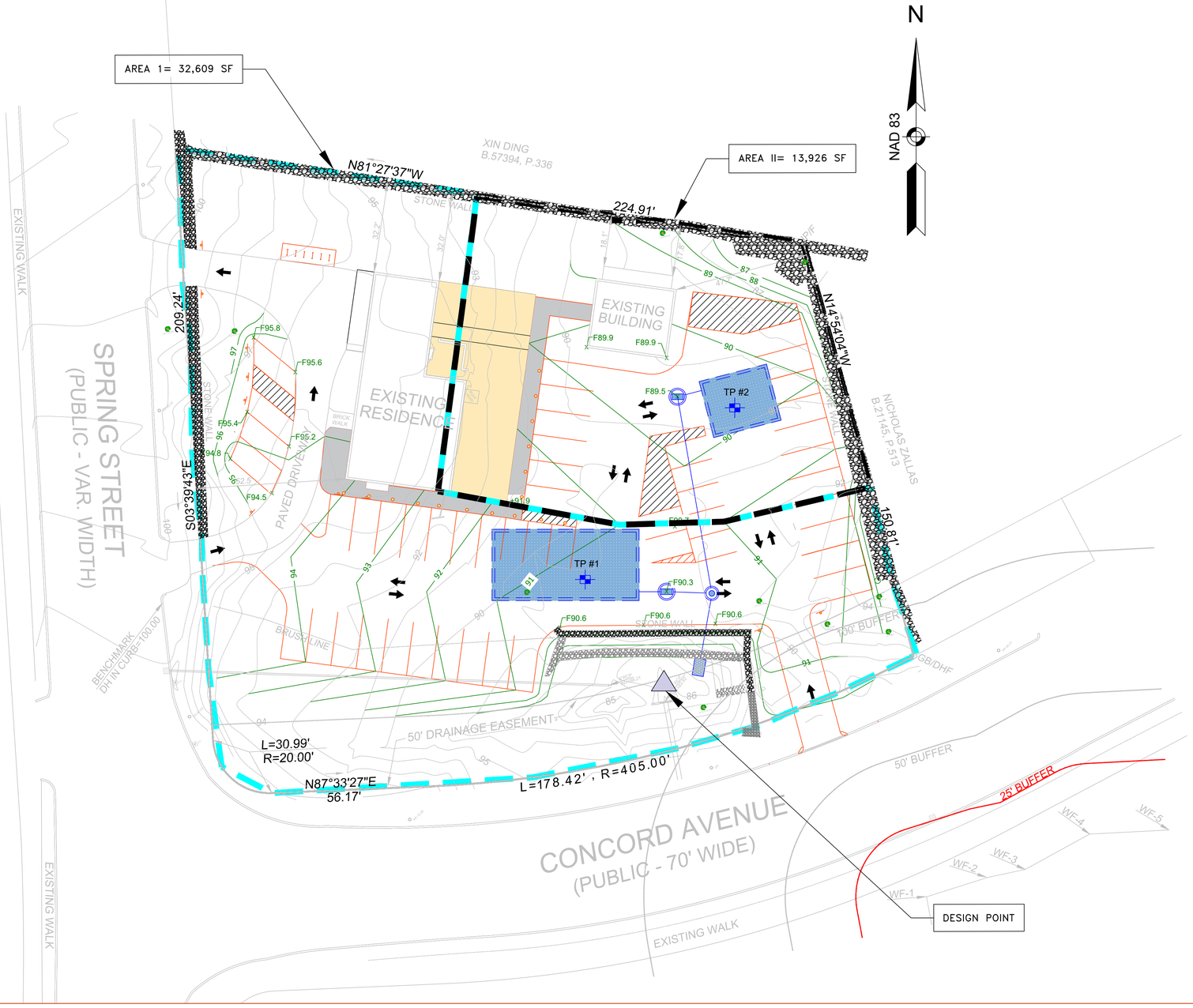
PREPARED BY:
BCD DESIGN GROUP
ISAM HIJAZI
617-799-1133

NO.	DATE	REVISIONS

SCALE: AS NOTED
DATE: 2/3/2025
PROJECT NO. 24-001

DESIGNED BY: EY
DRAWN BY: EY
CHECKED BY: IH

SHEET NO. 1 OF 2



PROJECT: 166 SPRING STREET
PROPOSED IMPROVEMENTS

DESIGN SUBMISSION: PERMIT SUBMISSION

DRAWING TITLE: PROPOSED DRAINAGE WATERSHED

PREPARED FOR:
MACCLM
344 LOWELL
LEXINGTON, MASSACHUSETTS

PREPARED BY:
BCD DESIGN GROUP
ISAM HIJAZI
617-799-1133

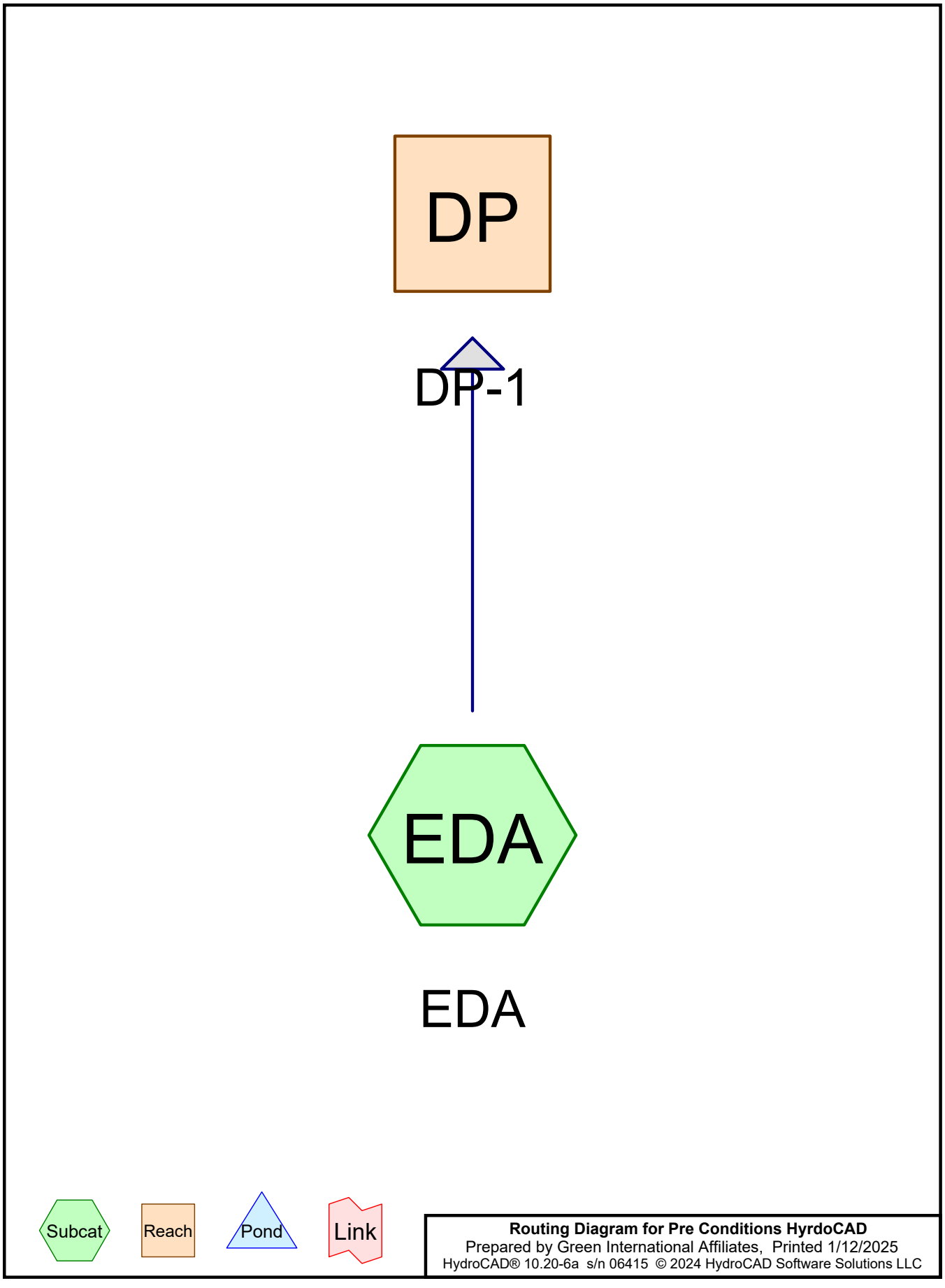
NO.	DATE	REVISIONS

SCALE: AS NOTED
DATE: 2/3/2025
PROJECT NO. 24-001

DESIGNED BY: EY
DRAWN BY: EY
CHECKED BY: IH

SHEET NO. 1 OF 2

HydroCAD - EXISTING CONDITIONS



Subcat Reach Pond Link

Routing Diagram for Pre Conditions HyrdoCAD
Prepared by Green International Affiliates, Printed 1/12/2025

Project Notes

Rainfall events imported from "Atlas-14-Rain.txt" for 448 MA Suffolk
Rainfall events imported from "Atlas-14-Rain.txt" for 448 MA Suffolk

Rainfall Events Listing (selected events)

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	3.26	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.90	2
3	100-Year	Type III 24-hr		Default	24.00	1	8.83	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.930	86	<50% Grass cover, Poor, HSG C (EDA)
0.061	98	Paved parking, HSG C (EDA)
0.077	98	Roofs, HSG C (EDA)
1.068	**88**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.068	HSG C	EDA
0.000	HSG D	
0.000	Other	
1.068		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.930	0.000	0.000	0.930	<50% Grass cover, Poor	EDA
0.000	0.000	0.061	0.000	0.000	0.061	Paved parking	EDA
0.000	0.000	0.077	0.000	0.000	0.077	Roofs	EDA
0.000	**0.000**	**1.068**	**0.000**	**0.000**	**1.068**	**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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EDA: EDA Runoff Area=46,534 sf 12.91% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=88 Runoff=2.51 cfs 0.183 af

Reach DP: DP-1 Inflow=2.51 cfs 0.183 af
Outflow=2.51 cfs 0.183 af

Total Runoff Area = 1.068 ac Runoff Volume = 0.183 af Average Runoff Depth = 2.05"
87.09% Pervious = 0.930 ac 12.91% Impervious = 0.138 ac

Summary for Subcatchment EDA: EDA

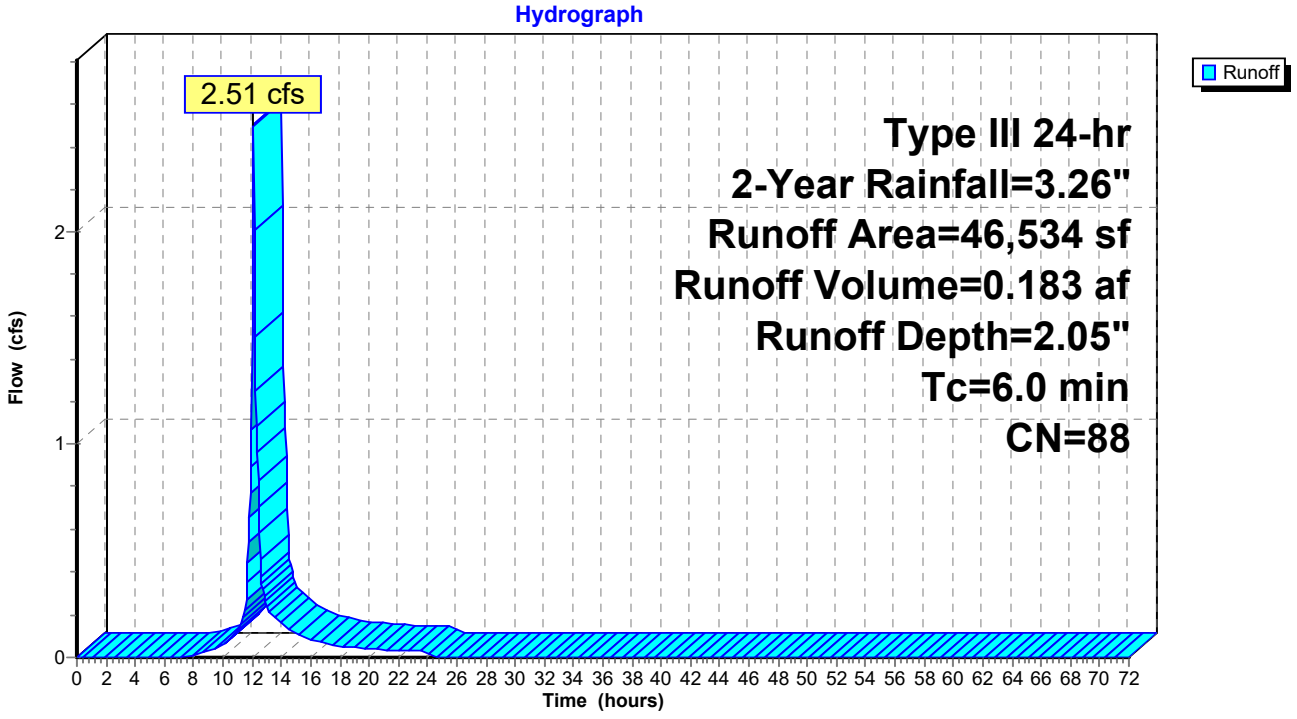
Runoff = 2.51 cfs @ 12.09 hrs, Volume= 0.183 af, Depth= 2.05"
Routed to Reach DP : DP-1

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=3.26"

Area (sf)	CN	Description
2,673	98	Paved parking, HSG C
3,335	98	Roofs, HSG C
40,526	86	<50% Grass cover, Poor, HSG C
46,534	88	Weighted Average
40,526		87.09% Pervious Area
6,008		12.91% Impervious Area

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

Subcatchment EDA: EDA



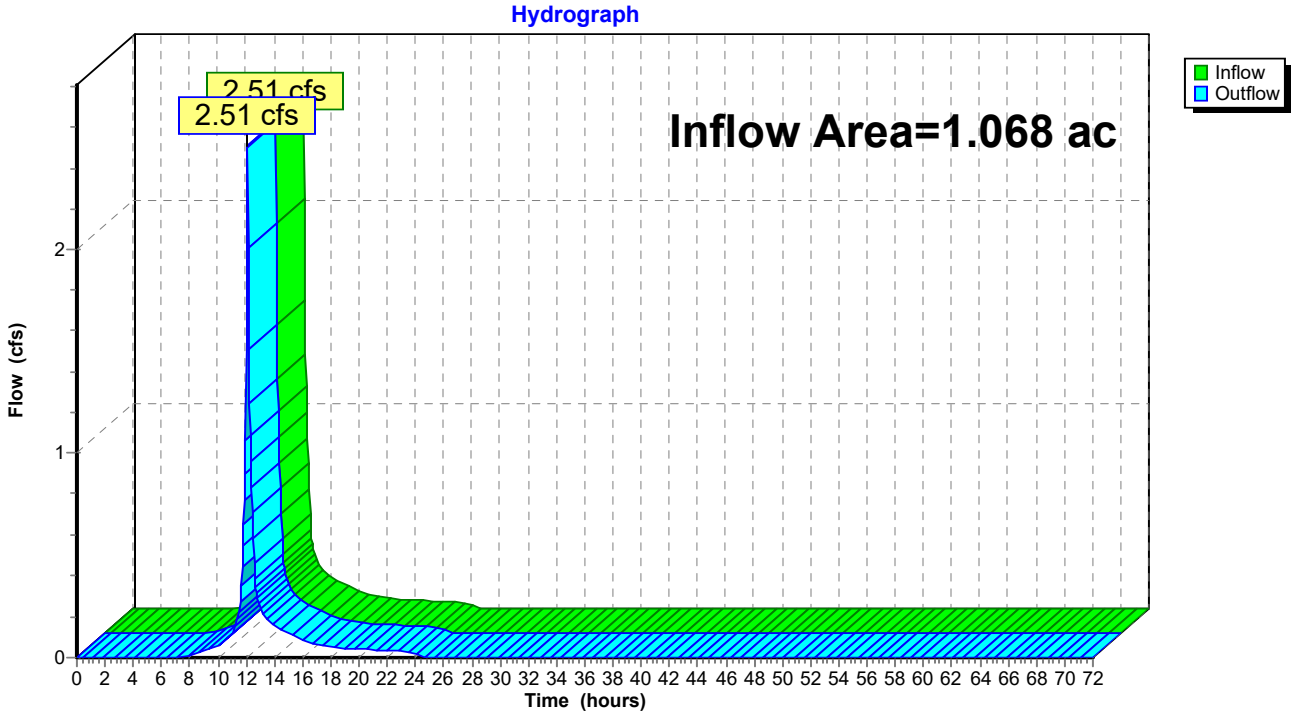
Summary for Reach DP: DP-1

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

Inflow Area = 1.068 ac, 12.91% Impervious, Inflow Depth = 2.05" for 2-Year event
Inflow = 2.51 cfs @ 12.09 hrs, Volume= 0.183 af
Outflow = 2.51 cfs @ 12.09 hrs, Volume= 0.183 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP: DP-1



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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EDA: EDA Runoff Area=46,534 sf 12.91% Impervious Runoff Depth=3.57"
Tc=6.0 min CN=88 Runoff=4.28 cfs 0.318 af

Reach DP: DP-1 Inflow=4.28 cfs 0.318 af
Outflow=4.28 cfs 0.318 af

Total Runoff Area = 1.068 ac Runoff Volume = 0.318 af Average Runoff Depth = 3.57"
87.09% Pervious = 0.930 ac 12.91% Impervious = 0.138 ac

Summary for Subcatchment EDA: EDA

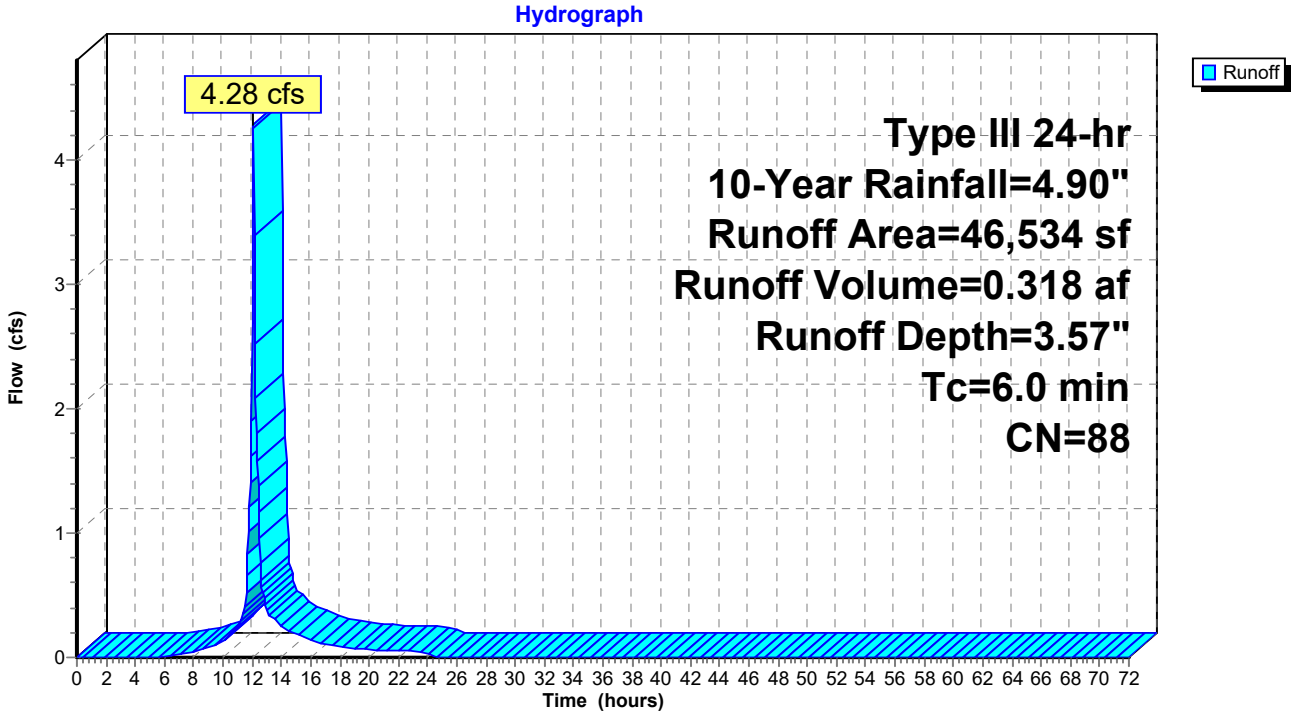
Runoff = 4.28 cfs @ 12.09 hrs, Volume= 0.318 af, Depth= 3.57"
Routed to Reach DP : DP-1

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=4.90"

Area (sf)	CN	Description
2,673	98	Paved parking, HSG C
3,335	98	Roofs, HSG C
40,526	86	<50% Grass cover, Poor, HSG C
46,534	88	Weighted Average
40,526		87.09% Pervious Area
6,008		12.91% Impervious Area

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

Subcatchment EDA: EDA



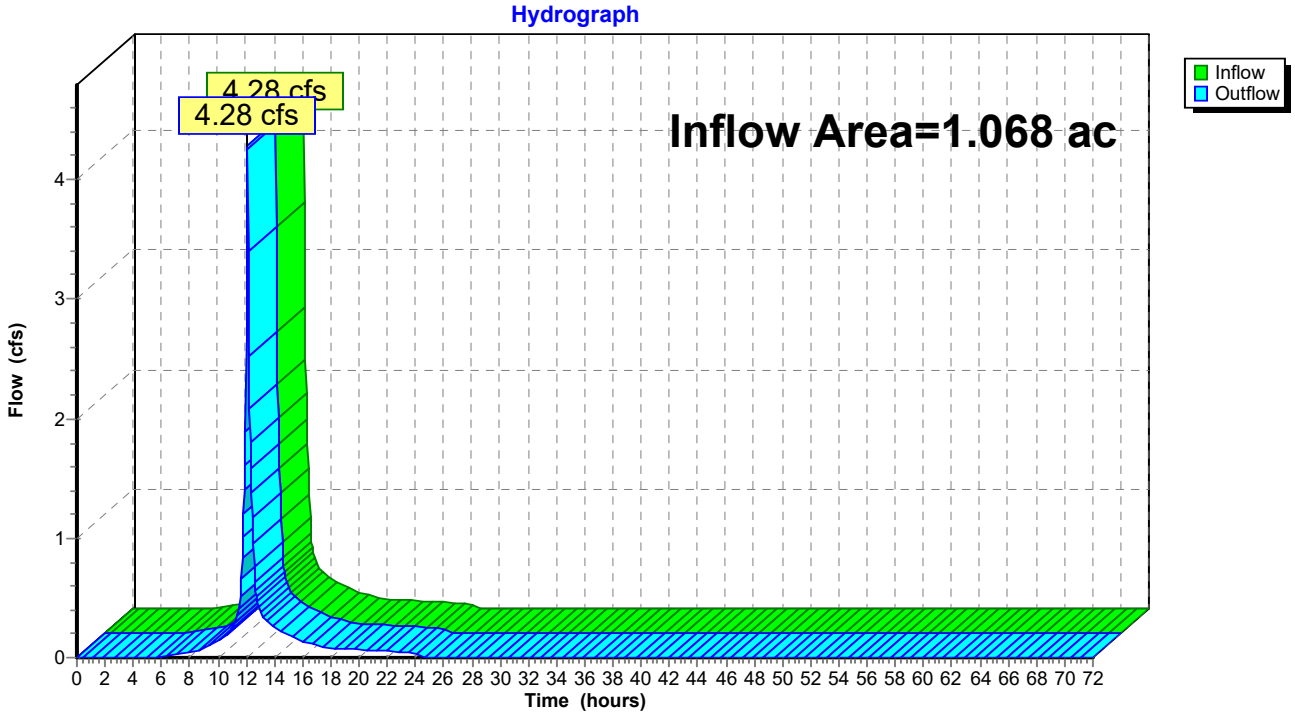
Summary for Reach DP: DP-1

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

Inflow Area = 1.068 ac, 12.91% Impervious, Inflow Depth = 3.57" for 10-Year event
Inflow = 4.28 cfs @ 12.09 hrs, Volume= 0.318 af
Outflow = 4.28 cfs @ 12.09 hrs, Volume= 0.318 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP: DP-1



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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EDA: EDA Runoff Area=46,534 sf 12.91% Impervious Runoff Depth=7.38"
Tc=6.0 min CN=88 Runoff=8.50 cfs 0.657 af

Reach DP: DP-1 Inflow=8.50 cfs 0.657 af
Outflow=8.50 cfs 0.657 af

Total Runoff Area = 1.068 ac Runoff Volume = 0.657 af Average Runoff Depth = 7.38"
87.09% Pervious = 0.930 ac 12.91% Impervious = 0.138 ac

Summary for Subcatchment EDA: EDA

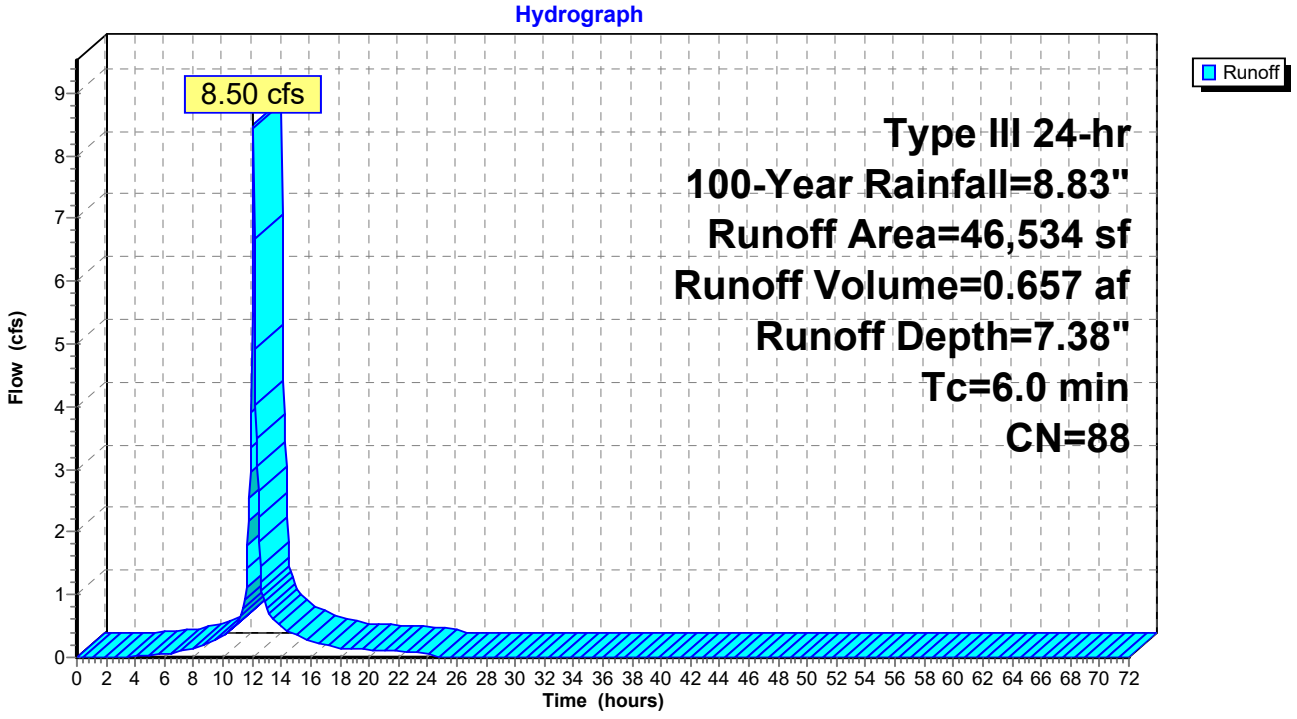
Runoff = 8.50 cfs @ 12.09 hrs, Volume= 0.657 af, Depth= 7.38"
Routed to Reach DP : DP-1

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=8.83"

Area (sf)	CN	Description
2,673	98	Paved parking, HSG C
3,335	98	Roofs, HSG C
40,526	86	<50% Grass cover, Poor, HSG C
46,534	88	Weighted Average
40,526		87.09% Pervious Area
6,008		12.91% Impervious Area

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

Subcatchment EDA: EDA



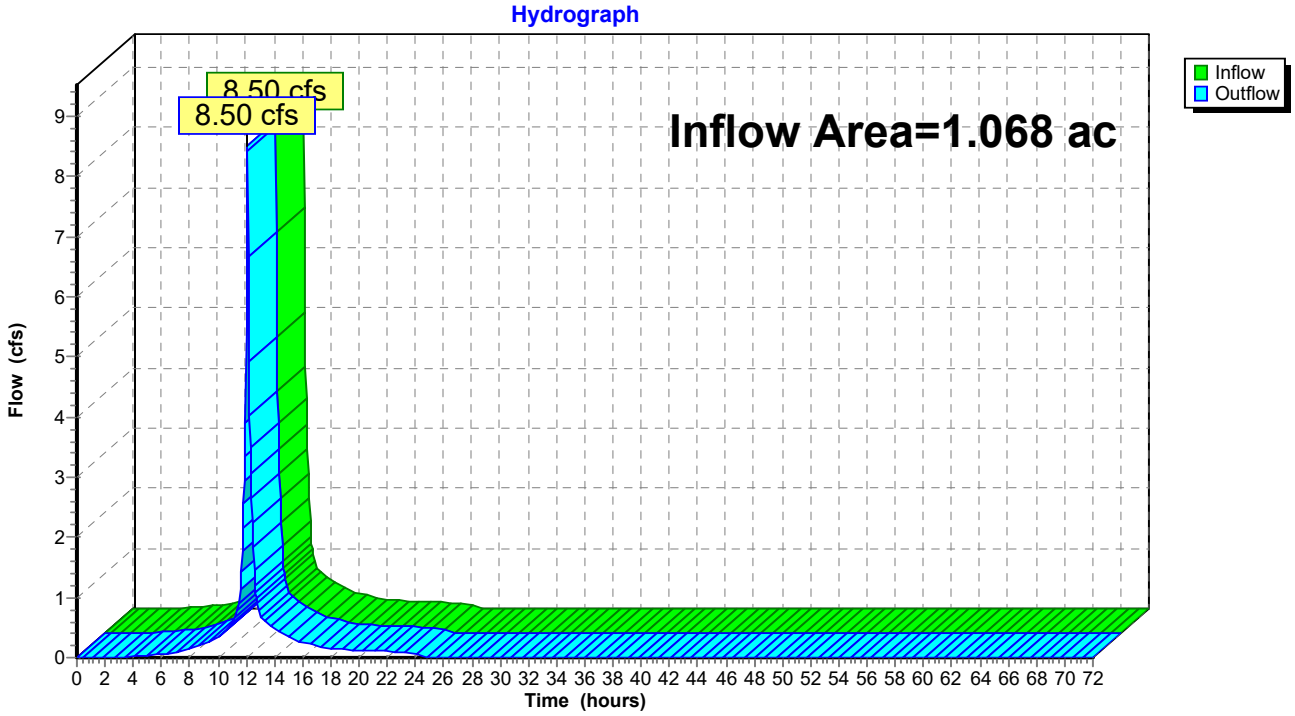
Summary for Reach DP: DP-1

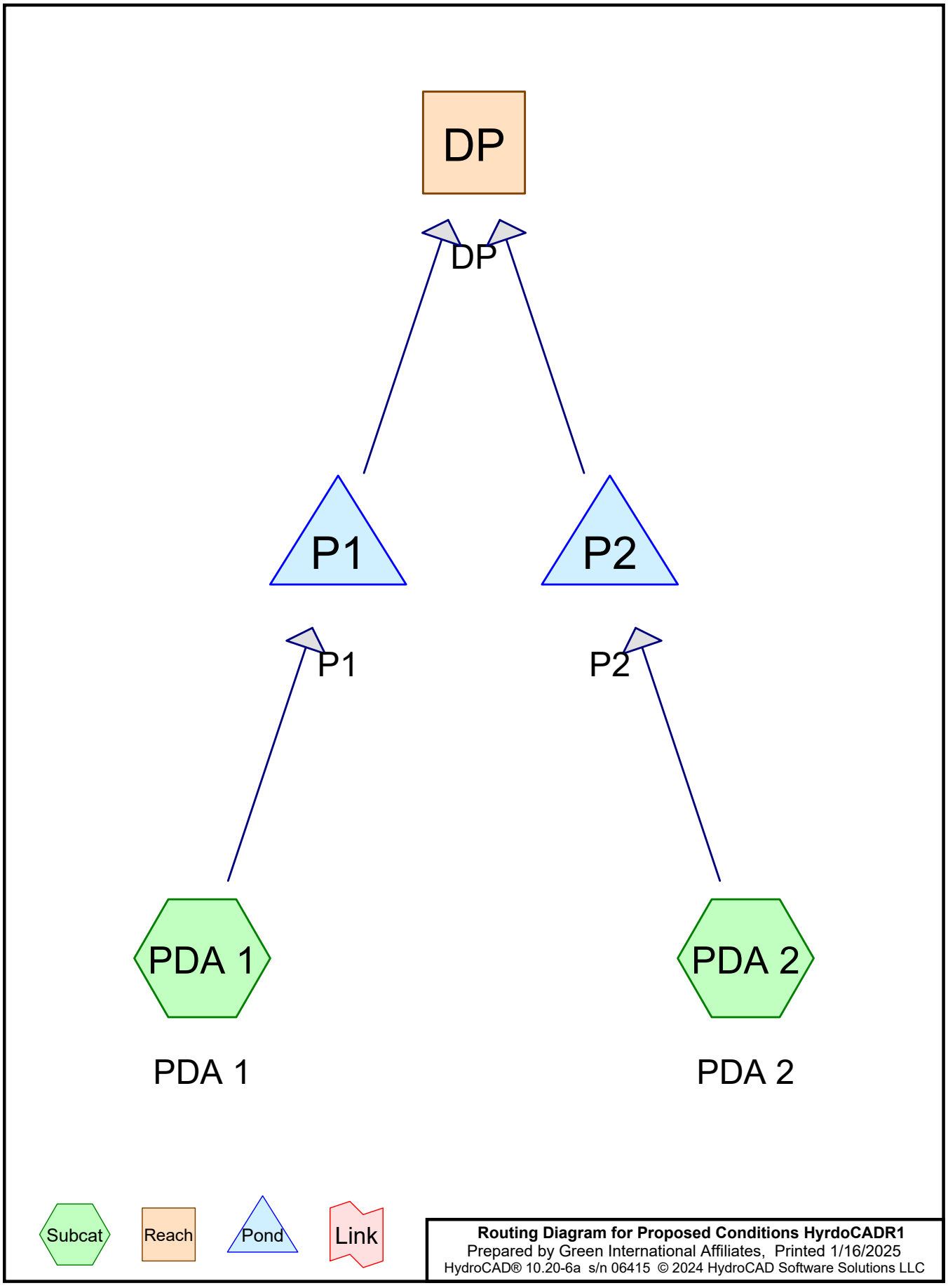
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.068 ac, 12.91% Impervious, Inflow Depth = 7.38" for 100-Year event
Inflow = 8.50 cfs @ 12.09 hrs, Volume= 0.657 af
Outflow = 8.50 cfs @ 12.09 hrs, Volume= 0.657 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP: DP-1





Routing Diagram for Proposed Conditions HyrdoCADR1
Prepared by Green International Affiliates, Printed 1/16/2025

Project Notes

Rainfall events imported from "Atlas-14-Rain.txt" for 448 MA Suffolk
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Rainfall Events Listing (selected events)

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	3.26	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.90	2
3	100-Year	Type III 24-hr		Default	24.00	1	8.83	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.483	86	<50% Grass cover, Poor, HSG C (PDA 1, PDA 2)
0.471	98	Paved parking, HSG C (PDA 1, PDA 2)
0.114	98	Roofs, HSG C (PDA 1, PDA 2)
1.068	**93**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.068	HSG C	PDA 1, PDA 2
0.000	HSG D	
0.000	Other	
1.068		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.483	0.000	0.000	0.483	<50% Grass cover, Poor	PDA 1, PDA 2
0.000	0.000	0.471	0.000	0.000	0.471	Paved parking	PDA 1, PDA 2
0.000	0.000	0.114	0.000	0.000	0.114	Roofs	PDA 1, PDA 2
0.000	**0.000**	**1.068**	**0.000**	**0.000**	**1.068**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	P1	86.50	86.30	12.0	0.0167	0.013	0.0	15.0	0.0	
2	P2	86.50	85.80	68.0	0.0103	0.013	0.0	10.0	0.0	

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 PDA 1: PDA 1 Runoff Area=32,609 sf 49.09% Impervious Runoff Depth=2.41"
Tc=6.0 min CN=92 Runoff=2.02 cfs 0.150 af

Subcatchment PDA 2: PDA 2 Runoff Area=13,926 sf 68.05% Impervious Runoff Depth=2.60"
Tc=6.0 min CN=94 Runoff=0.91 cfs 0.069 af

Reach DP: DP Inflow=2.43 cfs 0.167 af
Outflow=2.43 cfs 0.167 af

Pond P1: P1 Peak Elev=87.16' Storage=2,305 cf Inflow=2.02 cfs 0.150 af
15.0" Round Culvert n=0.013 L=12.0' S=0.0167 '/' Outflow=1.62 cfs 0.111 af

Pond P2: P2 Peak Elev=87.01' Storage=792 cf Inflow=0.91 cfs 0.069 af
10.0" Round Culvert n=0.013 L=68.0' S=0.0103 '/' Outflow=0.85 cfs 0.055 af

Total Runoff Area = 1.068 ac Runoff Volume = 0.220 af Average Runoff Depth = 2.47"
45.24% Pervious = 0.483 ac 54.76% Impervious = 0.585 ac

Summary for Subcatchment PDA 1: PDA 1

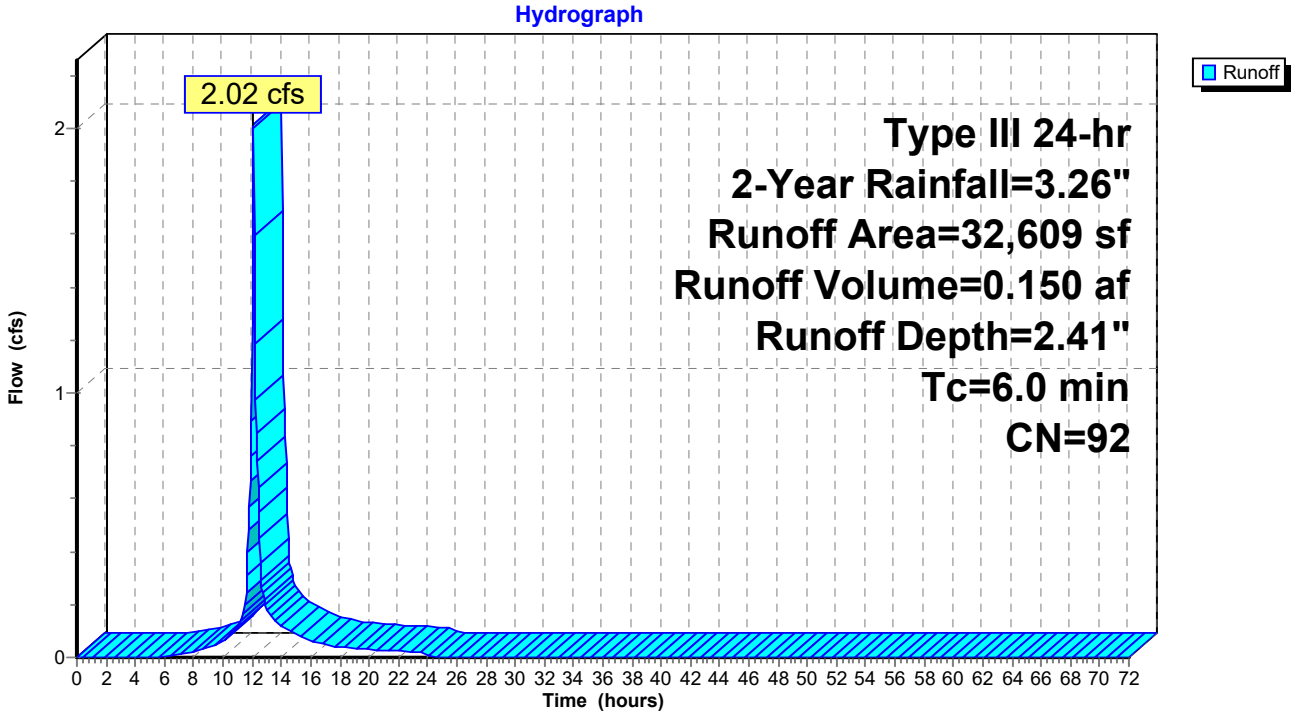
Runoff = 2.02 cfs @ 12.09 hrs, Volume= 0.150 af, Depth= 2.41"
Routed to Pond P1 : P1

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=3.26"

Area (sf)	CN	Description
13,592	98	Paved parking, HSG C
2,415	98	Roofs, HSG C
16,602	86	<50% Grass cover, Poor, HSG C
32,609	92	Weighted Average
16,602		50.91% Pervious Area
16,007		49.09% Impervious Area

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

Subcatchment PDA 1: PDA 1



Summary for Subcatchment PDA 2: PDA 2

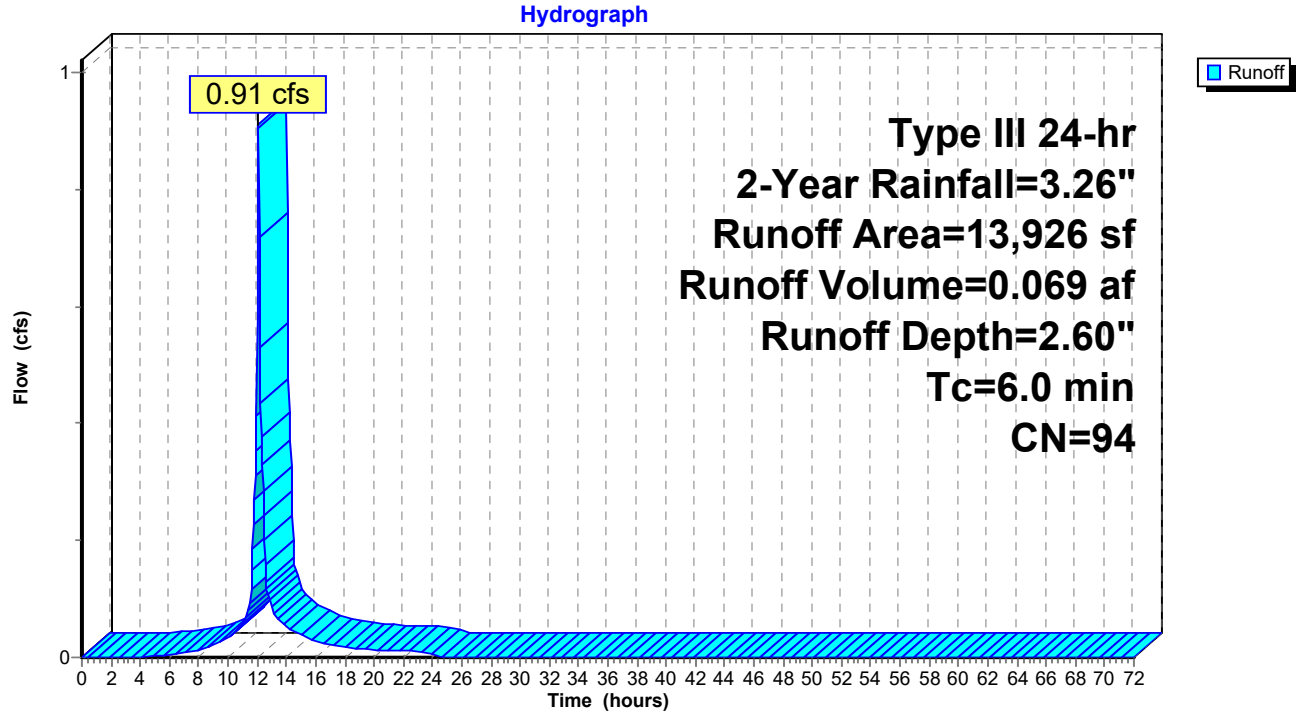
Runoff = 0.91 cfs @ 12.09 hrs, Volume= 0.069 af, Depth= 2.60"
Routed to Pond P2 : P2

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=3.26"

Area (sf)	CN	Description
6,910	98	Paved parking, HSG C
2,567	98	Roofs, HSG C
4,449	86	<50% Grass cover, Poor, HSG C
13,926	94	Weighted Average
4,449		31.95% Pervious Area
9,477		68.05% Impervious Area

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

Subcatchment PDA 2: PDA 2



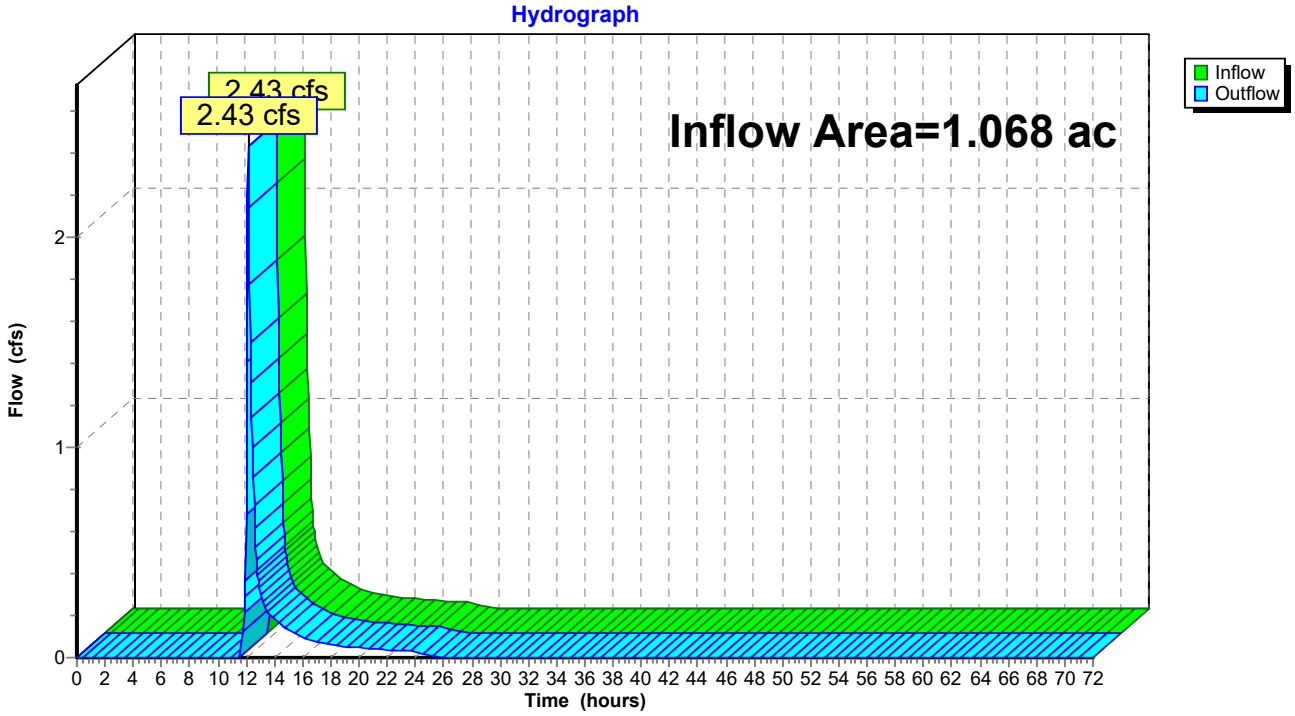
Summary for Reach DP: DP

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

Inflow Area = 1.068 ac, 54.76% Impervious, Inflow Depth = 1.87" for 2-Year event
Inflow = 2.43 cfs @ 12.15 hrs, Volume= 0.167 af
Outflow = 2.43 cfs @ 12.15 hrs, Volume= 0.167 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP: DP



Summary for Pond P1: P1

Inflow Area = 0.749 ac, 49.09% Impervious, Inflow Depth = 2.41" for 2-Year event
Inflow = 2.02 cfs @ 12.09 hrs, Volume= 0.150 af
Outflow = 1.62 cfs @ 12.16 hrs, Volume= 0.111 af, Atten= 20%, Lag= 4.1 min
Primary = 1.62 cfs @ 12.16 hrs, Volume= 0.111 af
Routed to Reach DP : DP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 87.16' @ 12.16 hrs Surf.Area= 1,343 sf Storage= 2,305 cf

Plug-Flow detention time= 158.1 min calculated for 0.111 af (74% of inflow)
Center-of-Mass det. time= 73.1 min (870.2 - 797.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	84.50'	1,401 cf	**25.25'W x 53.18'L x 3.83'H Field A** 5,148 cf Overall - 1,645 cf Embedded = 3,503 cf x 40.0% Voids
#2A	85.33'	1,645 cf	**Cultec R-300HD** x 35 Inside #1 Effective Size= 45.6"W x 30.0"H => 6.53 sf x 7.08'L = 46.2 cf Overall Size= 51.0"W x 30.0"H x 7.54'L with 0.46' Overlap 35 Chambers in 5 Rows Cap Storage= 2.7 cf x 2 x 5 rows = 26.5 cf
		3,046 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	86.50'	**15.0" Round Culvert** L= 12.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 86.50' / 86.30' S= 0.0167 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=1.59 cfs @ 12.16 hrs HW=87.15' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.59 cfs @ 3.56 fps)

Pond P1: P1 - Chamber Wizard Field A

Chamber Model = Cultec R-300HD (Cultec Recharger® 300HD)
Effective Size= 45.6"W x 30.0"H => 6.53 sf x 7.08'L = 46.2 cf
Overall Size= 51.0"W x 30.0"H x 7.54'L with 0.46' Overlap
Cap Storage= 2.7 cf x 2 x 5 rows = 26.5 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

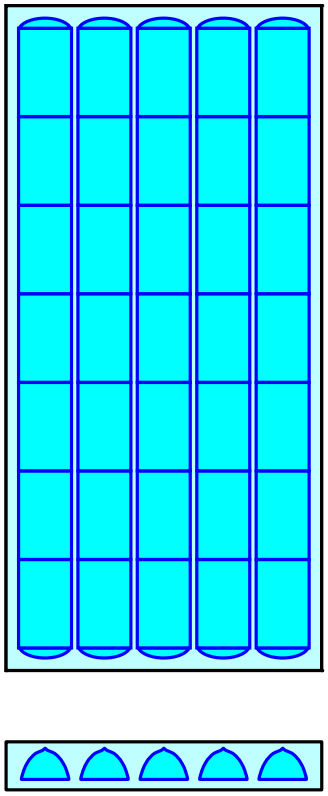
7 Chambers/Row x 7.08' Long +0.80' Cap Length x 2 = 51.18' Row Length +12.0" End Stone x 2 = 53.18' Base Length
5 Rows x 51.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 25.25' Base Width
10.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.83' Field Height

35 Chambers x 46.2 cf + 2.7 cf Cap Volume x 2 x 5 Rows = 1,645.0 cf Chamber Storage

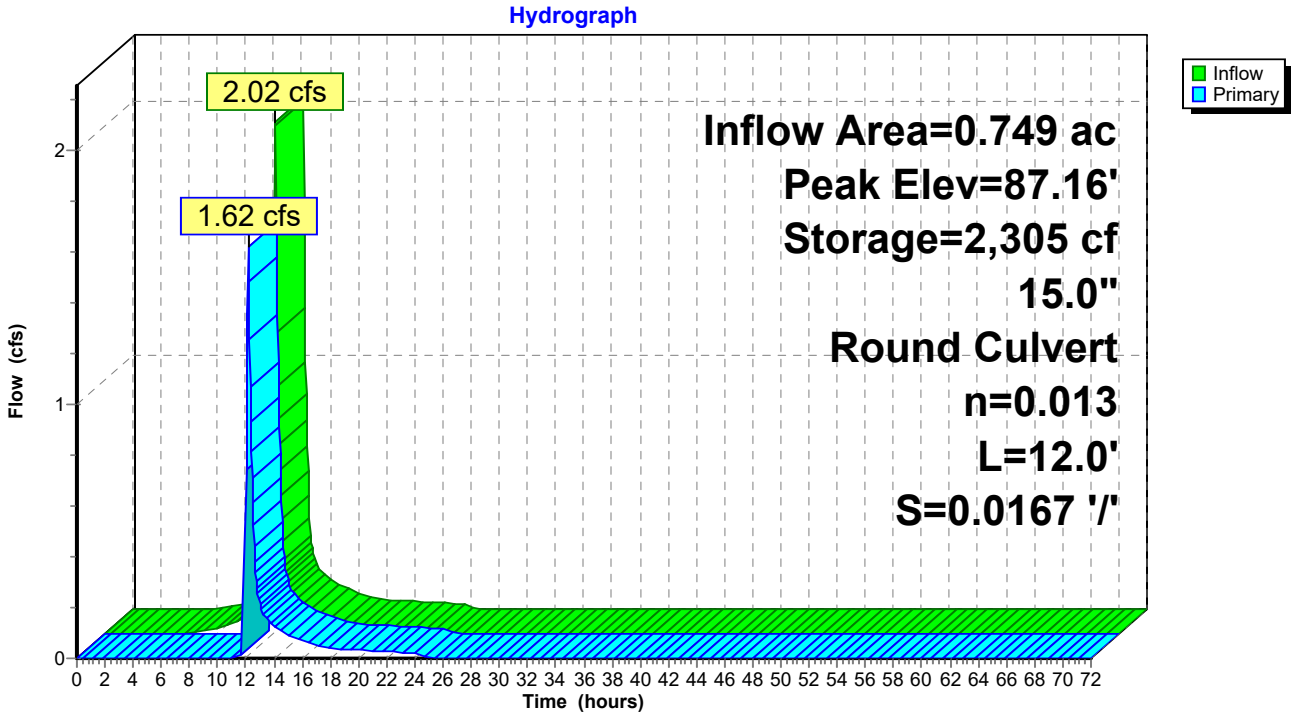
5,147.7 cf Field - 1,645.0 cf Chambers = 3,502.7 cf Stone x 40.0% Voids = 1,401.1 cf Stone Storage

Chamber Storage + Stone Storage = 3,046.1 cf = 0.070 af
Overall Storage Efficiency = 59.2%
Overall System Size = 53.18' x 25.25' x 3.83'

35 Chambers
190.7 cy Field
129.7 cy Stone



Pond P1: P1


Hydrograph
2.02 cfs
1.62 cfs
Inflow Area=0.749 ac
Peak Elev=87.16'
Storage=2,305 cf
15.0"
Round Culvert
n=0.013
L=12.0'
S=0.0167 '/'
Inflow
Primary
Flow (cfs)
0
1
2
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond P2: P2

Inflow Area = 0.320 ac, 68.05% Impervious, Inflow Depth = 2.60" for 2-Year event
Inflow = 0.91 cfs @ 12.09 hrs, Volume= 0.069 af
Outflow = 0.85 cfs @ 12.12 hrs, Volume= 0.055 af, Atten= 6%, Lag= 1.9 min
Primary = 0.85 cfs @ 12.12 hrs, Volume= 0.055 af
Routed to Reach DP : DP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 87.01' @ 12.12 hrs Surf.Area= 503 sf Storage= 792 cf

Plug-Flow detention time= 135.4 min calculated for 0.055 af (80% of inflow)
Center-of-Mass det. time= 58.9 min (845.4 - 786.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	84.50'	543 cf	**15.75'W x 31.93'L x 3.83'H Field A** 1,928 cf Overall - 571 cf Embedded = 1,357 cf x 40.0% Voids
#2A	85.33'	571 cf	**Cultec R-300HD** x 12 Inside #1 Effective Size= 45.6"W x 30.0"H => 6.53 sf x 7.08'L = 46.2 cf Overall Size= 51.0"W x 30.0"H x 7.54'L with 0.46' Overlap 12 Chambers in 3 Rows Cap Storage= 2.7 cf x 2 x 3 rows = 15.9 cf
		1,114 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	86.50'	**10.0" Round Culvert** L= 68.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 86.50' / 85.80' S= 0.0103 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.55 sf

Primary OutFlow Max=0.83 cfs @ 12.12 hrs HW=87.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.83 cfs @ 3.45 fps)

Pond P2: P2 - Chamber Wizard Field A

Chamber Model = Cultec R-300HD (Cultec Recharger® 300HD)
Effective Size= 45.6"W x 30.0"H => 6.53 sf x 7.08'L = 46.2 cf
Overall Size= 51.0"W x 30.0"H x 7.54'L with 0.46' Overlap
Cap Storage= 2.7 cf x 2 x 3 rows = 15.9 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

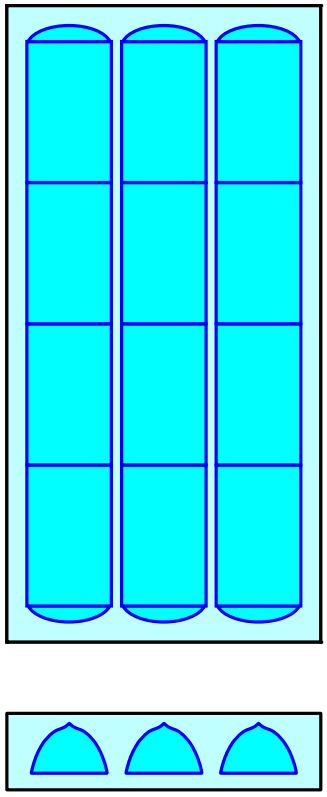
4 Chambers/Row x 7.08' Long +0.80' Cap Length x 2 = 29.93' Row Length +12.0" End Stone x 2 = 31.93' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
10.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.83' Field Height

12 Chambers x 46.2 cf + 2.7 cf Cap Volume x 2 x 3 Rows = 570.8 cf Chamber Storage

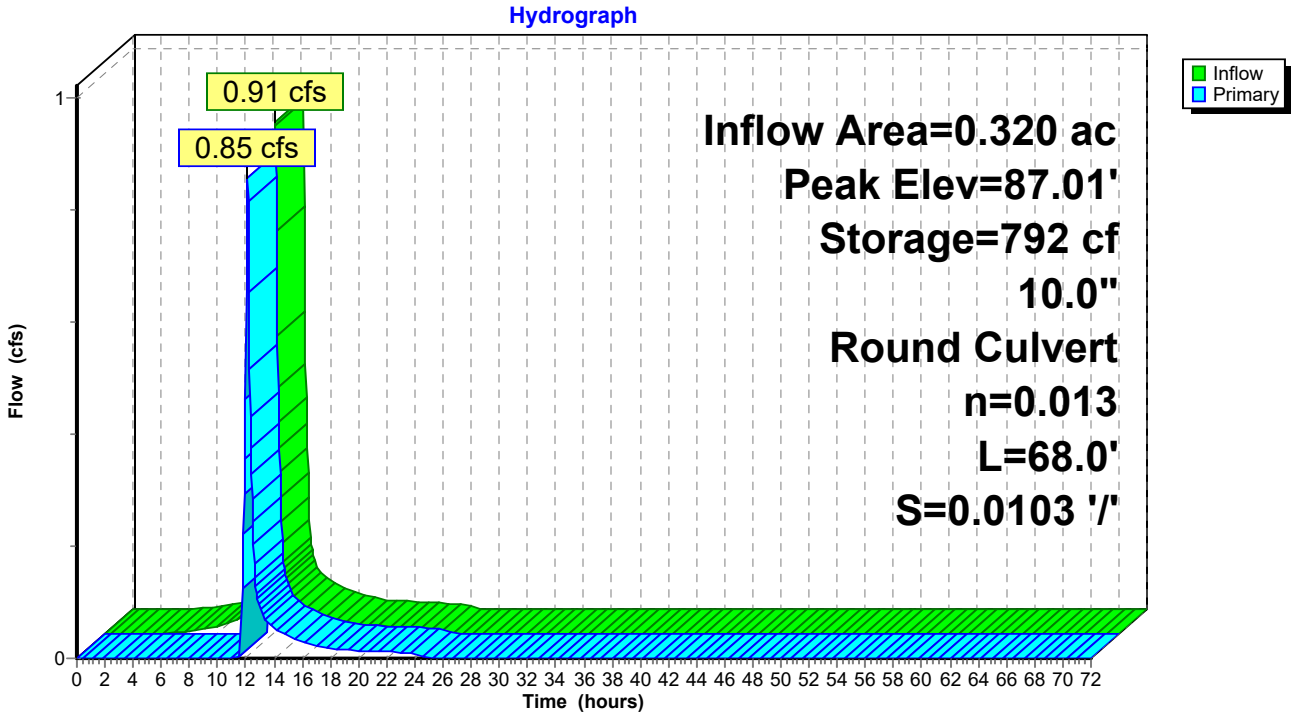
1,928.0 cf Field - 570.8 cf Chambers = 1,357.1 cf Stone x 40.0% Voids = 542.9 cf Stone Storage

Chamber Storage + Stone Storage = 1,113.7 cf = 0.026 af
Overall Storage Efficiency = 57.8%
Overall System Size = 31.93' x 15.75' x 3.83'

12 Chambers
71.4 cy Field
50.3 cy Stone



Pond P2: P2


Hydrograph
0.91 cfs
0.85 cfs
Inflow Area=0.320 ac
Peak Elev=87.01'
Storage=792 cf
10.0"
Round Culvert
n=0.013
L=68.0'
S=0.0103 '/'
Inflow
Primary
Flow (cfs)
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72

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 PDA 1: PDA 1 Runoff Area=32,609 sf 49.09% Impervious Runoff Depth=3.99"
Tc=6.0 min CN=92 Runoff=3.25 cfs 0.249 af

Subcatchment PDA 2: PDA 2 Runoff Area=13,926 sf 68.05% Impervious Runoff Depth=4.21"
Tc=6.0 min CN=94 Runoff=1.43 cfs 0.112 af

Reach DP: DP Inflow=4.27 cfs 0.308 af
Outflow=4.27 cfs 0.308 af

Pond P1: P1 Peak Elev=87.45' Storage=2,539 cf Inflow=3.25 cfs 0.249 af
15.0" Round Culvert n=0.013 L=12.0' S=0.0167 '/' Outflow=2.91 cfs 0.210 af

Pond P2: P2 Peak Elev=87.19' Storage=848 cf Inflow=1.43 cfs 0.112 af
10.0" Round Culvert n=0.013 L=68.0' S=0.0103 '/' Outflow=1.36 cfs 0.098 af

Total Runoff Area = 1.068 ac Runoff Volume = 0.361 af Average Runoff Depth = 4.06"
45.24% Pervious = 0.483 ac 54.76% Impervious = 0.585 ac

Summary for Subcatchment PDA 1: PDA 1

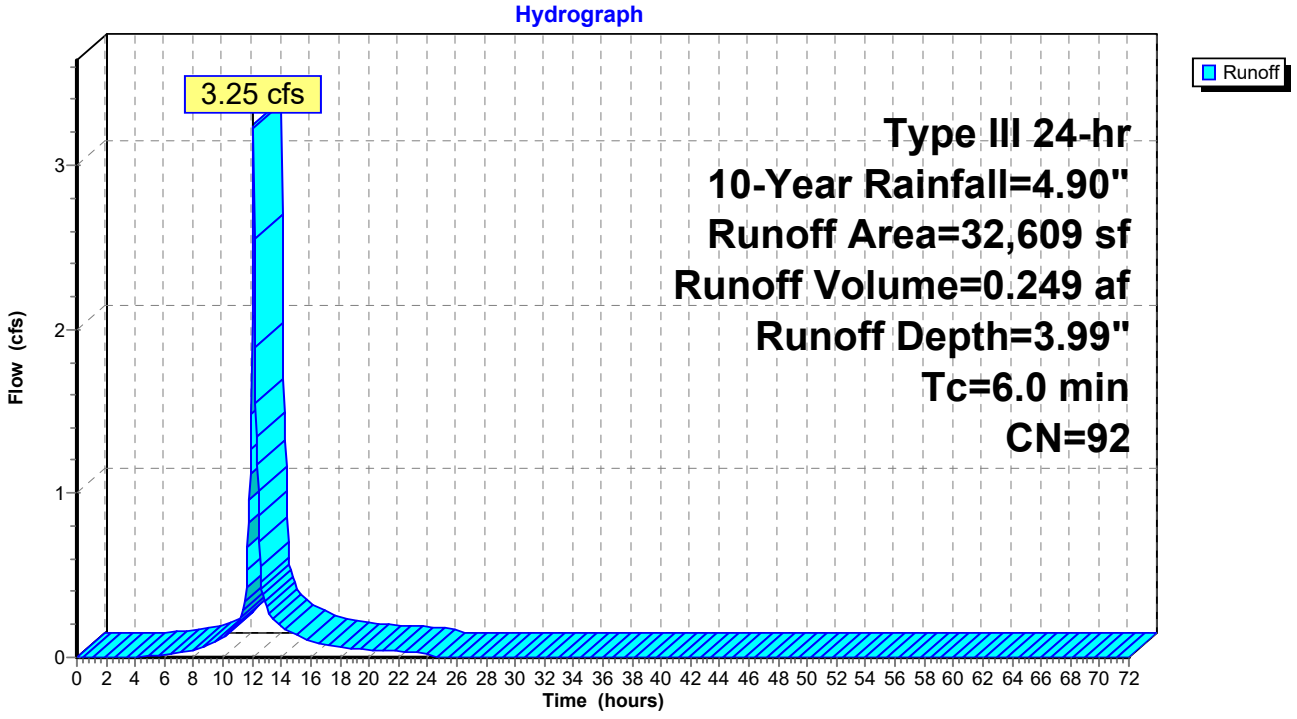
Runoff = 3.25 cfs @ 12.09 hrs, Volume= 0.249 af, Depth= 3.99"
Routed to Pond P1 : P1

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=4.90"

Area (sf)	CN	Description
13,592	98	Paved parking, HSG C
2,415	98	Roofs, HSG C
16,602	86	<50% Grass cover, Poor, HSG C
32,609	92	Weighted Average
16,602		50.91% Pervious Area
16,007		49.09% Impervious Area

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

Subcatchment PDA 1: PDA 1



Summary for Subcatchment PDA 2: PDA 2

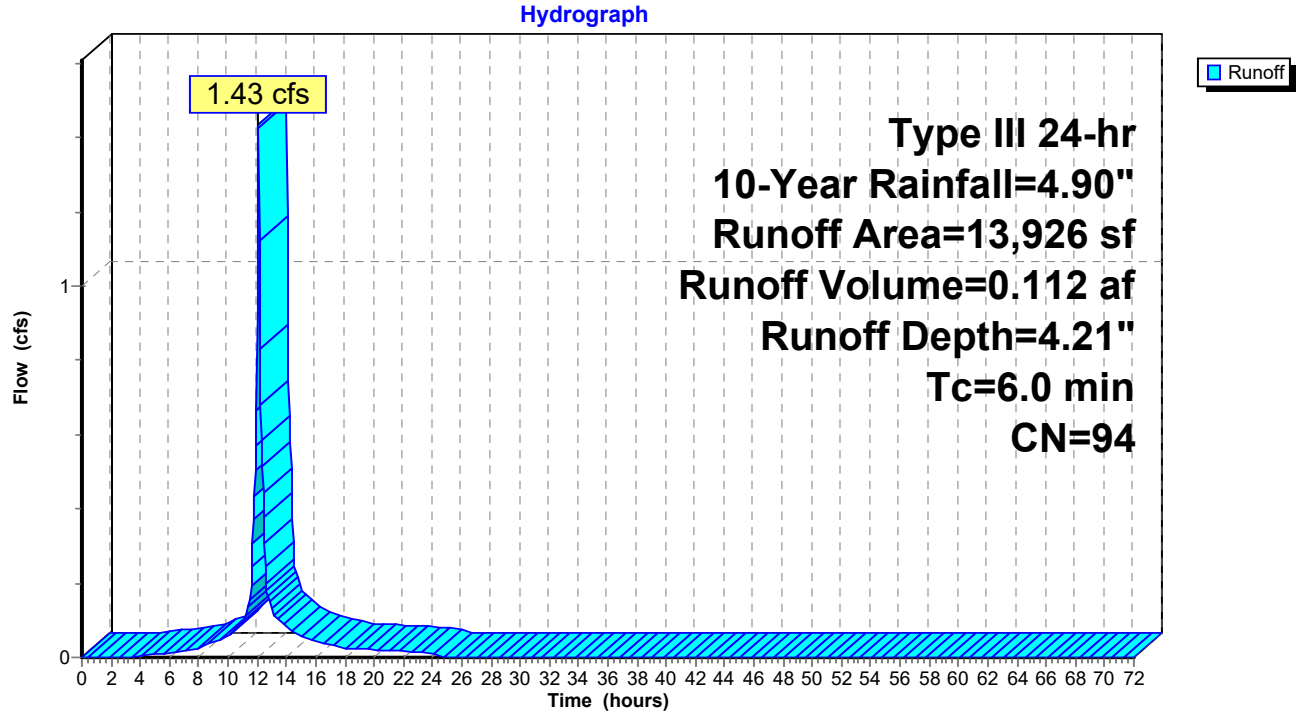
Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.112 af, Depth= 4.21"
Routed to Pond P2 : P2

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=4.90"

Area (sf)	CN	Description
6,910	98	Paved parking, HSG C
2,567	98	Roofs, HSG C
4,449	86	<50% Grass cover, Poor, HSG C
13,926	94	Weighted Average
4,449		31.95% Pervious Area
9,477		68.05% Impervious Area

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

Subcatchment PDA 2: PDA 2



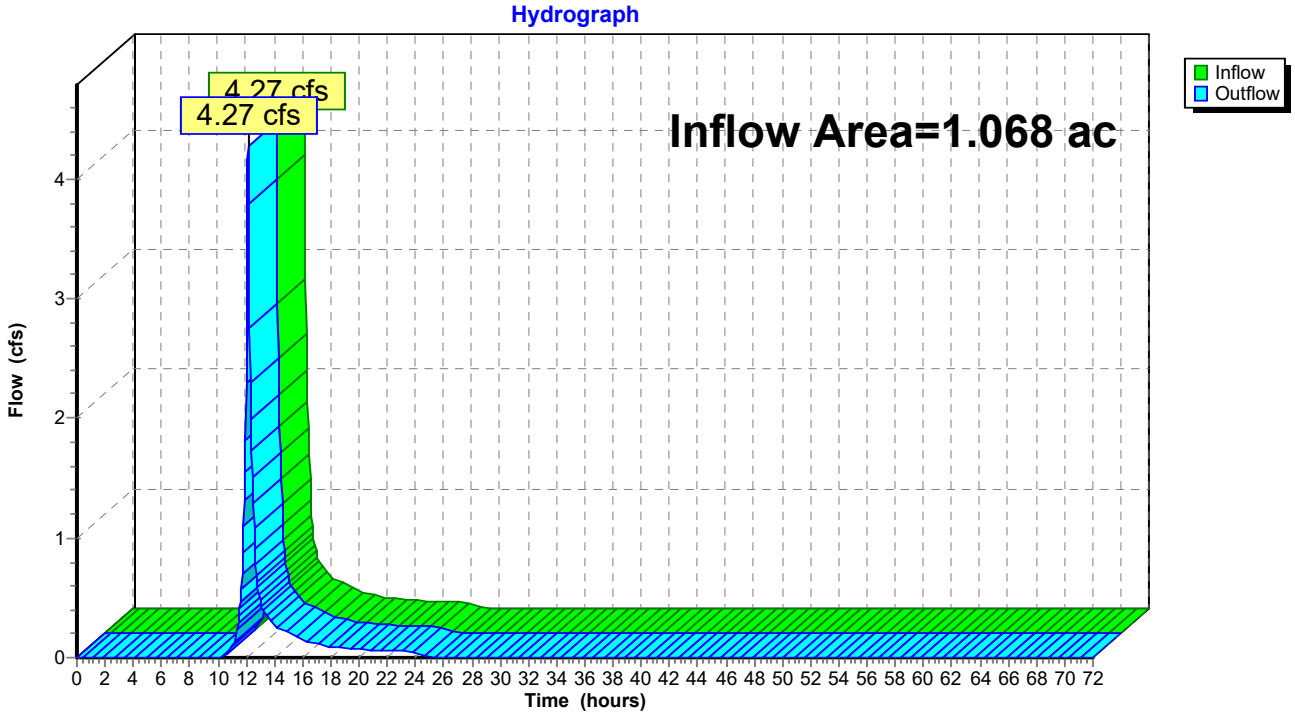
Summary for Reach DP: DP

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

Inflow Area = 1.068 ac, 54.76% Impervious, Inflow Depth = 3.46" for 10-Year event
Inflow = 4.27 cfs @ 12.12 hrs, Volume= 0.308 af
Outflow = 4.27 cfs @ 12.12 hrs, Volume= 0.308 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP: DP



Summary for Pond P1: P1

Inflow Area = 0.749 ac, 49.09% Impervious, Inflow Depth = 3.99" for 10-Year event
Inflow = 3.25 cfs @ 12.09 hrs, Volume= 0.249 af
Outflow = 2.91 cfs @ 12.13 hrs, Volume= 0.210 af, Atten= 11%, Lag= 2.6 min
Primary = 2.91 cfs @ 12.13 hrs, Volume= 0.210 af
Routed to Reach DP : DP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 87.45' @ 12.13 hrs Surf.Area= 1,343 sf Storage= 2,539 cf

Plug-Flow detention time= 119.2 min calculated for 0.210 af (84% of inflow)
Center-of-Mass det. time= 55.1 min (838.4 - 783.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	84.50'	1,401 cf	**25.25'W x 53.18'L x 3.83'H Field A** 5,148 cf Overall - 1,645 cf Embedded = 3,503 cf x 40.0% Voids
#2A	85.33'	1,645 cf	**Cultec R-300HD** x 35 Inside #1 Effective Size= 45.6"W x 30.0"H => 6.53 sf x 7.08'L = 46.2 cf Overall Size= 51.0"W x 30.0"H x 7.54'L with 0.46' Overlap 35 Chambers in 5 Rows Cap Storage= 2.7 cf x 2 x 5 rows = 26.5 cf
		3,046 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	86.50'	**15.0" Round Culvert** L= 12.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 86.50' / 86.30' S= 0.0167 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=2.85 cfs @ 12.13 hrs HW=87.44' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 2.85 cfs @ 4.00 fps)

Pond P1: P1 - Chamber Wizard Field A

Chamber Model = Cultec R-300HD (Cultec Recharger® 300HD)
Effective Size= 45.6"W x 30.0"H => 6.53 sf x 7.08'L = 46.2 cf
Overall Size= 51.0"W x 30.0"H x 7.54'L with 0.46' Overlap
Cap Storage= 2.7 cf x 2 x 5 rows = 26.5 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

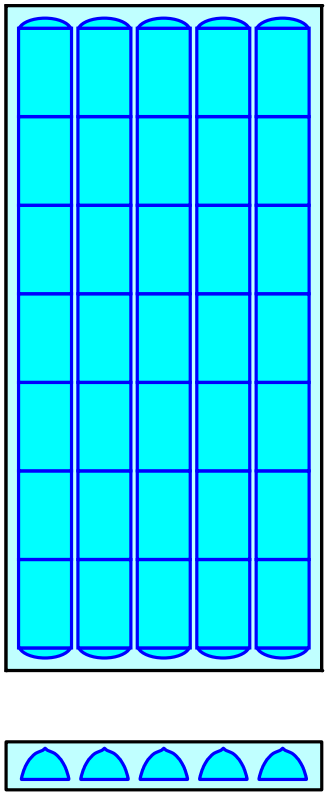
7 Chambers/Row x 7.08' Long +0.80' Cap Length x 2 = 51.18' Row Length +12.0" End Stone x 2 = 53.18' Base Length
5 Rows x 51.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 25.25' Base Width
10.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.83' Field Height

35 Chambers x 46.2 cf + 2.7 cf Cap Volume x 2 x 5 Rows = 1,645.0 cf Chamber Storage

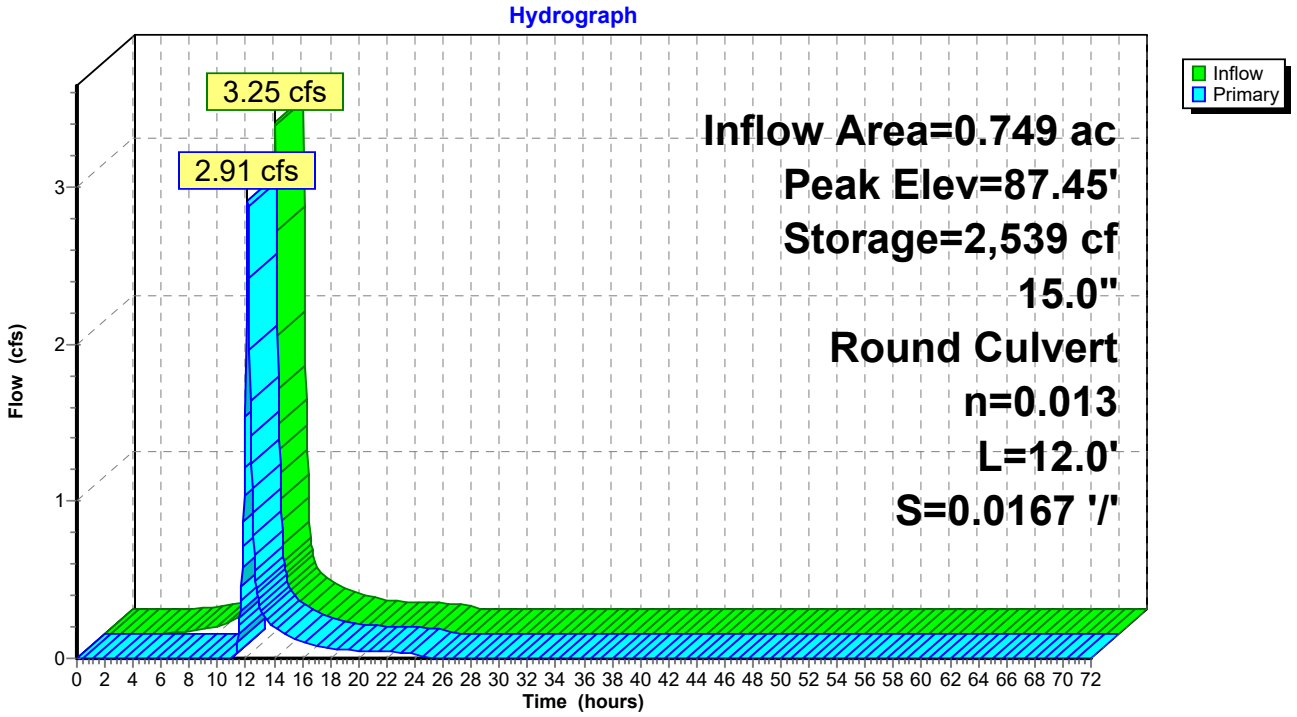
5,147.7 cf Field - 1,645.0 cf Chambers = 3,502.7 cf Stone x 40.0% Voids = 1,401.1 cf Stone Storage

Chamber Storage + Stone Storage = 3,046.1 cf = 0.070 af
Overall Storage Efficiency = 59.2%
Overall System Size = 53.18' x 25.25' x 3.83'

35 Chambers
190.7 cy Field
129.7 cy Stone



Pond P1: P1


Hydrograph
3.25 cfs
2.91 cfs
Inflow Area=0.749 ac
Peak Elev=87.45'
Storage=2,539 cf
15.0"
Round Culvert
n=0.013
L=12.0'
S=0.0167 '/'
Inflow
Primary
Flow (cfs)
0
1
2
3
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond P2: P2

Inflow Area = 0.320 ac, 68.05% Impervious, Inflow Depth = 4.21" for 10-Year event
Inflow = 1.43 cfs @ 12.09 hrs, Volume= 0.112 af
Outflow = 1.36 cfs @ 12.11 hrs, Volume= 0.098 af, Atten= 5%, Lag= 1.7 min
Primary = 1.36 cfs @ 12.11 hrs, Volume= 0.098 af
Routed to Reach DP : DP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 87.19' @ 12.11 hrs Surf.Area= 503 sf Storage= 848 cf

Plug-Flow detention time= 104.9 min calculated for 0.098 af (87% of inflow)
Center-of-Mass det. time= 47.2 min (821.2 - 774.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	84.50'	543 cf	**15.75'W x 31.93'L x 3.83'H Field A** 1,928 cf Overall - 571 cf Embedded = 1,357 cf x 40.0% Voids
#2A	85.33'	571 cf	**Cultec R-300HD** x 12 Inside #1 Effective Size= 45.6"W x 30.0"H => 6.53 sf x 7.08'L = 46.2 cf Overall Size= 51.0"W x 30.0"H x 7.54'L with 0.46' Overlap 12 Chambers in 3 Rows Cap Storage= 2.7 cf x 2 x 3 rows = 15.9 cf
		1,114 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	86.50'	**10.0" Round Culvert** L= 68.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 86.50' / 85.80' S= 0.0103 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.55 sf

Primary OutFlow Max=1.33 cfs @ 12.11 hrs HW=87.18' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.33 cfs @ 3.82 fps)

Pond P2: P2 - Chamber Wizard Field A

Chamber Model = Cultec R-300HD (Cultec Recharger® 300HD)
Effective Size= 45.6"W x 30.0"H => 6.53 sf x 7.08'L = 46.2 cf
Overall Size= 51.0"W x 30.0"H x 7.54'L with 0.46' Overlap
Cap Storage= 2.7 cf x 2 x 3 rows = 15.9 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

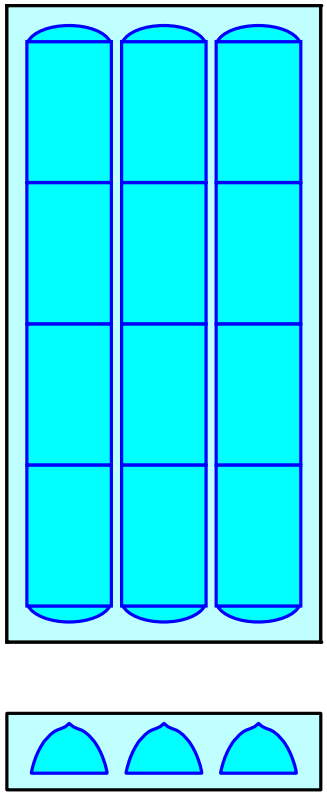
4 Chambers/Row x 7.08' Long +0.80' Cap Length x 2 = 29.93' Row Length +12.0" End Stone x 2 = 31.93' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
10.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.83' Field Height

12 Chambers x 46.2 cf + 2.7 cf Cap Volume x 2 x 3 Rows = 570.8 cf Chamber Storage

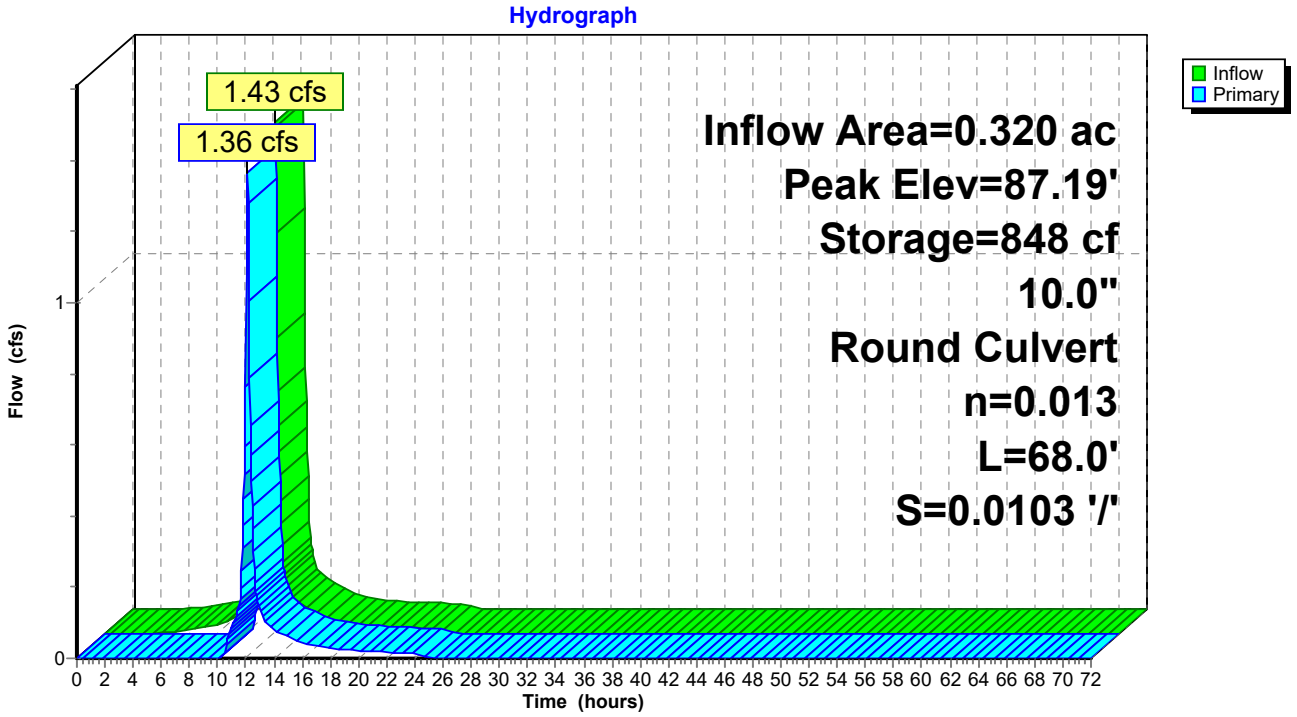
1,928.0 cf Field - 570.8 cf Chambers = 1,357.1 cf Stone x 40.0% Voids = 542.9 cf Stone Storage

Chamber Storage + Stone Storage = 1,113.7 cf = 0.026 af
Overall Storage Efficiency = 57.8%
Overall System Size = 31.93' x 15.75' x 3.83'

12 Chambers
71.4 cy Field
50.3 cy Stone



Pond P2: P2


Hydrograph
1.43 cfs
1.36 cfs
Inflow Area=0.320 ac
Peak Elev=87.19'
Storage=848 cf
10.0"
Round Culvert
n=0.013
L=68.0'
S=0.0103 '/'
Inflow
Primary
Flow (cfs)
0
1
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

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 PDA 1: PDA 1 Runoff Area=32,609 sf 49.09% Impervious Runoff Depth=7.87"
Tc=6.0 min CN=92 Runoff=6.17 cfs 0.491 af

Subcatchment PDA 2: PDA 2 Runoff Area=13,926 sf 68.05% Impervious Runoff Depth=8.11"
Tc=6.0 min CN=94 Runoff=2.67 cfs 0.216 af

Reach DP: DP Inflow=8.08 cfs 0.654 af
Outflow=8.08 cfs 0.654 af

Pond P1: P1 Peak Elev=88.09' Storage=2,917 cf Inflow=6.17 cfs 0.491 af
15.0" Round Culvert n=0.013 L=12.0' S=0.0167 '/' Outflow=5.73 cfs 0.452 af

Pond P2: P2 Peak Elev=87.86' Storage=1,019 cf Inflow=2.67 cfs 0.216 af
10.0" Round Culvert n=0.013 L=68.0' S=0.0103 '/' Outflow=2.36 cfs 0.202 af

Total Runoff Area = 1.068 ac Runoff Volume = 0.707 af Average Runoff Depth = 7.94"
45.24% Pervious = 0.483 ac 54.76% Impervious = 0.585 ac

Summary for Subcatchment PDA 1: PDA 1

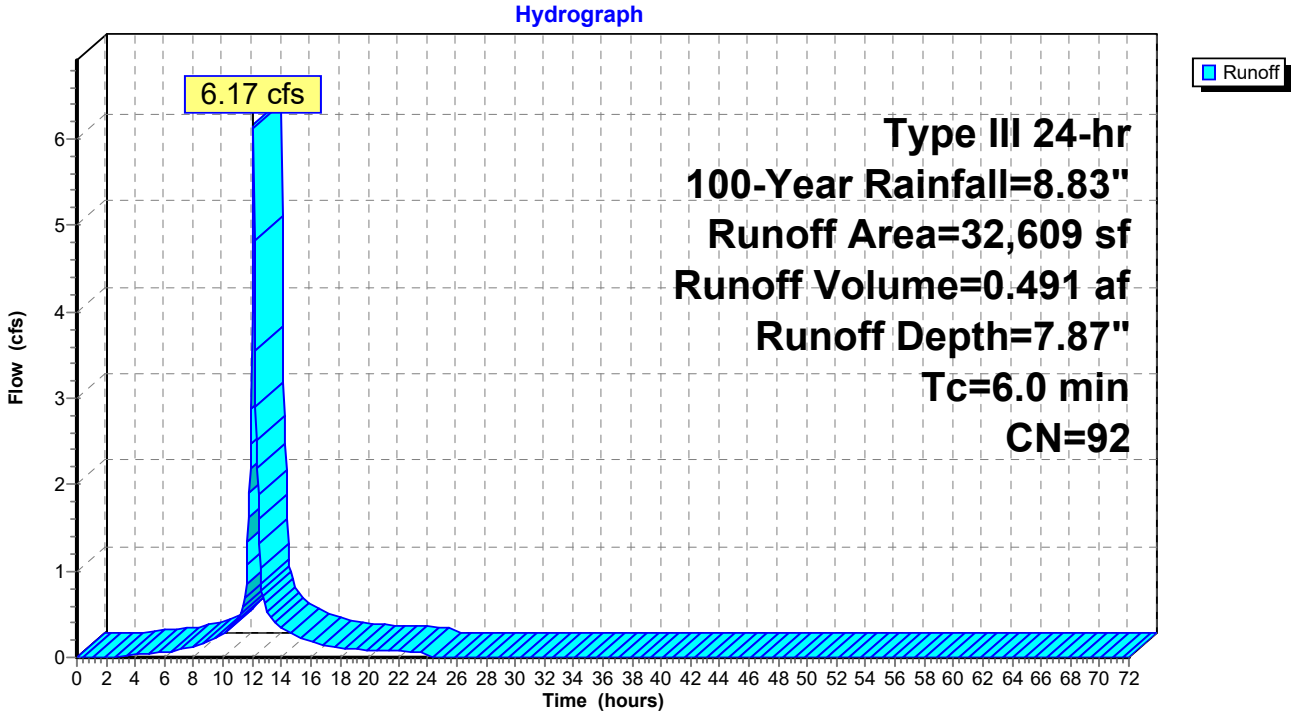
Runoff = 6.17 cfs @ 12.09 hrs, Volume= 0.491 af, Depth= 7.87"
Routed to Pond P1 : P1

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=8.83"

Area (sf)	CN	Description
13,592	98	Paved parking, HSG C
2,415	98	Roofs, HSG C
16,602	86	<50% Grass cover, Poor, HSG C
32,609	92	Weighted Average
16,602		50.91% Pervious Area
16,007		49.09% Impervious Area

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

Subcatchment PDA 1: PDA 1



Summary for Subcatchment PDA 2: PDA 2

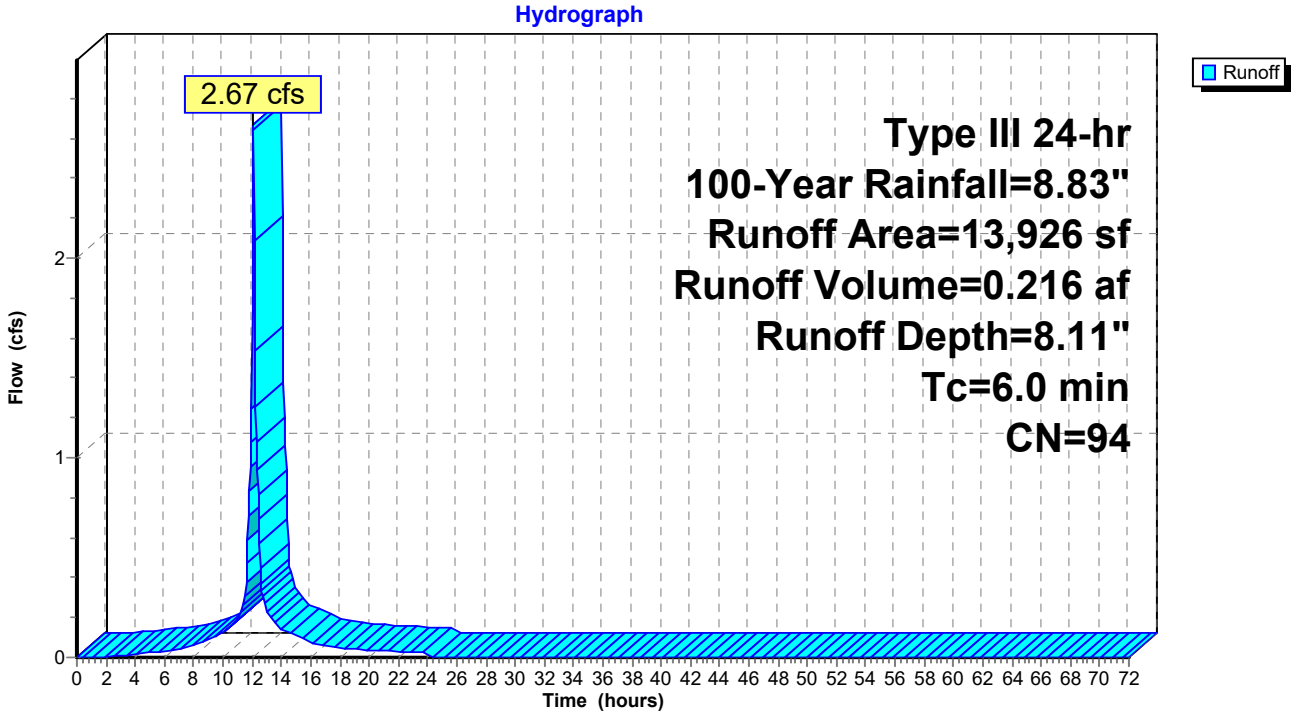
Runoff = 2.67 cfs @ 12.09 hrs, Volume= 0.216 af, Depth= 8.11"
Routed to Pond P2 : P2

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=8.83"

Area (sf)	CN	Description
6,910	98	Paved parking, HSG C
2,567	98	Roofs, HSG C
4,449	86	<50% Grass cover, Poor, HSG C
13,926	94	Weighted Average
4,449		31.95% Pervious Area
9,477		68.05% Impervious Area

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

Subcatchment PDA 2: PDA 2



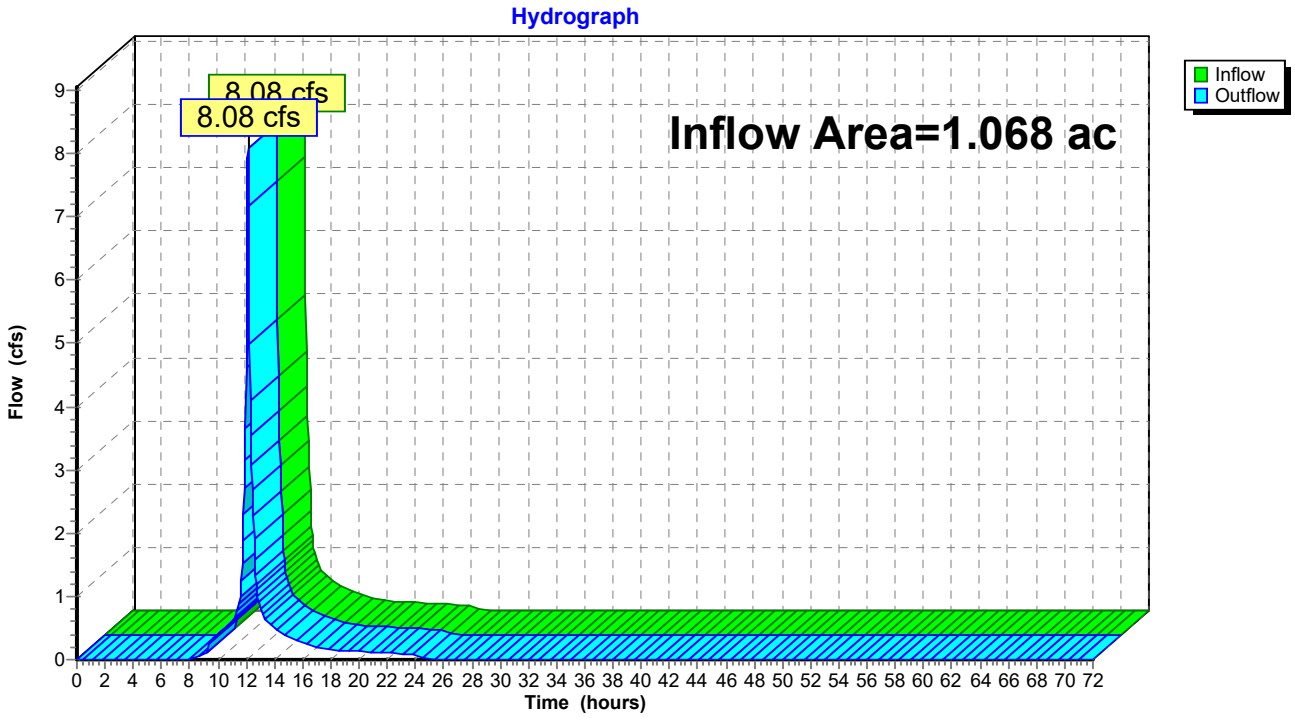
Summary for Reach DP: DP

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

Inflow Area = 1.068 ac, 54.76% Impervious, Inflow Depth = 7.34" for 100-Year event
Inflow = 8.08 cfs @ 12.12 hrs, Volume= 0.654 af
Outflow = 8.08 cfs @ 12.12 hrs, Volume= 0.654 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP: DP



Summary for Pond P1: P1

Inflow Area = 0.749 ac, 49.09% Impervious, Inflow Depth = 7.87" for 100-Year event
Inflow = 6.17 cfs @ 12.09 hrs, Volume= 0.491 af
Outflow = 5.73 cfs @ 12.12 hrs, Volume= 0.452 af, Atten= 7%, Lag= 2.0 min
Primary = 5.73 cfs @ 12.12 hrs, Volume= 0.452 af
Routed to Reach DP : DP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 88.09' @ 12.12 hrs Surf.Area= 1,343 sf Storage= 2,917 cf

Plug-Flow detention time= 82.3 min calculated for 0.452 af (92% of inflow)
Center-of-Mass det. time= 40.3 min (806.9 - 766.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	84.50'	1,401 cf	**25.25'W x 53.18'L x 3.83'H Field A** 5,148 cf Overall - 1,645 cf Embedded = 3,503 cf x 40.0% Voids
#2A	85.33'	1,645 cf	**Cultec R-300HD** x 35 Inside #1 Effective Size= 45.6"W x 30.0"H => 6.53 sf x 7.08'L = 46.2 cf Overall Size= 51.0"W x 30.0"H x 7.54'L with 0.46' Overlap 35 Chambers in 5 Rows Cap Storage= 2.7 cf x 2 x 5 rows = 26.5 cf
		3,046 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	86.50'	**15.0" Round Culvert** L= 12.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 86.50' / 86.30' S= 0.0167 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=5.59 cfs @ 12.12 hrs HW=88.06' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 5.59 cfs @ 4.68 fps)

Pond P1: P1 - Chamber Wizard Field A

Chamber Model = Cultec R-300HD (Cultec Recharger® 300HD)
Effective Size= 45.6"W x 30.0"H => 6.53 sf x 7.08'L = 46.2 cf
Overall Size= 51.0"W x 30.0"H x 7.54'L with 0.46' Overlap
Cap Storage= 2.7 cf x 2 x 5 rows = 26.5 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

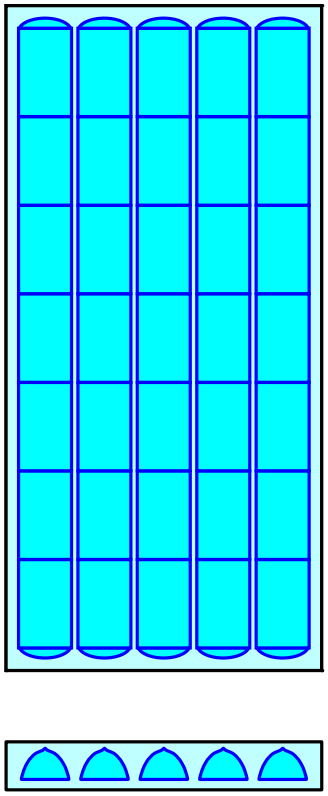
7 Chambers/Row x 7.08' Long +0.80' Cap Length x 2 = 51.18' Row Length +12.0" End Stone x 2 = 53.18' Base Length
5 Rows x 51.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 25.25' Base Width
10.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.83' Field Height

35 Chambers x 46.2 cf + 2.7 cf Cap Volume x 2 x 5 Rows = 1,645.0 cf Chamber Storage

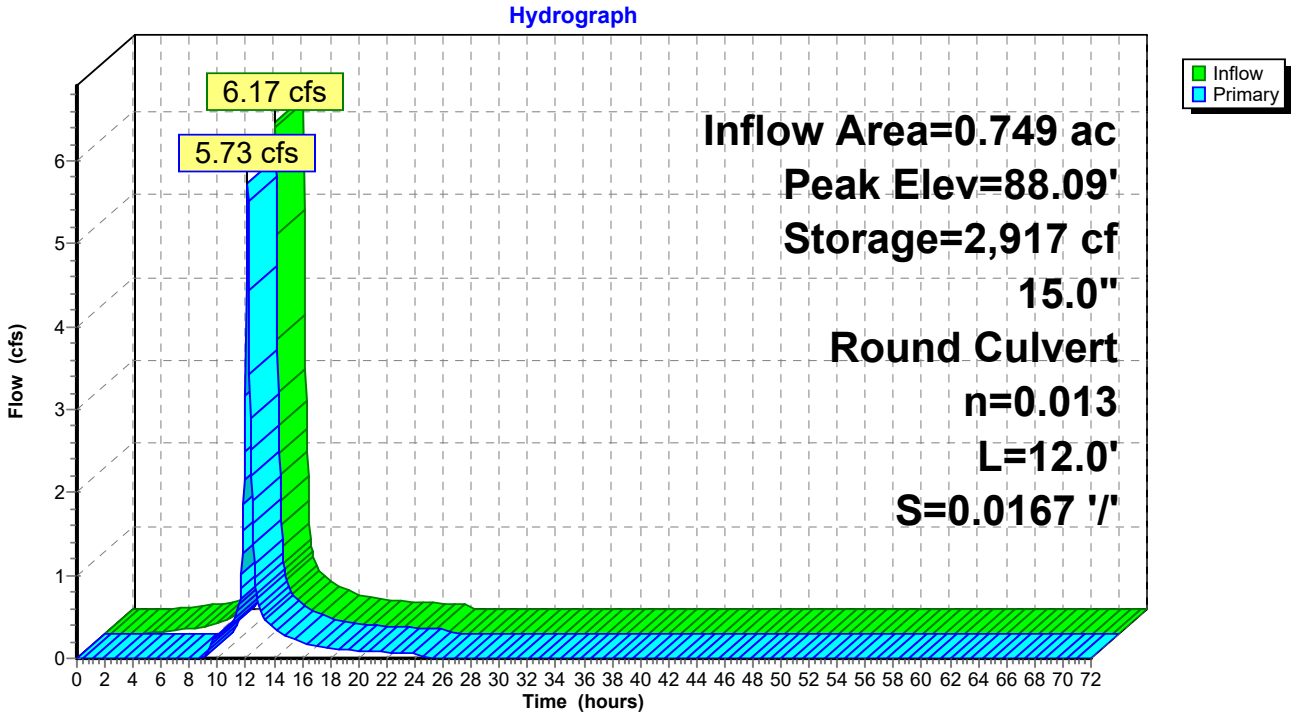
5,147.7 cf Field - 1,645.0 cf Chambers = 3,502.7 cf Stone x 40.0% Voids = 1,401.1 cf Stone Storage

Chamber Storage + Stone Storage = 3,046.1 cf = 0.070 af
Overall Storage Efficiency = 59.2%
Overall System Size = 53.18' x 25.25' x 3.83'

35 Chambers
190.7 cy Field
129.7 cy Stone



Pond P1: P1


Hydrograph
6.17 cfs
5.73 cfs
Inflow Area=0.749 ac
Peak Elev=88.09'
Storage=2,917 cf
15.0"
Round Culvert
n=0.013
L=12.0'
S=0.0167 '/'
Inflow
Primary
Flow (cfs)
0 1 2 3 4 5 6
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond P2: P2

Inflow Area = 0.320 ac, 68.05% Impervious, Inflow Depth = 8.11" for 100-Year event
Inflow = 2.67 cfs @ 12.09 hrs, Volume= 0.216 af
Outflow = 2.36 cfs @ 12.13 hrs, Volume= 0.202 af, Atten= 11%, Lag= 2.6 min
Primary = 2.36 cfs @ 12.13 hrs, Volume= 0.202 af
Routed to Reach DP : DP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 87.86' @ 12.13 hrs Surf.Area= 503 sf Storage= 1,019 cf

Plug-Flow detention time= 71.1 min calculated for 0.202 af (93% of inflow)
Center-of-Mass det. time= 34.4 min (793.5 - 759.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	84.50'	543 cf	**15.75'W x 31.93'L x 3.83'H Field A** 1,928 cf Overall - 571 cf Embedded = 1,357 cf x 40.0% Voids
#2A	85.33'	571 cf	**Cultec R-300HD** x 12 Inside #1 Effective Size= 45.6"W x 30.0"H => 6.53 sf x 7.08'L = 46.2 cf Overall Size= 51.0"W x 30.0"H x 7.54'L with 0.46' Overlap 12 Chambers in 3 Rows Cap Storage= 2.7 cf x 2 x 3 rows = 15.9 cf
		1,114 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	86.50'	**10.0" Round Culvert** L= 68.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 86.50' / 85.80' S= 0.0103 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.55 sf

Primary OutFlow Max=2.32 cfs @ 12.13 hrs HW=87.82' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 2.32 cfs @ 4.26 fps)

Pond P2: P2 - Chamber Wizard Field A

Chamber Model = Cultec R-300HD (Cultec Recharger® 300HD)
Effective Size= 45.6"W x 30.0"H => 6.53 sf x 7.08'L = 46.2 cf
Overall Size= 51.0"W x 30.0"H x 7.54'L with 0.46' Overlap
Cap Storage= 2.7 cf x 2 x 3 rows = 15.9 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

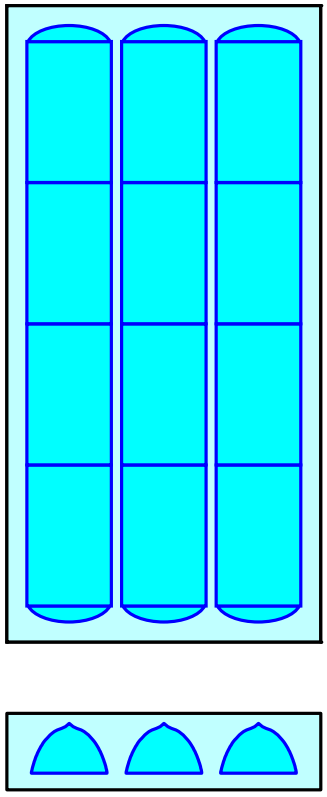
4 Chambers/Row x 7.08' Long +0.80' Cap Length x 2 = 29.93' Row Length +12.0" End Stone x 2 = 31.93' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
10.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.83' Field Height

12 Chambers x 46.2 cf + 2.7 cf Cap Volume x 2 x 3 Rows = 570.8 cf Chamber Storage

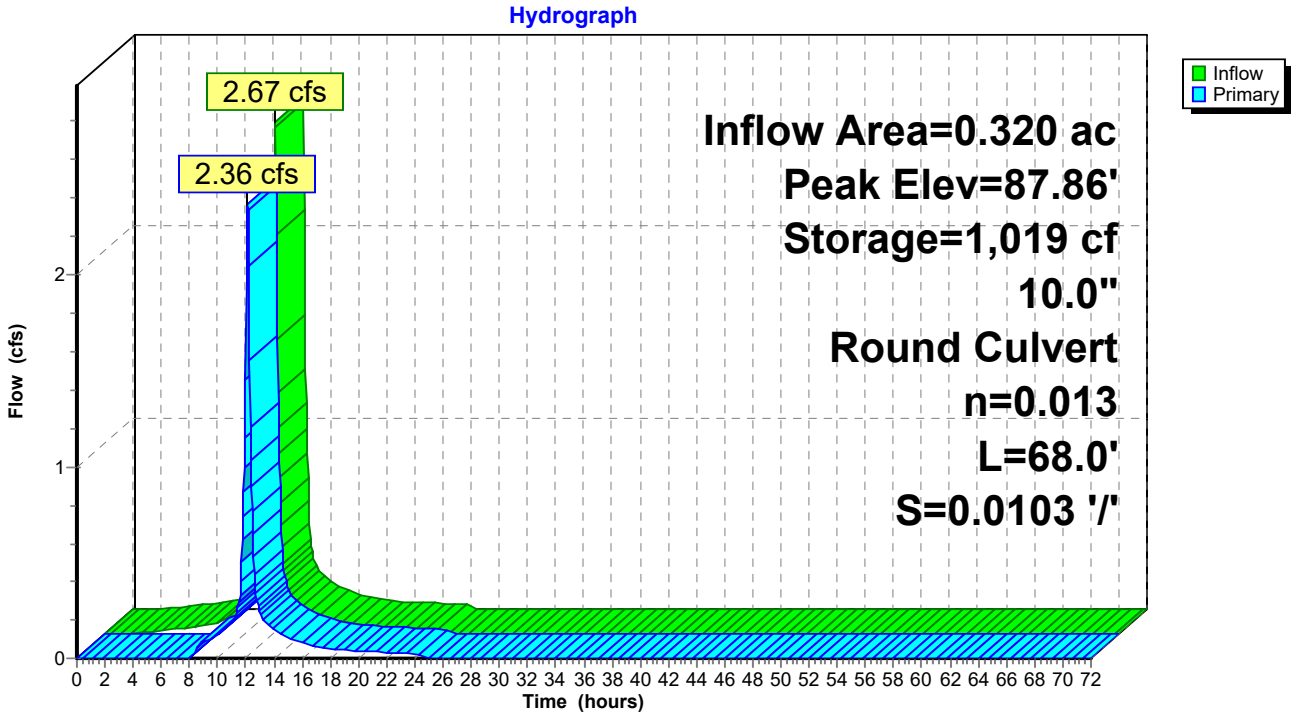
1,928.0 cf Field - 570.8 cf Chambers = 1,357.1 cf Stone x 40.0% Voids = 542.9 cf Stone Storage

Chamber Storage + Stone Storage = 1,113.7 cf = 0.026 af
Overall Storage Efficiency = 57.8%
Overall System Size = 31.93' x 15.75' x 3.83'

12 Chambers
71.4 cy Field
50.3 cy Stone



Pond P2: P2


Hydrograph
2.67 cfs
2.36 cfs
Inflow Area=0.320 ac
Peak Elev=87.86'
Storage=1,019 cf
10.0"
Round Culvert
n=0.013
L=68.0'
S=0.0103 '/'
Inflow
Primary
Flow (cfs)
0
1
2
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Jellyfish Filter Design Calculation

Contech Engineered Solutions, LLC Engineer:	DRA
Date Prepared:	**2/20/2025**

Site Information

Project Name	**166 Spring Street**	
Project City	**Lexington**	
Project State	**MA**	
Site Designation	**JF 1**	
Total Drainage Area, Ad	**0.75**	ac
Post Development Impervious Area, Ai	**0.75**	ac
Pervious Area, Ap	**0.00**	ac
% Impervious	**100%**	
Runoff Coefficient, Rc	**0.95**	

Mass Loading Calculations

Mean Annual Rainfall, P	**48**	in
Agency Required % Removal	**80%**	
Percent Runoff Capture	**90%**	
Mean Annual Runoff, Vt	**111,731**	ft^3
Event Mean Concentration of Pollutant, EMC	**70**	mg/l
Annual Mass Load, M total	**488**	lbs

Filter System

Filtration Brand	**Jellyfish**	
Cartridge Length	**40**	in

Jellyfish Sizing

Mass to be Captured by System	**390**	lbs
Water Quality Flow	**0.91**	cfs

Method to Use **FLOW BASED**

Summary			
Flow	Treatment Flow Rate	0.94	cfs
	Required Size	**JFPD0806-6-2**	
	Mass Capture provided	650	lbs

Jellyfish Filter Design Calculation

Contech Engineered Solutions, LLC Engineer:	DRA
Date Prepared:	**2/20/2025**

Site Information

Project Name	**166 Spring Street**	
Project City	**Lexington**	
Project State	**MA**	
Site Designation	**JF 2**	
Total Drainage Area, Ad	**0.32**	ac
Post Development Impervious Area, Ai	**0.32**	ac
Pervious Area, Ap	**0.00**	ac
% Impervious	**100%**	
Runoff Coefficient, Rc	**0.95**	

Mass Loading Calculations

Mean Annual Rainfall, P	**48**	in
Agency Required % Removal	**80%**	
Percent Runoff Capture	**90%**	
Mean Annual Runoff, Vt	**47,672**	ft^3
Event Mean Concentration of Pollutant, EMC	**70**	mg/l
Annual Mass Load, M total	**208**	lbs

Filter System

Filtration Brand	**Jellyfish**	
Cartridge Length	**54**	in

Jellyfish Sizing

Mass to be Captured by System	**167**	lbs
Water Quality Flow	**0.39**	cfs

Method to Use **FLOW BASED**

Summary			
	Treatment Flow Rate	0.45	cfs
Flow	Required Size	**JF4-2-1**	
	Mass Capture provided	313	lbs

Project: 166 Spring Street
Location: Lexington, MA
Prepared For: BCD Design Group

Purpose: To calculate the water quality flow rate (WQF) over a given site area. In this situation the WQF is derived from the first 1" of runoff from the contributing impervious surface.

Reference: Massachusetts Dept. of Environmental Protection Wetlands Program / United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Procedure: Determine unit peak discharge using Figure 3 or 4. Figure 4 is in tabular form so is preferred. Using the tc, read the unit peak discharge (qu) from Figure 3 or Table in Figure 4. qu is expressed in the following units: cfs/mi^2/watershed inches (csm/in).

Compute Q Rate using the following equation:

$$Q = (qu)\ (A)\ (WQV)$$

where:

Q = flow rate associated with first 1" of runoff
qu = the unit peak discharge, in csm/in.
A = impervious surface drainage area (in square miles)
WQV = water quality volume in watershed inches (1" in this case)

Structure Name	Impv. (acres)	A (miles^2)	t_c (min)	t_c (hr)	WQV (in)	qu (csm/in.)	Q (cfs)
Area 1	0.75	0.0011697	6.0	0.100	1.00	774.00	0.91
Area 2	0.32	0.0004995	6.0	0.100	1.00	774.00	0.39

The WQf sizing calculation selects the minimum size CDS/Cascade/StormCeptor model capable of operating at the computed WQf peak flowrate prior to bypassing. It assumes free discharge of the WQf through the unit and ignores the routing effect of any upstream storm drain piping. As with all hydrodynamic separators, there will be some impact to the Hydraulic Gradient of the corresponding drainage system, and evaluation of this impact should be considered in the design.

CONTECH®
ENGINEERED SOLUTIONS

Jellyfish® Filter Owner's Manual

Jellyfish® Filter

Table of Contents

THANK YOU FOR PURCHASING THE JELLYFISH® FILTER!

Contech Engineered Solutions would like to thank you for selecting the Jellyfish Filter to meet your project's stormwater treatment needs. With proper inspection and maintenance, the Jellyfish Filter is designed to deliver ongoing, high levels of stormwater pollutant removal.

If you have any questions, please feel free to call us or e-mail us:

Contech Engineered Solutions
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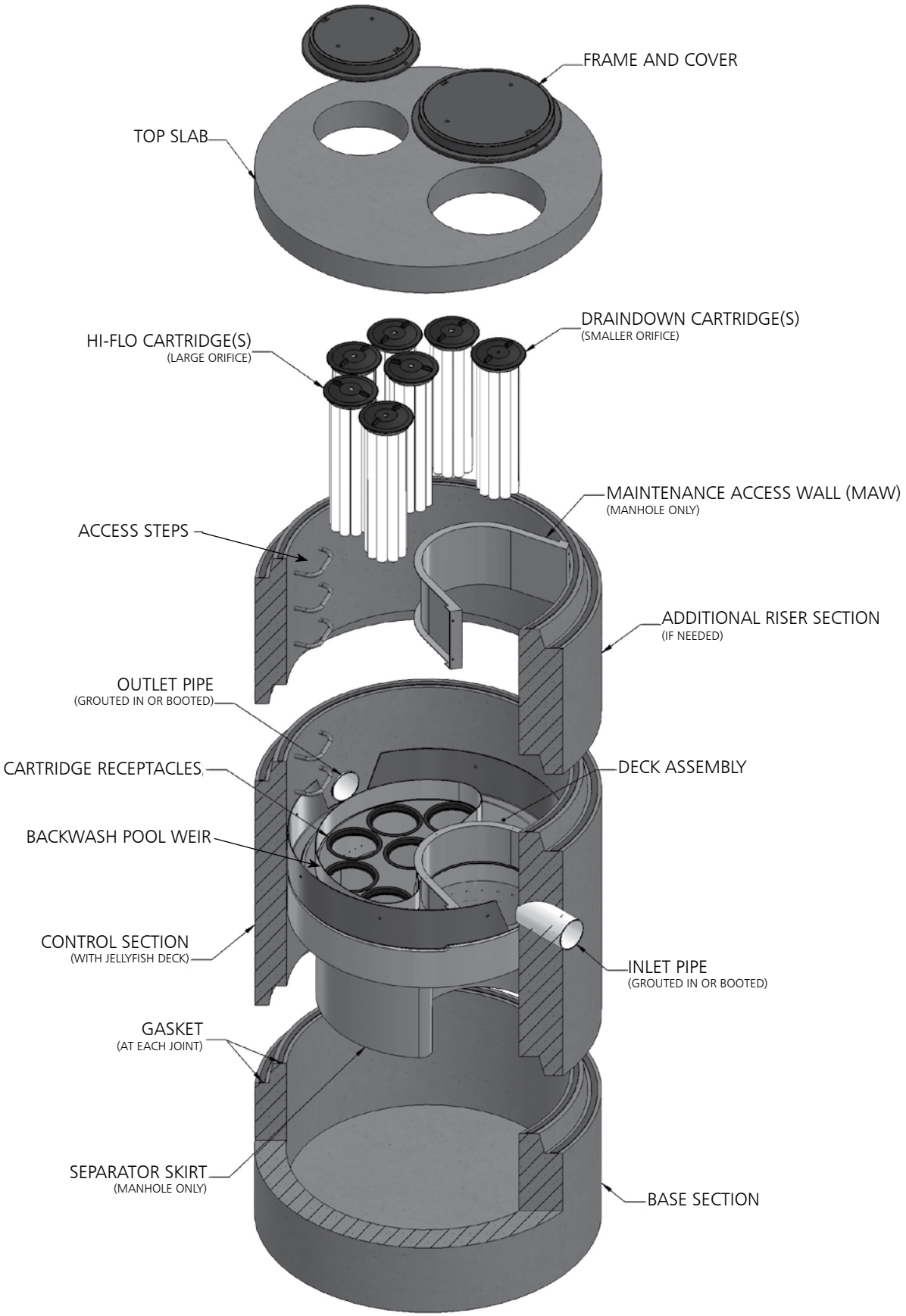
513-645-7000 | 800-338-1122
www.ContechES.com
info@conteches.com


FRAME AND COVER
TOP SLAB
DRAINDOWN CARTRIDGE(S)
(SMALLER ORIFICE)
HI-FLO CARTRIDGE(S)
(LARGE ORIFICE)
MAINTENANCE ACCESS WALL (MAW)
(MANHOLE ONLY)
ACCESS STEPS
ADDITIONAL RISER SECTION
(IF NEEDED)
OUTLET PIPE
(GROUTED IN OR BOOTED)
CARTRIDGE RECEPTACLES
DECK ASSEMBLY
BACKWASH POOL WEIR
CONTROL SECTION
(WITH JELLYFISH DECK)
INLET PIPE
(GROUTED IN OR BOOTED)
GASKET
(AT EACH JOINT)
SEPARATOR SKIRT
(MANHOLE ONLY)
BASE SECTION

WARNINGS / CAUTION

1. FALL PROTECTION may be required.
2. WATCH YOUR STEP if standing on the Jellyfish Filter Deck at any time; Great care and safety must be taken while walking or maneuvering on the Jellyfish Filter Deck. Attentive care must be taken while standing on the Jellyfish Filter Deck at all times to prevent stepping onto a lid, into or through a cartridge hole or slipping on the deck.
3. The Jellyfish Filter Deck can be SLIPPERY WHEN WET.
4. If the Top Slab, Covers or Hatches have not yet been installed, or are removed for any reason, great care must be taken to NOT DROP ANYTHING ONTO THE JELLYFISH FILTER DECK. The Jellyfish Filter Deck and Cartridge Receptacle Rings can be damaged under high impact loads. This type of activity voids all warranties. All damaged items to be replaced at owner's expense.
5. Maximum deck load 2 persons, total weight 450 lbs.

Safety Notice

Jobsite safety is a topic and practice addressed comprehensively by others. The inclusions here are intended to be reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s) and Contractor(s). OSHA and Canadian OSH, and Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Contractor's responsibility and outside the scope of Contech Engineered Solutions.

Confined Space Entry

Secure all equipment and perform all training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to proceed safely at all times.

Personal Safety Equipment

Contractor is responsible to provide and wear appropriate personal protection equipment as needed including, but not limited to safety boots, hard hat, reflective vest, protective eyewear, gloves and fall protection equipment as necessary. Make sure all equipment is staffed with trained and/or certified personnel, and all equipment is checked for proper operation and safety features prior to use.

- Fall protection equipment
- Eye protection
- Safety boots
- Ear protection
- Gloves
- Ventilation and respiratory protection
- Hard hat
- Maintenance and protection of traffic plan

Chapter 1

1.0 – Owner Specific Jellyfish Filter Product Information

Below you will find a reference page that can be filled out according to your Jellyfish Filter specification to help you easily inspect, maintain and order parts for your system.

Owner Name:	
Phone Number:	
Site Address:	
Site GPS Coordinates/unit location:	
Unit Location Description:	
Jellyfish Filter Model No.:	
Contech Project & Sequence Number	
No. of Hi-Flo Cartridges	
No. of Cartridges:	
Length of Draindown Cartridges:	
No. of Blank Cartridge Lids:	
Bypass Configuration (Online/Offline):	

Notes:

_____

_____

_____

_____

Chapter 2

2.0 – Jellyfish Filter System Operations and Functions

The Jellyfish Filter is an engineered stormwater quality treatment technology that removes a high level and wide variety of stormwater pollutants. Each Jellyfish Filter cartridge consists of eleven membrane - encased filter elements ("filtration tentacles") attached to a cartridge head plate. The filtration tentacles provide a large filtration surface area, resulting in high flow and high pollutant removal capacity.

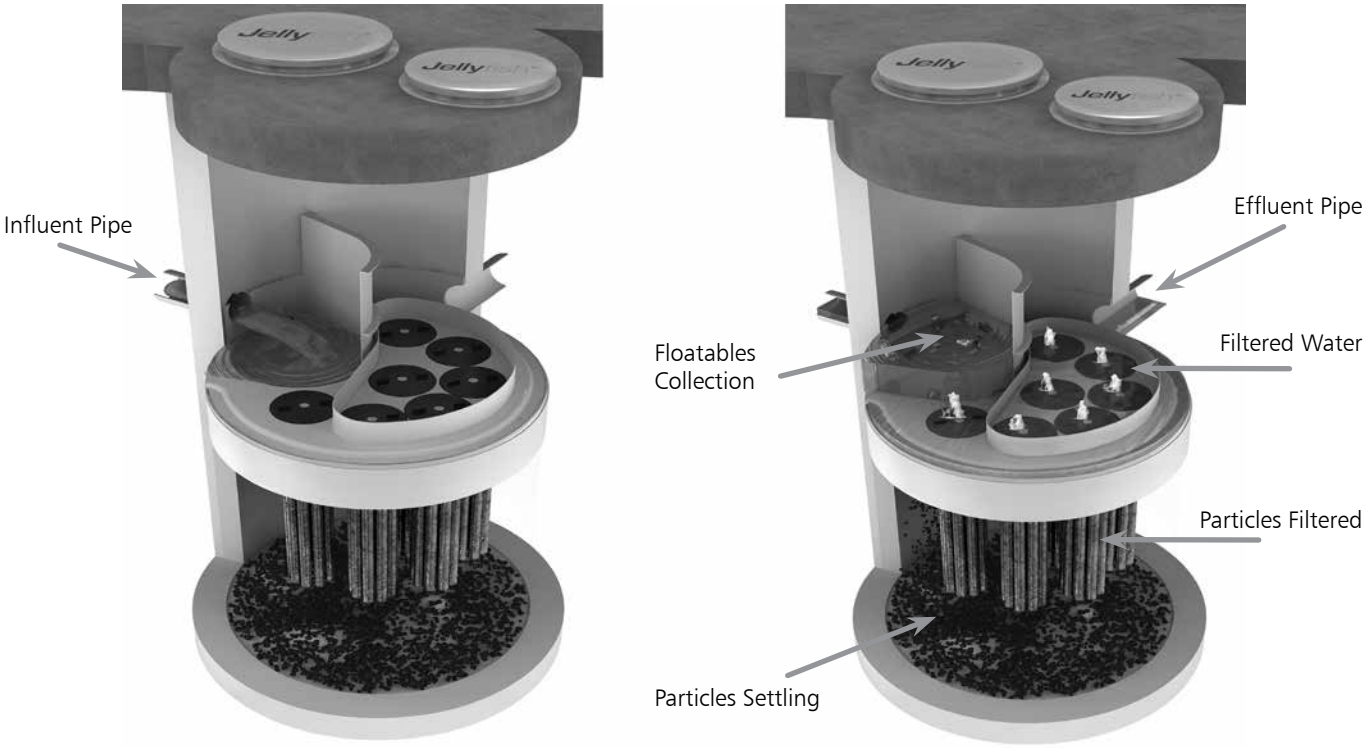
The Jellyfish Filter functions are depicted in Figure 1 below.

FIGURE 1

Jellyfish Filter Treatment Functions

Membrane Filtration

Section View with Maintenance Access Wall (MAW) Cutaway



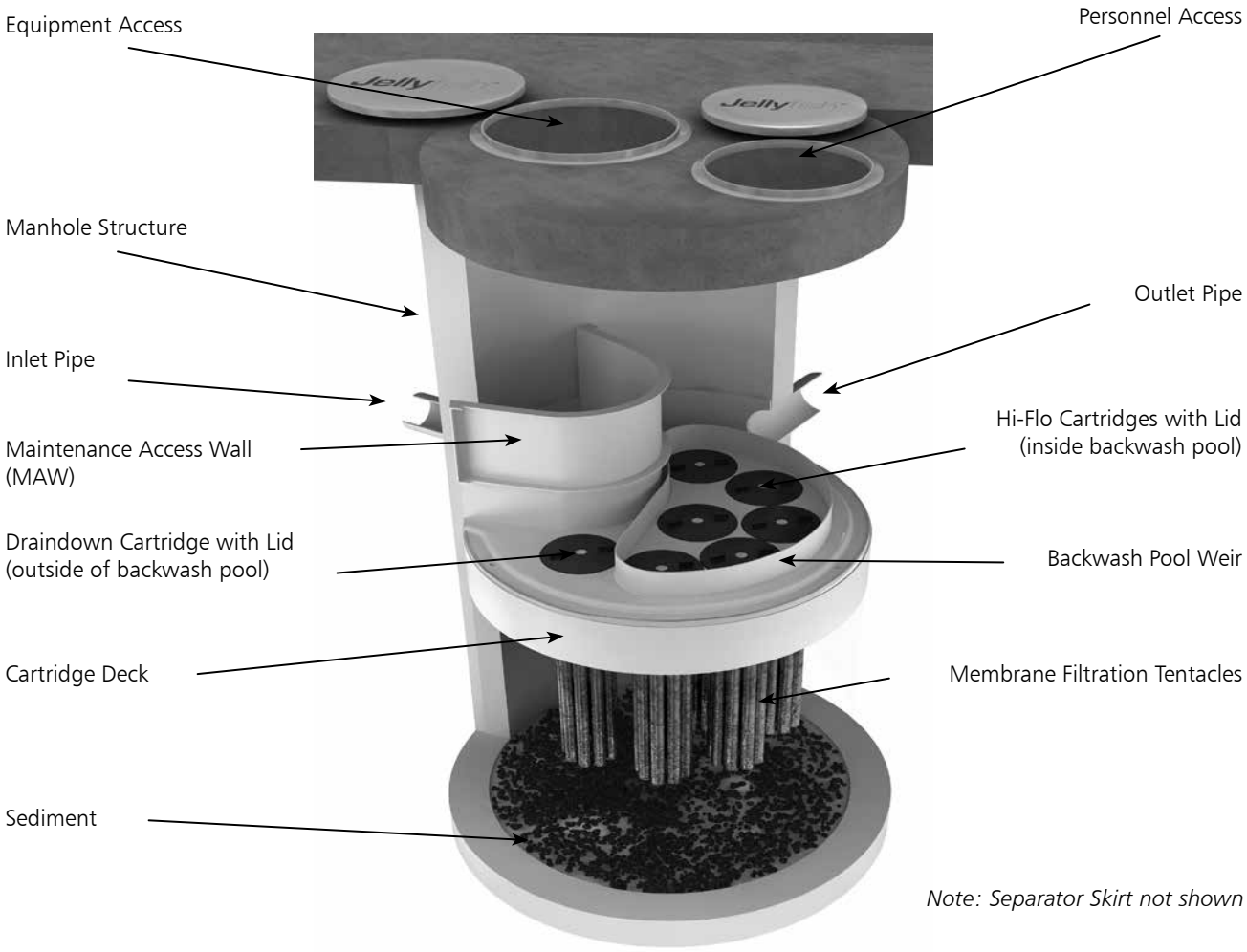
Jellyfish Filter cartridges are backwashed after each peak storm event, which removes accumulated sediment from the membranes. This backwash process extends the service life of the cartridges and increases the time between maintenance events.

For additional details on the operation and pollutant capabilities of the Jellyfish Filter please refer to additional details on our website at www.ContechES.com.

2.1 – Components and Cartridges

The Jellyfish Filter and components are depicted in Figure 2 below.

FIGURE 2 **Jellyfish Filter Components**



Tentacles are available in various lengths as depicted in Table 1 below.

Table 1 – Cartridge Lengths / Weights and Cartridge Lid Orifice Diameters

Cartridge Lengths	Dry Weight	Hi-Flo Orifice Diameter	Draindown Orifice Diameter
15 inches (381 mm)	10 lbs (4.5 kg)	35 mm	20 mm
27 inches (686 mm)	14.5 lbs (6.6 kg)	45 mm	25 mm
40 inches (1,016 mm)	19.5 lbs (8.9 kg)	55 mm	30 mm
54 inches (1,372 mm)	25 lbs (11.4 kg)	70 mm	35 mm

2.2 – Jellyfish Membrane Filtration Cartridge Assembly

The Jellyfish Filter utilizes multiple membrane filtration cartridges. Each cartridge consists of removable cylindrical filtration "tentacles" attached to a cartridge head plate. Each filtration tentacle has a threaded pipe nipple and o-ring. To attach, insert the top pipe nipples with the o-ring through the head plate holes and secure with locking nuts. Hex nuts to be hand tightened and checked with a wrench as shown below.

2.3 – Jellyfish Membrane Filtration Cartridge Installation

- Cartridge installation will be performed by trained individuals and coordinated with the installing site Contractor. Flow diversion devices are required to be in place until the site is stabilized (final paving and landscaping in place). Failure to address this step completely will reduce the time between required maintenance.
- Descend to the cartridge deck (see Safety Notice and page 3).
- Refer to Contech's submittal drawings to determine proper quantity and placement of Hi-Flo, Draindown and Blank cartridges with appropriate lids. Lower the Jellyfish membrane filtration cartridges into the cartridge receptacles within the cartridge deck. It is possible that not all cartridge receptacles will be filled with a filter cartridge. In that case, a blank headplate and blank cartridge lid (no orifice) would be installed.

Cartridge Assembly

Do not force the tentacles down into the cartridge receptacle, as this may damage the membranes. Apply downward pressure on the cartridge head plate to seat the lubricated rim gasket (thick circular gasket surrounding the circumference of the head plate) into the cartridge receptacle. (See Figure 3 for details on approved lubricants for use with rim gasket.)

- Examine the cartridge lids to differentiate lids with a small orifice, a large orifice, and no orifice.
  - Lids with a small orifice are to be inserted into the Draindown cartridge receptacles, outside of the backwash pool weir.
  - Lids with a large orifice are to be inserted into the Hi-Flo cartridge receptacles within the backwash pool weir.
  - Lids with no orifice (blank cartridge lids) and a blank headplate are to be inserted into unoccupied cartridge receptacles.
- To install a cartridge lid, align both cartridge lid male threads with the cartridge receptacle female threads before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation.

3.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.
Inspection activities are typically conducted from surface observations and include:

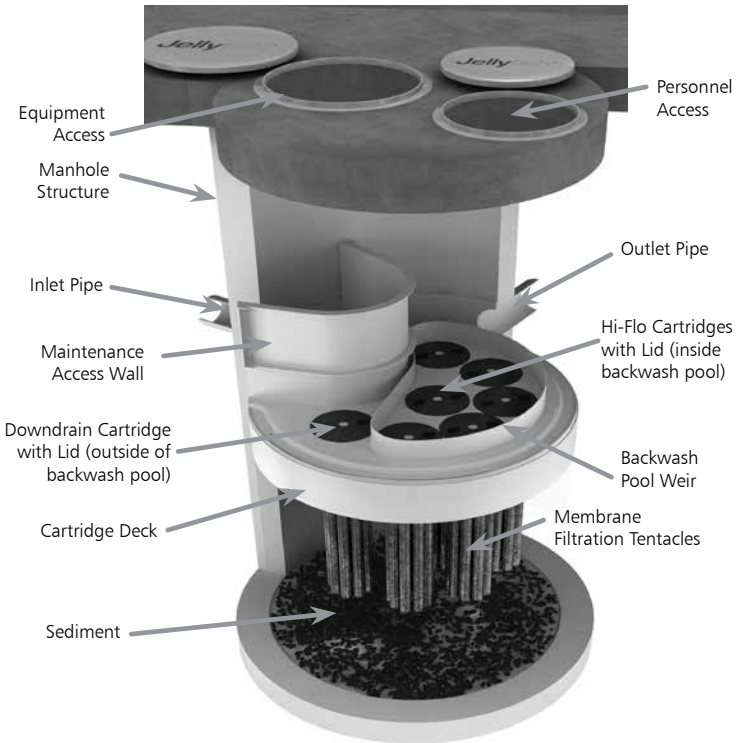
- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed

4.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.



Note: Separator Skirt not shown

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

5.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

5.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.

Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

5.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

6.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

7.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

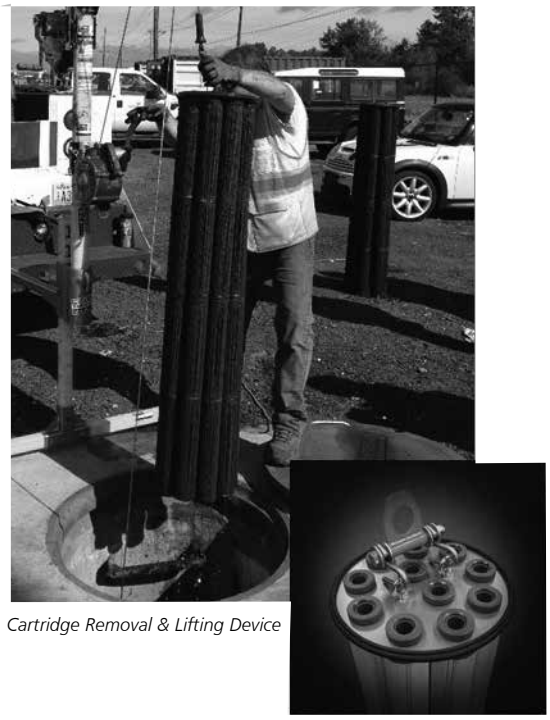
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

7.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. *Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs*.
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

7.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.
2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.



Cartridge Removal & Lifting Device

3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. *Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane*.
4. Collected rinse water is typically removed by vacuum hose.

5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

7.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.
3. Pressure wash cartridge deck and receptacles to remove all

Rinsing Cartridge with Contech Rinse Tool

sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.

4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.
6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some

Vacuuming Sump Through MAW

vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

7.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. *Caution: Do not force the cartridge downward; damage may occur.*
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

7.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

7.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

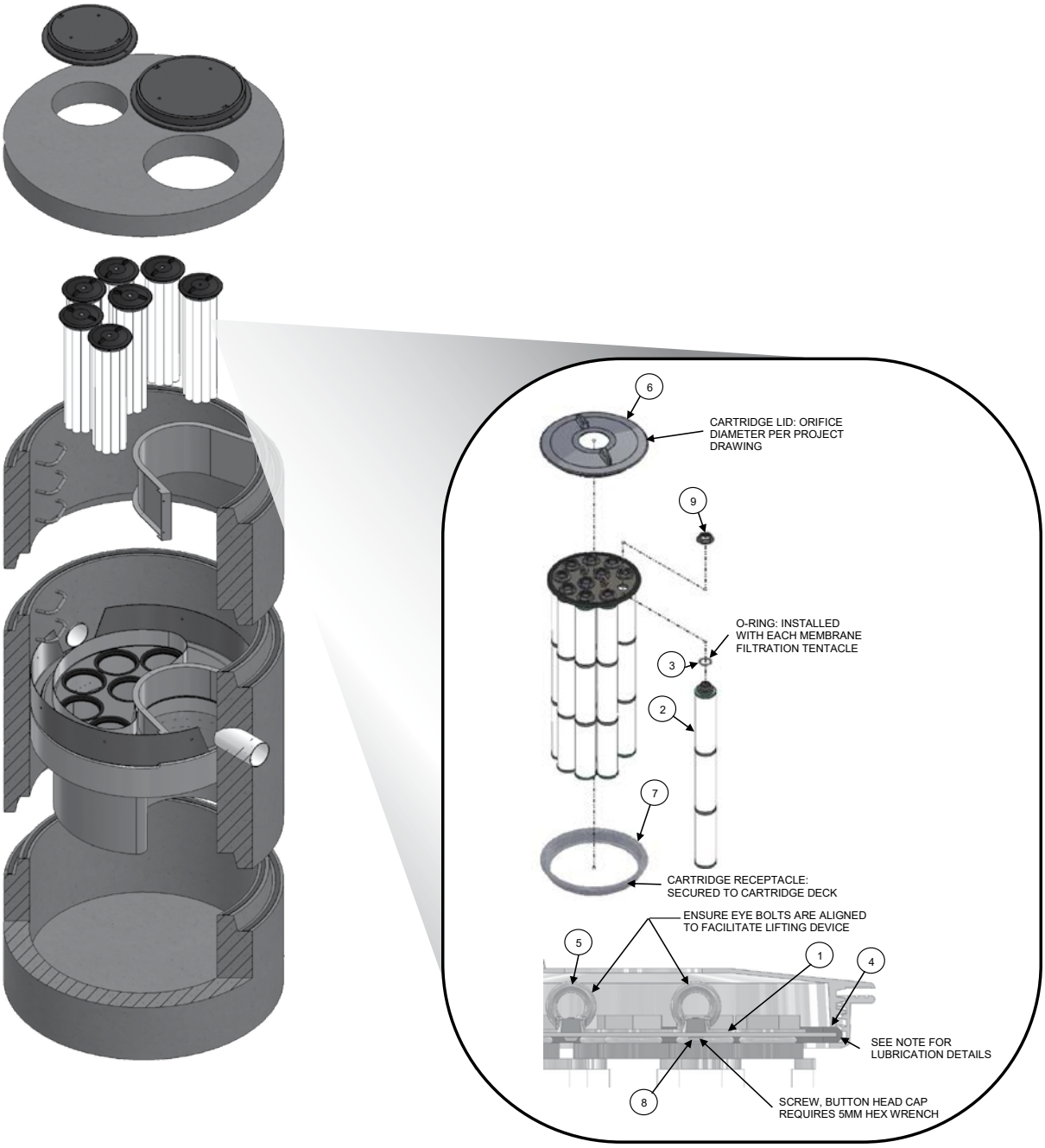


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lid (Item 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner: _____ Jellyfish Model No.:_____

Location: _____ GPS Coordinates: _____

Land Use: Commercial:_____ Industrial: _____ Service Station:_____

Road/Highway:____ Airport: _____ Residential: _____ Parking Lot:_____

Date/Time:					
Inspector:					
Maintenance Contractor:					
Visible Oil Present: (Y/N)					
Oil Quantity Removed					
Floatable Debris Present: (Y/N)					
Floatable Debris removed: (Y/N)					
Water Depth in Backwash Pool					
Cartridges externally rinsed/re-commissioned: (Y/N)					
New tentacles put on Cartridges: (Y/N)					
Sediment Depth Measured: (Y/N)					
Sediment Depth (inches or mm):					
Sediment Removed: (Y/N)					
Cartridge Lids intact: (Y/N)					
Observed Damage:					
Comments:					

WASHINGTON STATE DEPARTMENT OF ECOLOGY

January 2021

GENERAL USE LEVEL DESIGNATION FOR BASIC (TSS) AND PHOSPHORUS TREATMENT For Contech Environmental Solutions Jellyfish® Filter

Ecology's Decision:

1. Based on Contech Environmental Solution's application submissions, Ecology hereby issues a General use level designation (GULD) for Basic (TSS) and Phosphorus Treatment for Contech's Jellyfish® Filter:
   - Sized at a hydraulic loading rate of no greater than 0.21 gpm/sf filter surface for hi-flo cartridges and 0.11 gpm/sf filter surface for draindown cartridges

Table 1. Jellyfish® cartridge hydraulic loading rates and sediment capture capacity[1] associated with various filter cartridge sizes.

Cartridge Length	Design Treatment Flow Rate	Design Sediment Mass Loading Capacity
15 inches	Hi-Flo 22 gpm Draindown 11 gpm	Hi-Flo 35 lbs Draindown 17 lbs
27 inches	Hi-Flo 40 gpm Draindown 20 gpm	Hi-Flo 63 lbs Draindown 31 lbs
40 inches	Hi-Flo 60 gpm Draindown 30 gpm	Hi-Flo 93 lbs Draindown 46 lbs
54 inches	Hi-Flo 80 gpm Draindown 40 gpm	Hi-Flo 125 lbs Draindown 63 lbs

[1] Design sediment mass loading capacity based on laboratory testing using silica sediment.

2. Ecology approves Jellyfish® Filter units at the design treatment flow rates shown in Table 1. Total Jellyfish Filter system design treatment capacity is the sum of the design treatment capacity of individual cartridges and must equal or exceed the water quality design flow rate. Calculate the water quality design flow rate that must be treated by an individual treatment system using the following procedures:
    - Western Washington: For treatment installed upstream of detention or retention, the water quality design flow rate is the peak 15-minute flow rate as calculated using the latest version of the Western Washington Hydrology Model or other Ecology-approved continuous runoff model.
    - Eastern Washington: For treatment installed upstream of detention or retention, the water quality design flow rate is the peak 15-minute flow rate as calculated using one of the three methods described in Chapter 2.7.6 of the 2019 Stormwater Management Manual for Eastern Washington (SWMMEW) or local manual.
    - Entire State: For treatment installed downstream of detention, the water quality design flow rate is the full 2-year release rate of the detention facility.
3. The GULD has no expiration date but may be amended or revoked by Ecology.

Ecology's Conditions of Use:

Jellyfish® Filter units shall comply with the following conditions:

1. Design, assemble, install, operate, and maintain Jellyfish® Filter units in accordance with Contech's applicable manuals and documents and this Ecology Decision.
2. Contech uses sediment-loading capacity, in conjunction with the water quality design flow rate, to determine the target maintenance interval.
3. Jellyfish® Filters shall conform to specifications submitted to and approved by Ecology.
4. Maintenance: The required inspection/maintenance interval for stormwater treatment devices is often dependent on the efficiency of the device and the degree of pollutant loading from a particular drainage basin. Therefore, Ecology does not endorse or recommend a "one size fits all" maintenance cycle for a particular model/size of manufactured filter treatment device.
    - The Jellyfish® Filter is designed for a target maintenance interval of 12 months. Maintenance includes floatable trash, debris, and oil removal; sediment removal; and the rinsing or replacement of filter cartridges.
    - A Jellyfish® Filter tested in Dundee, OR averaged a 3.2 month maintenance interval. Construction activities were ongoing in the drainage basin and near the monitoring site during the first two years of the study. Monitoring personnel observed significant amounts of roadway sediments and organic debris in the runoff, and TSS concentrations were higher than typical for roadway runoff. The runoff that occurred during the study may be unusual, and the maintenance interval the Jellyfish® Filter required may not be indicative of other, more typical, sites.

- Owner/s operators must inspect Jellyfish® Filter systems for a minimum of twelve months from the start of post-construction operation to determine site-specific inspection/maintenance schedules and requirements. Owners/operators must conduct inspections monthly during the wet season, and every other month during the dry season. (According to the SWMMWW, the wet season in westerns Washington is October 1 to April 30. According to the SWMMEW, the wet season in eastern Washington is October 1 to June 30.) After the first year of operation, owners/operators must conduct inspections based on the findings during the first year of inspections.
- Conduct inspections by qualified personnel, follow manufacturer's guidelines, and use methods capable of determining either a decrease in treated effluent flow rate and/or a decrease in pollutant removal ability.

5. Install the Jellyfish® Filter in such a manner such that flows exceeding the maximum operating rate of the system are bypassed and will not resuspend captured sediment.
6. Discharges from the Jellyfish® Filter units shall not cause or contribute to water quality standards violations in receiving waters.

Applicant: CONTECH Engineered Solutions

Applicant's Address: 11835 NE Glenn Widing Dr
Portland, OR 97220

Application Documents:

- *Jellyfish® Filter Dundee, OR, General Use Level Designation Technical Evaluation Report*, Prepared by CONTECH Engineered Solutions, December 28, 2020
- Application Letter for CULD for Jellyfish Filter - Basic Treatment, Phosphorus Treatment, and Oil Treatment, dated April 27, 2012.
- Letter from Imbrium Systems dated September 4, 2012 regarding the draft CULD/PULD document.
- *TAPE Analysis of Jellyfish Filter UF Field Study Data*, prepared by Stormwater Management Services, LLC.
- *TARP Field Test Performance Monitoring of a Jellyfish Filter JF4-2-1. Performance Monitoring Report for JF4-2-1* Prepared By: University of Florida, Engineering School of Sustainable Infrastructure and Environment (ESSIE), University of Florida, Gainesville, FL 32611. Final Version: 01 November 2011.
- *Jellyfish Filter Systems Evaluation Report in Consideration for Pilot Level Designation (PLD) for Imbrium Systems Corporation*, by Gary R. Minton, PhD, PE, with Resource Planning Associates in Seattle, Washington May 7, 2008 (updated July 1, 2008).

- *NJCAT Technology Verification, Jellyfish Fine Sediment Filter*, by the New Jersey Corporation for Advanced Technology (NJCAT) Program Imbrium Systems Corporation, June 2008

Applicant's Use Level Request:

- General use level designation as a Basic (TSS) and Phosphorus Treatment device in accordance with Ecology's 2019 Stormwater Management Manual for Western Washington.

Applicant's Performance Claims:

Based on results from a laboratory and field-testing, the applicant claims the Jellyfish® Filter, operating at a hydraulic loading rate of no more than 0.21 gpm/sf for hi-flo cartridges and 0.11 gpm/sf for draindown cartridges, is able to remove:

- 80% of total suspended solids (TSS) for influent concentrations greater than 100 mg/L and achieve a 20 mg/L effluent for influent concentrations less than 100 mg/L.
- 50% of total phosphorus for influent concentrations 0.1 to 0.5 mg/L

Recommendations:

Ecology finds that:

- Contech Engineered Solutions has shown Ecology, through laboratory and field testing, that the Jellyfish® Filter is capable of attaining Ecology's Basic (TSS) and Total Phosphorus treatment goals.

Findings of Fact:

<u>Field Testing 2017-2020</u>
Contech completed field testing in Dundee, OR on a Jellyfish® Filter unit containing six 54-inch hi-flo cartridges and one 54-inch draindown cartridge. This combination of cartridges resulted in a design flow capacity of 520 gpm (1.16 cfs). Since Contech conducted the field evaluation they contracted with Herrera Environmental Consultants to provide third party oversight.

- The field evaluation was completed between March 2017 and April 2020. Throughout the evaluation a total of 23 individual storm events (18 flow-weighted composite samples and 5 peak flow grab samples) were sampled to evaluate system performance. All sampled events met the TAPE sampling event qualification criteria, while 21 of the 23 events met the influent requirements for TSS and/or total phosphorus. Peak flows during these 21 events ranged from 26% to 106% of the design treatment capacity of 520 gpm, with a mean peak flow rate of 67% of design.
- Of the 23 TAPE qualified events, 21 met the requirements for TSS analysis (16 flow weighted composite; 5 peak flow grab samples). Influent concentrations ranged from 24 mg/L to 755 mg/L, with a mean concentration of 208 mg/L. Concentrations that exceeded the upper end of TAPE influent range were capped at 200 mg/L prior to calculating the pollutant removal efficiency. For all samples with influent concentrations greater than 100 mg/L the bootstrap estimate of the lower 95 percent confidence limit (LCL95) of the mean TSS reduction was 82%, meeting the 80% performance goal for Basic Treatment. The TAPE bootstrap calculator could not be used on samples with influent concentrations

between 20 mg/L to 100 mg/L due to the limited number of events available (n=6). For these events the mean and median effluent TSS concentrations were 19.7 and 18.1 mg/L respectively, again meeting the 20 mg/L effluent goal for Basic Treatment.

- Of the 23 TAPE qualified events, 18 met the requirements for total phosphorus analysis (13 flow-weighted composite; 5 peak flow grab samples). Influent concentrations ranged from 0.211 mg/L to 1.75 mg/L, with a mean concentration of 0.535 mg/L. Concentrations that exceeded the upper end of TAPE influent range were capped at 0.5 mg/L prior to calculating the pollutant removal efficiency. The LCL 95 mean percent removal goal was 70.1%, meeting the 50% performance goal for Phosphorus Treatment.
- Median particle sized distribution results from three samples showed 20% of sediment >250 μm, 31% of sediment between 62.5 to 250 μm, and 51% of sediment <62.5 μm. This demonstrates the influent to the Jellyfish consisted of primarily silt-sized particles (3.9 to 62.5 μm) and is thus representative of Pacific Northwest Stormwater.
- Contech encountered several unanticipated events and challenges that disrupted the sampling and/or resulted in lost data: the Jellyfish was taken offline twice to avoid atypical sediment loading that was the result of construction within the drainage basin; monitoring was suspended to repair or replace equipment that was damaged from vandalism and extreme weather; and, a cyber-attack on Contech storage drives resulted in a loss of approximately 15% of non-sampled flow and precipitation data.

Field Testing 2010-2011

Results (second-generation membrane filtration cartridges) – University of Florida (Gainesville, FL) installed and tested a Jellyfish JF4-2-1. The University conducted monitoring of the system from May 28, 2010 to June 27, 2011, with runoff from 15.01 inches of rainfall. The monitoring followed the Technology Acceptance Reciprocity Partnership (TARP) field test protocol, per the guidelines of the New Jersey Department of Environmental Projection (NJDEP). The New Jersey Corporation for Advanced Technology (NJCAT), on May 14, 2012 certified the Jellyfish Filter for 80 percent TSS removal.

- The JF4-2-1 operating at a maximum treatment flow rate of 200 gpm provided a median total suspended solids (TSS) removal of 89 percent, and a median suspended sediment concentration (SSC) removal of 99 percent. Influent TSS concentrations ranged from 16.3 to 261.0 mg/L. TSS concentrations in the range of 20-100 mg/L were reduced to less than 20 mg/L for 16 of 17 events. Average TSS removal for influent TSS between 100-200 mg/L was 90 percent.
- Other median pollutant removals included: total phosphorus, 59 percent; total nitrogen, 51 percent; total copper, 90 percent; and total zinc 70 percent.
- Total oil and grease influent concentrations ranged from 0.2 to 4.1 mg/L, with a median removal efficiency of 62 percent.
- No maintenance was required or carried out during the 13-month monitoring period. Curves of head loss versus flow rate were nearly identical for the system with fresh cartridges (beginning of monitoring) and dirty cartridges (end of monitoring period). The sump and filter cartridges captured 166 pounds of dry basis particulate matter.

- Runoff treated by the JF4-2-1 was from a nearby parking lot (approximately 75 percent pavement and 25 percent planting islands). Depending on storm event intensity and wind direction, the drainage area varied from 0.12 to 0.20 acres.

Laboratory Testing and Results

Imbrium conducted testing at the Monteco Limited Research & Development Centre (RDC) in Mississauga, Ontario with third party testing oversight provided by Prof. James Li of Ryerson University in Toronto. The laboratory set-up used a single cartridge fitted into a tank sized to be 1/7 the volume of a full-scale 7-cartridge Jellyfish Filter system. Based on the lab test results:

- A Jellyfish Filter system fitted with a single Jellyfish cartridge or multiple Jellyfish cartridges can remove greater than 86% Sil-Co-Sil 106 (mean particle size 22 microns) within a 95% confidence interval of +/- 1.3% at the system's 100% operating rate with influent sediment concentrations ranging from 100 to 300 mg/L. For systems using 12-inch diameter cartridges, each cartridge containing 91filtration tentacles of 54-inch length, the 100% operating rate is 50 gpm per cartridge operating at 12 inches driving head (i.e., 0.66 gpm/ft2). Each (of the) 91 filtration tentacles is composed of three 18-inch long segments for a total length of 54 inches with 76 ft2 of surface area (first generation membrane filtration cartridges).
- Test runs at 100 mg/L influent concentration resulted in effluent concentrations ranging from 12 to 21 mg/L. Ten of the 11 test runs had effluent less than 20 mg/L (as required for Basic Treatment).
- Sampling of effluent found an average D90 of about 14 microns indicating the Jellyfish Filter System is capable of removing most particles above 15 microns.

Other Jellyfish Filter Related Issues Recommended to be Addressed by the Company:

1. Conduct hydraulic testing to obtain information about maintenance requirements on a site with runoff that is more typical of the Pacific Northwest.

Technology Description: Download at: http://www.conteches.com/products/stormwater-management/treatment/jellyfish-filter

Contact Information:

Applicant: Jeremiah Lehman
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Revision History

Date	Revision
August 2008	PULD granted
January 2012	PULD Extension granted
September 2012	CULD for Basic treatment; PULD for Oil and Phosphorus treatment.
January 2013	Modifications to format document in line with other Use Level Documents, Changes dates for QAPP, TER, and Expiration
August 2014	Revised contact information and due dates for QAPP, TER, and expiration
March 2015	Revised Contact Information to Contech from Imbrium
November 2016	Revised Contech contact information
March 2018	Revised TER delivery and Expiration dates, Changed text from Imbrium to Contech in selected locations
April 2019	Revised TER delivery and Expiration dates
September 2020	Revised TER delivery and Expiration dates
January 2021	GULD Granted

6.6.2 Total Phosphorus

Total phosphorus and orthophosphate phosphorous (ortho phosphorous) were analyzed for 21 of the sampled storm events. These results are shown in Tables 13 and 14.

Influent EMCs for total phosphorus ranged from 0.0806 mg/L to 1.7500 mg/L with a mean of 0.4711 mg/L and a median of 0.3380 mg/L. Corresponding effluent EMCs for total phosphorus ranged from 0.030mg/L to 0.1730 mg/L with a mean of 0.0836 mg/L and a median of 0.0915 mg/L.

Influent EMCs for ortho phosphorous ranged from 0.0100 mg/L to 0.0360 mg/L with a mean of 0.0179 mg/L and a median of 0.0150 mg/L. Corresponding effluent EMCs for ortho phosphorous ranged from 0.0100 mg/L to 0.0541 mg/L with a mean of 0.0192 mg/L and a median of 0.0160 mg/L.

Table 13. Total Phosphorus Results

Total Phosphorus								
Event ID	Sample Type	Influent result (mg/L)	Method reporting limit (MRL) (mg/L)	Influent load (g)	Effluent result (mg/L)	Method reporting limit (MRL) (mg/L)	Effluent load (g)	Individual storm reduction (RE) (%)
4/7/2017	Comp.	0.7060	0.0100	44.3	0.0920	0.0100	5.8	87.0
4/12/2017	Comp.	0.3380	0.0100	33.0	0.0760	0.0100	7.4	77.5
4/19/2017	Comp.	0.5000	0.0100	9.0	0.0360	0.0100	0.7	92.8
4/26/2017	Comp.	0.5040	0.0100	22.0	0.0420	0.0100	1.8	91.7
5/13/2017	Comp.	0.2560	0.0100	25.0	0.1100	0.0100	10.7	57.0
5/16/2017	Comp.	0.0940	0.0100	16.3	0.0420	0.0100	7.3	55.3
6/8/2017	Comp.	0.2560	0.0100	22.9	0.1040	0.0100	9.3	59.4
6/15/2017	Comp.	0.3620	0.0100	37.6	0.0520	0.0100	5.4	85.6
3/8/2018	Comp.	1.7500	0.0100	163.1	0.1300	0.0100	12.1	92.6
3/14/2018	Comp.	0.6520	0.0100	69.7	0.0940	0.0100	10.1	85.6
3/16/2018	Comp.	0.0820	0.0100	1.8	0.0300	0.0100	0.7	63.4
3/22/2018	Comp.	0.3640	0.0100	40.9	0.0720	0.0100	8.1	80.2
3/27/2019	Comp.	0.2260	0.0500	39.5	0.0699	0.0500	12.2	69.1
4/5/2019	Peak	0.3370	0.0500	1.7	0.0915	0.0500	0.5	72.8
4/13/2019	Peak	0.2490	0.0500	95.9	0.0870	0.0500	33.5	65.1
5/18/2019	Peak	1.0900	0.2500	122.7	0.1730	0.0500	19.5	84.1
12/7/2019	Comp.	0.3350	0.0500	89.9	0.1050	0.0500	28.2	68.7
12/11/2019	Comp.	0.0806	0.0500	8.5	0.0523	0.0500	5.5	35.1
12/19/2019	Comp.	0.2110	0.0500	37.1	0.0925	0.0500	16.2	56.2
3/30/2020	Peak	1.0500	0.0500	126.0	0.0921	0.0500	11.1	91.2
4/20/2020	Peak	0.4510	0.0500	27.9	0.1120	0.0500	6.9	75.2
Min		0.0806	0.0100	1.7	0.0300	0.0100	0.5	35.1
Max		1.7500	0.2500	163.1	0.1730	0.0500	33.5	92.8
Mean		0.4711	0.0367	49.3	0.0836	0.0271	10.1	73.6
Median		0.3380	0.0100	37.1	0.0915	0.0100	8.1	75.2
Sum				1034.9			213.0	

Table 21. Basic Treatment TSS results

Total Suspended Solids (TSS)									
Event ID	Sample Type	Influent result (mg/L)	Method reporting limit (MRL) (mg/L)	Influent load (kg)	Effluent result (mg/L)	Method reporting limit (MRL) (mg/L)	Effluent load (kg)	Basic Criteria 1 20-100 mg/l Eff. conc. ≤ 20mg/l	Basic Criteria 2 100-200 mg/l ≥80% RE (%) [a]
3/20/2017	Comp.	51.2	2.0	6.8	19.4	2.1	2.6	19.4	
3/21/2017	Comp.	102.0	2.0	7.1	22.0	2.0	1.5		78.4
4/7/2017	Comp.	201.0	2.0	12.6	30.8	2.0	1.9		84.6
4/12/2017	Comp.	108.0	2.0	10.6	24.4	2.0	2.4		77.4
4/19/2017	Comp.	452.0	2.0	8.2	44.6	2.1	0.8		77.7
4/26/2017	Comp.	257.0	2.3	11.2	10.0	2.4	0.4		95.0
5/13/2017	Comp.	66.0	2.0	6.4	33.2	2.0	3.2	33.2	
5/16/2017	Comp.	24.0	2.0	4.2	6.8	2.0	1.2	6.8	
6/8/2017	Comp.	73.6	2.0	6.6	16.8	2.0	1.5	16.8	
6/15/2017	Comp.	134.0	2.5	13.9	10.4	2.0	1.1		92.2
3/8/2018	Comp.	755.0	3.3	70.4	47.2	2.0	4.4		76.4
3/14/2018	Comp.	181.0	5.0	19.4	27.0	5.0	2.9		85.1
3/16/2018	Comp.	19.0	5.0	0.4	ND	5.0	0.1		
3/22/2018	Comp.	224.0	5.0	25.1	20.0	5.0	2.2		90.0
3/27/2019	Comp.	94.0	5.0	16.4	11.0	5.0	1.9	11.0	
4/5/2019	Peak	171.0	5.0	0.9	23.0	5.0	0.1		86.5
4/13/2019	Peak	117.0	5.0	45.0	25.0	5.0	9.6		78.6
5/18/2019	Peak	254.0	5.0	28.6	20.0	5.0	2.3		90.0
12/7/2019	Comp.	200.0	5.0	53.7	17.0	5.0	4.6		91.5
12/11/2019	Comp.	13.0	5.0	1.4	10.0	5.0	1.1		
12/19/2019	Comp.	91.0	5.0	16.0	31.0	5.0	5.4	31.0	
3/30/2020	Peak	605.0	5.0	72.6	51.0	5.0	6.1		74.5
4/20/2020	Peak	210.0	5.0	13.0	29.0	5.0	1.8		85.5
Min		13.0	2.0	0.4	5.0	2.0	0.1	6.8	74.5
Max		755.0	5.0	72.6	51.0	5.0	9.6	33.2	95.0
Mean		191.4	3.7	19.6	23.2	3.6	2.6	19.7	84.2
Median		134.0	5.0	12.6	22.0	5.0	1.9	18.1	85.1
Lower 95% for RE [b]									82.0
Sum				450.4			59.2		

[a] Influent TSS concentrations capped at 200 mg/L for Basic Criteria 2 RE calculation purposes
[b] confidence interval calculated using TAPE bootstrap confidence interval calculator

Table 16. Total Zinc and Total Copper Results

Event ID	Sample Type	Total Zn							Total Cu						
		Influent result (mg/L)	Method reporting limit (MRL) (mg/L)	Influent load (g)	Effluent result (mg/L)	Method reporting limit (MRL) (mg/L)	Effluent load (g)	Individual storm reduction (RE) (%)	Influent result (mg/L)	Method reporting limit (MRL) (mg/L)	Influent load (g)	Effluent result (mg/L)	Method reporting limit (MRL) (mg/L)	Effluent load (g)	Individual storm reduction (RE) (%)
4/7/2017	Comp.	0.1450	0.0020	9.1	0.0399	0.0020	2.5	72.5	0.0258	0.0005	1.62	0.0085	0.0005	0.54	66.9
4/12/2017	Comp.	0.0797	0.0020	7.8	0.0317	0.0020	3.1	60.2	0.0126	0.0010	1.23	0.0032	0.0010	0.32	74.3
4/19/2017	Comp.	0.1460	0.0020	2.6	0.0209	0.0020	0.4	85.7	0.0248	0.0005	0.45	0.0032	0.0005	0.06	87.2
4/26/2017	Comp.	0.0875	0.0020	3.8	0.0166	0.0020	0.7	81.0	0.0160	0.0005	0.70	0.0019	0.0005	0.08	87.9
5/13/2017	Comp.	0.0637	0.0020	6.2	0.0423	0.0020	4.1	33.6	0.0109	0.0005	1.06	0.0073	0.0005	0.71	33.4
5/16/2017	Comp.	0.0381	0.0020	6.6	0.0244	0.0020	4.2	36.0	0.0060	0.0005	1.04	0.0036	0.0005	0.62	40.3
6/8/2017	Comp.	1.8900	0.0020	168.9	1.2400	0.0020	110.8	34.4	0.0164	0.0005	1.47	0.0071	0.0005	0.63	57.0
6/15/2017	Comp.	0.2220	0.0020	23.1	0.1040	0.0020	10.8	53.2	0.0230	0.0005	2.39	0.0070	0.0005	0.72	69.7
3/8/2018	Comp.	0.3740	0.0020	34.9	0.0518	0.0020	4.8	86.1	0.0597	0.0005	5.56	0.0172	0.0005	1.60	71.2
3/14/2018	Comp.	0.1300	0.0020	13.9	0.0412	0.0020	4.4	68.3	0.0225	0.0005	2.41	0.0058	0.0005	0.62	74.3
3/16/2018	Comp.	0.0444	0.0020	1.0	0.0282	0.0020	0.6	36.5	0.0180	0.0005	0.40	0.0023	0.0005	0.05	87.1
3/22/2018	Comp.	0.1170	0.0020	13.1	0.0305	0.0020	3.4	73.9	0.1360	0.0005	15.27	0.0040	0.0005	0.45	97.0
3/27/2019	Comp.	0.0675	0.0020	11.8	0.0345	0.0020	6.0	48.9	0.0133	0.0005	2.33	0.0047	0.0005	0.82	64.7
4/5/2019	Peak	0.1100	0.0020	0.5	0.0313	0.0020	0.2	71.5	0.0196	0.0005	0.10	0.0065	0.0005	0.03	66.8
4/13/2019	Peak	0.0826	0.0020	31.8	0.0366	0.0020	14.1	55.7	0.0182	0.0005	7.01	0.0098	0.0005	3.77	46.2
5/18/2019	Peak	0.4560	0.0020	51.3	0.0356	0.0020	4.0	92.2	0.0601	0.0005	6.76	0.0068	0.0005	0.76	88.7
12/7/2019	Comp.	0.1990	0.0020	53.4	0.0815	0.0020	21.9	59.0	0.0167	0.0005	4.48	0.0055	0.0005	1.48	66.9
12/11/2019	Comp.	0.0959	0.0020	10.2	0.0805	0.0020	8.5	16.1	0.0081	0.0005	0.85	0.0070	0.0005	0.74	13.6
12/19/2019	Comp.	0.1500	0.0020	26.3	0.0697	0.0020	12.2	53.5	0.0125	0.0005	2.20	0.0064	0.0005	1.13	48.7
3/30/2020	Peak	0.4050	0.0020	48.6	0.0432	0.0020	5.2	89.3	0.0625	0.0010	7.50	0.0109	0.0010	1.31	82.6
4/20/2020	Peak	0.1310	0.0020	8.1	0.0372	0.0020	2.3	71.6	0.0315	0.0010	1.95	0.0154	0.0010	0.95	51.1
Min		0.0381	0.0020	0.5	0.0166	0.0020	0.2	16.1	0.0060	0.0005	0.10	0.0019	0.0005	0.03	13.6
Max		1.8900	0.0020	168.9	1.2400	0.0020	110.8	92.2	0.1360	0.0010	15.27	0.0172	0.0010	3.77	97.0
Mean		0.2397	0.0020	25.4	0.1010	0.0020	10.7	60.9	0.0292	0.0006	3.18	0.0069	0.0006	0.83	65.5
Median		0.1300	0.0020	11.8	0.0372	0.0020	4.2	60.2	0.0182	0.0005	1.95	0.0065	0.0005	0.71	66.9
Sum				533.2			224.4				66.77			17.41	

TOWN OF LEXINGTON
PLANNING OFFICE

1625 Massachusetts Avenue
Lexington, Massachusetts 02420
Tel: 781-698-4560
planning@lexingtonma.gov
www.lexingtonma.gov/planning

Abby McCabe, Planning Director
Meghan McNamara, Assistant Director
Aaron Koepper, Planner
Carolyn Morrison, Planning Coordinator

To: **Planning Board Members**

From: **Aaron Koepper, Planner**

Re: **Project Review for 166 Spring Street: Limited Site Plan Review**

Date: **May 1, 2025**

Property Information	
Project Address	166 Spring Street
Parcel ID	Map 12, Lot 8B
Permit #	PLAN-5
Applicant/Owner Name	Isam Hijazi on behalf of the Muslim American Community Center of Lexington, Massachusetts
Type of Review	Limited Site Plan Review
Zoning District	RO – Single Family
Property Size	49,602 square feet or 1.14 acres
Existing Conditions	The lot currently holds one (1) single family house, an attached garage with a paved driveway, and one (1) stand-alone brick building located behind the house. Majority of landscaping and vegetation on the lot has been cleared; some tree growth is present around the periphery of the property. Located at the corner of Spring Street and Concord Avenue.
Environmental Conditions	The property is within Surface Water Protection Zones B and C. Due to site topography and existing conditions, the site will need to be evaluated by a professional wetland scientist to delineate protected resource areas on or near the site under state and local code for wetlands protection. This delineation is necessary to confirm next steps with the Conservation Commission. Based on aerial imagery, significant tree cutting was performed on the site within the last year. A 50-foot wide drainage easement exists on the site parallel to Concord Avenue.

Important Dates/Timelines	
Public Meeting	February 26, 2025, continued to March 27, 2025 and further continued to May 7, 2025
Filed with Town Clerk	February 5, 2025

Decision Deadline **150 days following submittal to Town Clerk**	July 5, 2025

Approval Information	
Action Required at Decision Deadline	The Planning Board may approve an application subject to such reasonable conditions as may be necessary or appropriate to: 1. Enforce compliance with substantive requirements of this chapter, unless waived; and 2. Protect the health, safety, convenience, and general welfare of the inhabitants of the Town of Lexington.
Applicability	Site plan review of uses protected under c. 135 § 9.5.6 shall require only limited review. Site plan review shall be limited in such circumstances to the imposition of reasonable regulations concerning the bulk and height of structures, yard sizes, lot area, setbacks, open space, off-street parking, and building coverage requirements.
Relief or Waivers	Applicant is seeking relief from §135-5.1.11(3) of the Zoning Bylaw which requires all paved parts of parking spaces, driveways, and maneuvering aisles be set back 25' from a street line. Plans show a paved area set back with its closest point being 12.4 feet from Spring Street.

Project Summary

The proposed project would typically fall under a major site plan review, but because of the religious use of the site, the project is subject to only a limited site plan review due to the Dover Amendment (MGL Chapter 40A, Section 3) which prohibits the regulation or restriction of land or structures used for religious or educational purposes apart from:

- Bulk and height of structures
- Lot area
- Yard size and setbacks
- Open space
- Parking
- Building coverage
- Stormwater management, pursuant to § 181 consolidated into the Planning Board's Site Plan Review approval

A limited site plan review is allowable but must not regulate beyond the bulleted list above.

The Applicant proposes changing the use of the existing single family to a place of worship / community building with exterior parking for forty-eight (48) vehicles, including two (2) ADA accessible parking spaces. The applicant proposes two (2) ADA ramps, a second means of egress, and an emergency exit on the building, as well as the installation of subsurface stormwater management systems, lighting, site grading, a bicycle rack and stone walls. An addition to the building is proposed as a second-phase project. A new curb cut is proposed on Concord Ave. that will serve as a one-way entrance to the site and will require approval from the Engineering Department since this is proposed within the drainage easement.

Plans reference future building expansion that increases footprint but no further details are provided. Applicant may need to return to the Planning Board for future expansion if they plan construct beyond what is proposed in this submission.

Revised plans and response to comments were submitted on February 23. Revised plans include updated lighting and landscape plan.

Staff Comments

Planning

The submitted photometric plan shows light spillage onto Concord Avenue. Staff request the applicant adjust lighting plan to avoid any spillage into the right-of-way.

Staff appreciate the inclusion of 6 bicycle parking spaces and request each space be 6 feet by 2 feet dimensions. Applicant should consider covered bike-parking in the future to promote biking to the site.

Per c. 135 § 5.1.13.11, a parking lot with 25 or more new parking spaces shall be constructed with appropriate conduits and space to allow for future installation of EV charging stations at 50% of spaces. Staff notes that applicant shows built 2 EV parking spots on plans, which complies with zoning bylaw.

Applicant shall comply with c. 135 § 5.2 for any proposed signage. Development is permitted to have a principal wall sign and one standing sign not exceeding 5 ft. in height and 15 sq. ft. in area.

Proposed plans show a fire truck entering the site via the one-way entrance on Concord Avenue and exiting the site via the one-way entrance on Spring Street. The Fire Department has previously stated that, following an emergency response, they will not exit a site through a one-way entrance. Applicant should confirm the appropriate emergency response plan with Public Safety staff.

At the February 26 meeting, a neighbor brought up a request for safer pedestrian crossing and signage. The Transportation Safety Group (TSG) has been investigating additional & updated pedestrian crossing signage.

Engineering

A revised narrative and stormwater report dated February 24, 2025. Engineering comments on the revised stormwater report are below and request some revisions.

A permit from engineering for the driveway on Concord Avenue is required.

Conservation

The Applicant is responsible for filing a Notice of Intent or other permit with the Conservation Commission for work within a 100-ft. wetland buffer zone. An updated wetlands evaluation is needed of the property to determine the wetland's buffer zones and any isolated land subject to flooding. The Commission will review stormwater in relation to the wetlands and in accordance with the Conservation Commission's performance standards. The Applicant's project team met with planning and conservation staff on the property on April 2. The applicant is still working on the application submission to the Conservation Commission. If the Planning Board approves the proposal, any modifications as a result of the Conservation Commission's review may need to return to the Planning Board for review.

Site Photos

Photo 1: GIS Map showing 166 Spring Street lot and surrounding area.

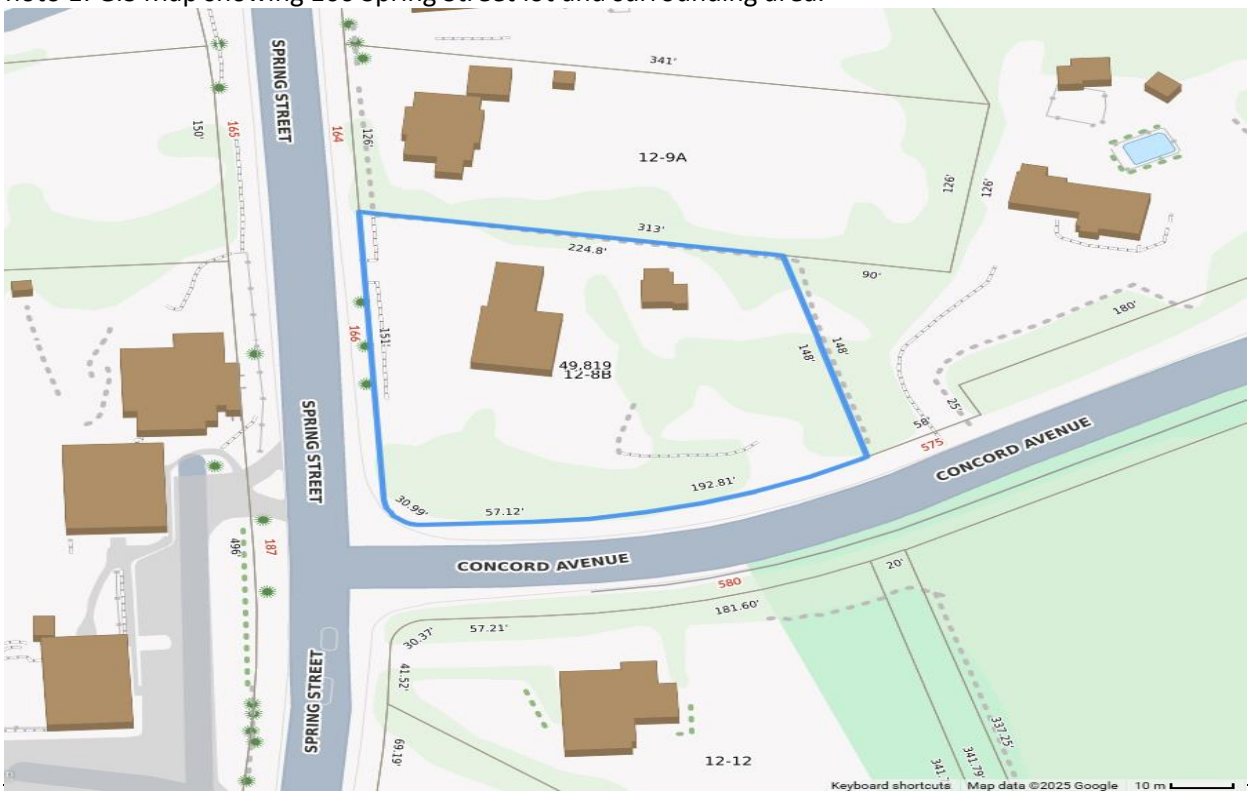


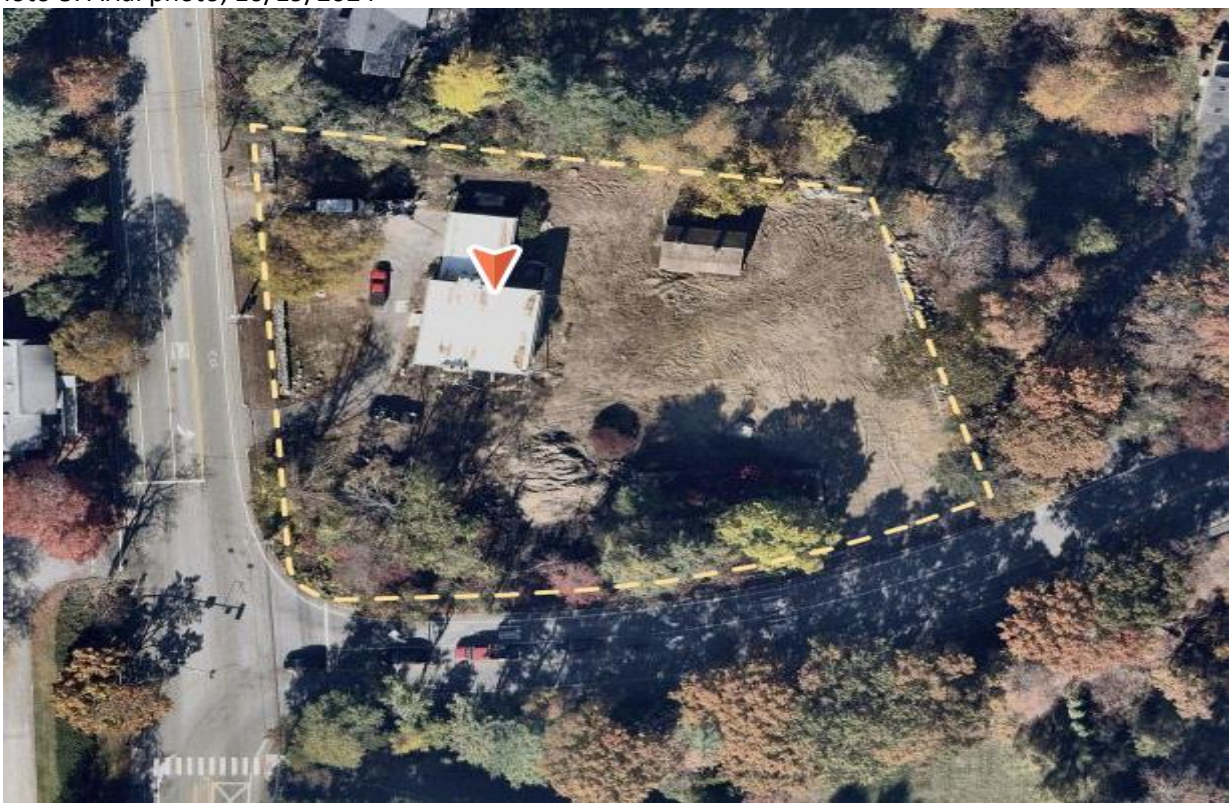
Photo 2: View from Spring Street showing current single-family house and driveway.

Photo 3: Staff site visit, 2/20/2025, 1 of 2

Photo 5: Staff site visit, 2/20/2025, 2 of 2

Photo 7: Arial photo, 8/23/2024

Photo 8: Arial photo, 10/19/2024



MEMORANDUM

TO: Planning Director, Planning

FROM: Marissa Martel (Liggiero), Engineering

DATE: May 1, 2025

SUBJECT: 166 Spring Street Comments 2

The Engineering Division has reviewed the updated Site Plans at 166 Spring Street. We submit the following:

Stormwater note:

- Rainfall data should be taken from the NRCC Cornell extreme precipitation tables.
- Proposed recharge system #2 shows 18 chambers on the plan, but in the analysis, it shows 12 chambers.
- Watershed map showing subcatchment routing should be uploaded.
- Contech recharge systems and Jellyfish filters should be detailed more clearly on plans. There are two outlet pipes coming from the jellyfish filters. One to the recharge system and one to the drain manhole. Which one has the treated water? Flow paths for these systems are unclear.
- Grading plan should be shown on the Utility and Drainage plan in the permit set.
- Test pit information not shown.

Utility note:

Water and sewer utilities not shown on plan set.

Roadway note:

See general comments above

MEMORANDUM

TO: Planning Director, Planning

FROM: Marissa Martel (Liggiero), Engineering

DATE: May 1, 2025

SUBJECT: 166 Spring Street Comments 2

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- Test pit information not shown.

Utility note:

- Water and sewer utilities not shown on plan set.

Roadway note:

See general comments above

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

217, 229, 233, 241 Massachusetts Avenue - Public hearing

PRESENTER:

Applicant: North Shore Residential Development

ITEM NUMBER:

SUMMARY:

Continued public hearing on an application by North Shore Residential Development, Inc., for approval of a major site plan review under §135-7.5 [Village & Multi-Family Overlay Districts] and 9.5 [Site Plan Review] of the Zoning Bylaw and Article VI of §181-71 Stormwater Management Regulations. Proposal also request a special permit, pursuant to Section 5.1.14 and 5.1 [Off-Street Parking and Loading]. Application is to construct a 44-unit five-story mixed-use building with first floor commercial with 52 parking spaces, landscaping, and stormwater management improvements.

The properties are located at 217, 229, 233, 241 Massachusetts Avenue, Lexington, MA also known as Map 13, Lots 372, 373, 374, & 375 in the CRS (Retail Shopping) and VO (Village Overlay) zoning districts (changed to the VLO Village Legacy Overlay District at Special Town Meeting on March 17, 2025).

Application materials may be viewed here (click Files tab):
https://lexingtonma.portal.opengov.com/records/94025 (new material upload after April 15)

The Planning Board will re-open the continued hearing. The applicant will present changes since the last meeting. Staff and peer review consultant will summarize findings of revised material. Board members will discuss before opening up to public comments. At the end of the public comment portion the Board will return to the applicant for final discussion. The Board may begin deliberating on the application.

An updated staff and peer review memo are attached. Staff will prepare a draft decision with conditions of approval for the Board's consideration.

SUGGESTED MOTION:

Suggested Motions *(subject to change during meeting)*:

Move to close the public hearing on the site plan review and special permit application from North Shore Residential for 217-241 Massachusetts Avenue.

Waiver & Special Permits:
1 - Waive the total number of parking spaces for the commercial use to grant relief of 11 spaces based on the requirement for a restaurant use. The Board finds that location along public transit, nearby on-street parking on

both sides of Massachusetts Avenue, and the Minuteman Bikeway reduce the need for 19 parking spaces for a restaurant use.

2 - Move to grant a special permit to grant relief from the parking dimensional & design standards to allow two spaces to be less than 12 ft. in width; to allow the accessible aisle for the accessible space to be within 10 ft. of the street line; to allow garage columns to be within to be within 3 ft. of drive aisle; and to allow the landscaping along front lot line to be less than 6 ft. in height;

3 - Move to waive the Board's bicycle parking regulations to allow the lift assisted bicycle parking spaces to lifted above ground level and less than 2 ft. in width.

4 - Move to grant a partial Tree Bylaw waiver. Accept the proposed landscape plan for the property as on site mitigation as meeting the Tree Bylaw. This approval does not waive the Tree Bylaw for removal of any of the trees within the Town's right of way.

Site Plan Review & Special Permit Application:
Move to approve the site plan review and special permit application from North Shore Residential for 217, 229, 233 & 241 Massachusetts Avenue with the 70 conditions of approval as modified this evening.

Move to allow the Chair to sign the decision and make non-substantive changes to correct any typos, grammar, or for consistency.

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025

ATTACHMENTS:

	Description	Type
🗋	217-241 Mass Ave Plan Set 4.14.25	Cover Memo
🗋	Peer Review Memo #5	Cover Memo
🗋	Staff Memo #4 4.30.25	Cover Memo

FRONT / RIGHT PERSPECTIVE RENDERING

217 - 241 MASSACHUSETTS AVENUE

LEXINGTON, MA 02420
VILLAGE OVERLAY REDEVELOPMENT PROJECT

MIXED - USE RETAIL & RESIDENTIAL BUILDING - BUSINESS & RESIDENTIAL (OCC. GROUPS B & R-2)

PROJECT TEAM

BUILDING OWNER:
NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET; SUITE 01
WOBURN, MA 01801
T : 781.932.1776

ARCHITECT:
SCOTT MELCHING ARCHITECT LLC
116 ARCH STREET
NEEDHAM MA 02492
T : 718.578.3354
W : WWW.SCOTTMELCHINGARCHITECT.COM

STRUCTURAL ENGINEER:
VEITAS ENGINEERS
639 GRANITE STREET; SUITE 100
BRAINTREE, MA 02184
T: 781.843.2863
W : WWW.VEITAS.COM

CIVIL ENGINEER:
SULLIVAN ENGINEERING GROUP LLC
P.O BOX 2004
WOBURN, MA 01888
T: 781.854.8644
W : WWW.SULLIVANENGGROUPLLC.COM

LANDSCAPE ARCHITECT:
J. THOMA LAND DESIGN STUDIOS
141 HAGGETS POND ROAD
ANDOVER, MA 01810
T : 978.409.9815
W : WWW.JTHOMALDS.COM

MEP ENGINEER:
BUILDING ENGINEERING RESOURCES, INC.
66 MAIN STREET
NO. EASTON, MA 02356
T : 508.230.0260
W : WWW.BER-ENGINEERING.COM

SUSTAINABILITY CONSULTANT:
BUILDING EVOLUTION CORPORATION
138 GREEN STREET
WORCESTER, MA 01604
T : 508.475.9016
W : WWW.BUILDINGEVO.COM

ATTORNEY:
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700 DISTRICT AVENUE, 11TH FLOOR
BURLINGTON, MA 01803
T : 617.880.3457
W : WWW.RIEMERLAW.COM

OWNER:
NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:
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BURLINGTON, MA 01803 | (T) 617.880.3457
WWW.RIEMERLAW.COM

NO.	DATE	REVISIONS	SUBMISSIONS
	2025 04-14	PLANNING BOARD SUBMISSION 04	
	2025 01-09	PLANNING BOARD SUBMISSION 03	
	2024 10-30	PLANNING BOARD SUBMISSION 02	
	2024 08-12	PLANNING BOARD SUBMISSION	
	2024 07-16	DRT SUBMISSION	

KEY PLAN:

PROJECT:
MIXED-USE / RESIDENTIAL NEW CONSTRUCTION
217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:
TITLE SHEET

SHEET NUMBER :
T-100

PAGE NO :	1 OF 18
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	E W
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04

PROJECT SUMMARY

PROPOSED 5-STORY 44 UNIT MIXED-USE RESIDENTIAL STRUCTURE WITH ENCLOSED BELOW GRADE PARKING AND STREET LEVEL COMMERCIAL SPACE. OFF-STREET PARKING IS PROVIDED ALONG THE ENTRY DRIVE AISLE. A PORTION OF THIS PARKING IS DEDICATED TO THE COMMERCIAL TENANT.

ADDRESS :	217 - 241 MASSACHUSETTS AVENUE, LEXINGTON MA 02420
ZONING DISTRICT :	COMMERCIAL RETAIL SHOPPING (CRS)
ZONING SUBDISTRICT (OVERLAY) :	VILLAGE OVERLAY DISTRICT (VO)
EXISTING USE :	COMMERCIAL / RESIDENTIAL
PROPOSED USE :	MIXED USE RESIDENTIAL
LOT AREA :	+ / - 30,886 SF

ZONING SUMMARY

ITEM	REQUIRED	PROPOSED	COMPLIANCE
PERMITTED USES (SECTION 135-7.5.4)	MULTIFAMILY & NON-RESIDENTIAL USES PERMITTED IN CRS DISTRICT	MULTIFAMILY & NON-RESIDENTIAL USES PERMITTED IN CRS DISTRICT	COMPLIANT
DWELLING PER LOT (SECTION 135-4.1.4)	DOES NOT APPLY (SECTION 7.5.5 (1))	44 DWELLING UNITS	COMPLIANT
LOT WIDTH REGULARITY (SECTION 135-4.2.2)	DOES NOT APPLY (SECTION 7.5.5.2)	EXISTING	COMPLIANT
LOT AREA (SECTION 135-4.2.3)	DOES NOT APPLY (SECTION 7.5.5.2)	+ / - 30,886 SF (EXISTING)	COMPLIANT
LOT FRONTAGE MINIMUM (SECTION 135-4.2.4)	DOES NOT APPLY (SECTION 7.5.5.2)	164.24' (EXISTING)	COMPLIANT
HEIGHT OF DWELLING NEAR LOT LINES (SECTION 135-4.3.5)	DOES NOT APPLY (SECTION 7.5.5.3)	N / A	COMPLIANT
RESI. GROSS FLOOR AREA (SECTION 135-4.4)	DOES NOT APPLY (SECTION 7.5.5.4)	2.46	COMPLIANT
NON-RESIDENTIAL FLOOR AREA (SECTION 135-7.5.5)	NOT RESTRICTED	4,586 SF EXCEEDS 30% OF GROUND FLOOR AREA	COMPLIANT
FRONT YARD MINIMUM DEPTH (FT) (SECTION 135-7.5.5.6)	0' (IF 50% OF FACADE FACING STREET IS NON-RESIDENTIAL USE	VARIES (15.9' - 13.3')	COMPLIANT
SIDE YARD MINIMUM DEPTH (FT) (SECTION 135-7.5.5.7)	15'-0"	LEFT : 15.0' RIGHT : 15.0'	COMPLIANT
REAR YARD MINIMUM DEPTH (FT) (SECTION 135-7.5.5.8)	LESS OF THAT REQUIRED BY UNDERLYING ZONING DISTRICT & 15'-0"	25.3'	COMPLIANT
SITE COVERAGE (SECTION 135-7.5.5.9)	NOT RESTRICTED	48.8 % (GROUND FLOOR FOOTPRINT)	COMPLIANT
BUILDING HEIGHT MAXIMUM (SECTION 135-7.5.5.10)	60' ; IF 30% OF NEW FLOOR AREA OF STREET IS NON-RESIDENTIAL USE	SEE C-2 (FROM AVERAGE GRADE)	COMPLIANT
NUMBER OF STORIES (SECTION 135-7.5.5.11)	NOT RESTRICTED	5 STORIES ABOVE GRADE	COMPLIANT
OFF-STREET PARKING / LOADING (SECTION 135-7.5.5.11)	1 PER DWELLING UNIT + PARKING REQUIRED FOR USE BASED ON CRS DISTRICT (1 PER DWELLING UNIT + 1 PER 500 NET SF CRS)	44 RESIDENTIAL + 3 VISITORS + 5 RETAIL SPACES LOADING BAY NOT REQUIRED	SPECIAL PERMIT
BICYCLE & OTHER DEVICE PARKING (SECTION 135-7.5.6.1)	LONG TERM : 1.5 SPACES PER DWELLING UNIT SHORT TERM : .1 SPACES PER DWELLING UNIT	LONG TERM 66 SPACES + SHORT TERM 9 SPACES	COMPLIANT
TRAFFIC STANDARDS (SECTION 135-5.5)	DOES NOT APPLY (SECTION 7.5.7)	N / A	COMPLIANT
SUSTAINABLE DESIGN (SECTION 135-7.4.4)	DOES NOT APPLY (SECTION 7.5.8)	CERTIFIABLE PER LEED v7 & SITES V2	COMPLIANT
TRANSITION AREA (SECTION 135-7.5.9)	5' TRANSITION AREA, ONLY REQUIRED AT BOUNDARY OF VO DISTRICT	ONLY APPLIES AT REAR YARD BOUNDARY - 25.3' PROVIDED	COMPLIANT
NON-CONFORMING OFF STREET PARKING (SECTION 135-7.5.11)	DOES NOT APPLY	N / A	COMPLIANT
INCLUSIONARY HOUSING PARKING (SECTION 135-7.5.9)	IN BUILDINGS OF 8 OR MORE DWELLING UNITS 15% SHALL BE INCLUSIONARY WITH INCOME LIMITED TO 80% OF AMI	6 INCLUSIONARY UNITS PROVIDED	COMPLIANT
INCLUSIONARY HOUSING PARKING (SECTION 135-7.5.12)	IN BUILDINGS OF 8 OR MORE DWELLING UNITS 15% SHALL BE INCLUSIONARY WITH INCOME LIMITED TO 80% OF AMI	6 INCLUSIONARY UNITS PROVIDED	COMPLIANT
PLAYGROUND / RECREATION AREAS (SECTION 135-7.5.13)	GREAT THAN 40 DWELLING UNITS REQUIRES OUTDOOR PLAY AREA	PLAYGROUND / COMMON AREA PROVIDED	COMPLIANT
RETAINING WALL HEIGHT (SECTION 135-7.5.13)	RETAINING WALLS MAY BE LOCATED IN A FRONT & SIDE YARD SETBACK, PROVIDED THE HEIGHT OF THE STRUCTURE IS NOT GREATER THAN ITS HORIZONTAL DISTANCE FROM THE LOT LINE.	BIKEWAY ACCESS PATHWAY (REAR YARD)	COMPLIANT

GROSS FLOOR AREA (FAR)

FLOOR	SQUARE FOOTAGE (SF)	USE
GARAGE	15,177 SF	38 PARKING SPACES, TRASH ROOM, ELECTRICAL ROOM, WATER / SPRINKLER ROOM
LEVEL 01	14,938 SF	3 DWELLING UNITS, COMMERCIAL / RETAIL SPACE, LOBBY, BICYCLE ROOM, WIFI LOUNGE, GYM
LEVEL 02	17,044 SF	10 DWELLING UNITS, TRASH ROOM, RESIDENT STORAGE, COMMON STAIRS & ELEVATOR
LEVEL 03	15,935 SF	11 DWELLING UNITS, TRASH ROOM, RESIDENT STORAGE, COMMON STAIRS & ELEVATOR
LEVEL 04	15,623 SF	11 DWELLING UNITS, TRASH ROOM, RESIDENT STORAGE, COMMON STAIRS & ELEVATOR
LEVEL 05	12,309 SF	9 DWELLING UNITS, TRASH ROOM, RESIDENT STORAGE, SHARED ROOF DECK, COMMON STAIRS & ELEVATOR
TOTAL	91,026 SF	
GROSS FAR	2.46	

UNIT INFORMATION

FLOOR	DESCRIPTION	SQUARE FOOTAGE (SF)	USE
LEVEL 01	COMMERCIAL SPACE	4,586 SF	COMMERCIAL / RETAIL SPACE
	UNIT 101	1,666 SF	3 BEDROOM / 2 BATH
	UNIT 102	972 SF	1 BEDROOM / 1 BATH
	UNIT 103	960 SF	1 BEDROOM / 1 BATH
LEVEL 02	UNIT 201	2,587 SF	3 BEDROOM / 2 BATH
	UNIT 202	1,065 SF	1 BEDROOM / 1 BATH
	UNIT 203	1,356 SF	2 BEDROOM / 2 BATH
	UNIT 204	1,285 SF	2 BEDROOM / 2 BATH
	UNIT 205	1,256 SF	2 BEDROOM / 2 BATH
	UNIT 206	1,310 SF	2 BEDROOM / 2 BATH
	UNIT 207	969 SF	1 BEDROOM / 1 BATH
	UNIT 208	960 SF	1 BEDROOM / 1 BATH
	UNIT 209	1,113 SF	2 BEDROOM / 1 BATH
	UNIT 210	1,206 SF	2 BEDROOM / 1 BATH
LEVEL 03	UNIT 301	1,089 SF	1 BEDROOM / 1 BATH
	UNIT 302	1,651 SF	3 BEDROOM / 2 BATH
	UNIT 303	1,356 SF	2 BEDROOM / 2 BATH
	UNIT 304	1,285 SF	2 BEDROOM / 2 BATH
	UNIT 305	1,255 SF	2 BEDROOM / 2 BATH
	UNIT 306	1,310 SF	2 BEDROOM / 2 BATH
	UNIT 307	969 SF	1 BEDROOM / 1 BATH
	UNIT 308	960 SF	1 BEDROOM / 1 BATH
	UNIT 309	1,113 SF	2 BEDROOM / 1 BATH
	UNIT 310	1,204 SF	2 BEDROOM / 2 BATH
	UNIT 311	1,074 SF	1 BEDROOM / 1 BATH
LEVEL 04	UNIT 401	1,089 SF	1 BEDROOM / 1 BATH
	UNIT 402	1,651 SF	3 BEDROOM / 2 BATH
	UNIT 403	1,357 SF	2 BEDROOM / 2 BATH
	UNIT 404	1,285 SF	2 BEDROOM / 2 BATH
	UNIT 405	1,255 SF	2 BEDROOM / 2 BATH
	UNIT 406	1,310 SF	2 BEDROOM / 2 BATH
	UNIT 407	969 SF	1 BEDROOM / 1 BATH
	UNIT 408	960 SF	1 BEDROOM / 1 BATH
	UNIT 409	1,039 SF	2 BEDROOM / 1 BATH
	UNIT 410	1,046 SF	2 BEDROOM / 2 BATH
	UNIT 411	1,207 SF	1 BEDROOM / 1 BATH
LEVEL 05	UNIT 501	927 SF	1 BEDROOM / 1 BATH
	UNIT 502	1,396 SF	2 BEDROOM / 2 BATH
	UNIT 503	1,140 SF	2 BEDROOM / 2 BATH
	UNIT 504	1,140 SF	2 BEDROOM / 2 BATH
	UNIT 505	1,140 SF	2 BEDROOM / 2 BATH
	UNIT 506	990 SF	2 BEDROOM / 2 BATH
	UNIT 507	877 SF	1 BEDROOM / 1 BATH
	UNIT 508	867 SF	1 BEDROOM / 1 BATH
	UNIT 509	1,256 SF	2 BEDROOM / 2 BATH

44 TOTAL DWELLING UNITS

TOTAL UNIT TYPES:		AVERAGE UNIT SIZES:	
1 BEDROOM UNIT =	16 UNITS	1 BEDROOM UNIT =	995 SF AVERAGE
2 BEDROOM UNIT =	24 UNITS	2 BEDROOM UNIT =	1225 SF AVERAGE
3 BEDROOM UNIT =	4 UNITS	3 BEDROOM UNIT =	1939 SF AVERAGE

DRAWING LIST

DOB PERMIT SET #			ISSUED FOR DRT 2024 07-16	PLANNING BOARD 2024 08-12	PLANNING BOARD 2 2024 10-30	PLANNING BOARD 3 2025 01-09	PLANNING BOARD 4 2025 04-14			
	GENERAL DRAWINGS									
1	T-100	TITLE SHEET	●	●	●	●	●			
2	T-101	DRAWING LIST / ZONING SUMMARY	●	●	●	●	●			
3	Z-1	ZONING COMPLIANCE FLOOR AREA					●			
4	Z-2	ZONING COMPLIANCE BUILDING HEIGHT					●			
5	A-000	ARCHITECTURAL SITE PLAN (PROPOSED)	●							
	CIVIL ENGINEERING									
1	C-1	EXISTING CONDITIONS SITE PLAN	●	●	●	●	●			
2	C-2	PROPOSED SITE PLAN	●	●	●	●	●			
3	C-3	GRADING, DRAINAGE & UTILITY PLAN		●	●	●	●			
4	C-4	EROSION & SEDIMENT PLAN		●	●	●	●			
5	C-5	PREDEVELOPMENT DRAINAGE PLAN		●	●	●	●			
6	C-6	POST DEVELOPMENT DRAINAGE PLAN		●	●	●	●			
7	C-7	CONSTRUCTION DETAILS		●	●	●	●			
8	C-8	CONSTRUCTION DETAILS		●	●	●	●			
	LANDSCAPE ARCHITECTURE									
1	L-R	SITE PLAN RENDERING			●	●				
2	L-1	MATERIALS PLAN		●	●	●	●			
3	L-2	PLANTING PLAN		●	●	●	●			
4	L-3	GRADING PLAN		●	●	●	●			
5	L-4	LANDSCAPE DETAILS		●	●	●	●			
6	L-4.1	BIKEWAY CONNECTION PLANS			●					
7	L-6	PHOTOMETRIC PLAN		●	●	●	●			
8	L-6	TREE PROTECTION & REMOVAL PLAN		●	●	●	●			
9	L-7	FIRE TRUCK TURNING DIAGRAMS - LEFT TURN	●	●	●	●	●			
10	L-8	FIRE TRUCK TURNING DIAGRAMS - RIGHT TURN	●	●	●	●	●			
11	L-8.1	TRASH TRUCK TURNING DIAGRAM - 3 POINT TURN					●			
12	L-9	SITE LINE STUDY		●	●	●	●			
	ARCHITECTURE									
3	A-100	BASEMENT PARKING LEVEL FLOOR PLAN	●	●	●	●	●			
4	A-101	GROUND FLOOR CONSTRUCTION PLAN	●	●	●	●	●			
5	A-102	SECOND FLOOR CONSTRUCTION PLAN	●	●	●	●	●			
6	A-103	THIRD FLOOR CONSTRUCTION PLAN	●	●	●	●	●			
7	A-104	FOURTH FLOOR CONSTRUCTION PLAN	●	●	●	●	●			
8	A-105	FIFTH FLOOR CONSTRUCTION PLAN	●	●	●	●	●			
9	A-106	ROOF PLAN	●	●	●	●	●			
10	A-201	FRONT ELEVATION RENDERED (MASS AVE)	●	●	●	●	●			
11	A-202	RIGHT ELEVATION RENDERED	●	●	●	●	●			
12	A-203	REAR ELEVATION RENDERED (BIKEWAY)	●	●	●	●	●			
13	A-204	LEFT ELEVATION RENDERED	●	●	●	●	●			
14	A-301	BUILDING SECTION EAST / WEST THRU GARAGE ENTRY	●	●	●	●	●			
15	A-302	BUILDING SECTION NORTH / SOUTH	●	●	●	●	●			
16	A-303	BUILDING / SITE SECTION NORTH / SOUTH	●	●	●	●	●			

NOTES:

1. DRAWING LISTED ARE FOR INFORMATION ONLY. THESE DRAWINGS AS LISTED IN THE DRAWING LIST ALONE WITH THE CONTRACT FOR CONSTRUCTION, ADDENDUMS & OTHER INFORMATION AS PROVIDED TO THE GENERAL CONTRACTOR CONSTITUTE THE INSTRUMENTS OF SERVICE AND ARE CONSIDERED A SINGLE ENTITY. THE CONTRACTOR IS THEREFORE BOUND BY ALL INFORMATION INCLUDED. NONE OF THIS INFORMATION OR DRAWINGS SHEETS SHALL BE TAKEN SEPARATELY OR "STAND ALONE" FROM THE REMAINDER OF THE CONSTRUCTION DOCUMENTS. ANY DISCREPANCIES OR CONFLICTING INFORMATION NOT BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO SUBMITTING A BID SHALL BE INTERPRETED AT THE SOLE DISCRETION OF THE ARCHITECT.
2. PRIOR TO STARTING ANY TYPE OF CONSTRUCTION, G.C. TO VERIFY DRAWINGS ARE MOST CURRENT (ISSUED FOR CONSTRUCTION.)

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

SCOTT MELCHING ARCHITECT LLC
116 ARCH STREET
NEEDHAM MA 02492 | (T) 718.578.3354
WWW.SCOTTMELCHINGARCHITECT.COM

LANDSCAPE ARCHITECT:

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STRUCTURAL ENGINEER:

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136 GREEN STREET
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WWW.BUILDINGEVO.COM

ATTORNEY:

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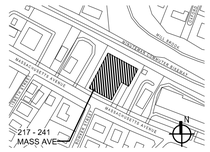
700 DISTRICT AVENUE, 11TH FLOOR
BURLINGTON, MA 01803 | (T) 617.880.3457
WWW.RIEMERLAW.COM

NO.	DATE	REVISIONS	SUBMISSIONS
	2025 04-14	PLANNING BOARD SUBMISSION 04	
	2025 01-09	PLANNING BOARD SUBMISSION 03	
	2024 10-30	PLANNING BOARD SUBMISSION 02	
	2024 08-12	PLANNING BOARD SUBMISSION	
	2024 07-16	DRT SUBMISSION	

KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION
217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

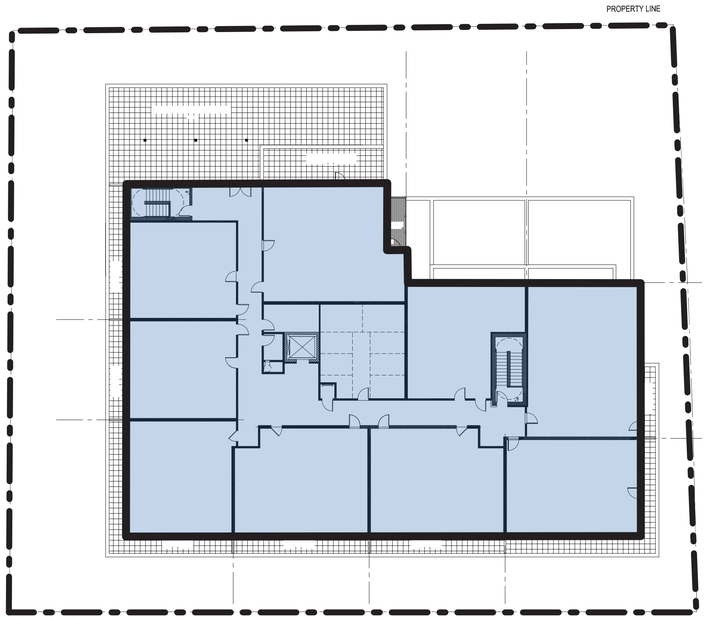
DRAWING TITLE:

DRAWING LIST &
ZONING SUMMARY

SHEET NUMBER :

T-101

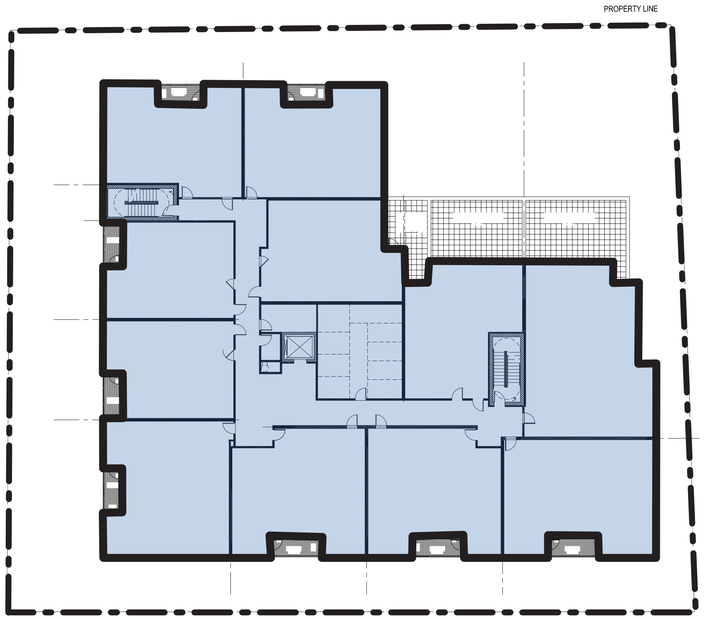
PAGE NO :	2 OF 18
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	E W
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04



FIFTH FLOOR : 12,309 GSF (TOTAL AREA)
0 GSF (NONRESIDENTIAL AREA)
12,309 GSF (RESIDENTIAL AREA)

6 FIFTH FLOOR PLAN

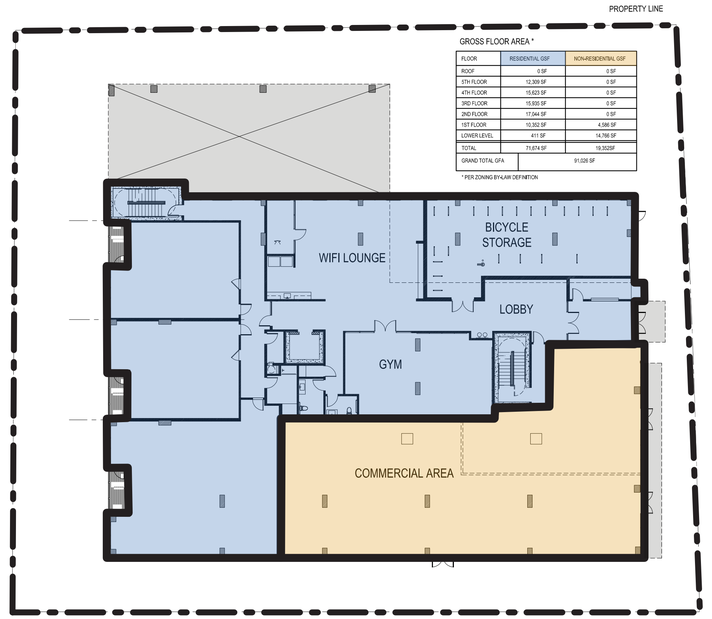
SCALE: 1/32" = 1'-0"



THIRD FLOOR : 15,935 GSF (TOTAL AREA)
0 GSF (NONRESIDENTIAL AREA)
15,935 GSF (RESIDENTIAL AREA)

4 THIRD FLOOR PLAN

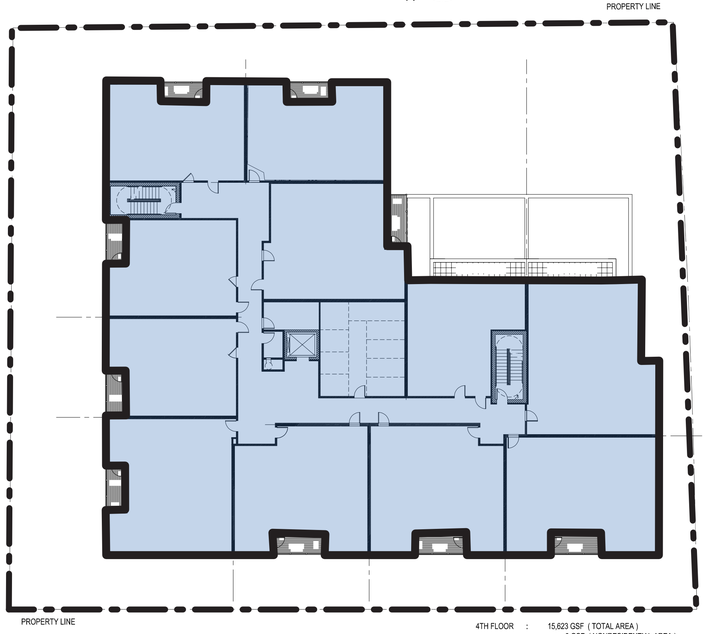
SCALE: 1/32" = 1'-0"



GROUND FLOOR : 14,938 GSF (TOTAL AREA)
4,586 GSF (NONRESIDENTIAL AREA)
10,352 GSF (RESIDENTIAL AREA)

2 GROUND FLOOR PLAN

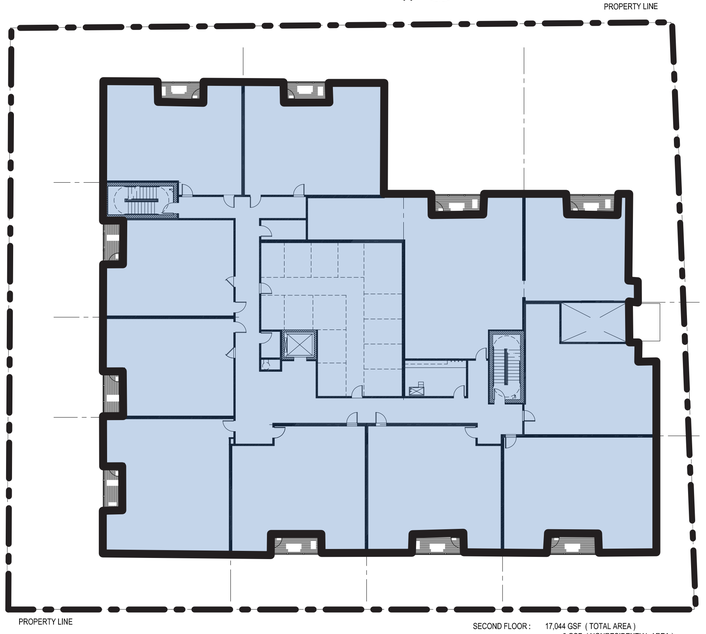
SCALE: 1/20" = 1'-0"



4TH FLOOR : 15,623 GSF (TOTAL AREA)
0 GSF (NONRESIDENTIAL AREA)
15,623 GSF (RESIDENTIAL AREA)

5 FOURTH FLOOR PLAN

SCALE: 1/32" = 1'-0"



SECOND FLOOR : 17,044 GSF (TOTAL AREA)
0 GSF (NONRESIDENTIAL AREA)
17,044 GSF (RESIDENTIAL AREA)

3 SECOND FLOOR PLAN

SCALE: 1/32" = 1'-0"

LOWER LEVEL : 15,177 GSF (TOTAL AREA)
14,766 GSF (NONRESIDENTIAL AREA)
411 GSF (RESIDENTIAL AREA)

1 PARKING LEVEL PLAN

SCALE: 1/20" = 1'-0"

OWNER:

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NO. DATE REVISIONS | SUBMISSIONS

2025 04-14 PLANNING BOARD SUBMISSION 04

KEY PLAN:

PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:
ZONING COMPLIANCE
BUILDING AREA

SHEET NUMBER :

Z-1

PAGE NO : 3 OF 18
DATE : 2025 04 - 14
PROJECT NO : 2402
DRAWN BY : E W
CHECKED BY : S M
ISSUE : PLANNING BOARD SUBMISSION 04

1 FRONT ELEVATION

SCALE: 3/32" = 1'-0"

2 RIGHT ELEVATION

SCALE: 3/32" = 1'-0"

AVERAGE NATURAL GRADE & PROPOSED GRADING SHOWN HERE PROVIDED BY CIVIL ENGINEER SULLIVAN ENGINEERING - SEE AVERAGE NATURAL GRADE WORKSHEET PROVIDED BY SULLIVAN ENGINEERING DATED 2024 12-05

3 REAR ELEVATION

SCALE: 3/32" = 1'-0"

4 LEFT ELEVATION

SCALE: 3/32" = 1'-0"

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
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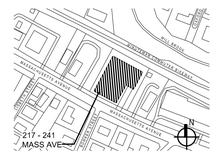
NO, DATE REVISIONS | SUBMISSIONS

2025 04-14 PLANNING BOARD SUBMISSION 04

KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:

ZONING COMPLIANCE
BUILDING HEIGHT

SHEET NUMBER :

Z-2

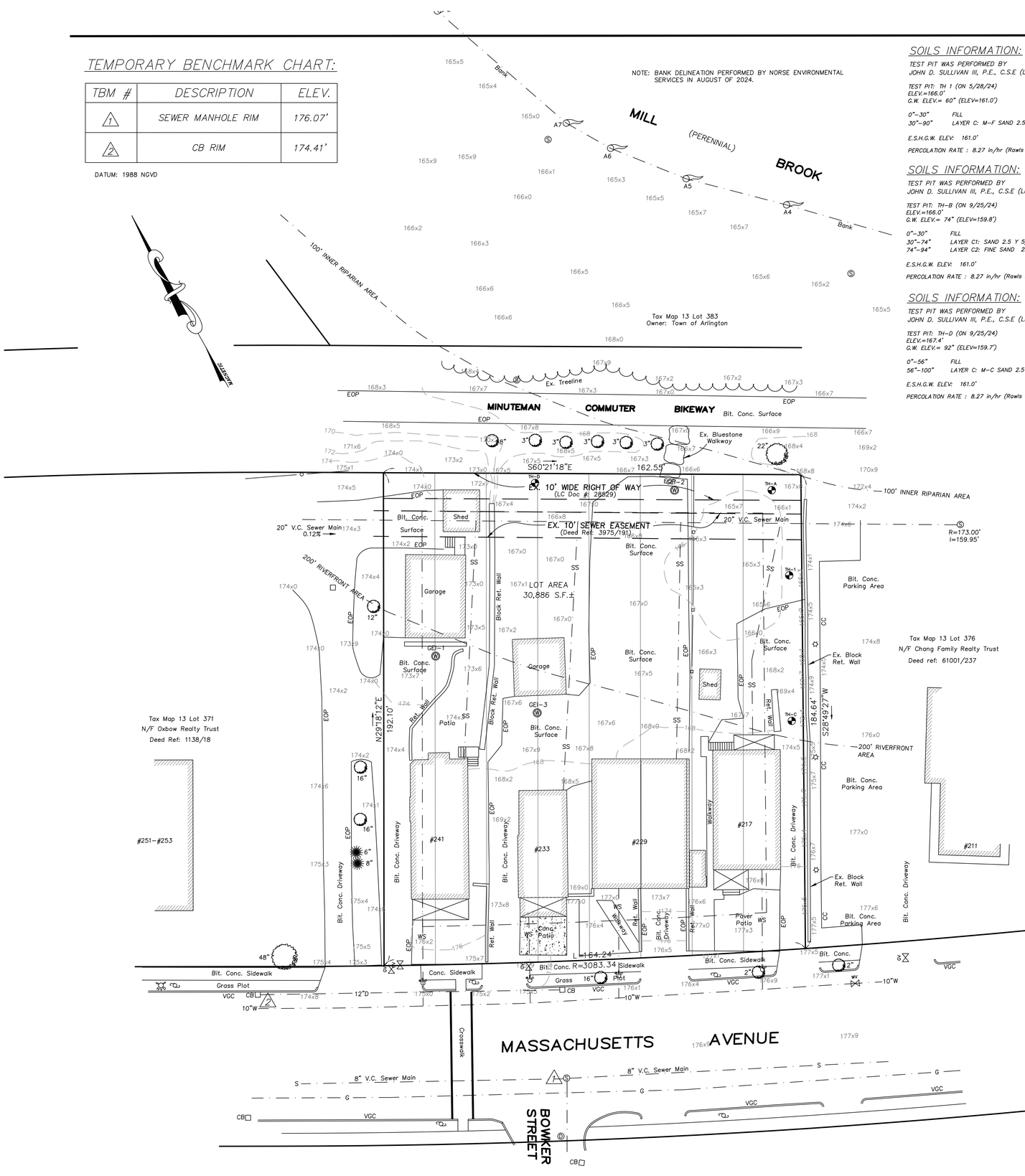
PAGE NO :	4 OF 18
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	E W
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04

TEMPORARY BENCHMARK CHART:

TBM #	DESCRIPTION	ELEV.
1	SEWER MANHOLE RIM	176.07'
2	CB RIM	174.41'

DATUM: 1988 NGVD

NOTE: BANK DELINEATION PERFORMED BY NORSE ENVIRONMENTAL SERVICES IN AUGUST OF 2024.



SOILS INFORMATION:

TEST PIT WAS PERFORMED BY
JOHN D. SULLIVAN III, P.E., C.S.E (Lic #:2378)

TEST PIT: TH 1 (ON 5/28/24)
ELEV.=166.0'
G.W. ELEV.= 60" (ELEV=161.0')

0"–30" FILL
30"–90" LAYER C: M–F SAND 2.5 Y 5/4

E.S.H.G.W. ELEV: 161.0'

PERCOLATION RATE : 8.27 in/hr (Rawls Rate)

SOILS INFORMATION:

TEST PIT WAS PERFORMED BY
JOHN D. SULLIVAN III, P.E., C.S.E (Lic #:2378)

TEST PIT: TH–B (ON 9/25/24)
ELEV.=166.0'
G.W. ELEV.= 74" (ELEV=159.8')

0"–30" FILL
30"–74" LAYER C1: SAND 2.5 Y 5/4
74"–94" LAYER C2: FINE SAND 2.5 Y 5/4

E.S.H.G.W. ELEV: 161.0'

PERCOLATION RATE : 8.27 in/hr (Rawls Rate)

SOILS INFORMATION:

TEST PIT WAS PERFORMED BY
JOHN D. SULLIVAN III, P.E., C.S.E (Lic #:2378)

TEST PIT: TH–D (ON 9/25/24)
ELEV.=167.4'
G.W. ELEV.= 92" (ELEV=159.7')

0"–56" FILL
56"–100" LAYER C: M–C SAND 2.5 Y 5/4

E.S.H.G.W. ELEV: 161.0'

PERCOLATION RATE : 8.27 in/hr (Rawls Rate)

SOILS INFORMATION:

TEST PIT WAS PERFORMED BY
JOHN D. SULLIVAN III, P.E., C.S.E (Lic #:2378)

TEST PIT: TH–A (ON 9/25/24)
ELEV.=166.8'
G.W. ELEV.= 102" (ELEV=158.3')

0"–48" FILL
48"–102" LAYER C: LS, MANY BOULDERS 2.5 Y 6/4

E.S.H.G.W. ELEV: 161.0'

PERCOLATION RATE : 2.41 in/hr (Rawls Rate)

SOILS INFORMATION:

TEST PIT WAS PERFORMED BY
JOHN D. SULLIVAN III, P.E., C.S.E (Lic #:2378)

TEST PIT: TH–C (ON 9/25/24)
ELEV.=172.8'
G.W. ELEV.= NONE OBSERVED

0"–67" FILL
67"–74" HORIZON A: SL 10 YR 3/3
74"–87" HORIZON B: LS 10 YR 6/8
87"–122" LAYER C: LOAMY SAND 2.5 Y 5/4

E.S.H.G.W. ELEV: 162.6' (MOTTLES @ 122")

PERCOLATION RATE : 2.41 in/hr (Rawls Rate)

LEGEND:

167x0	SPOT GRADE
--167--	2 FOOT CONTOUR
	DECIDUOUS TREE (> 6" DIA.)
	EVERGREEN TREE (> 6" DIA.)
	UTILITY POLE
S	SEWER MANHOLE
——S——	SEWER MAIN
——W——	COMPILED WATER MAIN
CB □	CATCHBASIN
——D——	DRAIN LINE
BIT.	BITUMINOUS
CONC.	CONCRETE
EOP	EDGE OF PAVEMENT
TH	TEST PIT
	WETLAND FLAG
VGC	VERTICAL GRANITE CURB
☼	POST & LIGHT FIXTURE
Ⓦ	MONITORING WELL

NOTES:

1. THE TOPOGRAPHY, SITE DETAIL & SURFACE IMPROVEMENTS DEPICTED HEREON WERE OBTAINED FROM A PARTIAL FIELD SURVEY CONDUCTED IN APRIL OF 2024 BY SULLIVAN ENGINEERING GROUP, LLC.
2. THE LOCUS PROPERTY DEPICTED IS LOCATED IN ZONING DISTRICT CRS & VO
3. THE LOCUS PROPERTY IS DEPICTED AS LOTS 372–375 ON THE TOWN OF LEXINGTON ASSESSOR'S MAP 13.
4. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED UPON A PARTIAL FIELD SURVEY AND COMPILATION OF PLANS OF RECORD. THE DESIGN ENGINEER DOES NOT WARRANTY NOR GUARANTEE THE LOCATION OF ALL UTILITIES DEPICTED OR NOT DEPICTED. THE CONTRACTOR, PRIOR TO COMMENCEMENT OF CONSTRUCTION, SHALL VERIFY THE LOCATION OF ALL UTILITIES AND CONTACT DIG SAFE AT 1–888–344–7233.
5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT, VISIBLE USES OF THE LAND; HOWEVER, THIS DOES NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
6. THE ELEVATIONS DEPICTED HEREON WERE BASED UPON THE 1988 NGVD.
7. THE LOCUS PROPERTY IS NOT LOCATED WITHIN A FLOOD ZONE AS DEPICTED ON THE LATEST FLOOD INSURANCE RATE MAP.
8. PROJECT SITE IS NOT HABITAT FOR RARE OR ENDANGERED SPECIES.

ASSESSOR INFO:

#217 MASSACHUSETTS AVENUE (TAX MAP 13 LOT 375)
#229 MASSACHUSETTS AVENUE (TAX MAP 13 LOT 374)
#233 MASSACHUSETTS AVENUE (TAX MAP 13 LOT 373)
#241 MASSACHUSETTS AVENUE (TAX MAP 13 LOT 372)

ZONING:

CRS & VO "COMMERCIAL RETAIL SHOPPING & VILLAGE OVERLAY"

AVERAGE NATURAL GRADE:

ELEVATION 172.35'

RIVERFRONT AREA DATA:

TOTAL RIVERFRONT AREA ONSITE: 13,212 S.F.
TOTAL DEGRADED AREA IN RFA: 6,316 S.F.
TOTAL NON–DEGRADED AREA IN RFA: 6,896 S.F.
– NO PORTION OF THE SITE IS WITHIN THE 100 FOOT INNER RIPARIAN ZONE.

GRAPHIC SCALE
SCALE: 1"=20'

FEET 20 0 10 20 40 80

COMMONWEALTH OF MASSACHUSETTS
PAUL FINOCCHIO
No. 39115
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
JOHN D. SULLIVAN III
No. 41886
REGISTERED PROFESSIONAL ENGINEER

OWNER:
NORTH SHORE
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NORTH SHORE RESIDENTIAL DEVELOPMENT
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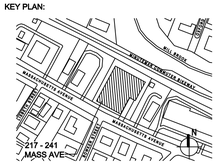
NO.	DATE	REVISIONS	SUBMISSIONS

2025 04–14	PLANNING BOARD SUBMISSION 4
2025 01–09	PLANNING BOARD SUBMISSION 3
2024 10–30	PLANNING BOARD SUBMISSION 2
2024 08–12	PLANNING BOARD SUBMISSION
2024 07–19	DRT SUBMISSION

KEY PLAN:



PROJECT:
RESIDENTIAL NEW CONSTRUCTION
231 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:
EXISTING CONDITIONS

SHEET NUMBER :
C-1

PAGE NO :	1 OF 8
DATE :	2024 08 - 12
PROJECT NO :	2402
DRAWN BY :	JDS
CHECKED BY :	JDS
ISSUE :	PLANNING BOARD SUBMISSION

ASSESSOR INFO:

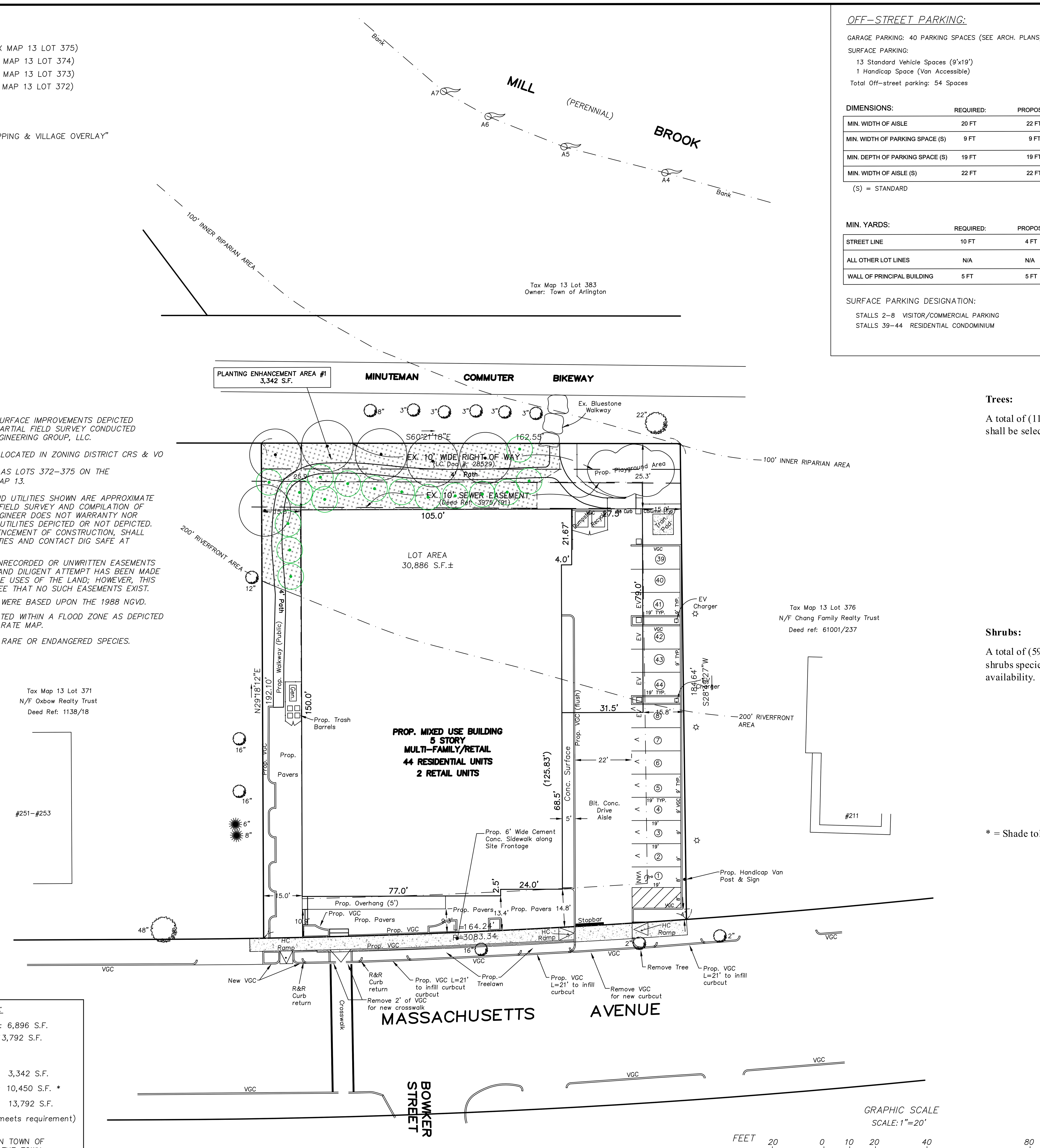
#217 MASSACHUSETTS AVENUE (TAX MAP 13 LOT 375)
#229 MASSACHUSETTS AVENUE (TAX MAP 13 LOT 374)
#233 MASSACHUSETTS AVENUE (TAX MAP 13 LOT 373)
#241 MASSACHUSETTS AVENUE (TAX MAP 13 LOT 372)

ZONING:

CRS & VO "COMMERCIAL RETAIL SHOPPING & VILLAGE OVERLAY"

NOTES:

1. THE TOPOGRAPHY, SITE DETAIL & SURFACE IMPROVEMENTS DEPICTED HEREON WERE OBTAINED FROM A PARTIAL FIELD SURVEY CONDUCTED IN APRIL OF 2024 BY SULLIVAN ENGINEERING GROUP, LLC.
2. THE LOCUS PROPERTY DEPICTED IS LOCATED IN ZONING DISTRICT CRS & VO
3. THE LOCUS PROPERTY IS DEPICTED AS LOTS 372–375 ON THE TOWN OF LEXINGTON ASSESSOR'S MAP 13.
4. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED UPON A PARTIAL FIELD SURVEY AND COMPILATION OF PLANS OF RECORD. THE DESIGN ENGINEER DOES NOT WARRANTY NOR GUARANTEE THE LOCATION OF ALL UTILITIES DEPICTED OR NOT DEPICTED. THE CONTRACTOR, PRIOR TO COMMENCEMENT OF CONSTRUCTION, SHALL VERIFY THE LOCATION OF ALL UTILITIES AND CONTACT DIG SAFE AT 1–888–344–7233.
5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT, VISIBLE USES OF THE LAND; HOWEVER, THIS DOES NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
6. THE ELEVATIONS DEPICTED HEREON WERE BASED UPON THE 1988 NGVD.
7. THE LOCUS PROPERTY IS NOT LOCATED WITHIN A FLOOD ZONE AS DEPICTED ON THE LATEST FLOOD INSURANCE RATE MAP.
8. PROJECT SITE IS NOT HABITAT FOR RARE OR ENDANGERED SPECIES.



RIVERFRONT MITIGATION:

Ex. Non–degraded areas in RFA: 6,896 S.F.
2:1 Mitigation required or min 13,792 S.F.

PROP. MITIGATION AREAS:

ON–SITE PLANTING MITIGATION: 3,342 S.F.
OFF–SITE PLANTING MITIGATION: 10,450 S.F. *
TOTAL: 13,792 S.F.

2:1 Mitigation ratio provided (meets requirement)

*ABUTTING #7 BRANDON ST. ON TOWN OF ARLINGTON OWNED LAND W/IN THE TOWN OF LEXINGTON)

OFF–STREET PARKING:

GARAGE PARKING: 40 PARKING SPACES (SEE ARCH. PLANS)
SURFACE PARKING:
13 Standard Vehicle Spaces (9'x19')
1 Handicap Space (Van Accessible)
Total Off–street parking: 54 Spaces

DIMENSIONS:	REQUIRED:	PROPOSED:	COMPLIANCE:
MIN. WIDTH OF AISLE	20 FT	22 FT	YES
MIN. WIDTH OF PARKING SPACE (S)	9 FT	9 FT	YES
MIN. DEPTH OF PARKING SPACE (S)	19 FT	19 FT	YES
MIN. WIDTH OF AISLE (S)	22 FT	22 FT	YES

(S) = STANDARD

MIN. YARDS:	REQUIRED:	PROPOSED:	COMPLIANCE:
STREET LINE	10 FT	4 FT	NO
ALL OTHER LOT LINES	N/A	N/A	YES
WALL OF PRINCIPAL BUILDING	5 FT	5 FT	YES

SURFACE PARKING DESIGNATION:

STALLS 2–8 VISITOR/COMMERCIAL PARKING
STALLS 39–44 RESIDENTIAL CONDOMINIUM

LEGEND:

	DECIDUOUS TREE (> 6" DIA.)
	EVERGREEN TREE (> 6" DIA.)
	UTILITY POLE
BIT.	BITUMINOUS
CONC.	CONCRETE
EOP	EDGE OF PAVEMENT
	WETLAND FLAG
VGC	VERTICAL GRANITE CURB
(1)	PROP. PARKING STALL
V	PROP. VISITOR/COMMERCIAL PARKING
	PROP. NATIVE TREE PLANTING
	PROP. NATIVE SHRUB PLANTING

Riverfront Mitigation Plantings

Trees:

A total of (11) native trees, 4-6 ft. in height, shall be planted. A minimum of (3-4) tree species shall be selected from the list. Species selection shall be based on cost and availability.

Common Name	Latin Name
Chestnut Oak	Quercus prinus
Sugar Maple	Acer saccharum
White Spruce	Picea glauca
Quaking Aspen	Populus tremuloides
Shagbark Hickory	Carya ovata
Red Oak	Quercus rubra
Black Oak	Quercus velutina
Pin Oak	Quercus palustris
Yellow Popular	Liriodendron tulipfera
American Hornbeam*	Carpinus Caroliniana
Sourwood*	Oxydendrum Arboretum
Canadian Hemlock*	Tsuga Canadensis

Shrubs:

A total of (59) native shrubs, 3-4 ft. in height, shall be planted. A minimum of (3-4) different shrubs species shall be selected from the list. Species selection shall be based on cost and availability.

Common Name	Latin Name
Witch Hazel	Hamamelis virginiana
Highbush Blueberry	Vaccinium corymbosum
Maple Leaf Viburnum	Viburnum acerifolium
Highbush Blueberry	Vaccinium corymbosum
Staghorn Sumac	Rhus typhina
Summersweet*	Clethera Alnifolia
Grey Dogwood*	Cornus racemosa
Spicebush*	Lindera benzoin

* = Shade tolerant (to be selected for shaded areas)

ZONING COMPLIANCE TABLE:

	CRS COMMERICAL RETAIL SHOPPING	VO VILLAGE OVERLAY	PROPOSED MIXED-USE BUILDING
MIN LOT SIZE (SF)	15,500	DOES NOT APPLY	30,886
MIN LOT FRONTAGE (FT)	125	0	104.24
MIN. FRONT YARD (FT)	30	0-15	VARIES *
MIN. SIDE YARD (FT)	20	7.5-15	15
MIN. REAR YARD (FT)	20	15	25
MIN. SIDE & REAR YARD ADJACENT TO A RESIDENTIAL DISTRICT (FT)	30	DOES NOT APPLY	DOES NOT APPLY
MAX. NON-RESIDENTIAL FLOOR AREA RATIO (FAR)	0.20	NOT RESTRICTED	N/A
LOT COVERAGE (%) MAX	25	NOT RESTRICTED	N/A
INSTITUTIONAL BUILDINGS, MAX. HEIGHT IN STORIES: IN FEET:	 3 45	NOT RESTRICTED 40-60	DOES NOT APPLY DOES NOT APPLY
OTHER BUILDINGS, MAX. HEIGHT IN STORIES: IN FEET:	 2 25	NOT RESTRICTED 40-60	5 STORIES 55.5'

* GROUND FLOOR GREATER THAN 50% NON-RESIDENTIAL USE; NO FRONT SETBACK REQUIRED

OWNER:

NORTH SHORE Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:
SCOTT MELCHING ARCHITECT LLC
116 ARCH STREET
NEEDHAM MA 02492 | (T) 718.578.3354
WWW.SCOTTMELCHINGARCHITECT.COM

STRUCTURAL ENGINEER:
VEITAS ENGINEERS
639 GRANITE STREET, SUITE 100
BRAINTREE, MA 02184 | (T) 781.843.2863
WWW.VEITAS.COM

CIVIL ENGINEER:
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P.O. BOX 2004
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ATTORNEY:
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700 DISTRICT AVENUE, 11TH FLOOR
BURLINGTON, MA 01803 | (T) 617.880.3457
WWW.RIEMERLAW.COM

NO.	DATE	REVISIONS | SUBMISSIONS
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	2025 01–09	PLANNING BOARD SUBMISSION 3
	2024 10–30	PLANNING BOARD SUBMISSION 2
	2024 08–12	PLANNING BOARD SUBMISSION
	2024 07–19	DRT SUBMISSION

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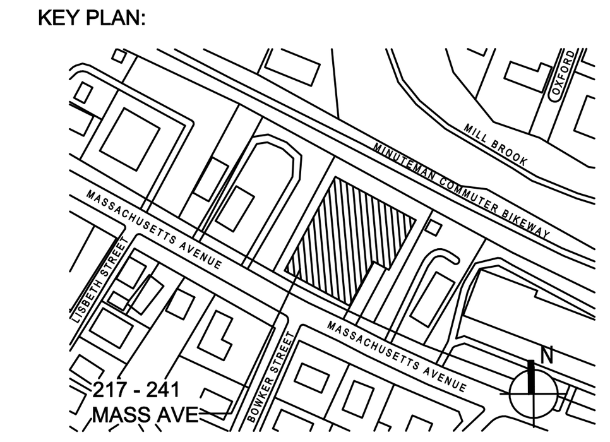

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231 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

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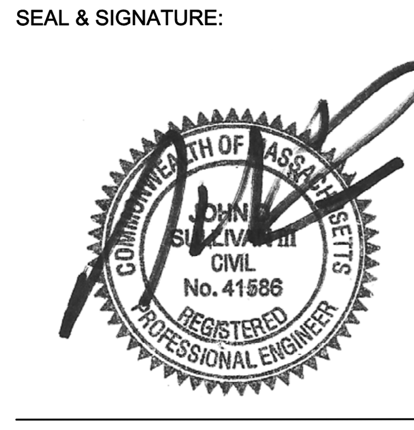


DRAWING TITLE:
SITE PLAN

SHEET NUMBER :
C-2

PAGE NO : 2 OF 8
DATE : 2024 08 - 12
PROJECT NO : 2402
DRAWN BY : JDS
CHECKED BY : JDS
ISSUE : PLANNING BOARD SUBMISSION

TEMPORARY BENCHMARK CHART:

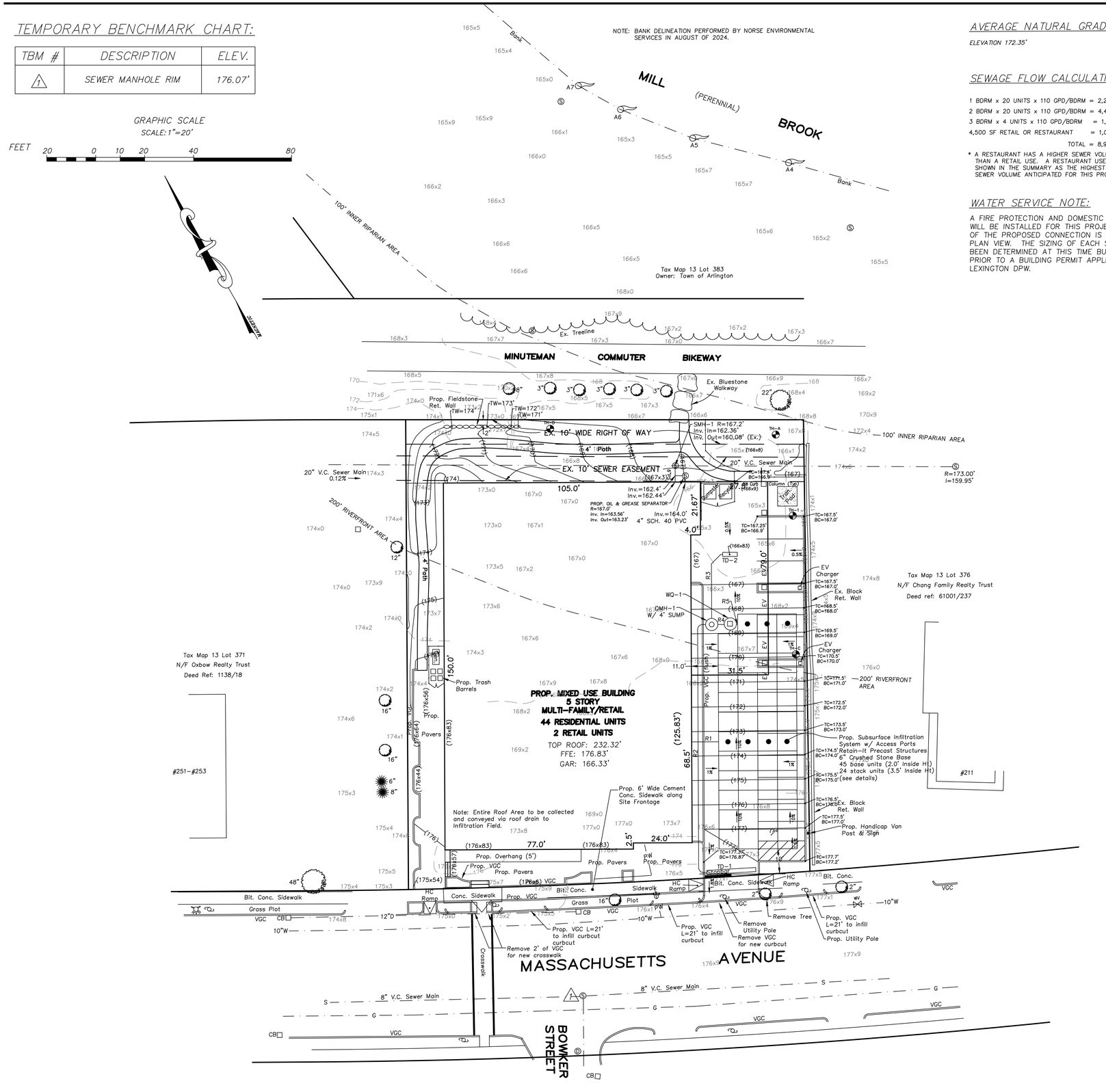
TBM #	DESCRIPTION	ELEV.
1	SEWER MANHOLE RIM	176.07'

GRAPHIC SCALE
SCALE: 1"=20'

FEET 20 0 10 20 40 80

NORTH

NOTE: BANK DELINEATION PERFORMED BY NORSE ENVIRONMENTAL SERVICES IN AUGUST OF 2024.



AVERAGE NATURAL GRADE:

ELEVATION 172.35'

SEWAGE FLOW CALCULATION (GPD)

1 BDRM x 20 UNITS x 110 GPD/BDRM	= 2,200 GPD
2 BDRM x 20 UNITS x 110 GPD/BDRM	= 4,400 GPD
3 BDRM x 4 UNITS x 110 GPD/BDRM	= 1,320 GPD
4,500 SF RETAIL OR RESTAURANT	= 1,000 GPD *
TOTAL	= 8,920 GPD

* A RESTAURANT HAS A HIGHER SEWER VOLUME THAN A RETAIL USE. A RESTAURANT USE IS SHOWN IN THE SUMMARY AS THE HIGHEST SEWER VOLUME ANTICIPATED FOR THIS PROJECT.

WATER SERVICE NOTE:

A FIRE PROTECTION AND DOMESTIC WATER SERVICE WILL BE INSTALLED FOR THIS PROJECT. THE LOCATION OF THE PROPOSED CONNECTION IS SHOWN ON THE PLAN VIEW. THE SIZING OF EACH SERVICE HAS NOT BEEN DETERMINED AT THIS TIME BUT WILL BE PROVIDED PRIOR TO A BUILDING PERMIT APPLICATION TO THE LEXINGTON DPW.

LEGEND:

167x0	SPOT GRADE
---167---	2 FOOT CONTOUR
	DECIDUOUS TREE (> 6" DIA.)
	EVERGREEN TREE (> 6" DIA.)
	UTILITY POLE
S	SEWER MANHOLE
———S———	SEWER MAIN
———W———	COMPILED WATER MAIN
CB	CATCHBASIN
———D———	DRAIN LINE
BIT.	BITUMINOUS
CONC.	CONCRETE
EOP	EDGE OF PAVEMENT
TH	TEST PIT
	WETLAND FLAG
VGC	VERTICAL GRANITE CURB
	POST & LIGHT FIXTURE
———PS———	PROP. SEWER SERVICE
———PW———	PROP. WATER SERVICES

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DRAINAGE STRUCTURE CHART:

STRUCTURE	RIM	INV. IN (SIZE/TYPE)	INV. OUT (SIZE/TYPE)
WQ-1	168.6'	165.36' 12" HDPE	165.11' 12" HDPE
DMH-1	168.66'	165.37' 2-6" HDPE	165.37' 12" HDPE
TD-1	176.83'	N/A	175.50' 6" HDPE
TD-2	166.83'	N/A	165.50' 6" CLDI

WQ-1 = STORMCEPTOR STC450i
TD = TRENCH DRAIN (SEE DETAIL SHEET)
DMH-1 = DRAIN MANHOLE W/ 4' SUMP)

REACH CHART:

REACH	LENGTH	SIZE	MATERIAL	SLOPE	BEG INV.	END INV.
R1	11'	12"	HDPE	0.027	170.4'	170.1'
R2	106'	6"	HDPE	0.095	175.50'	165.37'
R3	28'	6"	CLDI	0.005	165.50'	165.37'
R4	3'	12"	HDPE	0.003	165.37'	165.36'
R5	1'	12"	HDPE	0.01	165.11'	165.10'

R1 = ROOF DRAIN FOR ENTIRE BUILDING

OWNER:
NORTH SHORE
Residential Development
NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:
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STRUCTURAL ENGINEER:
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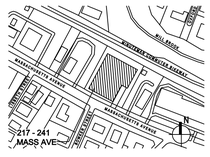
KEY PLAN:



PROJECT:
RESIDENTIAL NEW CONSTRUCTION
231 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

COMMONWEALTH OF MASSACHUSETTS
JOHN D. SULLIVAN II
DML No. 41888
REGISTERED PROFESSIONAL ENGINEER

DRAWING TITLE:
GRADING, DRAINAGE, & UTILITY PLAN

SHEET NUMBER:
C-3

PAGE NO :	3 OF 8
DATE :	2024 08-12
PROJECT NO :	2402
DRAWN BY :	JDS
CHECKED BY :	JDS
ISSUE :	PLANNING BOARD SUBMISSION

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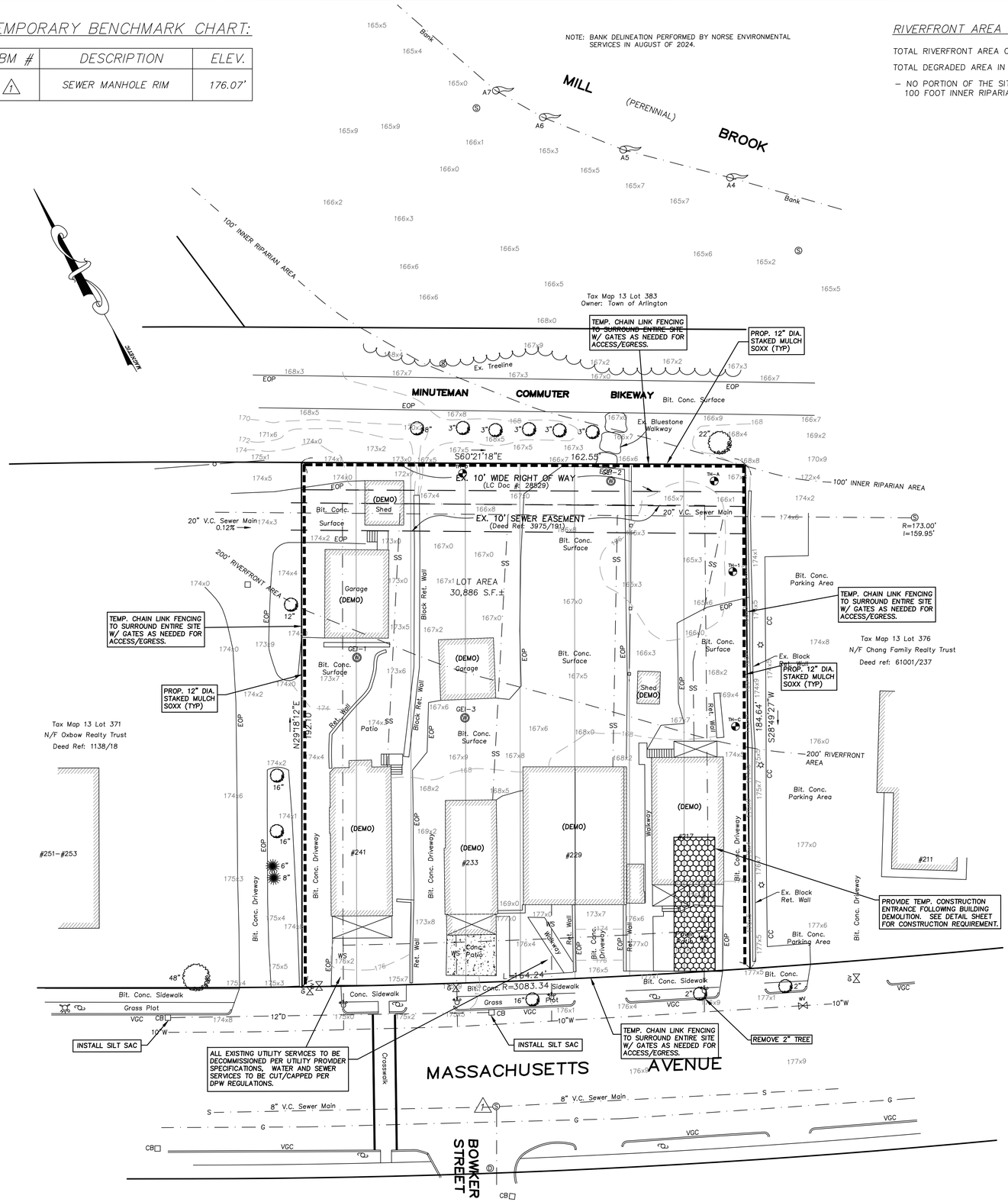

RIVERFRONT AREA DATA:

TOTAL RIVERFRONT AREA ONSITE: 13,212 S.F.

TOTAL DEGRADED AREA IN RFA: 6,316 S.F.

– NO PORTION OF THE SITE IS WITHIN THE 100 FOOT INNER RIPARIAN ZONE.

LEGEND:

167x0	SPOT GRADE
--167--	2 FOOT CONTOUR
	DECIDUOUS TREE (> 6" DIA.)
	EVERGREEN TREE (> 6" DIA.)
	UTILITY POLE
S	SEWER MANHOLE
——S——	SEWER MAIN
——W——	COMPILED WATER MAIN
CB □	CATCHBASIN
——D——	DRAIN LINE
BIT.	BITUMINOUS
CONC.	CONCRETE
EOP	EDGE OF PAVEMENT
TH	TEST PIT
	WETLAND FLAG
VGC	VERTICAL GRANITE CURB
	POST & LIGHT FIXTURE
W	MONITORING WELL

EROSION CONTROL NOTES:

1) PRIOR TO ANY LAND DISTURBANCE ACTIVITIES COMMENCING ON THE SITE, THE DEVELOPER SHALL PHYSICALLY MARK LIMITS OF THE ALLOWABLE DISTURBANCE ON THE SITE WITH TAPE, SIGNS, OR ORANGE CONSTRUCTION FENCE, SO THAT WORKERS CAN SEE THE AREAS TO BE PROTECTED. THE PHYSICAL MARKERS SHALL BE INSPECTED DAILY BY THE PERMITTEE.
2) EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND GOOD ENGINEERING PRACTICES TO ENSURE THEY PERFORM AS INTENDED.
3) EROSION AND SEDIMENT CONTROL MEASURES USED SHALL BE CHOSEN BASED ON THE GOAL OF MINIMIZING SITE DISTURBANCE FROM INSTALLATION OF SUCH MEASURES.
4) SEDIMENT SHALL BE REMOVED ONCE THE VOLUME REACHES 1/4 TO 1/2 THE HEIGHT OF A PERIMETER CONTROL SYSTEM. SEDIMENT SHALL BE REMOVED FROM SILT FENCE PRIOR TO REACHING THE LOAD–BEARING CAPACITY OF THE SILT FENCE WHICH MAY BE LOWER THAN 1/4 TO 1/2 THE HEIGHT.
5) SOIL STOCKPILES MUST BE STABLIZED OR COVERED AT THE END OF EACH WORKDAY. STOCKPILE SIDE SLOPES SHALL NOT BE GREATER THAN 2:1. ALL STOCKPILES SHALL BE SURROUNDED BY SEDIMENT CONTROLS.
6) PROJECTS MUST COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS INCLUDING WASTE DISPOSAL, SANITARY SEWER, OR SEPTIC SYSTEM REGULATIONS, AND AIR QUALITY REQUIREMENTS, INCLUDING DUST AND DEBRIS CONTROL.
7) INTERIM AND PERMANENT STABILIZATION MEASURES SHALL BE INSTITUTED ON A DISTURBED AREA IMMEDIATELY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED ON THAT PORTION OF THE SITE. TWO METHODS ARE AVAILABLE FOR STABILIZING DISTURBED AREAS: MECHANICAL (OR STRUCTURAL) METHODS AND VEGETATIVE METHODS. IN SOME CASES, BOTH ARE COMBINED IN ORDER TO CONTROL EROSION.
8) THE DURATION OF THE EXPOSURE OF DISTURBED AREAS DUE TO REMOVAL OF VEGETATION AND/OR RE–GRADING SHALL BE STATED IN WRITING IN A SCHEDULE THAT WILL BE PREPARED AT THE TIME OF APPLICATION FOR PERMIT AND MAINTAINED AS PART OF THE PROJECT RECORDS.
9) DUST CONTROL SHALL BE USED DURING GRADING OPERATIONS. DUST CONTROL METHODS MAY CONSIST OF GRADING FINE SOILS ON CALM DAYS ONLY OR DAMPENING THE GROUND WITH WATER.
10) IF THE WORK PRODUCES OR DISTRIBUTES SOIL ON PUBLIC OR PRIVATE WAYS, THAT SOIL SHALL BE CLEANED UP BY THE RESPONSIBLE PARTY AS SOON AS POSSIBLE BUT IN ALL CASES WITHIN TWENTY–FOUR (24) HOURS.
11) IF THE WORK CAUSES THE DISCHARGE OF SOIL TO TOWN DRAINAGE STRUCTURES, ALL AFFECTED DOWNSTREAM PIPES SHALL BE CLEANED BY THE RESPONSIBLE PARTY WITHIN THREE (3) DAYS.
12) SOIL STOCKPILING LOCATIONS TO BE FIELD DETERMINED.
13) EROSION AND SEDIMENTATION CONTROLS WILL BE REQUIRED TO BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT TO ENSURE THAT THEY FUNCTION AS INTENDED. DEFICIENCIES WILL BE CORRECTED BY CLEANING, REPAIRING, OR REPLACING THE AFFECTED CONTROL(S) OR PORTION(S) THEREOF TO REESTABLISH PROPER FUNCTIONING AS QUICKLY AS POSSIBLE.
14) THE CONSTRUCTION SITE SHALL BE SECURED AT THE END OF EACH DAY OF CONSTRUCTION.
15) EROSION CONTROL AND CONSTRUCTION BEST MANAGEMENT PRACTICES (BMP) INSTALLATIONS SHALL BE CHECKED BEFORE THE START OF OF CONSTRUCTION AND THE END OF CONSTRUCTION DAILY. SUCH CONTROLS, WHEN DAMAGED, SHALL BE REPAIRED WITHIN 24 HOURS.
16) STREETS ALONG THE PROPERTY'S FRONTAGE AND WITHIN 200 FEET IN BOTH DIRECTIONS SHALL BE KEPT CLEAR OF PLANT LIITTER, CONSTRUCTION DEBRIS, ETC.

GRAPHIC SCALE
SCALE: 1"=20'

FEET 20 0 10 20 40 80

OWNER:
NORTH SHORE
Residential Development
NORTH SHORE RESIDENTIAL DEVELOPMENT
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WOBURN, MA 01801 | (T) 781.932.1776

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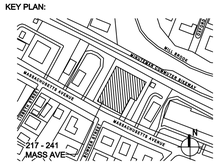
	2024 07–19	DRT SUBMISSION

KEY PLAN:



PROJECT:
RESIDENTIAL NEW CONSTRUCTION
231 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:
EROSION & SEDIMENT PLAN

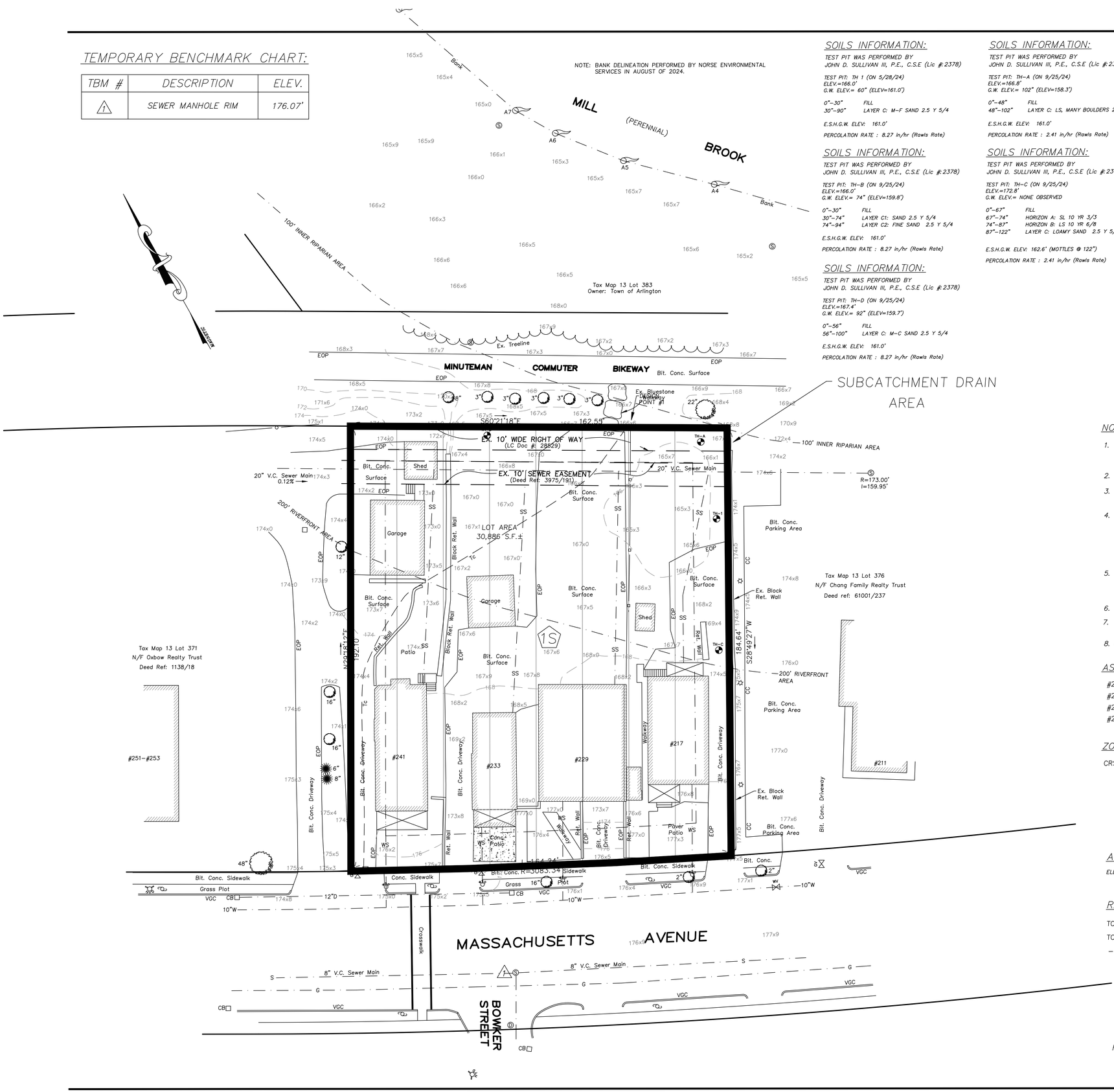
SHEET NUMBER :
C-4

PAGE NO :	4 OF 8
DATE :	2024 08-12
PROJECT NO :	2402
DRAWN BY :	JDS
CHECKED BY :	JDS
ISSUE :	PLANNING BOARD SUBMISSION

TEMPORARY BENCHMARK CHART:

TBM #	DESCRIPTION	ELEV.
1	SEWER MANHOLE RIM	176.07'

NOTE: BANK DELINEATION PERFORMED BY NORSE ENVIRONMENTAL SERVICES IN AUGUST OF 2024.



SOILS INFORMATION:

TEST PIT WAS PERFORMED BY
JOHN D. SULLIVAN III, P.E., C.S.E (Lic #:2378)

TEST PIT: TH 1 (ON 5/28/24)
ELEV.=166.0'
G.W. ELEV.= 60" (ELEV=161.0')

0"–30" FILL
30"–90" LAYER C: M–F SAND 2.5 Y 5/4

E.S.H.G.W. ELEV: 161.0'

PERCOLATION RATE : 8.27 in/hr (Rawls Rate)

SOILS INFORMATION:

TEST PIT WAS PERFORMED BY
JOHN D. SULLIVAN III, P.E., C.S.E (Lic #:2378)

TEST PIT: TH–B (ON 9/25/24)
ELEV.=166.0'
G.W. ELEV.= 74" (ELEV=159.8')

0"–30" FILL
30"–74" LAYER C1: SAND 2.5 Y 5/4
74"–94" LAYER C2: FINE SAND 2.5 Y 5/4

E.S.H.G.W. ELEV: 161.0'

PERCOLATION RATE : 8.27 in/hr (Rawls Rate)

SOILS INFORMATION:

TEST PIT WAS PERFORMED BY
JOHN D. SULLIVAN III, P.E., C.S.E (Lic #:2378)

TEST PIT: TH–D (ON 9/25/24)
ELEV.=167.4'
G.W. ELEV.= 92" (ELEV=159.7')

0"–56" FILL
56"–100" LAYER C: M–C SAND 2.5 Y 5/4

E.S.H.G.W. ELEV: 161.0'

PERCOLATION RATE : 8.27 in/hr (Rawls Rate)

SOILS INFORMATION:

TEST PIT WAS PERFORMED BY
JOHN D. SULLIVAN III, P.E., C.S.E (Lic #:2378)

TEST PIT: TH–A (ON 9/25/24)
ELEV.=166.8'
G.W. ELEV.= 102" (ELEV=158.3')

0"–48" FILL
48"–102" LAYER C: LS, MANY BOULDERS 2.5 Y 6/4

E.S.H.G.W. ELEV: 161.0'

PERCOLATION RATE : 2.41 in/hr (Rawls Rate)

SOILS INFORMATION:

TEST PIT WAS PERFORMED BY
JOHN D. SULLIVAN III, P.E., C.S.E (Lic #:2378)

TEST PIT: TH–C (ON 9/25/24)
ELEV.=172.8'
G.W. ELEV.= NONE OBSERVED

0"–67" FILL
67"–74" HORIZON A: SL 10 YR 3/3
74"–87" HORIZON B: LS 10 YR 6/8
87"–122" LAYER C: LOAMY SAND 2.5 Y 5/4

E.S.H.G.W. ELEV: 162.6' (MOTTLES @ 122")

PERCOLATION RATE : 2.41 in/hr (Rawls Rate)

LEGEND:

167x0	SPOT GRADE
	DECIDUOUS TREE (> 6" DIA.)
	EVERGREEN TREE (> 6" DIA.)
	UTILITY POLE
S	SEWER MANHOLE
——S——	SEWER MAIN
——W——	COMPILED WATER MAIN
CB □	CATCHBASIN
——D——	DRAIN LINE
BIT.	BITUMINOUS
CONC.	CONCRETE
EOP	EDGE OF PAVEMENT
TH	TEST PIT
	WETLAND FLAG
VGC	VERTICAL GRANITE CURB
1S	SUBCATCHMENT AREA
Tc	TIME OF CONCENTRATION

NOTES:

1. THE TOPOGRAPHY, SITE DETAIL & SURFACE IMPROVEMENTS DEPICTED HEREON WERE OBTAINED FROM A PARTIAL FIELD SURVEY CONDUCTED IN APRIL OF 2024 BY SULLIVAN ENGINEERING GROUP, LLC.
2. THE LOCUS PROPERTY DEPICTED IS LOCATED IN ZONING DISTRICT CRS & VO
3. THE LOCUS PROPERTY IS DEPICTED AS LOTS 372–375 ON THE TOWN OF LEXINGTON ASSESSOR'S MAP 13.
4. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED UPON A PARTIAL FIELD SURVEY AND COMPILATION OF PLANS OF RECORD. THE DESIGN ENGINEER DOES NOT WARRANTY NOR GUARANTEE THE LOCATION OF ALL UTILITIES DEPICTED OR NOT DEPICTED. THE CONTRACTOR, PRIOR TO COMMENCEMENT OF CONSTRUCTION, SHALL VERIFY THE LOCATION OF ALL UTILITIES AND CONTACT DIG SAFE AT 1–888–344–7233.
5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT, VISIBLE USES OF THE LAND; HOWEVER, THIS DOES NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
6. THE ELEVATIONS DEPICTED HEREON WERE BASED UPON THE 1988 NGVD.
7. THE LOCUS PROPERTY IS NOT LOCATED WITHIN A FLOOD ZONE AS DEPICTED ON THE LATEST FLOOD INSURANCE RATE MAP.
8. PROJECT SITE IS NOT HABITAT FOR RARE OR ENDANGERED SPECIES.

ASSESSOR INFO:

#217 MASSACHUSETTS AVENUE (TAX MAP 13 LOT 375)
#229 MASSACHUSETTS AVENUE (TAX MAP 13 LOT 374)
#233 MASSACHUSETTS AVENUE (TAX MAP 13 LOT 373)
#241 MASSACHUSETTS AVENUE (TAX MAP 13 LOT 372)

ZONING:

CRS & VO "COMMERCIAL RETAIL SHOPPING & VILLAGE OVERLAY"

AVERAGE NATURAL GRADE:

ELEVATION 172.35'

RIVERFRONT AREA DATA:

TOTAL RIVERFRONT AREA ONSITE: 13,212 S.F.

TOTAL DEGRADED AREA IN RFA: 6,316 S.F.

– NO PORTION OF THE SITE IS WITHIN THE 100 FOOT INNER RIPARIAN ZONE.

GRAPHIC SCALE
SCALE: 1"=20'

FEET 20 0 10 20 40 80

OWNER:
NORTH SHORE
Residential Development
NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:
SCOTT MELCHING ARCHITECT LLC
116 ARCH STREET
NEEDHAM MA. 02492 | (T) 718.578.3354
WWW.SCOTTMELCHINGARCHITECT.COM

STRUCTURAL ENGINEER:
VEITAS ENGINEERS
639 GRANITE STREET, SUITE 100
BRAINTREE, MA 02184 | (T) 781.843.2863
WWW.VEITAS.COM

CIVIL ENGINEER:
SULLIVAN ENGINEERING GROUP, LLC.
P.O. BOX 2004
WOBURN, MA 01888 | (T) 781.854.8644
WWW.SULLIVANENGGROUPLLC.COM

LANDSCAPE ARCHITECT:
J. THOMA LAND DESIGN STUDIOS
141 HAGGETS POND ROAD
ANDOVER, MA 01810 | (T) 978.409.9815
WWW.JTHOMALDS.COM

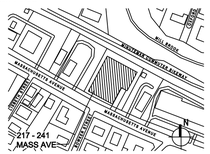
MEP ENGINEER:
BUILDING ENGINEERING RESOURCES, INC.
66 MAIN STREET
NO. EASTON, MA 02356 | (T) 508.230.0260
WWW.BER-ENGINEERING.COM

SUSTAINABILITY CONSULTANT:
BUILDING EVOLUTION CORPORATION
138 GREEN STREET
WORCESTER, MA 01604 | (T) 508.475.9016
WWW.BUILDINGEVO.COM

ATTORNEY:
RIEMER BRAUNSTEIN LLP
700 DISTRICT AVENUE, 11TH FLOOR
BURLINGTON, MA 01803 | (T) 617.880.3457
WWW.RIEMERLAW.COM

NO.	DATE	REVISIONS | SUBMISSIONS
	2025 04–14	PLANNING BOARD SUBMISSION 4
	2025 01–09	PLANNING BOARD SUBMISSION 3
	2024 10–30	PLANNING BOARD SUBMISSION 2
	2024 08–12	PLANNING BOARD SUBMISSION
	2024 07–19	DRT SUBMISSION

KEY PLAN:



PROJECT:
RESIDENTIAL NEW CONSTRUCTION
231 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:
PREVELOPMENT DRAINAGE

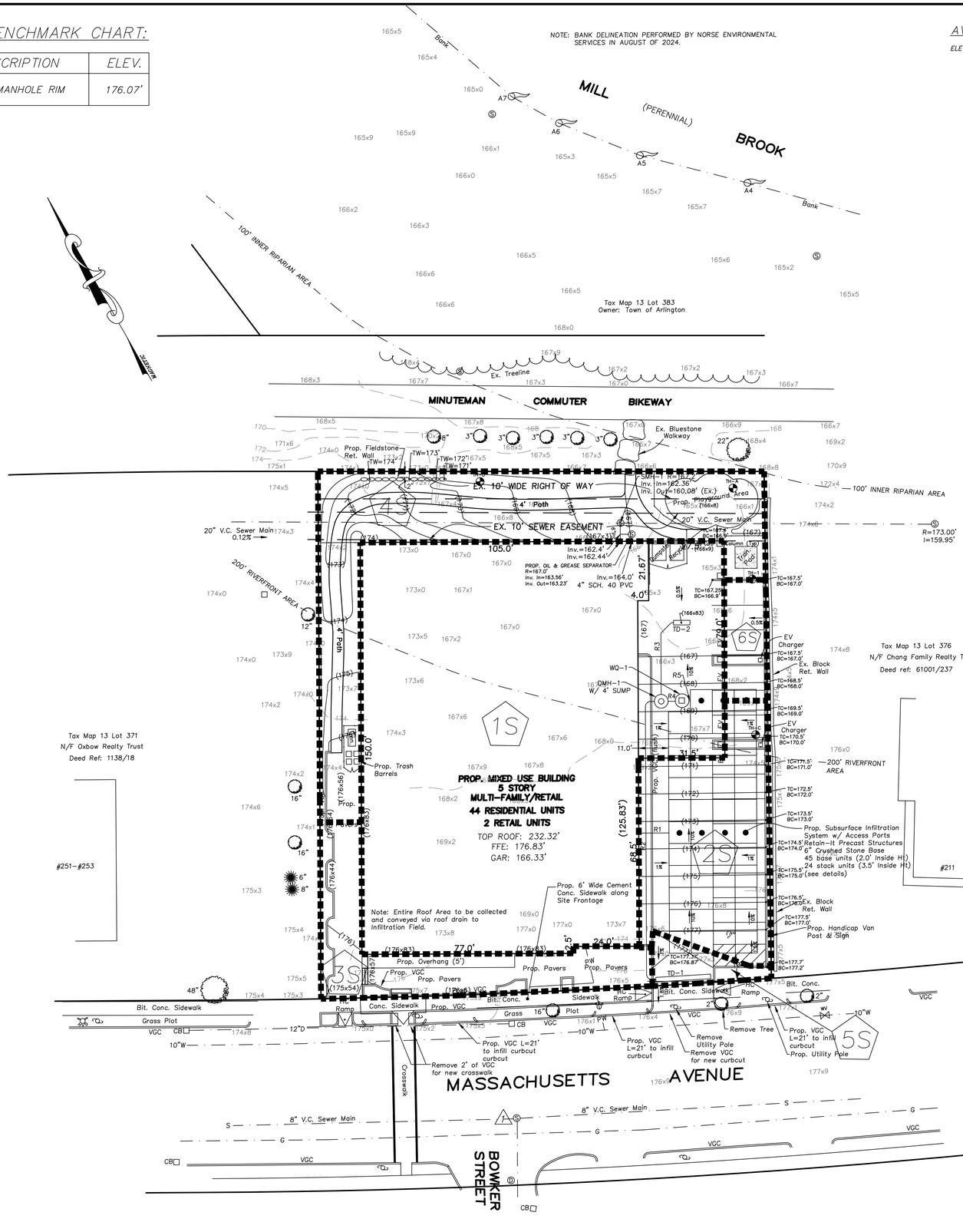
SHEET NUMBER :
C-5

PAGE NO :	5 OF 8
DATE :	2024 08 - 12
PROJECT NO :	2402
DRAWN BY :	JDS
CHECKED BY :	JDS
ISSUE :	PLANNING BOARD SUBMISSION

TEMPORARY BENCHMARK CHART:

TBM #	DESCRIPTION	ELEV.
1	SEWER MANHOLE RIM	176.07'

NOTE: BANK DELINEATION PERFORMED BY NORSE ENVIRONMENTAL SERVICES IN AUGUST OF 2024.



AVERAGE NATURAL GRADE:

ELEVATION 172.35'

LEGEND:

167x0	SPOT GRADE
---167--	2 FOOT CONTOUR
	DECIDUOUS TREE (> 6" DIA.)
	EVERGREEN TREE (> 6" DIA.)
	UTILITY POLE
S	SEWER MANHOLE
——S——	SEWER MAIN
——W——	COMPILED WATER MAIN
CB	CATCHBASIN
——D——	DRAIN LINE
BIT.	BITUMINOUS
CONC.	CONCRETE
EOP	EDGE OF PAVEMENT
TH	TEST PIT
	WETLAND FLAG
VGC	VERTICAL GRANITE CURB
	POST & LIGHT FIXTURE
——PS——	PROP. SEWER SERVICE
——PW——	PROP. WATER SERVICES
1S	PROP. SUBCATCHMENT

NOTES:

1. THE TOPOGRAPHY, SITE DETAIL & SURFACE IMPROVEMENTS DEPICTED HEREON WERE OBTAINED FROM A PARTIAL FIELD SURVEY CONDUCTED IN APRIL OF 2024 BY SULLIVAN ENGINEERING GROUP, LLC.
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8. PROJECT SITE IS NOT HABITAT FOR RARE OR ENDANGERED SPECIES.

DRAINAGE STRUCTURE CHART:

STRUCTURE	RIM	INV. IN (SIZE/TYPE)	INV. OUT (SIZE/TYPE)
WQ-1	168.6'	165.36' 12" HDPE	165.11' 12" HDPE
DMH-1	168.66'	165.37' 2-6" HDPE	165.37' 12" HDPE
TD-1	176.83'	N/A	175.50' 6" HDPE
TD-2	166.83'	N/A	165.50' 6" CLDI

WQ-1 = STORMCEPTOR STC450i
TD = TRENCH DRAIN (SEE DETAIL SHEET)
DMH-1 = DRAIN MANHOLE W/ 4' SUMP)

REACH CHART:

REACH	LENGTH	SIZE	MATERIAL	SLOPE	BEG INV.	END INV.
R1	11'	12"	HDPE	0.027	170.4'	170.1'
R2	106'	6"	HDPE	0.095	175.50'	165.37'
R3	28'	6"	CLDI	0.005	165.50'	165.37'
R4	3'	12"	HDPE	0.003	165.37'	165.36'
R5	1'	12"	HDPE	0.01	165.11'	165.10'

R1 = ROOF DRAIN FOR ENTIRE BUILDING

OWNER:
NORTH SHORE Residential Development
NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:
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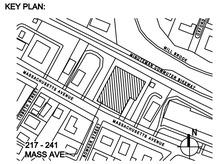
5	2025 04-14	PLANNING BOARD SUBMISSION 4	
4	2025 01-09	PLANNING BOARD SUBMISSION 3	
3	2024 10-30	PLANNING BOARD SUBMISSION 2	
2	2024 08-12	PLANNING BOARD SUBMISSION	
1	2024 07-19	DRT SUBMISSION	

KEY PLAN:



PROJECT:
RESIDENTIAL NEW CONSTRUCTION
231 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

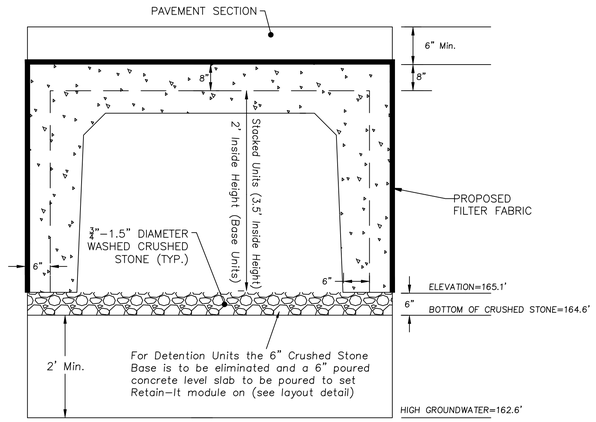
SEAL & SIGNATURE:

COMMONWEALTH OF MASSACHUSETTS
JOSEPH D. SULLIVAN
CIVIL
No. 41588
REGISTERED PROFESSIONAL ENGINEER

DRAWING TITLE:
POSTDEVELOPMENT DRAINAGE

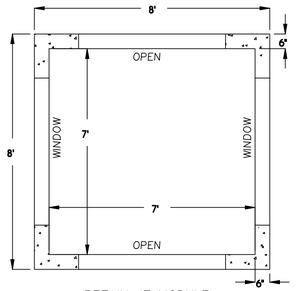
SHEET NUMBER :
C-6

PAGE NO : 6 OF 8
DATE : 2024 08 - 12
PROJECT NO : 2402
DRAWN BY : JDS
CHECKED BY : JDS
ISSUE : PLANNING BOARD SUBMISSION



DETAIL OF RETAIN–IT
INFILTRATION DETAIL SECTION

NOT TO SCALE



RETAIN–IT MODULE
SCHEMATIC – INTERIOR UNIT

NOT TO SCALE

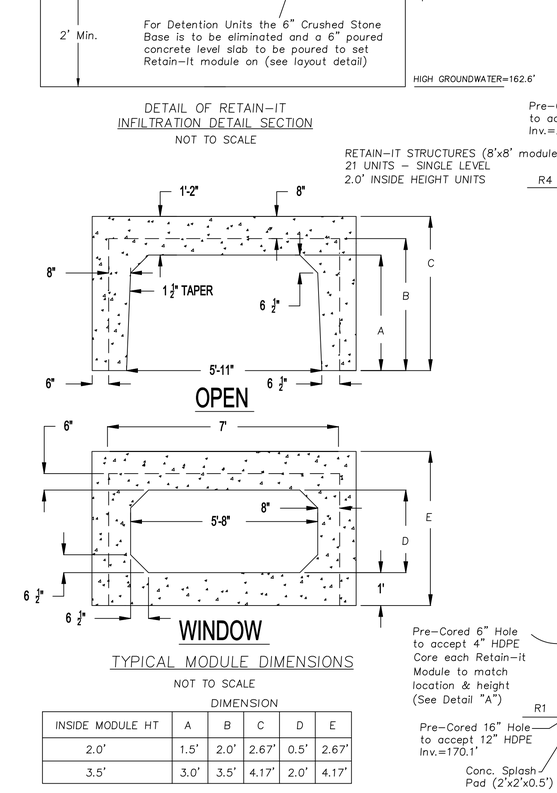
NOTES:
1. ALL RETAIN–IT PRECAST STRUCTURES ARE 8'x8'
2. H–20 DESIGN LOADING FOR AASHTO–20–44
3. CONCRETE 5,000 PSI MIN. AFTER 28 DAYS.

TYPICAL MODULE DIMENSIONS

NOT TO SCALE

DIMENSION

INSIDE MODULE HT	A	B	C	D	E
2.0'	1.5'	2.0'	2.67'	0.5'	2.67'
3.5'	3.0'	3.5'	4.17'	2.0'	4.17'

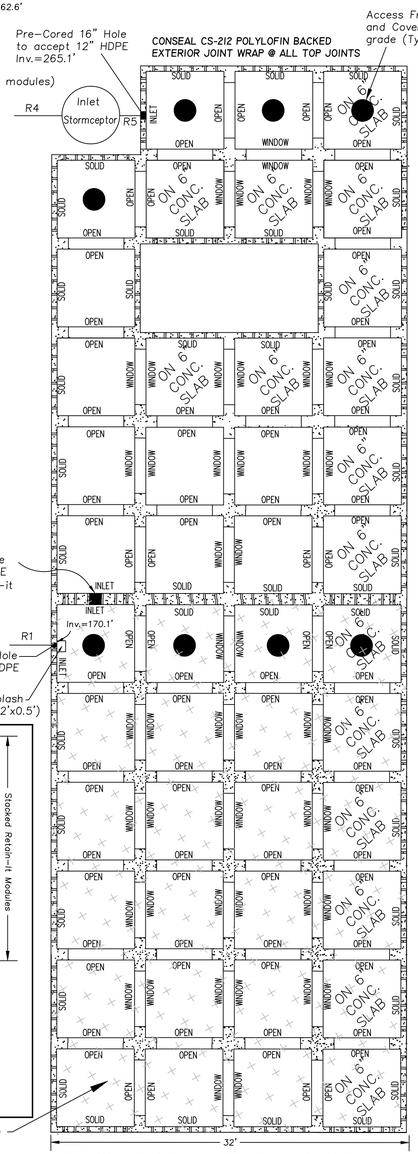


DETAIL SHOWS HOW THE STACKED MODULES WILL CONNECT TO THE SINGLE LEVEL MODULE....THE 4" HDPE PIPE SERVES AS AN OUTLET CONTROL FEATURE ALLOWING THE STACKED MODULES TO FILL PRIOR TO DISCHARGE TO THE SINGLE LEVEL MODULES.

DETAIL "A"

(NOT TO SCALE)

RETAIN–IT STRUCTURES (8'x8' modules)
21 UNITS – SINGLE LEVEL
2.0' INSIDE HEIGHT UNITS



STACKED RETAIN–IT STRUCTURES (8'x8' modules)
24 UNITS PER LEVEL WITH 2 LEVELS.

BASE LEVEL – 24 – 2.0' INSIDE HEIGHT UNITS
UPPER LEVEL – 24 – 3.5' INSIDE HEIGHT UNITS

NOTE: STACKED UNITS ARE HATCHED

SUBSURFACE INFILTRATION SYSTEM

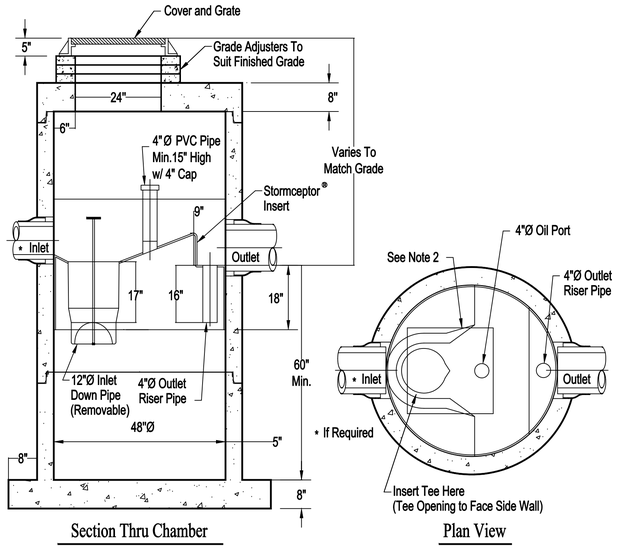
(NOT TO SCALE)

NOTE: RETAIN–IT MODULES TO BE SET ON 6" CRUSHED STONE BASE, UNLESS NOTED ABOVE TO BE SET ON A 6" CONC. SLAB

Rinker MATERIALS℠

Concrete Pipe Division

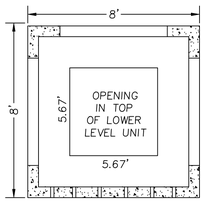
STC 450i Precast Concrete Stormceptor® (450 U.S. Gallon Capacity)



Notes:

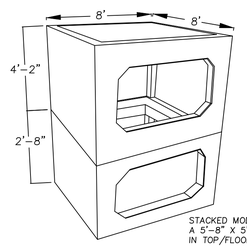
1. The Use Of Flexible Connection is Recommended at The Inlet and Outlet Where Applicable.
2. The Cover Should be Positioned Over The Inlet Drop Pipe and The Oil Port.
3. The Stormceptor System is protected by one or more of the following U.S. Patents: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690.
4. Contact a Concrete Pipe Division representative for further details not listed on this drawing.

Rinker 027



TYPICAL LOWER LEVEL
IN STACKED SYSTEM

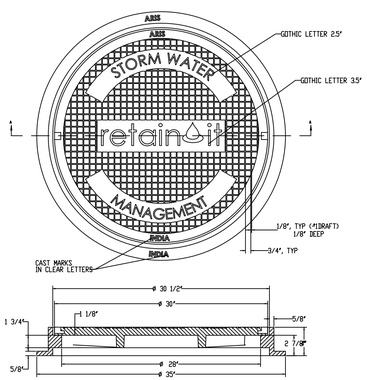
(NOT TO SCALE)



STACKED MODULES WILL HAVE A 5'–8" X 5'–8" OPENING IN TOP/FLOOR.

TYPICAL STAKED MODULE

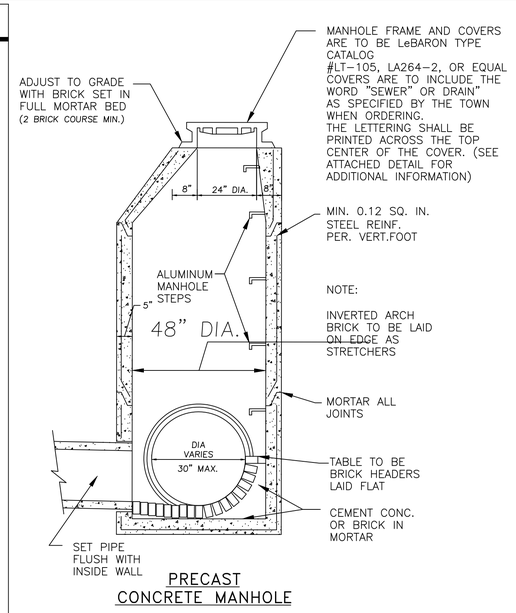
(NOT TO SCALE)



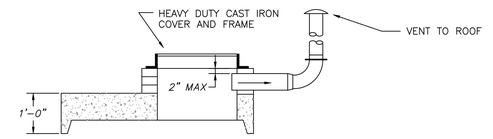
MODEL NUMBER	TITLE	
ARND430RI	HEAVY DUTY FRAMES AND COVERS	ARIS INDUSTRIAL SUPPLY LLC

TECHNICAL DATA
MATERIALS CONFORMS TO ASTM A48
CLASS 35B GRAY IRON CASTING
LOAD RATING FOR AASHTO LRFD & HS 20-44 HIGHWAY LOADING
MANUFACTURED IN ISO 9001 PLANTS
TENSILE STRENGTH 30,000 LBS PER SQ. INCH

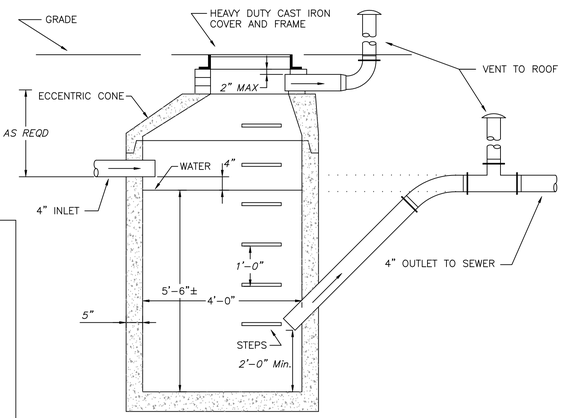
MANCHESTER, NH 03103
TEL: 603-625-5446 FAX 603-606-0450



PRECAST
CONCRETE MANHOLE



OPTIONAL TOP SLAB



SECTION VIEW

NOTES:

1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. MANHOLE DESIGN SPECIFICATIONS CONFORM TO LATEST ASTM C478 SPEC FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
3. BUTYL RESIN SECTION JOINT CONFORMS TO LATEST ASTM C443 SPEC.
4. STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP CONFORMS TO LATEST ASTM C478 SPEC.
5. PIPE NOT SUPPLIED.
6. CONE SECTION AVAILABLE IN 4'–0" I.D. ONLY.

OIL AND GREASE SEPARATOR

NOT TO SCALE

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:
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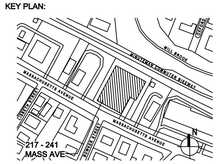
NO.	DATE	REVISIONS | SUBMISSIONS
2025 04–14		PLANNING BOARD SUBMISSION 4
2025 01–09		PLANNING BOARD SUBMISSION 3
2024 10–30		PLANNING BOARD SUBMISSION 2
2024 08–12		PLANNING BOARD SUBMISSION
2024 07–19		DRT SUBMISSION

KEY PLAN:



PROJECT:

RESIDENTIAL NEW CONSTRUCTION

231 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:

CONSTRUCTION DETAILS

SHEET NUMBER :

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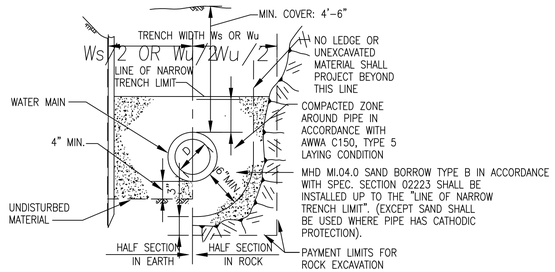
CHECKED BY :	JDS
ISSUE :	PLANNING BOARD SUBMISSION



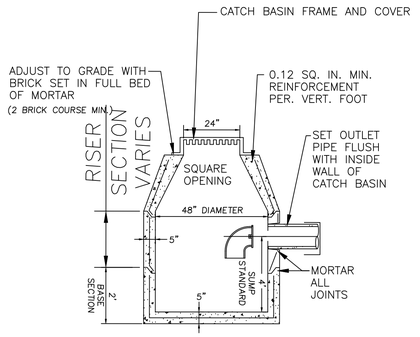
FOR SHEETED TRENCH Ws = (4/3 D + 32") OR 50", WHICHEVER IS GREATER.
FOR UNSHEETED TRENCH Wu = (4/3 D + 18") OR 36", WHICHEVER IS GREATER

NOTES:

1. TRENCHES MAY BE EXCAVATED WIDER THAN TRENCH WIDTH Ws ABOVE THE "LINE OF NARROW TRENCH LIMIT".
2. BELOW THE "LINE OF NARROW TRENCH LIMIT" THE TRENCH SHALL NOT BE EXCAVATED BEYOND THE TRENCH WIDTH Ws.
3. SHEETING, IF USED, IN ALL CASES SHALL BE LEFT IN PLACE BELOW A LINE 1'-0" ABOVE THE TOP OF THE PIPE, UNLESS OTHERWISE INDICATED OR DIRECTED.
4. "COVER" AT ANY POINT SHALL BE DEFINED AS THE VERTICAL DISTANCE FROM THE UPPERMOST POINT OF THE PIPE TO A LINE WHICH CONNECTS THE SURFACE OF UNDISTURBED GROUND AT EITHER SIDE OF THE TRENCH AND IS AT RIGHT ANGLES TO THE DIRECTION OF THE PIPE.
5. WHERE FUTURE EXTENSION OF A PLUGGED PIPE OR A PLUGGED BRANCH WILL ENTAIL ROCK EXCAVATION, TRENCH EXCAVATION IN ROCK SHALL BE EXTENDED FOR A DISTANCE OF 3-0" BEYOND THE PLUG.
6. BANK RUN GRAVEL OR EXCAVATED MATERIAL THAT MEETS SPEC. SECTION 02224 SHALL BE INSTALLED ABOVE THE LINE OF NARROW TRENCH LIMIT.
7. WHERE SPECIFIED, CONTROLLED DENSITY FILL WILL BE USED FROM TOP OF SCREENED GRAVEL TO BOTTOM OF BITUMINOUS PAVEMENT.

WATER MAIN TRENCH SECTION

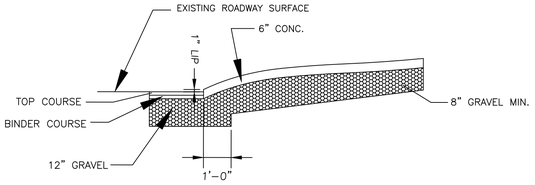
NOT TO SCALE



(WATERTIGHT CONSTRUCTION)

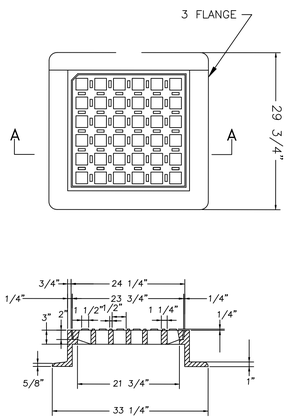
PRECAST CONCRETE CATCH BASIN

(WITH 4 FLANGE CATCH BASIN FRAME)



DRIVEWAY SECTION

NOT TO SCALE



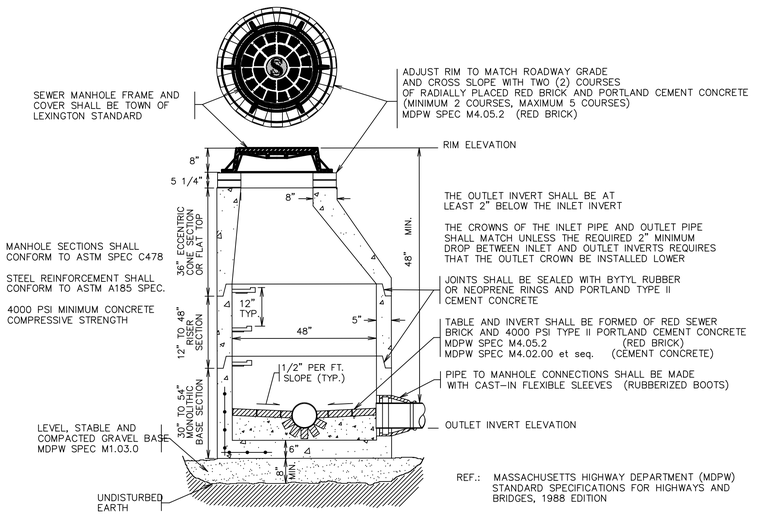
SECTION A–A

NOTE: FRAME AND GRATE SHALL BE HEAVY DUTY CLASS 30 GRAY IRON.

CATCH BASIN FRAME AND GRATE

N.T.S.

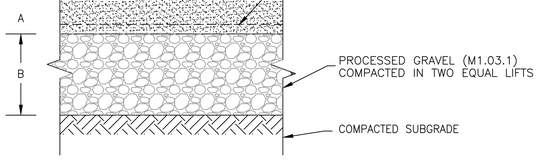
NOTE: CATCH BASIN FRAME AND COVERS ARE TO BE LeBARON TYPE CATALOG #LF248–3 OR EQUAL



TYPICAL SEWER MANHOLE DETAIL

(NOT TO SCALE)

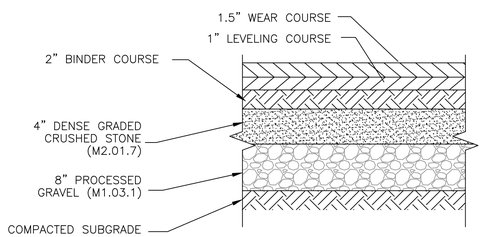
	A	B
WALKWAY/RAMP	4"	8"
DUMPSTER PAD	6"	12"



NOTES:
1. CEMENT CONCRETE PAVEMENT TO BE USED FOR LEAD WALKS AT FRONT SITE ENTRANCE, ACCESSIBLE RAMPS AND DUMPSTER PAD.
2. PROVIDE LIGHT BROOM FINISH PERPENDICULAR TO PEDESTRIAN/TRAFFIC FLOW.
3. PROVIDE 1/2" EXPANSION JOINT WITH PRE–MOULDED FILLER RECESSED 1/2" EXPANSION JOINTS TO BE PROVIDED 8' O.C. MAX. AND WHERE PAVEMENT ABUTS STRUCTURES OR OTHER VERTICAL SURFACES. PROVIDE 2" SMOOTH STRIP ON EACH SIDE OF EXPANSION JOINT.
4. THICKNESSES INDICATE THICKNESS AFTER COMPACTION.
5. CEMENT CONCRETE WALKS TO BE 5' WIDE.

CEMENT CONCRETE PAVEMENT SECTION

N.T.S.



TYPICAL PAVEMENT SECTION–ACCESS DRIVES

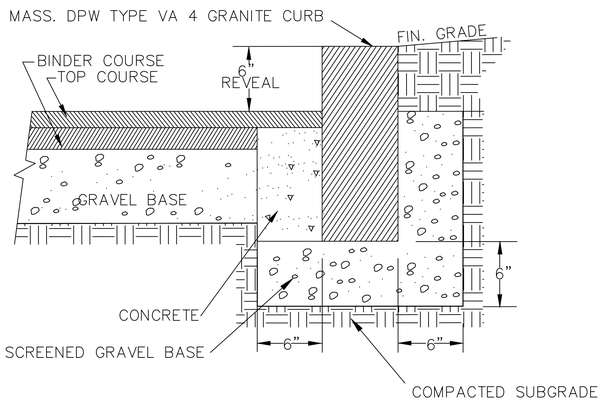
N.T.S.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT PAD

(NOT TO SCALE)

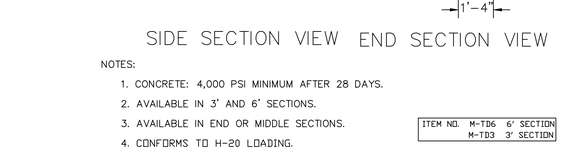
NOTE:

CONSTRUCT "TEMPORARY CONSTRUCTION ENTRANCE" AS SHOWN ON DETAIL PLAN PRIOR TO THE BEGINNING OF ANY CONSTRUCTION ACTIVITIES. ALL CONSTRUCTION VEHICLES SHALL EXIT THE SITE OVER THIS "TEMPORARY CONSTRUCTION ENTRANCE". THE CONTRACTOR SHALL USE THIS AREA TO REMOVE SOIL FROM THE TIRES OF CONSTRUCTION VEHICLES. "TEMPORARY CONSTRUCTION ENTRANCE" TO CONSIST OF SIX TO TWELVE INCHES OF TWO TO THREE INCH STONE.



VERTICAL GRANITE CURB

(NOT TO SCALE)

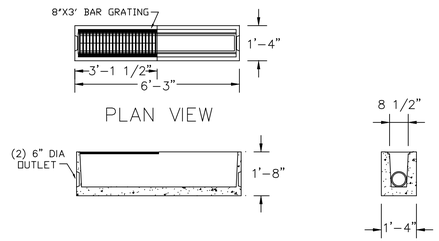


1. PIPE TRENCHES MAY BE EXCAVATED WIDER THAN TRENCH WIDTH Ws (SHEETED) OR Wu (UNSHEETED) ABOVE THE TOP OF PIPE ZONE.
2. TRENCHES SHALL NOT BE EXCAVATED BEYOND THE TRENCH WIDTH Wu BELOW THE TOP OF PIPE ZONE.
3. SHEETING MUST BE USED IF EXCAVATION AND BACKFILL, BELOW NORMAL DEPTH, IS REQUIRED. SHEETING SHALL BE LEFT IN PLACE BELOW A LINE 1'–0" ABOVE THE TOP OF PIPE.
4. ALL ROCK WITHIN 3'–0" HORIZONTALLY OF THE ENDS OF BUILDING CONNECTIONS, BRANCHES OR STUBS AND DOWN TO A HORIZONTAL PLANE 6" BELOW THE BOTTOMS OF SUCH CONNECTIONS, BRANCHES OR STUBS, SHALL BE EXCAVATED.

TRENCH WIDTH Ws OR Wu		
NOMINAL PIPE DIAMETER D	DEPTH OF PIPE INVERT BELOW GROUND SURFACE	
	0 TO 12'	12' TO 20'
24" AND SMALLER	5'–0"	7'–0"
OVER 24"	D+ 3'–0"	D + 5'–0"

TRENCH SECTION FOR PVC PIPE

NOT TO SCALE



NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. AVAILABLE IN 3' AND 6' SECTIONS.
3. AVAILABLE IN END OR MIDDLE SECTIONS.
4. CONFORMS TO H-20 LOADING.

ITEM NO. M-TD6 6' SECTION
M-TD3 3' SECTION

TRENCH DRAIN (OR SIMILAR)

NOT TO SCALE

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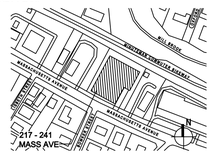

PROJECT:
RESIDENTIAL NEW CONSTRUCTION
231 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

COMMONWEALTH OF MASSACHUSETTS
SCOTT A. MELCHING
OMIL
No. 41688
REGISTERED PROFESSIONAL ENGINEER

DRAWING TITLE:
CONSTRUCTION DETAILS

SHEET NUMBER:
C-8

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DATE :	2024 08 - 12
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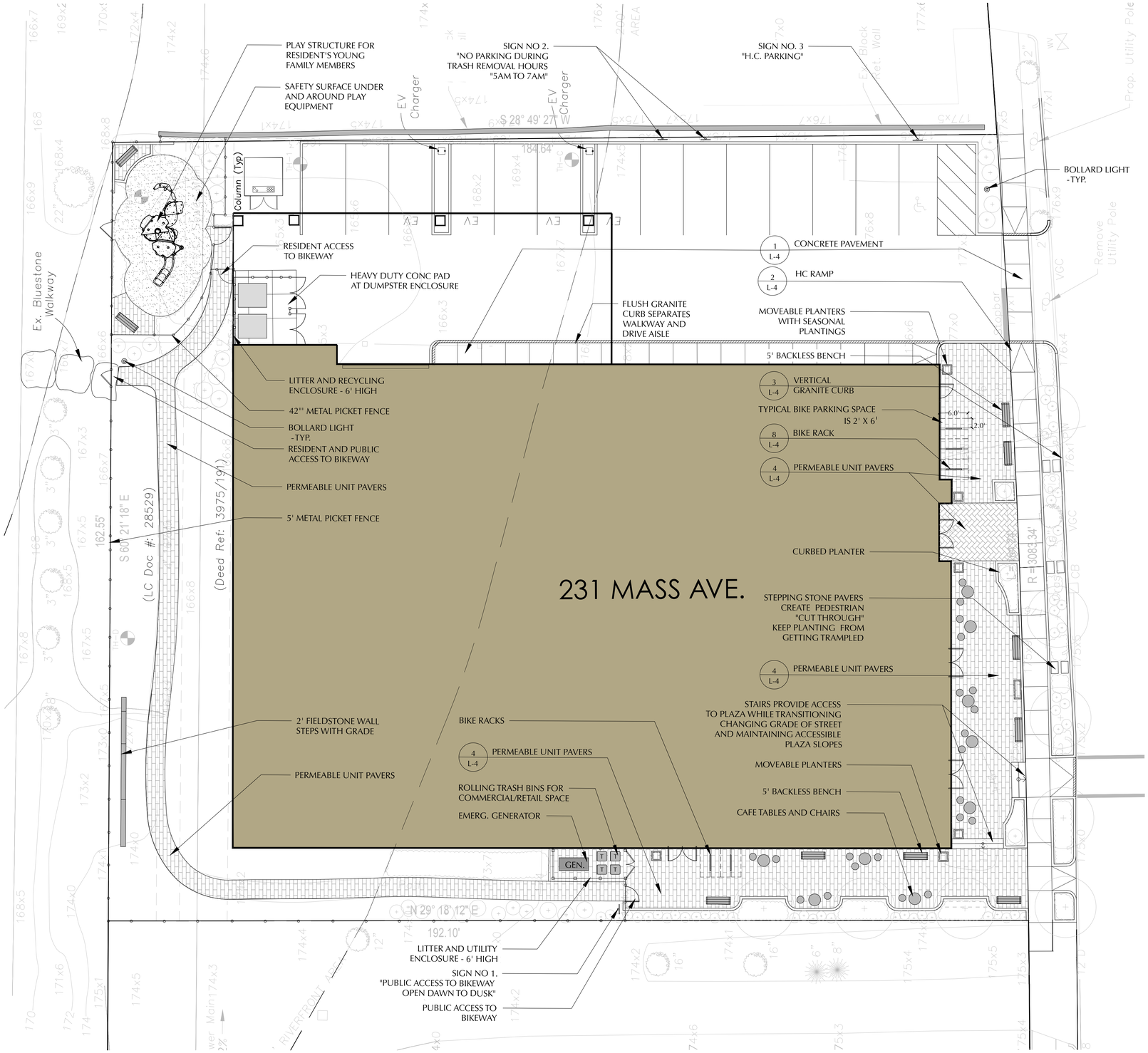
DRAWN BY :	JDS
CHECKED BY :	JDS
ISSUE :	PLANNING BOARD SUBMISSION



MATERIALS NOTES:

1. SEE EXISTING CONDITIONS PLAN INCLUDED IN THIS SET FOR SURVEY INFORMATION
2. THE LOCATIONS OF UNDERGROUND UTILITIES ARE FROM TOWN RECORDS . 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 & LANDSCAPE ARCHITECT FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR CONSTRUCTION.
5. ALL WORK CONDUCTED WITHIN PUBLIC RIGHT-OF-WAYS SHALL CONFORM TO THE REQUIREMENTS AND SPECIFICATIONS OF THE TOWN OF LEXINGTON AND THE MASSACHUSETTS HIGHWAY DEPARTMENT.
6. THE FOLLOWING LAYOUT CRITERIA SHALL CONTROL UNLESS OTHERWISE NOTED ON THE PLAN:
   - ALL DIMENSIONS ARE TO OUTSIDE FACE OF BUILDING.
   - ALL DIMENSIONS ARE TO FACE OF CURB AT GUTTER LINE.
   - ALL DIMENSIONS ARE TO CENTER OF PAVEMENT MARKINGS.
   - ALL TIES ARE TO PROPERTY LINES ARE PERPENDICULAR TO THE PROPERTY LINE UNLESS OTHERWISE NOTED.
5. SCREENED IMAGES SHOW EXISTING CONDITIONS. WHERE EXISTING CONDITIONS LIE UNDER OR ARE IMPINGED UPON BY PROPOSED BUILDINGS AND/OR SITE ELEMENTS, THE EXISTING CONDITION WILL BE REMOVED, ABANDONED AND/OR CAPPED OR DEMOLISHED AS REQUIRED.

MATERIALS LEGEND:

- BIKE RACKS
- 5' BACKLESS BENCH
- CAFE TABLES AND CHAIRS
- MOVEABLE PLANTERS
- BOLLARD LIGHT
- FLUSH GRANITE CURB
- VERTICAL GRANITE CURB
- PERMEABLE UNIT PAVERS

10 0 10 20 40

SCALE: $\frac{3}{32}$" = 1' - 0"

OWNER:

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MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

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MATERIALS PLAN

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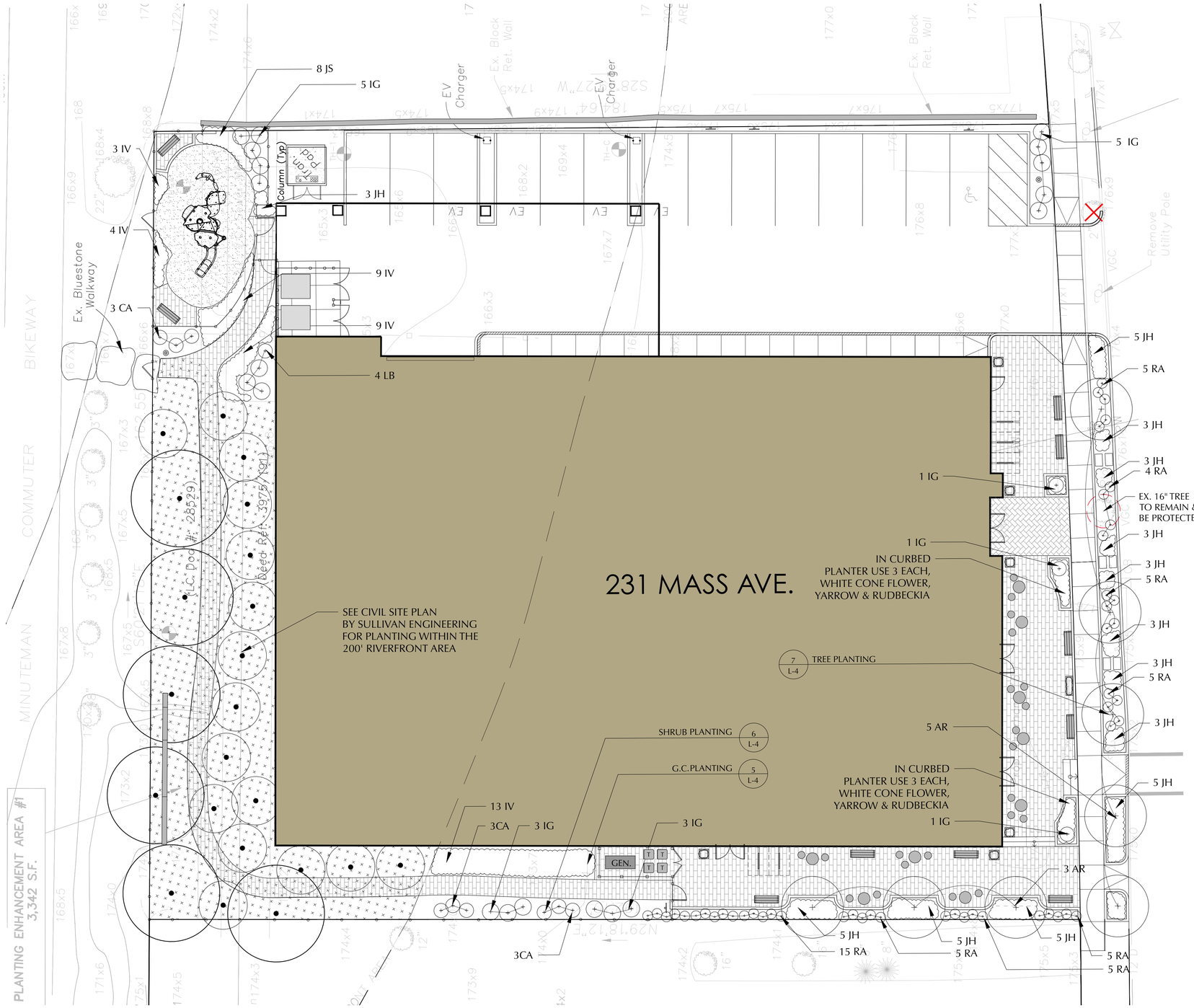
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04



10 0 10 20 40

SCALE: $\frac{3}{32}$" = 1' - 0"

LIST OF PLANTS TO BE CHOSEN FROM

	BOTANICAL NAME	COMMON NAME	QTY	SIZE	NOTES
DECIDUOUS TREES					
AR	ACER RUBRUM	RED MAPLE	8	3"–3.5" CAL.	
OA	OXYDENDRON ARBORETUM	SOUR WOOD		3"–3.5" CAL.	B&B
QR	QUERCUS RUBRA	RED OAK		3"–3.5" CAL.	B&B
ORNAMENTAL TREES					
AC	AMELANCHIER CANADENSIS	SHADBLOW SERV.BERRY		12', 3"C	B&B
CF	CORNUS FLORIDA	FLOWERING DOGWOOD		12', 3"C	B&B
MV	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA		12', 3"C	B&B
EVERGREEN TREES					
PS	PINUS STROBUS	WHITE PINE		8'–10', 3"C	B&B
SHRUBS					
RA	RHUS AROMATICA	FRAGRANT SUMAC	49	#3 POT	C.G.
IG	ILEX GLABRA	INKBERRY HOLLY	19	3' – 3.5'	C.G.
CA	CLETHRA ALNIFOLIA	SWEET PEPPER BUSH	9	3'–3.5'	B&B
RV	RHODODENDRON VISCOSUM	SWAMP AZALEA		3–4'	B&B
LB	LINDERA BENZOIN	SPICE BUSH	4	3'–3.5'	B&B
IV	ITEA VIRG. 'HENRY'S GARNET'	SWEETSPIRE	72	2.5' – 3'	B&B
JH	JUNIPERUS HORIZONTALLIS B.H.	BAR HARBOR JUNIPER	47	#3	C.G.
PERENNIALS					
EP	ECHINACEA PURPUREA 'W. S.'	WHITE SWAN CONE FLWR	9	#2 POT	C.G.
RF	RUDBECKIA FULGIDA	YELLOW CONEFLOWER	9	#2 POT	C.G.
AM	ACHILLEA MILLEFOLIUM	YARROW	9	#2 POT	C.G.

NOTE: THE ABOVE PLANT LIST WAS DEVELOPED USING THE LEXINGTON PREFERRED PLANT LIST AS ADOPTED ON OCTOBER 6, 2021. 100% OF THE TOTAL DBHs OF ALL PROPOSED TREES ARE NATIVE TREES FROM THE LEXINGTON PREFERRED PLANT LIST. 100% OF THE SHRUBS ARE NATIVE SPECIES FROM THE LEXINGTON PREFERRED PLANT LIST.

1. SEE CIVIL DRAWINGS FOR GENERAL NOTES ON SITE CONDITIONS, AND FOR GRADING IN THE DRIVEWAY AND GARAGE AS WELL AS DRAINAGE AND UTILITY INFRASTRUCTURE FOR THE ENTIRE SITE.
2. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UNDERGROUND UTILITIES.
3. CONTRACTOR SHALL BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND WILL CONTINUE UNTIL FINAL WRITTEN ACCEPTANCE OF PLANT MATERIAL.
4. ALL MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
5. ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS TO ORIGINAL GRADES BEFORE DIGGING.
6. ALL PLANTS TO BE BALLED IN BURLAP OR CONTAINERIZED.
7. 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.
8. 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.
9. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF ACCEPTANCE.
10. ALL PLANT MATERIALS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT, AT THE NURSERY, AND AT THE SITE.
11. ALL AREAS OF THE SITE WHICH HAVE BEEN DISTURBED AND NOT OTHERWISE DEVELOPED SHALL BE LOAMED AND SEEDED WITH A MINIMUM DEPTH OF 6" DEPTH TOPSOIL UNLESS OTHERWISE NOTED.

LEGEND

- PROP. SHADE TREE
- PROP. EVERGREEN TREE
- PROP. ORNAMENTAL TREE
- PROPOSED SHRUB PLANTING
- EX.TREE T.B.R
- EX.TREE T.B. PROTECTED

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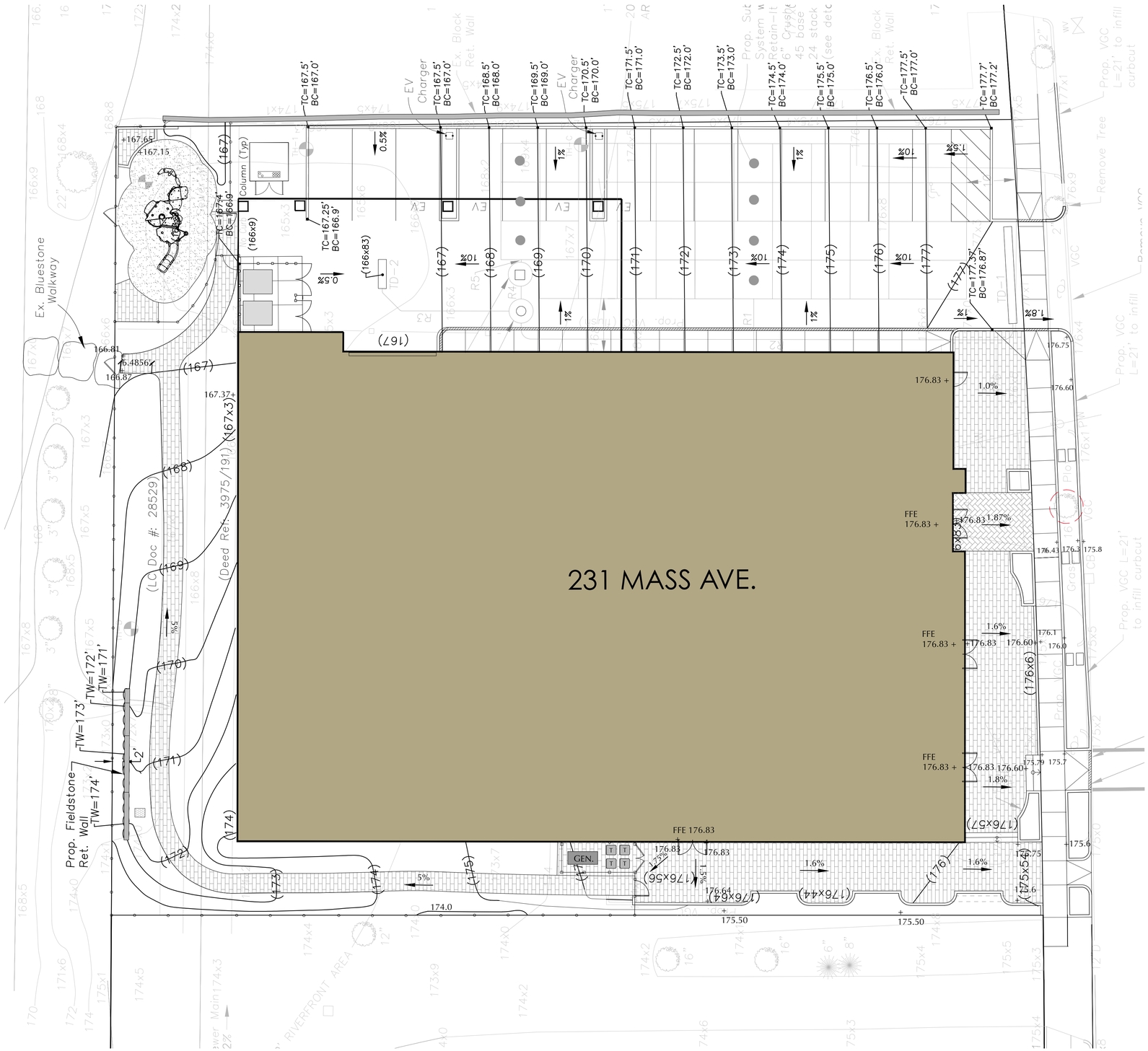
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04



GRADING NOTES:

1. PRIOR TO THE START OF ANY EXCAVATION FOR THE PROJECT, BOTH ON AND OFF THE SITE, THE CONTRACTOR SHALL NOTIFY DIGSAFE AND BE PROVIDED WITH A DIGSAFE NUMBER INDICATING THAT ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED.
2. 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.
3. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS, STRUCTURES AND PLANTING BEDS.
4. MAXIMUM SLOPE IN DISTURBED AREAS SHALL NOT EXCEED 3:1 FOR LAWN AREAS & 2 : 1UNLESS OTHERWISE NOTED.
5. ENSURE ALL EXISTING (TO REMAIN), AND PROPOSED MANHOLE COVERS PROPERLY IDENTIFY UTILITY SERVICED.
6. CONTRACTOR SHALL VERIFY EXISTING GRADES AND NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES.
7. BITUMINOUS CONCRETE ELEVATIONS AT CATCH BASINS TO BE 1/4 INCH ABOVE RIM ELEVATION SHOWN FOR CATCH.
8. THE CONTRACTOR SHALL MAINTAIN OR ADJUST TO NEW FINISH GRADE AS NECESSARY ALL UTILITY AND SITE STRUCTURES SUCH AS LIGHT POLES, SIGN POLES, MAN HOLES, CATCH BASINS, HAND HOLES, WATER AND GAS GATES, HYDRANTS, ETC., FROM MAINTAINED UTILITY AND SITE SYSTEMS UNLESS OTHERWISE NOTED OR DIRECTED BY THE OWNER.
9. SCREENED IMAGES SHOW EXISTING CONDITIONS. WHERE EXISTING CONDITIONS LIE UNDER OR ARE IMPINGED UPON BY PROPOSED BUILDINGS AND/OR SITE ELEMENTS, THE EXISTING CONDITION WILL BE REMOVED, ABANDONED AND/OR CAPPED OR DEMOLISHED AS REQUIRED.
10. THE CONTRACTOR SHALL MEET THE REQUIREMENTS OF 521 CMR OF THE ARCHITECTURAL ACCESS BOARD REGULATIONS. ALL GRADES ON WALKWAYS, RAMPS, CURB CUTS AND PARKING AREAS AS DEFINED BY 521 CMR SHALL COMPLY WITH THE MAXIMUM ALLOWABLE GRADES. GRADES SHALL BE MEASURED AT TWO FOOT INTERVALS. CROSS SLOPES ON ALL WALKS, PATHS OF TRAVEL AND ACCESSIBLE ROUTES AS DEFINED IN 521 CMR SHALL NOT EXCEED 1.5%. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY IF DISCREPANCIES ARISE BETWEEN THE ACTUAL GRADES SHOWN ON THE PLANS AND THE MAXIMUM ALLOWABLE GRADES INDICATED IN 521 CMR.
11. ALL WALKWAYS SHALL BE GRADED TO A MAXIMUM 4.5% RUNNING SLOPE (PARALLEL TO THE DIRECTION OF TRAVEL). THE CROSS PITCH OF ALL WALKWAYS, PATHS AND PLAZAS SHALL NOT EXCEED 1.5% (PERPENDICULAR TO THE DIRECTION OF TRAVEL). THE SLOPE OF ALL RAMPS AND SIDE SLOPES OF HANDICAP CURB CUTS AS DEFINED BY SECTION 21.1 OF 521 CMR SHALL BE CONSTRUCTED AT 7% MAXIMUM. RAMPS AS DEFINED IN SECTION 24.1 OF 521 CMR SHALL BE CONSTRUCTED TO A MAXIMUM SLOPE OF 7%.
12. A 5'-0" MINIMUM LEVEL (1.5% PITCH) AREA SHALL BE PROVIDED AT ALL FLUSH ENTRANCES TO BUILDINGS. PUDDLING OF WATER AT THE ENTRANCES WILL NOT BE ALLOWED.
13. IF ANY OF THE ABOVE REQUIREMENTS CANNOT BE MET WITH THE GRADES SHOWN ON THE PLANS, THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY FOR DIRECTION.

LEGEND:

AD	AREA DRAIN / CB - COORDINATE WITH CVIL DRAWINGS
99	PROPOSED CONTOUR
65	EXISTING CONTOUR
64.49	PROPOSED SPOT GRADE

10 0 10 20 40

SCALE: $\frac{3}{32}$" = 1' - 0"

OWNER:
NORTH SHORE
Residential Development
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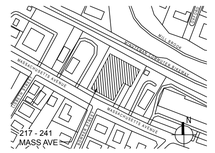

PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

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GRADING PLAN

SHEET NUMBER :

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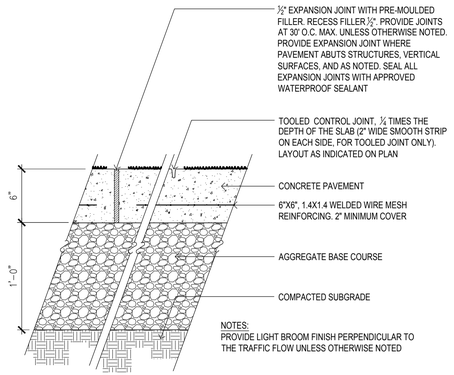
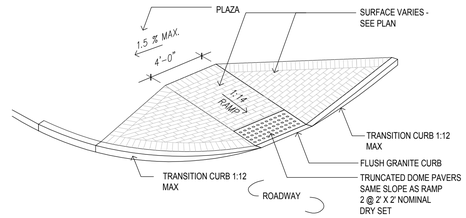


1 CONCRETE PAVEMENT

SCALE: 1 1/2"= 1'-0"

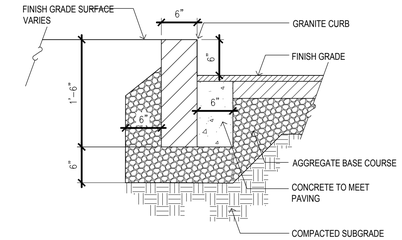


NOTES:

1. RAMP CROSS SECTION TO BE THE SAME AS ADJACENT PLAZA; I.E. DEPTH OF SURFACE AND FOUNDATION. DIMENSIONS ARE SUBJECT TO CHANGE IN FIELD. ALL SLOPES AND DIMENSIONS TO COMPLY WITH A.D.A. AND MAAB REQUIREMENTS.
2. TRANSITION CURB LENGTH AS REQUIRED TO MEET CODE. FIXED OBJECTS (i.e. UTILITY POLES, HYDRANTS ETC.) MUST NOT ENCROACH ON ANY PART OF A WHEELCHAIR RAMP, INCLUDING TRANSITION SLOPES.
3. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP, EXCLUDING CURB TRANSITIONS, TO BE LOCATED OUTSIDE OF THE CROSSWALK.
4. SET TRUNCATED DOME PAVERS THAT ARE ADJACENT TO BRICK PAVEMENT ON SAME SETTING BED. USE SAME JOINT FILLER AS ADJACENT PAVEMENT

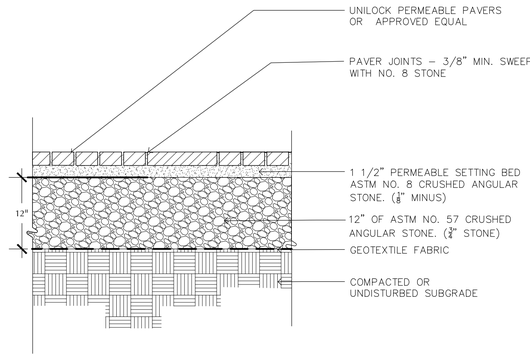
2 TYPICAL HC RAMP

NOT TO SCALE



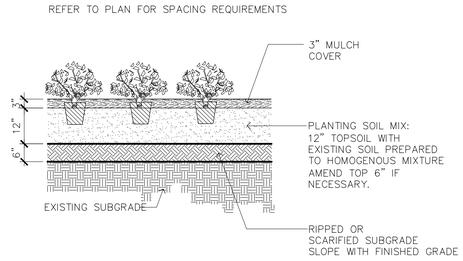
3 VERTICAL GRANITE CURB

SCALE: 1"= 1'-0"



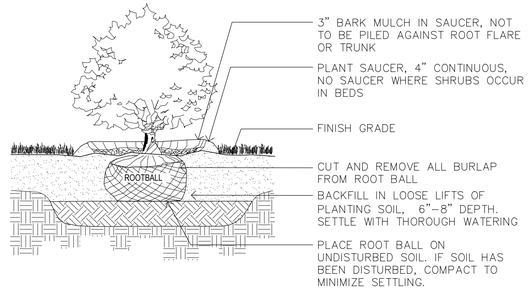
4 PERMEABLE UNIT PAVERS

SCALE: 1"= 1'-0"



5 GROUNDCOVER AND PERENNIAL PLANTING

SCALE: 1/2"= 1'-0"



NOTES:

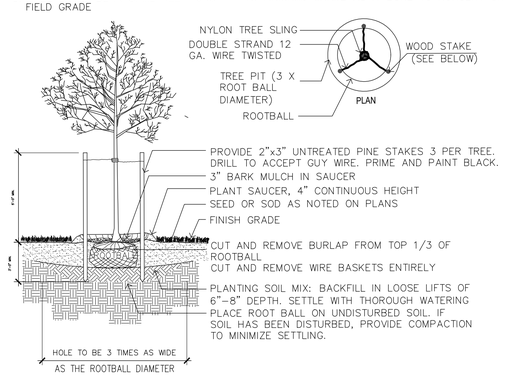
1. SHRUB SHALL BEAR SAME RELATIONSHIP TO FINISHED GRADE AS IT BORE TO NURSERY OR FIELD GRADE
2. WHERE SHRUBS OCCUR IN GROUPINGS IN PLANT BEDS, PROVIDE 2 FOOT DEEP CONTINUOUS LOAM BED.

6 SHRUB PLANTING

SCALE: 1/2" = 1'-0"

NOTES:

1. CONTRACTOR MAY USE PLASTIC TREE GUYING CHAIN IF APPROVED BY L.A.
2. TRUNK CALIPER SHALL MEET ANSI Z60 CURRENT EDITION FOR ROOT BALL SIZE
3. TREE SHALL BEAR SAME RELATIONSHIP TO FINISHED GRADE AS IT BORE TO NURSERY OR FIELD GRADE

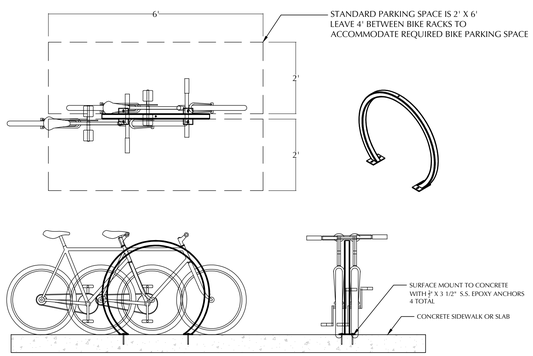


7 TREE PLANTING

SCALE: 1/4"= 1'-0"

NOTES:

1. BIKE RACK SHALL BE DERO "ARC RACK" WWW.DERO.COM.
2. BIKE RACK SHALL BE STAINLESS STEEL WITH BRUSHED FINISH.
3. SURFACE MOUNT TO 4" THICK CONCRETE SIDEWALK - OR 10" X 18" X 36" CONCRETE SLAB



8 DERO / Arc Rack - BIKE RACK

SCALE: 1/2"= 1'-0"

OWNER:

NORTH SHORE
Residential Development

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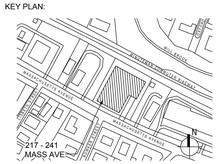

PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

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LANDSCAPE DETAILS

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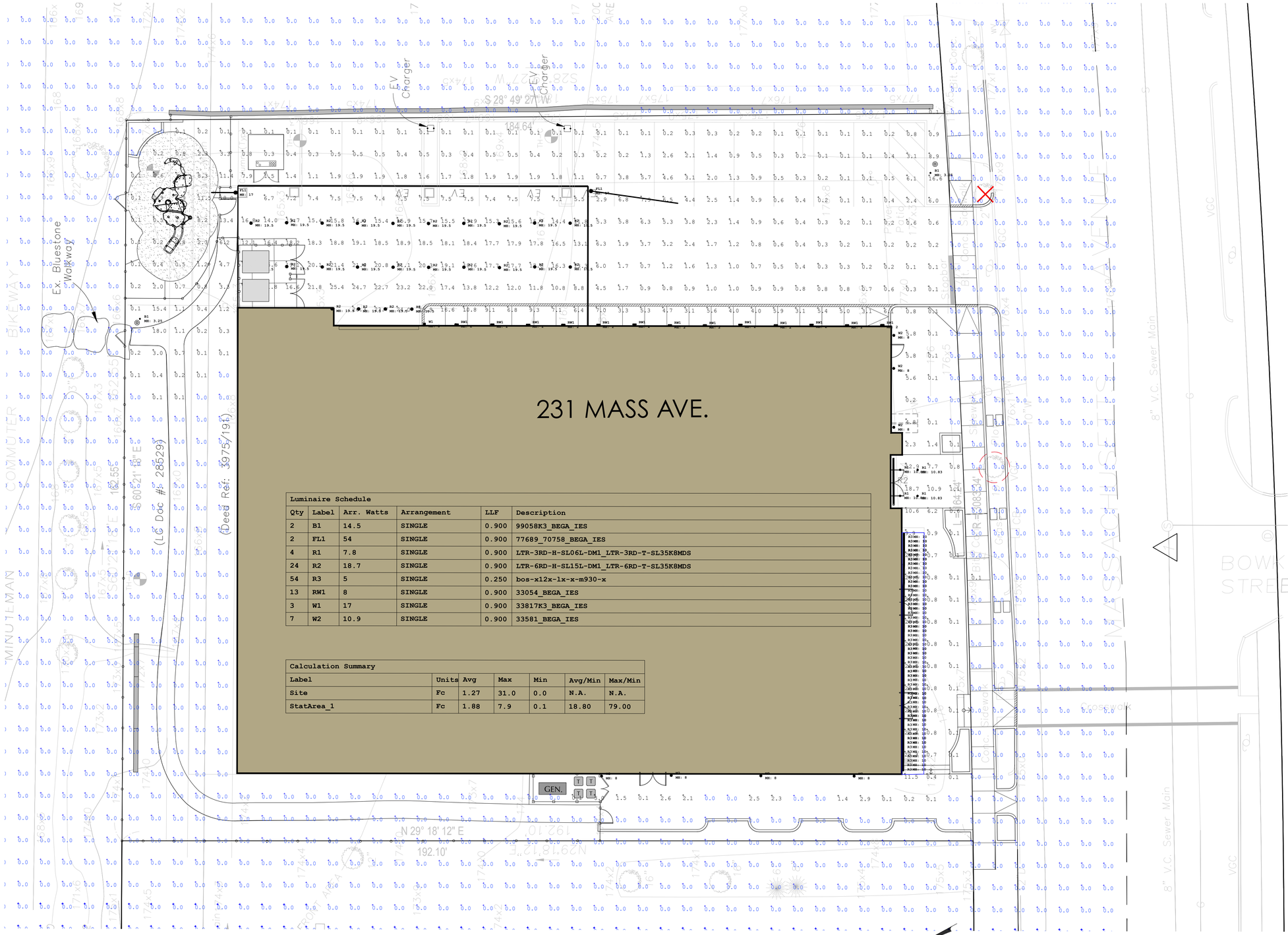

Luminaire Schedule					
Qty	Label	Arr. Watts	Arrangement	LLF	Description
2	B1	14.5	SINGLE	0.900	99058K3_BEGA_IES
2	FL1	54	SINGLE	0.900	77689_70758_BEGA_IES
4	R1	7.8	SINGLE	0.900	LTR-3RD-H-SL06L-DM1_LTR-3RD-T-SL35K8MDS
24	R2	18.7	SINGLE	0.900	LTR-6RD-H-SL15L-DM1_LTR-6RD-T-SL35K8MDS
54	R3	5	SINGLE	0.250	bos-x12x-lx-x-m930-x
13	RW1	8	SINGLE	0.900	33054_BEGA_IES
3	W1	17	SINGLE	0.900	33817K3_BEGA_IES
7	W2	10.9	SINGLE	0.900	33581_BEGA_IES

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Site	Fc	1.27	31.0	0.0	N.A.	N.A.
StatArea_1	Fc	1.88	7.9	0.1	18.80	79.00

10 0 10 20 40

SCALE: $\frac{3}{32}$" = 1' - 0"

OWNER:
NORTH SHORE
Residential Development
NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

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MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

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PHOTOMETRIC PLAN

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10 0 10 20 40

SCALE: $\frac{3}{32}$" = 1' - 0"

List of Protected Trees To Be Removed (Trees 6" DBH or greater within setback area)

Tree #			Tree Size - DBH (in inches)	Description		Reqd. Replacement Inches
	1		2	Cherry (To be confirmed)		2
						0
Total No.	2	Total Caliper Inches	2	Total Reqd. Replacement Inches		2

Additional Tree Removal & Mitigation Information (Trees 6" DBH or greater on entire site)

	Quantity	DBH (In Inches)	Replacement Rate	Proposed Replacement Inches
TOTAL NUMBER OF TREES ON SITE	2	18		
TOTAL NUMBER OF TREES REMOVED	1	2		
TOTAL NUMBER OF TREES SAVED	1	16		
Total outside LOW	0	0		
Total Inside LOW	1	16		
PROPOSED 3" CALIPER SHADE TREES	8	24	1:1	24
PROPOSED 3" CALIPER TREES	0	0	1:1	0
		Total Proposed. Replacement Inches		24

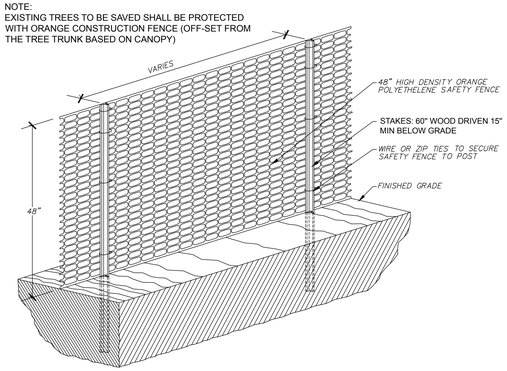
PROTECTION REQUIREMENTS FOR EXISTING TREES

1. **Barrier Protection -** Protect all trees to be saved before demolition and land clearing begins. Install barrier at locations shown on plan. To the extent possible install tree protection barrier/fencing at the drip line of the tree. This may be modified to a location agreed to during an on-site visit by the Tree Warden. Construct barriers of 60" wood stakes and 4' orange snow fence (highly visible plastic mesh). This protection will prohibit heavy equipment from compacting soil, damaging roots, breaking branches and scarring the tree trunk. **See Detail #1 - Tree Protection Fencing this sheet.**
2. **Weights under Tree** - Park vehicles, equipment, or stockpile earth, fill and other materials ONLY OUTSIDE the tree root zone.
3. **Chemical Damage -** Dispose of all debris properly (rubble, cement, asphalt, petroleum products, herbicides, all chemicals) away from the tree root zone.
4. **Leaf Mulch -** Allow fallen leaves from the trees within the root zone to remain on the ground as mulch. If leaves are on the lawn, they can be raked up or mowed.
5. **Flooding** - Provide proper drainage so that roots of trees are free of standing water.
6. **Fasteners -** Use separate posts instead of trees for fastening signs, fences, electrical wires and pulley stays.
7. **Utility Lines -** Locate all new underground utility lines outside the critical root zone of trees to be saved. If not possible, tunnel under roots as an alternative.
8. **Watering -** During dry spells in the growing season, water trees once a week so that the water penetrates 12 to 18 inches into the soil.

LEGEND

- *EX. TREE T.B.R* (DBH 10")
- *EX. TREE T.B. PROTECTED* (DBH 10")
- *EX. TREE TO REMAIN OUTSIDE L.O.W.* (DBH 10")
- *TREE PROTECTION FENCE*

NOTE:
EXISTING TREES TO BE SAVED SHALL BE PROTECTED WITH ORANGE CONSTRUCTION FENCE (OFF-SET FROM THE TREE TRUNK BASED ON CANOPY)



1 TREE PROTECTION FENCING
SCALE: N.T.S.

OWNER:
NORTH SHORE
Residential Development
NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
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217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

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TREE PROT. & REMOVAL PLAN

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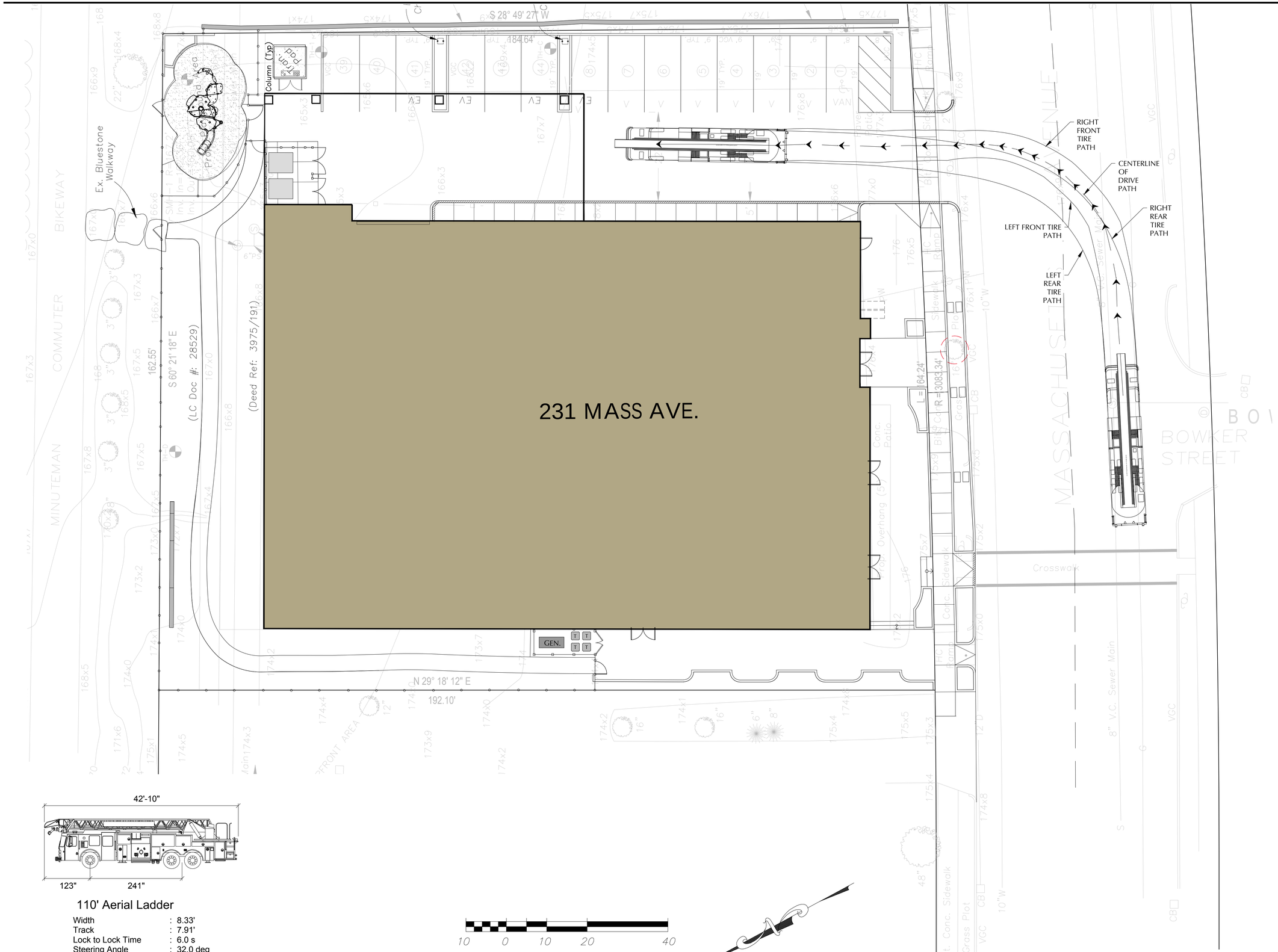

110' Aerial Ladder

Width	:	8.33'
Track	:	7.91'
Lock to Lock Time	:	6.0 s
Steering Angle	:	32.0 deg

TRUCK USED FOR TURNING ANALYSIS

10 0 10 20 40

SCALE: $\frac{3}{32}$" = 1' - 0"

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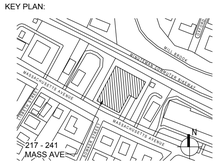
KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:

FIRE TRUCK TURNING DIAGRAM - LEFT TURN

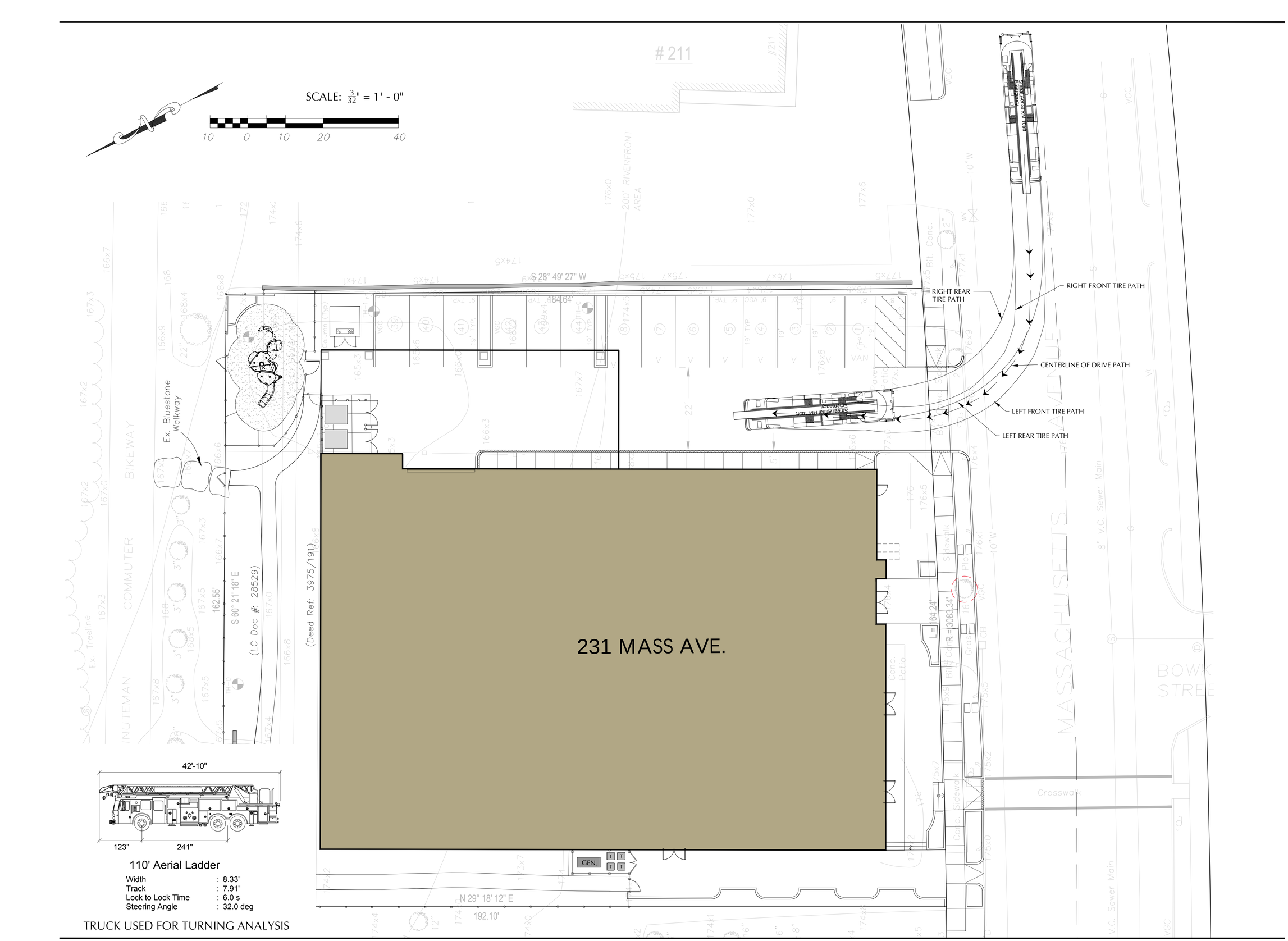
SHEET NUMBER :

L- 7

PAGE NO :	OF 16
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	E W
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04

SCALE: $\frac{3}{32}$" = 1' - 0"

10 0 10 20 40



110' Aerial Ladder

Width	:	8.33'
Track	:	7.91'
Lock to Lock Time	:	6.0 s
Steering Angle	:	32.0 deg

TRUCK USED FOR TURNING ANALYSIS

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

SCOTT MELCHING ARCHITECT LLC
116 ARCH STREET
NEEDHAM, MA 02492 | (T) 718.578.3354
WWW.SCOTTMELCHINGARCHITECT.COM

LANDSCAPE ARCHITECT:

J. THOMA LAND DESIGN STUDIOS
141 HAGGETS POND ROAD
ANDOVER, MA 01810 | (T) 978.409.9815
WWW.JTHOMALDS.COM

STRUCTURAL ENGINEER:

VEITAS ENGINEERS
639 GRANITE STREET, SUITE 100
BRAINTREE, MA 02184 | (T) 781.843.2863
WWW.VEITAS.COM

CIVIL ENGINEER:

SULLIVAN ENGINEERING GROUP, LLC.
P.O. BOX 2004
WOBURN, MA 01888 | (T) 781.854.8644
WWW.SULLIVANENGGROUPLLC.COM

MEP ENGINEER:

BUILDING ENGINEERING RESOURCES, INC.
66 MAIN STREET
NO. EASTON, MA 02356 | (T) 508.230.0260
WWW.BER-ENGINEERING.COM

SUSTAINABILITY CONSULTANT:

BUILDING EVOLUTION CORPORATION
138 GREEN STREET
WORCESTER, MA 01604 | (T) 508.475.9016
WWW.BUILDINGEVO.COM

ATTORNEY:

RIEMER BRAUNSTEIN LLP
700 DISTRICT AVENUE, 11TH FLOOR
BURLINGTON, MA 01803 | (T) 617.880.3457
WWW.RIEMERLAW.COM

NO. DATE REVISIONS | SUBMISSIONS

KEY PLAN:

PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:

FIRE TRUCK TURNING DIAGRAM - RIGHT TURN

SHEET NUMBER :

L- 8

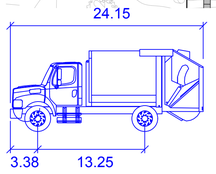
PAGE NO :	OF 16
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	EW
CHECKED BY :	SM
ISSUE :	PLANNING BOARD SUBMISSION 04

SCALE: $\frac{3}{32}$" = 1' - 0"

10 0 10 20 40

THESE TWO RETAIL/COMM. PARKING SPACES TO BE DESIGNATED AS "NO PARKING" BETWEEN SERVICE HOURS TO FACILITATE TURNAROUND AREA FOR TRASH REMOVAL. SERVICE HOURS SHALL NOT OVERLAP WITH RETAIL/COMMERCIAL HOURS OF OPERATION.

231 MASS AVE.



Wayne PowerLynx PL12

	Feet
Width	: 8.01
Track	: 7.97
Lock to Lock Time	: 6.0 s
Steering Angle	: 46.0 deg

TRUCK USED FOR TURNING ANALYSIS

OWNER:
NORTH SHORE
Residential Development
NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:
SCOTT MELCHING ARCHITECT LLC
116 ARCH STREET
NEEDHAM MA 02492 | (T) 718.578.3354
WWW.SCOTTMELCHINGARCHITECT.COM

LANDSCAPE ARCHITECT:
J. THOMA LAND DESIGN STUDIOS
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WWW.JTHOMALDS.COM

STRUCTURAL ENGINEER:
VEITAS ENGINEERS
639 GRANITE STREET, SUITE 100
BRAINTREE, MA 02184 | (T) 781.843.2863
WWW.VEITAS.COM

CIVIL ENGINEER:
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P.O. BOX 2004
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SUSTAINABILITY CONSULTANT:
BUILDING EVOLUTION CORPORATION
138 GREEN STREET
WORCESTER, MA 01604 | (T) 508.475.9016
WWW.BUILDINGEVO.COM

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BURLINGTON, MA 01803 | (T) 617.880.3457
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NO. DATE REVISIONS | SUBMISSIONS

KEY PLAN:

PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

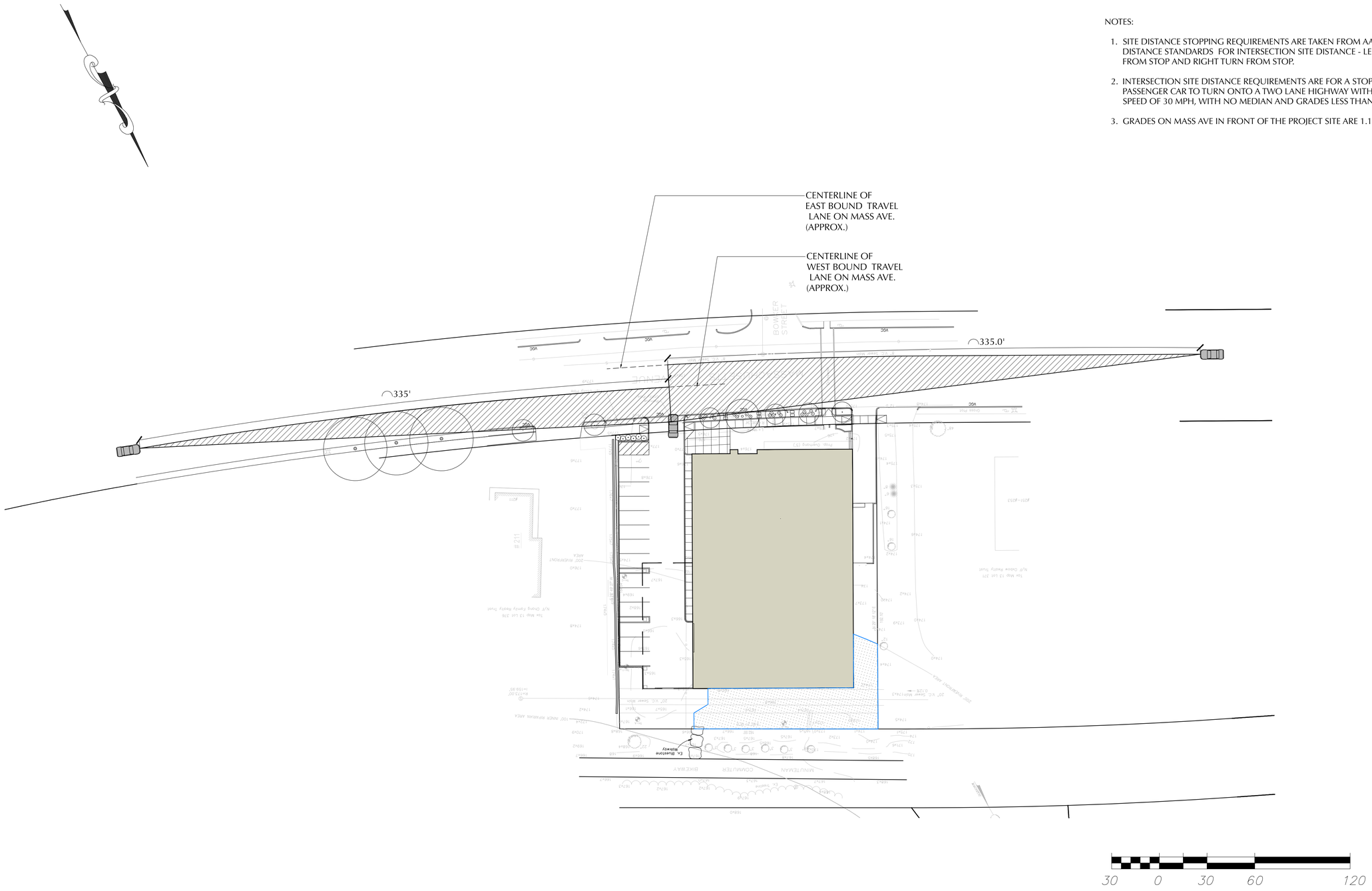
DRAWING TITLE:

TRASH TRUCK TURNING DIAGRAM - 3 POINT TURN

SHEET NUMBER :

L- 8.1

PAGE NO :	OF 16
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	EW
CHECKED BY :	SM
ISSUE :	PLANNING BOARD SUBMISSION 04



NOTES:

1. SITE DISTANCE STOPPING REQUIREMENTS ARE TAKEN FROM AASHTO SITE DISTANCE STANDARDS FOR INTERSECTION SITE DISTANCE - LEFT TURN FROM STOP AND RIGHT TURN FROM STOP.
2. INTERSECTION SITE DISTANCE REQUIREMENTS ARE FOR A STOPPED PASSENGER CAR TO TURN ONTO A TWO LANE HIGHWAY WITH A DESIGN SPEED OF 30 MPH, WITH NO MEDIAN AND GRADES LESS THAN 3%.
3. GRADES ON MASS AVE IN FRONT OF THE PROJECT SITE ARE 1.1%.

SCALE: 1" = 30'

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:
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116 ARCH STREET
NEEDHAM, MA 02492 | (T) 718.578.3354
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NO. DATE REVISIONS | SUBMISSIONS

KEY PLAN:

PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION
217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

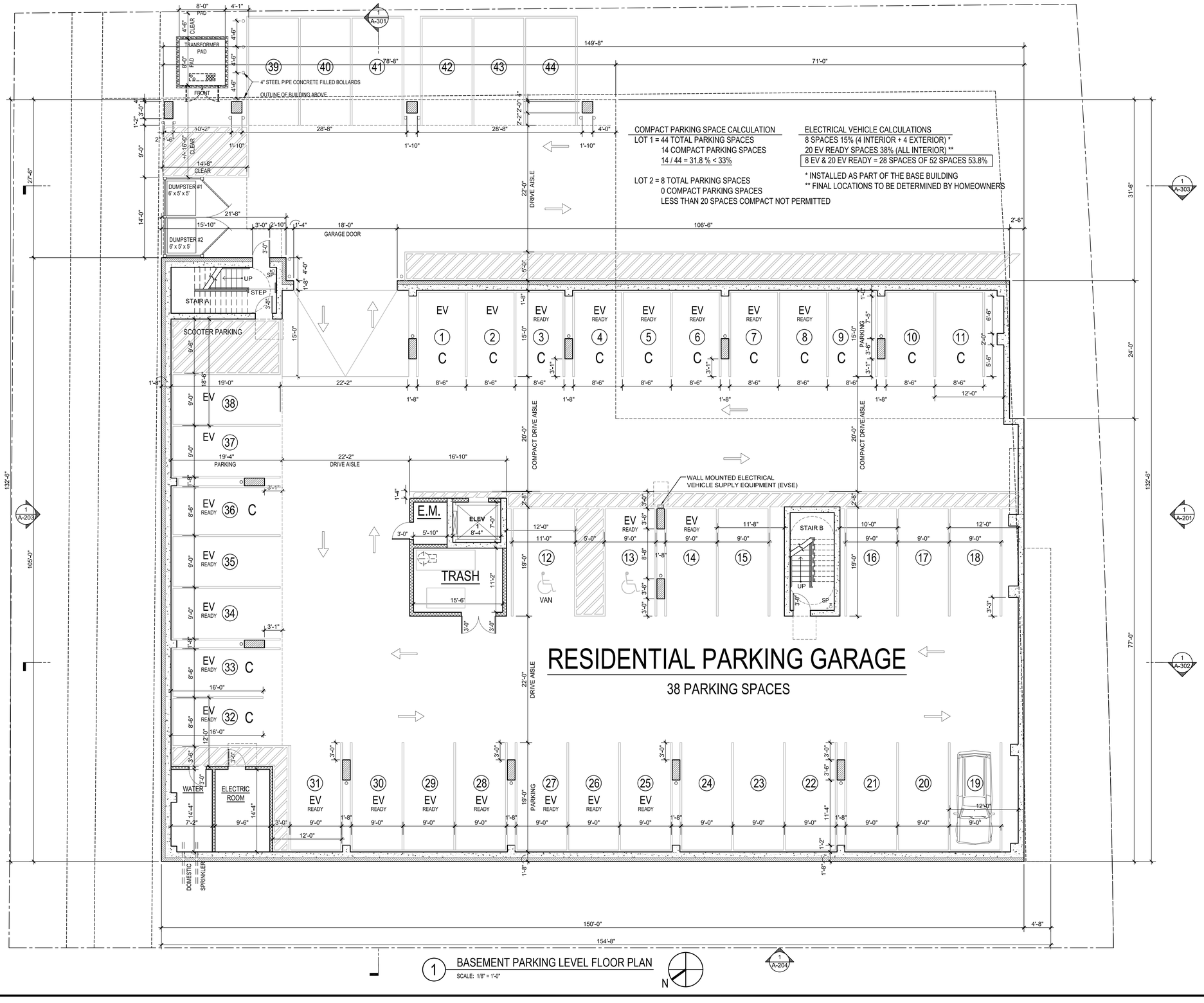
DRAWING TITLE:

SITE LINE STUDY

SHEET NUMBER :

L- 9

PAGE NO :	OF 16
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	E W
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04



COMPACT PARKING SPACE CALCULATION

LOT 1 = 44 TOTAL PARKING SPACES
14 COMPACT PARKING SPACES
14 / 44 = 31.8 % < 33%

LOT 2 = 8 TOTAL PARKING SPACES
0 COMPACT PARKING SPACES
LESS THAN 20 SPACES COMPACT NOT PERMITTED

ELECTRICAL VEHICLE CALCULATIONS

8 SPACES 15% (4 INTERIOR + 4 EXTERIOR) *
20 EV READY SPACES 38% (ALL INTERIOR) **
8 EV & 20 EV READY = 28 SPACES OF 52 SPACES 53.8%

* INSTALLED AS PART OF THE BASE BUILDING
** FINAL LOCATIONS TO BE DETERMINED BY HOMEOWNERS

RESIDENTIAL PARKING GARAGE

38 PARKING SPACES

1 BASEMENT PARKING LEVEL FLOOR PLAN
SCALE: 1/8" = 1'-0"

N

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

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116 ARCH STREET
NEEDHAM MA 02492 | (T) 718.578.3354
WWW.SCOTTMELCHINGARCHITECT.COM

LANDSCAPE ARCHITECT:

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WWW.JTHOMALDS.COM

STRUCTURAL ENGINEER:

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WWW.VEITAS.COM

CIVIL ENGINEER:

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ATTORNEY:

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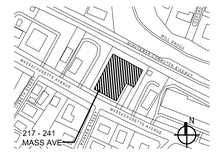
WWW.RIEMERLAW.COM

NO.	DATE	REVISIONS | SUBMISSIONS
	2025 04-14	PLANNING BOARD SUBMISSION 04
	2025 01-09	PLANNING BOARD SUBMISSION 03
	2024 10-30	PLANNING BOARD SUBMISSION 02
	2024 08-12	PLANNING BOARD SUBMISSION
	2024 07-19	DRT SUBMISSION

KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION
217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:

PARKING GARAGE
FLOOR PLAN

SHEET NUMBER :

A-100

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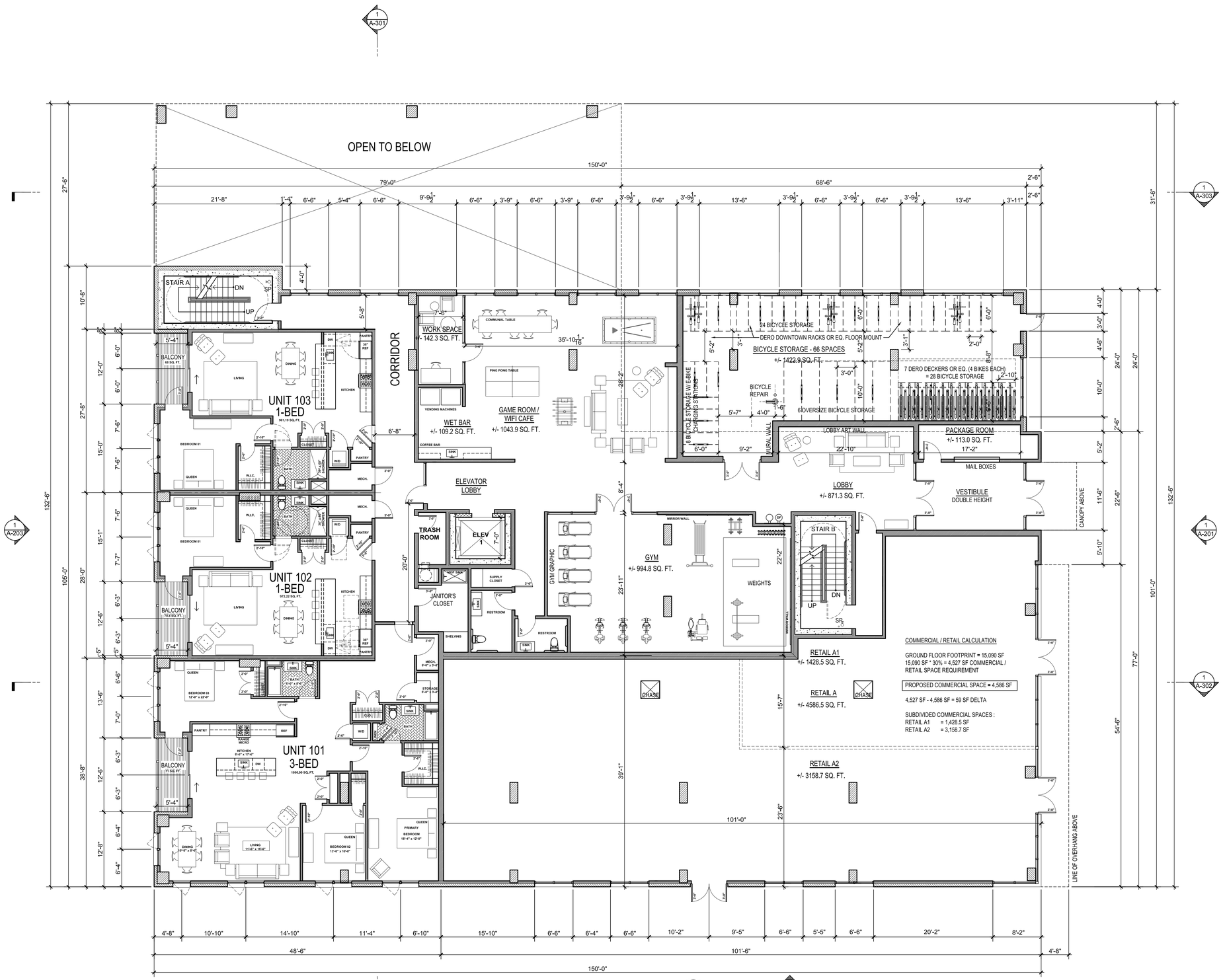
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	EW
CHECKED BY :	SM
ISSUE :	PLANNING BOARD SUBMISSION 04



1 GROUND FLOOR PLAN

SCALE: 1/8" = 1'-0"

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

SCOTT MELCHING ARCHITECT LLC
116 ARCH STREET
NEEDHAM MA 02492 | (T) 718.578.3354
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LANDSCAPE ARCHITECT:

J. THOMA LAND DESIGN STUDIOS
141 HAGGETS POND ROAD
ANDOVER, MA 01810 | (T) 978.409.9815
WWW.JTHOMALDS.COM

STRUCTURAL ENGINEER:

VEITAS ENGINEERS
639 GRANITE STREET, SUITE 100
BRAINTREE, MA 02184 | (T) 781.843.2863
WWW.VEITAS.COM

CIVIL ENGINEER:

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P.O. BOX 2004
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MEP ENGINEER:

BUILDING ENGINEERING RESOURCES, INC.
66 MAIN STREET
NO. EASTON, MA 02356 | (T) 508.230.0260
WWW.BER-ENGINEERING.COM

SUSTAINABILITY CONSULTANT:

BUILDING EVOLUTION CORPORATION
136 GREEN STREET
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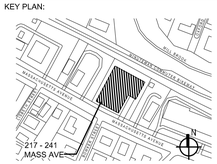
WWW.BUILDINGEVO.COM

ATTORNEY:

RIEMER BRAUNSTEIN LLP
700 DISTRICT AVENUE, 11TH FLOOR
BURLINGTON, MA 01803 | (T) 617.880.3457
WWW.RIEMERLAW.COM

NO.	DATE	REVISIONS | SUBMISSIONS
	2025 04-14	PLANNING BOARD SUBMISSION 04
	2025 01-09	PLANNING BOARD SUBMISSION 03
	2024 10-30	PLANNING BOARD SUBMISSION 02
	2024 08-13	PLANNING BOARD SUBMISSION
	2024 07-15	DRT SUBMISSION

KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

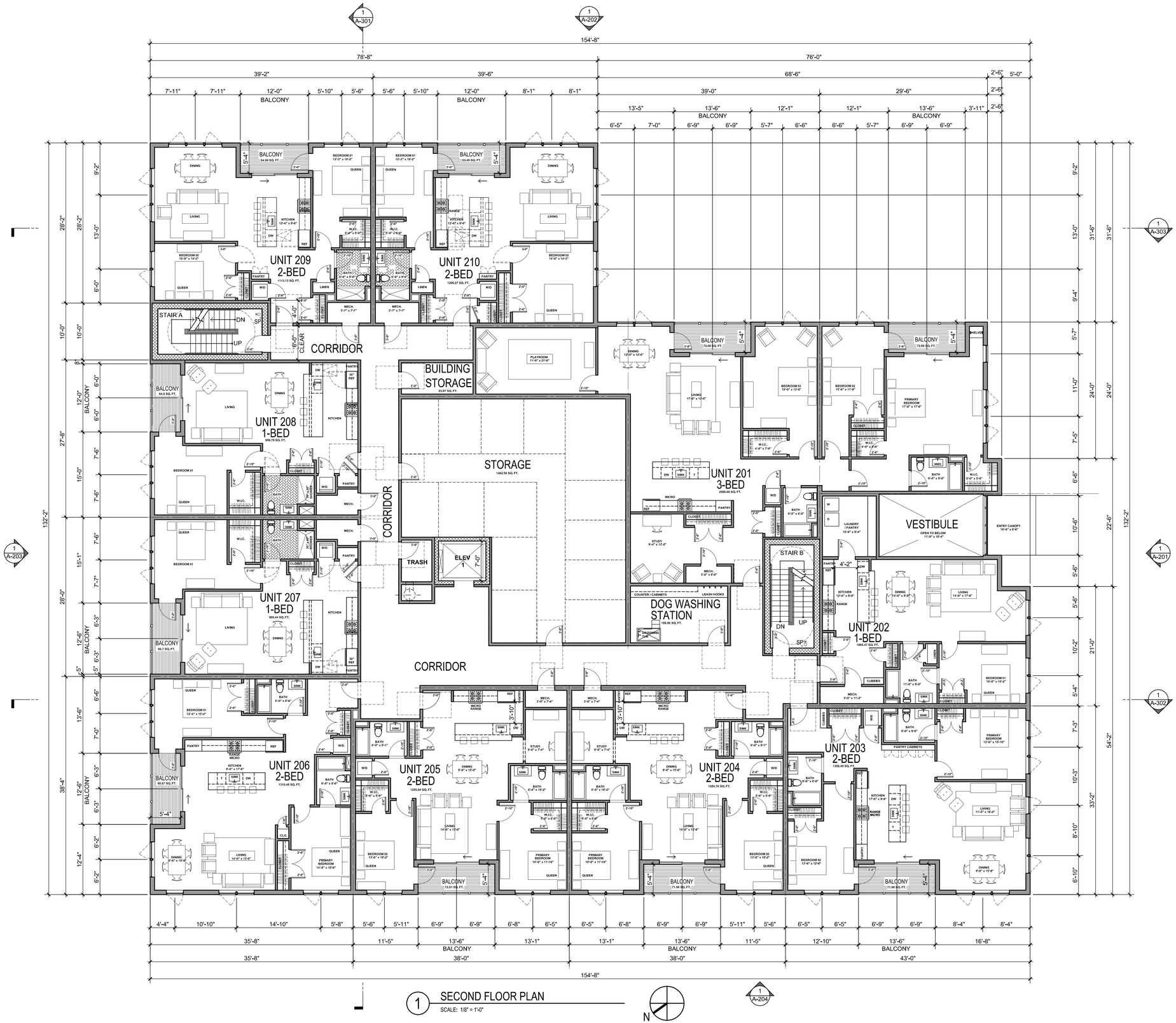
DRAWING TITLE:

GROUND FLOOR CONSTRUCTION PLAN

SHEET NUMBER :

A-101

PAGE NO :	6 OF 18
DATE :	2025 04-14
PROJECT NO :	2402
DRAWN BY :	EW
CHECKED BY :	SM
ISSUE :	PLANNING BOARD SUBMISSION 04



1 SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

SCOTT MELCHING ARCHITECT LLC
116 ARCH STREET
NEEDHAM MA 02492 | (T) 718.578.3354
WWW.SCOTTMELCHINGARCHITECT.COM

LANDSCAPE ARCHITECT:

J. THOMA LAND DESIGN STUDIOS
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WWW.JTHOMALDS.COM

STRUCTURAL ENGINEER:

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639 GRANITE STREET, SUITE 100
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WWW.VEITAS.COM

CIVIL ENGINEER:

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MEP ENGINEER:

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66 MAIN STREET
NO. EASTON, MA 02356 | (T) 508.230.0260
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SUSTAINABILITY CONSULTANT:

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ATTORNEY:

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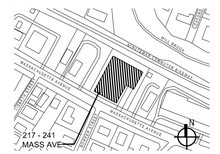
NO.	DATE	REVISIONS | SUBMISSIONS
	2024 04-14	PLANNING BOARD SUBMISSION 04
	2024 01-09	PLANNING BOARD SUBMISSION 03
	2024 10-30	PLANNING BOARD SUBMISSION 02
	2024 08-12	PLANNING BOARD SUBMISSION
	2024 07-19	DRT SUBMISSION

KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION
217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:
SECOND FLOOR
CONSTRUCTION PLAN

SHEET NUMBER :

A-102

PAGE NO :	7 OF 18
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	E W
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04

1 THIRD FLOOR PLAN
SCALE: 1/8" = 1'-0"

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

SCOTT MELCHING ARCHITECT LLC
116 ARCH STREET
NEEDHAM MA 02492 | (T) 718.578.3354
WWW.SCOTTMELCHINGARCHITECT.COM

LANDSCAPE ARCHITECT:

J. THOMA LAND DESIGN STUDIOS
141 HAGGETS POND ROAD
ANDOVER, MA 01810 | (T) 978.409.9815
WWW.JTHOMALDS.COM

STRUCTURAL ENGINEER:

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639 GRANITE STREET, SUITE 100
BRAINTREE, MA 02184 | (T) 781.843.2863
WWW.VEITAS.COM

CIVIL ENGINEER:

SULLIVAN ENGINEERING GROUP, LLC.
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MEP ENGINEER:

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NO. EASTON, MA 02356 | (T) 508.230.0260
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SUSTAINABILITY CONSULTANT:

BUILDING EVOLUTION CORPORATION
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WORCESTER, MA 01604 | (T) 508.475.9016
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ATTORNEY:

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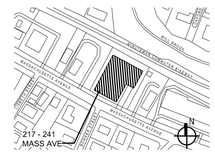
NO.	DATE	REVISIONS	SUBMISSIONS
	2025 04-14	PLANNING BOARD SUBMISSION 04	
	2025 01-09	PLANNING BOARD SUBMISSION 03	
	2024 10-30	PLANNING BOARD SUBMISSION 02	
	2024 08-12	PLANNING BOARD SUBMISSION	
	2024 07-19	DRT SUBMISSION	

KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION
217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:
THIRD FLOOR
CONSTRUCTION PLAN

SHEET NUMBER :

A-103

PAGE NO :	8 OF 18
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	E W
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04

1 FOURTH FLOOR PLAN
SCALE: 1/8" = 1'-0"

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

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STRUCTURAL ENGINEER:

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SUSTAINABILITY CONSULTANT:

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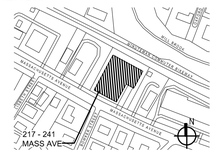
	2024 10-30	PLANNING BOARD SUBMISSION 02	
	2024 08-12	PLANNING BOARD SUBMISSION	
	2024 07-19	DRT SUBMISSION	

KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION
217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

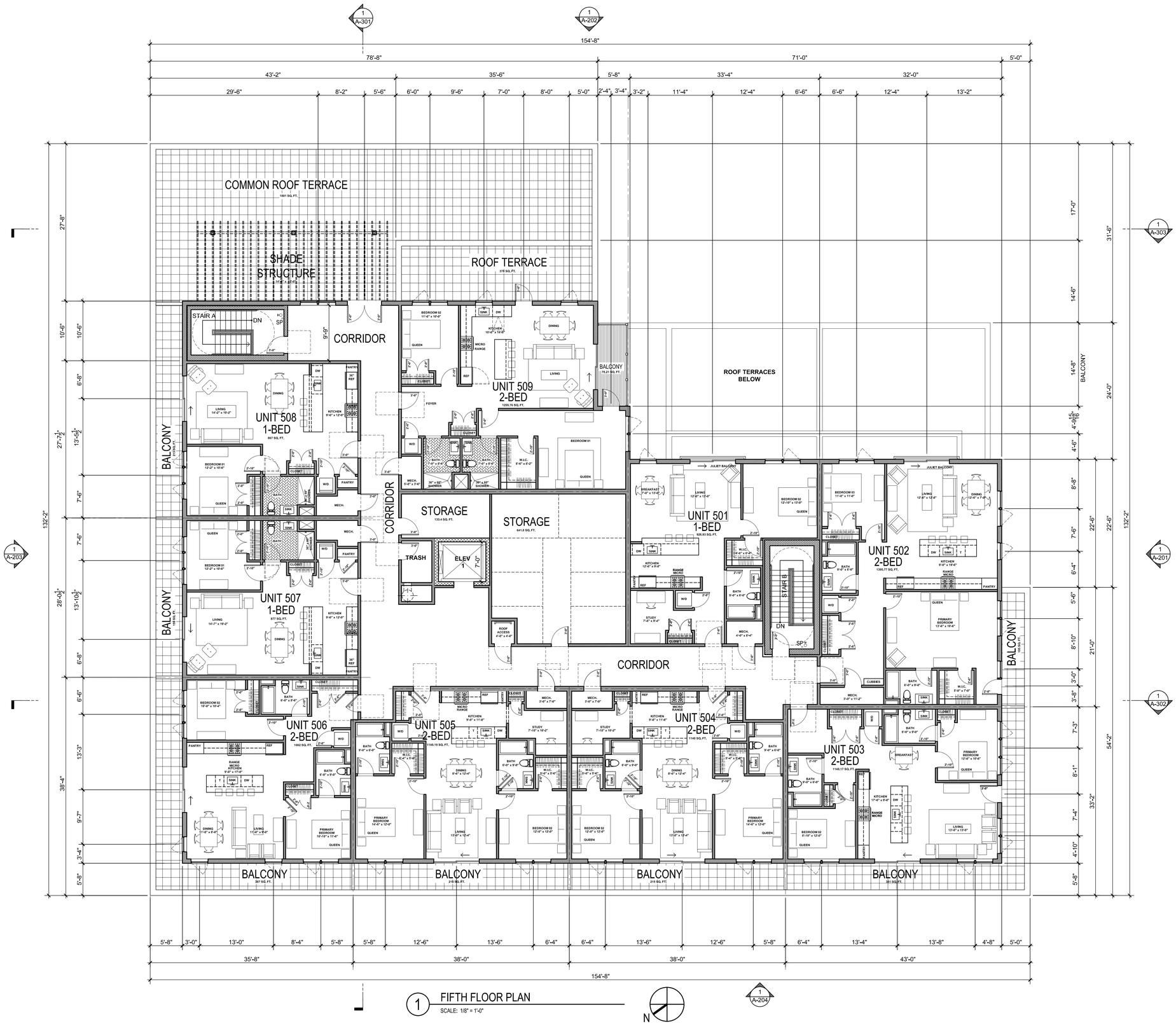
SEAL & SIGNATURE:

DRAWING TITLE:
FOURTH FLOOR
CONSTRUCTION PLAN

SHEET NUMBER :

A-104

PAGE NO :	9 OF 18
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	EW
CHECKED BY :	SM
ISSUE :	PLANNING BOARD SUBMISSION 04



1 FIFTH FLOOR PLAN
SCALE: 1/8" = 1'-0"

N

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

SCOTT MELCHING ARCHITECT LLC
116 ARCH STREET
NEEDHAM MA 02492 | (T) 718.578.3354
WWW.SCOTTMELCHINGARCHITECT.COM

LANDSCAPE ARCHITECT:

J. THOMA LAND DESIGN STUDIOS
141 HAGGETS POND ROAD
ANDOVER, MA 01810 | (T) 978.409.9815
WWW.JTHOMALDS.COM

STRUCTURAL ENGINEER:

VEITAS ENGINEERS
639 GRANITE STREET, SUITE 100
BRAINTREE, MA 02184 | (T) 781.843.2863
WWW.VEITAS.COM

CIVIL ENGINEER:

SULLIVAN ENGINEERING GROUP, LLC.
P.O. BOX 2004
WOBURN, MA 01888 | (T) 781.854.8644
WWW.SULLIVANENGGROUPLLC.COM

MEP ENGINEER:

BUILDING ENGINEERING RESOURCES, INC.
66 MAIN STREET
NO. EASTON, MA 02356 | (T) 508.230.0260
WWW.BER-ENGINEERING.COM

SUSTAINABILITY CONSULTANT:

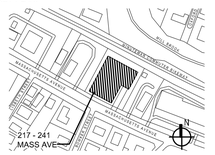
BUILDING EVOLUTION CORPORATION
136 GREEN STREET
WORCESTER, MA 01604 | (T) 508.475.9016
WWW.BUILDINGEVO.COM

ATTORNEY:

RIEMER BRAUNSTEIN LLP
700 DISTRICT AVENUE, 11TH FLOOR
BURLINGTON, MA 01803 | (T) 617.880.3457
WWW.RIEMERLAW.COM

NO.	DATE	REVISIONS | SUBMISSIONS
	2025 04-14	PLANNING BOARD SUBMISSION 04
	2025 01-09	PLANNING BOARD SUBMSSION 03
	2024 10-30	PLANNING BOARD SUBMISSION 02
	2024 08-12	PLANNING BOARD SUBMISSION
	2024 07-19	DRT SUBMISSION

KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION
217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

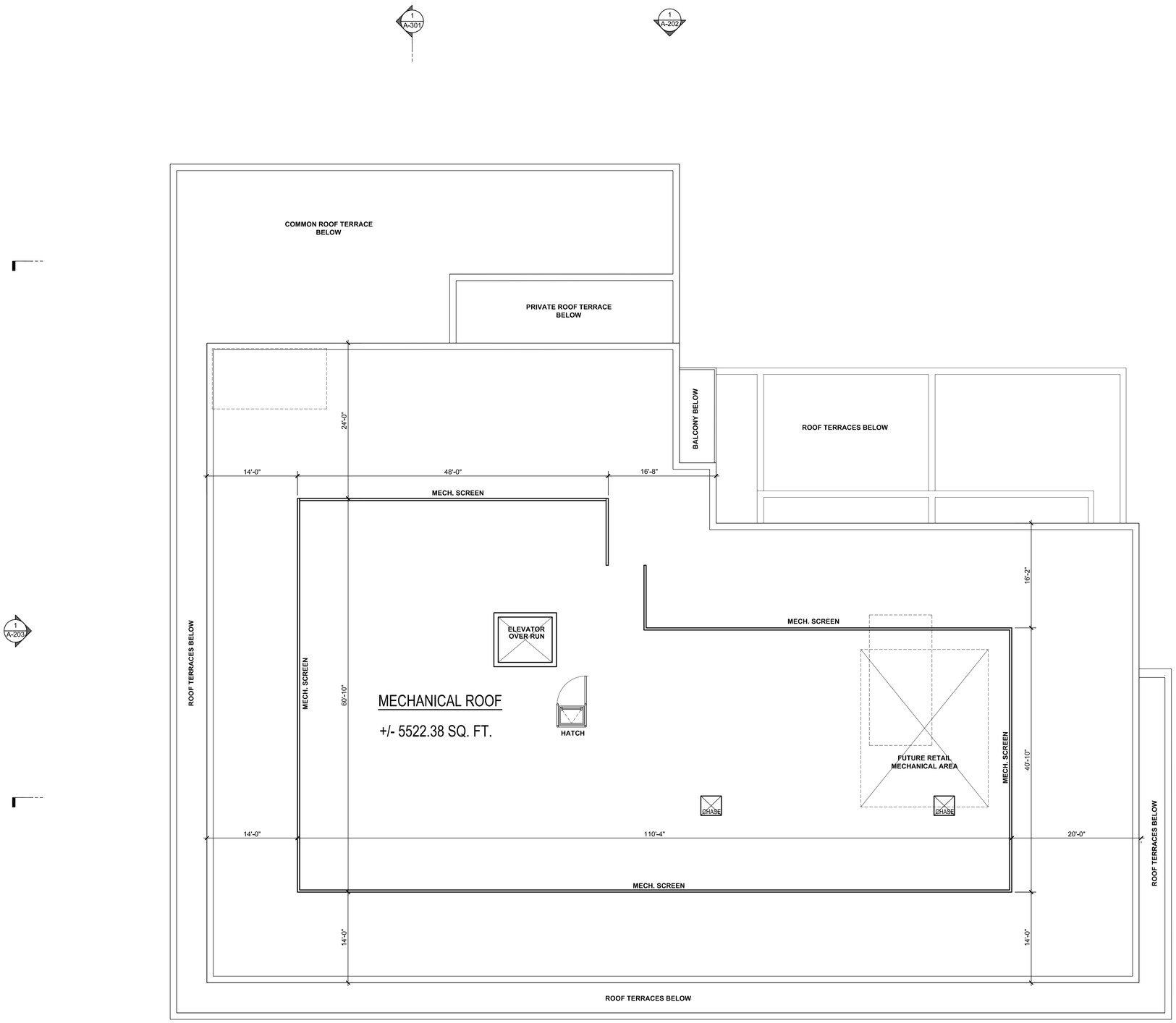
DRAWING TITLE:

FIFTH FLOOR
CONSTRUCTION PLAN

SHEET NUMBER :

A-105

PAGE NO :	10 OF 18
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	E W
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04



1 ROOF PLAN
SCALE: 1/8" = 1'-0"

N

1 A-204

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

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116 ARCH STREET
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LANDSCAPE ARCHITECT:

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WWW.JTHOMALDS.COM

STRUCTURAL ENGINEER:

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639 GRANITE STREET, SUITE 100
BRAINTREE, MA 02184 | (T) 781.843.2863
WWW.VEITAS.COM

CIVIL ENGINEER:

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WOBURN, MA 01888 | (T) 781.854.8644
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MEP ENGINEER:

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SUSTAINABILITY CONSULTANT:

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WWW.BUILDINGEVO.COM

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NO.	DATE	REVISIONS | SUBMISSIONS
	2025 04-14	PLANNING BOARD SUBMISSION 04
	2025 01-09	PLANNING BOARD SUBMISSION 03
	2024 10-30	PLANNING BOARD SUBMISSION 02
	2024 08-12	PLANNING BOARD SUBMISSION
	2024 07-19	DRT SUBMISSION

KEY PLAN:

PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION
217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:
ROOF PLAN

SHEET NUMBER :

A-106

PAGE NO :	11 OF 18
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	EW
CHECKED BY :	SM
ISSUE :	PLANNING BOARD SUBMISSION 04

1 FRONT ELEVATION (MASS AVE)

SCALE: 1/8" = 1'-0"

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:
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NEEDHAM MA 02492 | (T) 718.578.3354
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LANDSCAPE ARCHITECT:
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WWW.JTHOMALDS.COM

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NO. EASTON, MA 02356 | (T) 508.230.0260
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SUSTAINABILITY CONSULTANT:
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NO.	DATE	REVISIONS | SUBMISSIONS
	2025 04-14	PLANNING BOARD SUBMISSION 04
	2025 01-09	PLANNING BOARD SUBMISSION 03
	2024 10-30	PLANNING BOARD SUBMISSION 02
	2024 08-12	PLANNING BOARD SUBMISSION
	2024 07-19	DRT SUBMISSION

KEY PLAN:

PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:
FRONT ELEVATION
(MASS AVE)

SHEET NUMBER :

A-201

PAGE NO :	12 OF 18
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	E W
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04

1 RIGHT ELEVATION

SCALE: 1/8" = 1'-0"

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

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116 ARCH STREET
NEEDHAM MA 02492 | (T) 718.578.3354
WWW.SCOTTMELCHINGARCHITECT.COM

LANDSCAPE ARCHITECT:

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WWW.JTHOMALDS.COM

STRUCTURAL ENGINEER:

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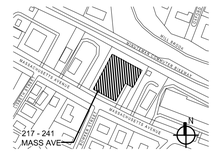
NO.	DATE	REVISIONS	SUBMISSIONS
	2025 04-14	PLANNING BOARD SUBMISSION 04	
	2025 01-09	PLANNING BOARD SUBMISSION 03	
	2024 10-30	PLANNING BOARD SUBMISSION 02	
	2024 08-12	PLANNING BOARD SUBMISSION	
	2024 07-19	DRT SUBMISSION	

KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:

RIGHT ELEVATION

SHEET NUMBER :

A-202

PAGE NO :	13 OF 18
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	E W
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04

1 REAR ELEVATION (BIKEWAY)

SCALE: 1/8" = 1'-0"

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

SCOTT MELCHING ARCHITECT LLC
116 ARCH STREET
NEEDHAM MA 02492 | (T) 718.578.3354
WWW.SCOTTMELCHINGARCHITECT.COM

LANDSCAPE ARCHITECT:

J. THOMA LAND DESIGN STUDIOS
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ANDOVER, MA 01810 | (T) 978.409.9815
WWW.JTHOMALDS.COM

STRUCTURAL ENGINEER:

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639 GRANITE STREET, SUITE 100
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WWW.VEITAS.COM

CIVIL ENGINEER:

SULLIVAN ENGINEERING GROUP, LLC.
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WWW.SULLIVANENGGROUPLLC.COM

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66 MAIN STREET
NO. EASTON, MA 02356 | (T) 508.230.0260
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SUSTAINABILITY CONSULTANT:

BUILDING EVOLUTION CORPORATION
138 GREEN STREET
WORCESTER, MA 01604 | (T) 508.475.9016
WWW.BUILDINGEVO.COM

ATTORNEY:

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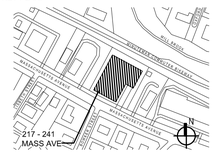
BURLINGTON, MA 01803 | (T) 617.880.3457
WWW.RIEMERLAW.COM

NO.	DATE	REVISIONS | SUBMISSIONS
	2025 04-14	PLANNING BOARD SUBMISSION 04
	2025 01-09	PLANNING BOARD SUBMISSION 03
	2024 10-30	PLANNING BOARD SUBMISSION 02
	2024 08-12	PLANNING BOARD SUBMISSION
	2024 07-19	DRT SUBMISSION

KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:

REAR ELEVATION
(BIKEWAY)

SHEET NUMBER :

A-203

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PROJECT NO :	2402
DRAWN BY :	E W
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04

1 LEFT ELEVATION

SCALE: 1/8" = 1'-0"

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

SCOTT MELCHING ARCHITECT LLC
116 ARCH STREET
NEEDHAM MA 02492 | (T) 718.578.3354
WWW.SCOTTMELCHINGARCHITECT.COM

LANDSCAPE ARCHITECT:

J. THOMA LAND DESIGN STUDIOS
141 HAGGETS POND ROAD
ANDOVER, MA 01810 | (T) 978.409.9815
WWW.JTHOMALDS.COM

STRUCTURAL ENGINEER:

VEITAS ENGINEERS
639 GRANITE STREET, SUITE 100
BRAINTREE, MA 02184 | (T) 781.843.2863
WWW.VEITAS.COM

CIVIL ENGINEER:

SULLIVAN ENGINEERING GROUP, LLC.
P.O. BOX 2004
WOBURN, MA 01888 | (T) 781.854.8644
WWW.SULLIVANENGGROUPLLC.COM

MEP ENGINEER:

BUILDING ENGINEERING RESOURCES, INC.
66 MAIN STREET
NO. EASTON, MA 02356 | (T) 508.230.0260
WWW.BER-ENGINEERING.COM

SUSTAINABILITY CONSULTANT:

BUILDING EVOLUTION CORPORATION
138 GREEN STREET
WORCESTER, MA 01604 | (T) 508.475.9016
WWW.BUILDINGEVO.COM

ATTORNEY:

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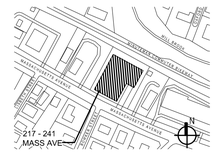
700 DISTRICT AVENUE, 11TH FLOOR
BURLINGTON, MA 01803 | (T) 617.880.3457
WWW.RIEMERLAW.COM

NO.	DATE	REVISIONS	SUBMISSIONS
	2025 04-14	PLANNING BOARD SUBMISSION 04	
	2025 01-09	PLANNING BOARD SUBMISSION 03	
	2024 10-30	PLANNING BOARD SUBMISSION 02	
	2024 08-12	PLANNING BOARD SUBMISSION	
	2024 07-19	DRT SUBMISSION	

KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

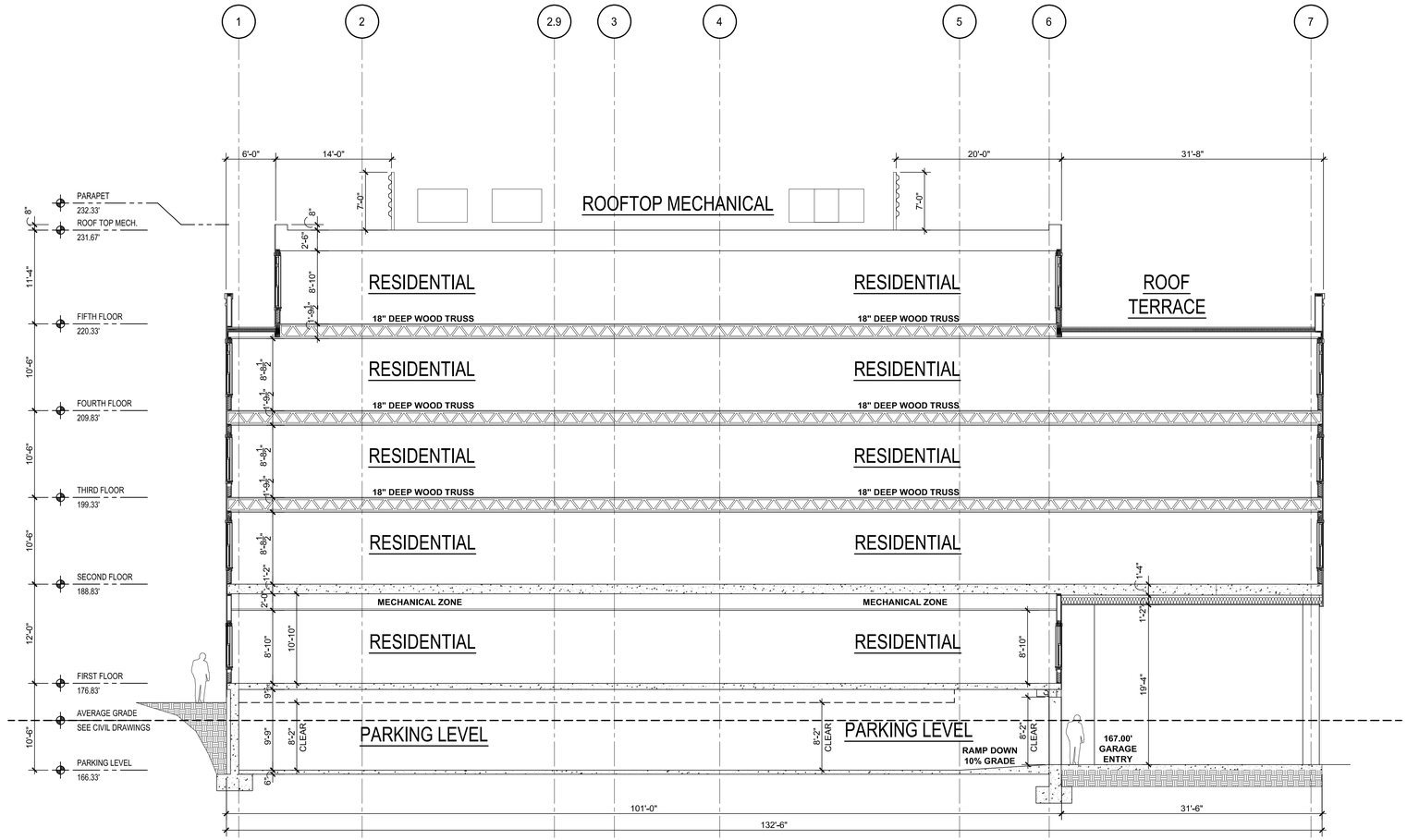
DRAWING TITLE:

LEFT ELEVATION

SHEET NUMBER :

A-204

PAGE NO :	15 OF 18
DATE :	2025 04-14
PROJECT NO :	2402
DRAWN BY :	EW
CHECKED BY :	SM
ISSUE :	PLANNING BOARD SUBMISSION 04



1 EAST / WEST SECTION THRU GARAGE ENTRY

SCALE: 1/8" = 1'-0"

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

SCOTT MELCHING ARCHITECT LLC
116 ARCH STREET
NEEDHAM MA 02492 | (T) 718.578.3354
WWW.SCOTTMELCHINGARCHITECT.COM

LANDSCAPE ARCHITECT:

J. THOMA LAND DESIGN STUDIOS
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ANDOVER, MA 01810 | (T) 978.409.9815
WWW.JTHOMALDS.COM

STRUCTURAL ENGINEER:

VEITAS ENGINEERS
639 GRANITE STREET, SUITE 100
BRAINTREE, MA 02184 | (T) 781.843.2863
WWW.VEITAS.COM

CIVIL ENGINEER:

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MEP ENGINEER:

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SUSTAINABILITY CONSULTANT:

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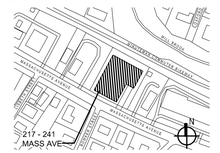
NO.	DATE	REVISIONS | SUBMISSIONS
	2025 04-14	PLANNING BOARD SUBMISSION 04
	2025 01-09	PLANNING BOARD SUBMISSION 03
	2024 10-30	PLANNING BOARD SUBMISSION 02
	2024 08-12	PLANNING BOARD SUBMISSION
	2024 07-19	DRT SUBMISSION

KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

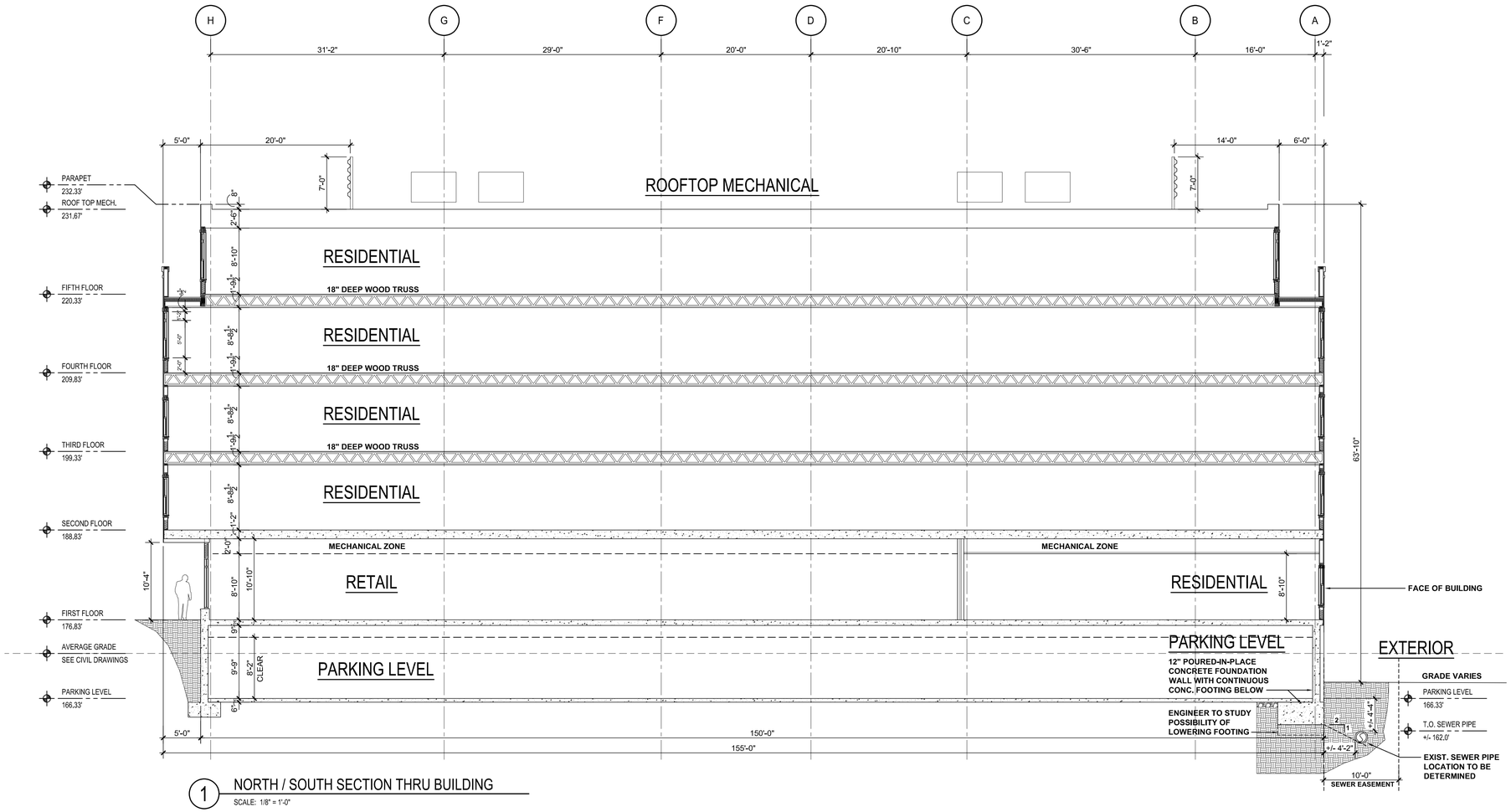
DRAWING TITLE:

EAST / WEST BUILDING SECTION

SHEET NUMBER :

A-301

PAGE NO :	16 OF 18
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	E W
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04



1 NORTH / SOUTH SECTION THRU BUILDING

SCALE: 1/8" = 1'-0"

OWNER:

NORTH SHORE
Residential Development

NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
WOBURN, MA 01801 | (T) 781.932.1776

ARCHITECT:

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116 ARCH STREET
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LANDSCAPE ARCHITECT:

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WWW.JTHOMALDS.COM

STRUCTURAL ENGINEER:

VEITAS ENGINEERS
639 GRANITE STREET, SUITE 100
BRAINTREE, MA 02184 | (T) 781.843.2863
WWW.VEITAS.COM

CIVIL ENGINEER:

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MEP ENGINEER:

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66 MAIN STREET
NO. EASTON, MA 02356 | (T) 508.230.0260
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SUSTAINABILITY CONSULTANT:

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136 GREEN STREET
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ATTORNEY:

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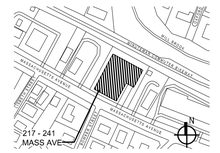
	2024 08-12	PLANNING BOARD SUBMISSION
	2024 07-19	DRT SUBMISSION

KEY PLAN:



PROJECT:

MIXED-USE / RESIDENTIAL NEW CONSTRUCTION

217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:

NORTH / SOUTH BUILDING SECTION

SHEET NUMBER :

A-302

PAGE NO :	17 OF 18
DATE :	2025 04-14
PROJECT NO :	2402
DRAWN BY :	EW
CHECKED BY :	SM
ISSUE :	PLANNING BOARD SUBMISSION 04

1 NORTH / SOUTH BUILDING / SITE SECTION
SCALE: 1/8" = 1'-0"

OWNER:
NORTH SHORE
Residential Development
NORTH SHORE RESIDENTIAL DEVELOPMENT
215 SALEM STREET, SUITE 01
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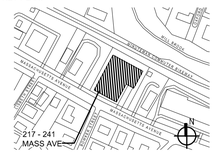
NO.	DATE	REVISIONS | SUBMISSIONS
	2025 04-14	PLANNING BOARD SUBMISSION 04
	2025 01-09	PLANNING BOARD SUBMISSION 03
	2024 10-30	PLANNING BOARD SUBMISSION 02
	2024 08-12	PLANNING BOARD SUBMISSION
	2024 07-19	DRT SUBMISSION

KEY PLAN:



PROJECT:
MIXED-USE / RESIDENTIAL NEW CONSTRUCTION
217 - 241 MASSACHUSETTS AVENUE
LEXINGTON, MA 02420

SEAL & SIGNATURE:

DRAWING TITLE:
NORTH / SOUTH BUILDING / SITE SECTION

SHEET NUMBER :
A-303

PAGE NO :	18 OF 18
DATE :	2025 04 - 14
PROJECT NO :	2402
DRAWN BY :	E W
CHECKED BY :	S M
ISSUE :	PLANNING BOARD SUBMISSION 04

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April 23, 2025

Abby McCabe, Planning Director
Town of Lexington
Planning Office
1625 Massachusetts Avenue
Lexington, MA 02420

RE: 217-241 Massachusetts Avenue, Lexington, Massachusetts, Planning Board Site Plan & Wetland Protection Notice of Intent Peer Review. (4th submittal).

Dear Ms. McCabe:

GCG Associates, Inc. has reviewed the following information for the Site Plan Review for 231 Massachusetts Avenue mixed use multi-family residential and commercial retail development project in Lexington, MA.

Conservation Commission Notice of Intent Submittal:

Documents: (Notic of Intent 4th revision package)

1. Stormwater Report, 5 Story Mixed Use Development 217-241 Massachusetts Avenue, Lexington, Massachusetts, prepared by Sullivan Engineering Group, LLC (SEG). dated August 22, 2024, last revised April 9, 2025.
2. Response to peer review letter – 217-241 Massachusetts Avenue, prepared by SEG, dated April 9, 2025.

Plan:

1. Civil Plan Set (sheets C-1 to C8), prepared by Sullivan Engineering Group, LLC. (SEG), dated 08/12/2024, last revised 04/14/2025.

Planning Board Site Plan Submittal:

Documents: (Planning Board 4th revision package)

1. Stormwater Report, same document as submitted in the NOI package, last revised April 9, 2025
2. Response to peer review letter – same document as submitted in the NOI package, dated April 9, 2025.
3. Construction Management Plan and Schedule, prepared by North Shore Residential Development, Inc., dated August 7, 2024, last revised April 14, 2025.

Plan:

1. 231 Massachusetts Avenue, Lexington, MA 02420, Village overlay Development Project, Mixed-Use Retail & Residential Building – Business & Residential (OCC. Groups B & R-

2). Prepared by Scott Melching Architect LLC. (SMA), dated 07/16/2024, last revised 04/14/2025. Plan set consists of 36 sheets:

a. Title sheets - T-100 & T-101,
b. Zoning Compliance Building Area sheets - Z-1 & Z-2,
c. Civil Plan sheets C-1 to C8, prepared by Sullivan Engineering Group, LLC. (SEG), dated 07/19/2024, last revised 04/14/2025.
d. Landscape sheets – L-1, L2, L3, L4, L5, L6, L7, L8, L8.1, & L-9, prepared by J. Thoma Land Design Studios. (LDS), dated 04/14/2025.
e. Architectural plan sheets – A-100, A-101 to A-106, A-201 to A-204, A-301 to A303, prepared by SMA, dated 07/19/2024, last revised 04/14/2025.

Based upon our review of the above Plan, we offer the following comments with respect to compliance with Chapter 181, Article VI. - Stormwater Management Regulations, Section 176-12.0, Section 13.9 Utilities. And The Lexington Conservation Commission Pursuant to the Code of the Town of Lexington for Wetland Protection, Chapter 130, Section 5 - Performance Standards. This peer review is limited to the Site Utilities and Drainage Mitigation compliance only. The numerical section of the regulations are referenced at the beginning of each comment unless it is a general comment. GCG latest comment shown on "**Bold Red**."

Site Visit: 09/18/2024, 11:00 AM - Planning Board members. Planning Department, Development team - Architects, Project Engineer, property owner, and Developer. GCG peer review engineer.

GCG witnessed SEG deep hole soil testing on 9/25/2024.

General Comments:

The project site consists of approximately 30,886 square feet (0.71+/- acres) of developed land. The northeast portion of the site (approximately 40+/- % of the parcel area) is located within Mill Brook's 200 feet Riverfront (wetland resource) Area, which is protected under the M.G.L. Chapter 131 Section 40 and 310 CMR 10.00 Wetlands Protection and Town of Lexington Chapter 130. Therefore, this project requires filing a Wetland Notice of Intent with the Lexington Conservation Commission and MassDEP. Mill Brook (MA 71-07) is listed as impaired water with the Total Maximum Daily Loads, TMDLs restrictions.

1. The Civil plan set did not specify the plan scale. The plan set appeared to be at 1" = 20' scale. GCG recommends showing the plan scale with a scale bar on all plan sheets, where applicable. Resolved.

Existing Conditions Plan (C-1)

2. The Soil Test Pit - TH-1 information shown on this plan indicated an estimated seasonal high ground water (E.S.H.G.W.) at elevation 161.0. However, the GEI Geotechnical Engineering Report, Section 4.2, which recorded a 4/23/2024 monitoring well 'B1(MW)' water level reading at 164.6. The monitoring wells reading varied between 161.5 to 164.6, which were all higher than elevation 161.0 from TH-1. This plan shows the Mill Brook's bank identified by wetland flags A4 to A7 by Norse Environmental Services in August of 2024. As part of the Wetland Notice of Intent filing, a wetland report should be provided to identify any Bordering Vegetated Wetland (BVW) associated with the Mill Brook, based on the BVW Delineated Handbook (Second Edition, September 2022) and Bordering Vegetated Wetland Determination Form (delineated by wetland vegetation,

Hydric Soil, and wetlands hydrology indications) which will provide additional indication of the seasonal high ground water elevation. The applicant should clarify how the E.S.H.G.W. was determined in TH-1., (by mottling, standing water, and/or weeping). Test pit TH-1 and the monitoring well B3(MW). The measured water level was at elevation 161.5 and were both dated 5/28/2024. The two locations are within 50 feet apart. Therefore, the ESHGW at TH-1 needs additional clarification. GCG recommends comparing the highest monitoring well reading to the nearby regional USGS monitoring well data and adjusting the reading by the USGS (Frimpter) method, per Masschusetts Stormwater Handbook (MSH) Vol. 3. Ch.1, Pg.12 - "Determine Seasonal High Groundwater" requirements. The proposed drainage field #1 is located over existing grades between 165.6 to 175.5 and the proposed drainage field #2 is located over existing grade between 165.7 to 174+/-, GCG recommends performing additional soil test pits at the proposed infiltration system locations at various elevations. GCG concurs with the ESHGW elevations established through the on-site deep hole test pits. Resolved

3. The GEI report indicated silty sand was found in all boring logs (GE1 to GEI-5, 4/23/2024 to 4/25/2024) and stated Grain Size Tests performed for GEI-1, GEI-2, GEI-4, and GEI-5 samples. Grain Size Test reports should be provided to evaluate the proper Rawls value for exfiltration rate, using the upper or lower value for the HSG 'A' site soil. GCG concurs with using Loamy Sand and an infiltration rate of 2.41 in/hr for infiltration design. Any variation in the soil conditions discovered during construction should be reported to the Planning Department. Statement.

Site Plan (C-2)

4. The site layout plan indicated impervious area alteration within the outer (between 100' and 200' of the Mill Brook Riverfront Area) riparian area. Based on the Landscape plan sheet L-1, referenced on the site plan, portion of the existing lawn area has been replaced with porous paver and playground safety surface. (Playground safety surface details should be provided, assumed to be permeable and designed accordingly). The proposed impervious coverage (roof and pavement surfaces) appeared to be extended further toward Mill Brook than existing. Any alteration within the 200 feet Riverfront Area should require Conservation Commission approval through an Oder of Conditions. Under 310 CMR 10.58 (4), an alternative analysis should be included in the wetland Notice of Intent filing. The filing should identify BVW boundary (if any) associated with Mill Brook, provides detailed square footage of alternation within the Riverfront Area. 310 CMR 10.58 (5)(g) alternation within the Riverfront Area notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), or (e) should be mitigated at a ratio in square feet of at least 2:1. See Conservation Commission Notice of Intent comments below. **See Conservation Commission comments below.**

5. Plans C-2 and L-1 showed a proposed handicap ramp and porous paver amenity area within the Minuteman Bikeway right-of-way (ROW), which is outside the project property and study watershed boundary. This off-site area is within the Riverfront Area and under the wetland protection/Conservation Commission's authority and should be included in the stormwater analysis. The proposed handicap ramp appeared to be reinforced concrete (impervious) materials, and the porous paver area is an alternation to natural vegetation and should require mitigation. This ROW is owned by the Massachusetts Bay Transportation Authority, MBTA and leased to the Town of Lexington, any works proposed within the ROW and the 30 feet Zone-of-Influence (ZOI) would require MBTA

and the Town of Lexington approval, the operation and maintenance of the off-site improvements and responsible party should be addressed. (See additional porous paver/porous pavement comments below). The applicant will submit a separate Notice of Intent for any work proposed off-site. An amended NOI has been submitted to include Tax Map 13 Lot 383 improvements to mitigate the Riverfront Area alternation, see additional comments under Conservation Commission NOI comments below. The proposed concrete pavement (exterior bike racks) in front of the first-floor bike parking room does not match the Civil plan sheet C-2, which called for pavers (permeable). Since this area is part of the watershed 3S, GCG recommends replacing the concrete pavement with permeable pavers surface. **The walking surface along Massachusetts Avenue and the southwestern lot coroner has been designed with permeable unit paver with 12-inch-thick crushed stone base for runoff retention storage. The 900 +/- square feet pedestrian walking pathway at the northwesterly side yard and through the rear yard area was revised with stabilized stone dust surface which should be treated as impervious area per 181-73.B.(2)(f). This regulation states impervious cover includes compacted gravel. The pedestrian walkway has been replaced with permeable pavers (to meet ADA/AAB accessible requirements) with 12" crushed stone based for stormwater storage as shown on the Landscape Details, 4 – Permeable Unit Paver detail, (plan sheet L-4). GCG assessed the crushed stone base design (see additional Stormwater Report comment below) and recommends keeping the 12" crushed stone layer as shown. The crushed stone base has provided sufficient storage to retain and exfiltrate the permeable pavers surface runoff for up to the 100-year storm event. The design works, but the stormwater report should be adjusted.**

Grading, Drainage and Utility Plan (C-3)

6. 181-73. B.(2)(e) – Water velocity shall not be more than (5) five feet per second on paved surface. The proposed main driveway access to the subsurface garage consists of 10% slope. (The applicant should provide calculations to show driveway runoff flow velocity and control velocity to below 5 feet per second. The runoff velocity over paved surface depends on the design flow rate and pavement longitudinal slope and cross slope. GCG recommends providing gutter flow calculations to prove the flow velocity meets or below the 5 feet per second threshold or provide gutter drains to control the runoff velocity. The applicant has requested a waiver for section 181-73. B.(2)(e). GCG recommends performing the flow velocity calculations based on the Manning's equation and Rational Method to estimate the peak runoff. Based on the small watershed area, the pavement gutter flow velocity should not exceed the five feet per second maximum velocity. **The response letter from the applicant stated that the flow velocity along the proposed 10% longitudinal slope was calculated at 4.34 fps, which meets the regulations. GCG concurs with the applicant that the flow velocity should be less than 5 feet per second.**

7. The proposed 2-foot stone base underneath the Fire Lane (located at the westerly lot corner) was designed as an infiltration system and modeled as such in the HydroCAD calculations. The MSH's Table RR (Vol. 1, Ch.1 Pg.8) requires infiltration BMPs be setback 10 feet from property line and building foundations. Resolved.

8. The proposed infiltration system (Drainage Field #1 & #2) consists of commercially manufactured stormwater infiltration devices (Cultec Recharger 280HD Chambers), the system is classified as Shallow UIC Class V Injection Wells and should comply with the

MassDEP's EEA, Energy and Environmental Affairs' Standard Design Requirements for Shallow UIC Class V Injection Wells. The proposed infiltration Field #1 system does not meet the minimum 10 feet setback to the building foundations (MSH Table RR and EEA Class V Well requirements). These foundations consist of 4 columns which support a 2,100+/- square feet three-story multi-family structure. The proposed infiltration system surrounding two of the four foundations could impose serious safety concerns with the building, two separate sets of State regulations (MSH and EEA) require a minimum of 10 feet setback between infiltration system/injection well and building foundations. Furthermore, the pretreatment device CB-2 does not meet the 10 feet setback to property line requirement.

A.) The proposed precast concrete boxes with open bottoms and set on top of a 12" crushed stone base function as an infiltration system. The open bottom would allow stormwater to flow beneath the building foundation and could affect the integrity of the building foundation. GCG recommends providing a minimum of 10 feet setback between the concrete boxes to the building foundations and property line.

B.) The eastern 120' long concrete box is proposed one foot from the face of building foundation wall. The applicant should verify the clearance between the building footing and the concrete box. There are multiple one (1') foot length drainpipe connections between concrete structures and building foundation. There is not sufficient clearance for proper compaction and access between structures. The subsurface infiltration systems should be designed to be reasonable for future repair and/or replacement.

C.) The infiltration system #2's top of stone elevation at 166.00 has less than a foot of cover over the system. There should be a 167 contour between the catch basin (CB-1) and the sewer oil & grease separator cover. CB-1 open grate was designed as an overflow device (see HydroCAD report node Pond 2P). But this catch basin grate is at the low point, with the closest and lowest discharge point to the garage entrance (elevation 167). It is illegal to discharge runoff to garage floor drain, which connects to the sewer line through oil and grease separator. Re-design required.

D.) The applicant should verify the ceiling clearance in front of the dumpster pad, the Architectural plan sheet A303 shown a clearance of 19'-6". The required dumpster pick height clearance is 24 feet minimum.

E.) Roof drain R-1 is undersized, the calculations (HydroCAD Reach 1R) used 8" diameter with 57% pipe slope, but the plan Reach Chart shows a roof drainpipe R1 8" pipe with 1.00% slope, furthermore, the DMH-1 outlet pipe R2 is 8" diameter at a 0% slope. Pipe R2 does not have the capacity to manage the roof runoff and will surcharge and overflow from DMH-1's cover due to the significant elevation head.

F.) The CB-1 outlet was labeled R6, which appeared to be R8. The DMH-3(SC) outlet pipe was labeled R5, which appeared to be R7. There is discrepancy between the DMH-3 outlet invert at 164.50 and the R7 beginning invert at 163.5. These two inverts should have identical elevation.

G.) GCG recommends increasing the roof drain and drainpipe R1, R2, R7, and R8 to 12" minimum diameter pipe. Where pipe flow is expected, pipe slope should be specified to provide sufficient self-cleaning velocity (2 feet per second minimum).

H.) This plan called for "**See landscaping plan for specific design layout, grading, & materials. Landscaping Plan will govern this area**" which includes the rear yard, fire lane, front patio, and pedestrian walkways. However, landscape sheet L-3 – Grading plan's Grading Note #1 stated that "**Grading on landscape plans is shown for reference – see civil drawings for final grades**." GCG recommends providing one set of merged grading only and should be shown on the civil plan set and certified by the Civil Engineer. In addition, the landscape grading plan is creating a potential ice hazard depression (spot elevation 175.95) in front of the sidewalk at the southeast driveway entrance. This spot grade is lower than the Massachusetts Avenue's gutter grade (176.4). The proposed spot grade also created a 22% ramp between the back of sidewalk to the civil spot grade at BC=177.2. The proposed vertical granite curb (VGC) along the permeable paver should be specified with the top of curb (TC) and bottom of curb (BC) spot grades to assure the surface runoff is controlled by the VGC. The proposed 167 contour in the rear yard, near the transformer pad, is causing ponding on top of CB-1. Additional grading is needed on the plan set. Spot grades should be provided along the west side of the transformer pad and at the main driveway to match the watershed drainage divide.

The Stormwater Management system has been revised. New comments are as follows:

8.1. Proposed Subsurface System #1 consists of two level stacked concrete chambers (4 rows of 6 units 3-feet in height each level), manufactured by Retain-It Stormwater Management System set on top of a 6" depth stone bed. The southeastern rows of 6 chambers are within the 10-feet property line setback and set on top of concrete slab as detention units without infiltration. However, the eastern 3 rows of chambers set on top of the 6" stone bed do not meet the two feet separation between the bottom of stone to estimated seasonal high groundwater (ESHGW) requirements. A minimum of two feet of soil should be provided for filtering treatments. Although plan detail (sheet C-7) claimed "No credit for infiltration for 6" Stone Base within 2 feet of groundwater", the stone bed underneath the 18 chamber units is the only surface (1,152 s.f.) connecting to the soil underneath for exfiltration and the sole outflow of the system. GCG recommends raising the bottom of stone bed to meet the minimum 2 feet separation to ESHGW requirements. **The chamber system's bottom of stone elevation has been raised to provide the required two (2) feet separation to the ESHGW, resolved**

8.2. The chamber floor at the R-1 and R-3 inlets should be equipped with a 6" thick precast concrete splash pad as recommended by Retain-It manufacturer and adjust the reduced storage volume accordingly. **GCG recommends increasing the splash pad dimensions at the roof drain outlet to prevent scouring and dissipate the hydraulic energy from the 5-story elevation head. Retain-it manufacturer's typical detail drawing showed a full-size concrete slab over the chamber unit floor. GCG accepts the reduced splash pad dimensions per manufacturer's recommendation. However, Manufacturer's documents to support the alternation from their standard detail drawing should be in written form and specified on the plan. The applicant should also clarify how the 12" roof drain inlet pipe with invert elevation at 170.10, which is 5-feet above the crushed stone, be discharged onto the splash pad. GCG recommends providing additional details. A splash pad should be provided at the R-5 pipe discharge point.**

8.3. Subsurface System #2 consists of a single level of 18 2-feet height Retain-It chamber units, 10 of the units were proposed set on top of concrete slab without exfiltration to meet the 10 feet minimum setback to property line and foundation/footing requirements. Both subsurface systems 1 & 2 are shallow stormwater Underground Injection Control (UIC) Class V injection wells, and required to meet the MassDEP, Energy and Environment Affairs (EEA)'s setback to other subsurface discharge structures standard. Since the two systems exceed the maximum daily discharge rate of 2,000 gpd threshold, a 100-foot setback between the two basins applied. These two systems have 5-foot horizontal separation as proposed and should be 100 feet apart as designed. System #1 with stacked hydraulic head which is 6.5 feet could migrate to system #2 with the 5 feet horizontal separation and surcharge out of the WQ-1 catch basin grate. System #2's bottom of stone should be raised to provide the minimum two feet separation between the bottom of stone to ESHGW. See additional comments under the Stormwater Report below. **See Stormwater Report comments below.**

8.4. The proposed driveway apron (Sub-catchment 5S) created a new untreated runoff discharge flow toward Massachusetts Avenue, these peak flow and volume increases toward Mass. Ave. should be addressed. **A trench drain has been proposed at the driveway entrance to eliminate runoff drains toward Massachusetts Avenue. However, the proposed trench-drain rim elevation at 176.33 is lower than the existing gutter grades at Massachusetts Avenue, which conflicts with the proposed sidewalk cross slope pitch direction. GCG recommends adjusting the trench drain rim elevation to match the proposed sidewalk through driveway cross slope. Trench drain rim elevation revised, resolved.**

8.5. The proposed area drains (AD1, AD2, and AD3) details should be provided. Pre-treatments prior to discharge to the subsurface system should be provided. Detail grading should be provided to ensure capturing all front yard (pavers) surface runoff, GCG recommends relocating the area drains northward to the center of the plaza. The permeable paver design (runoff storage course and volume) and details should be provided. The Unit Pavers detail shown on Landscape Details, sheet L-4, do not provide any stormwater retention volume. The front yard permeable paver plaza appeared to serve as an outdoor seating area for restaurant use. Since there are outstanding insufficient parking issues. If the restaurant use is excluded, GCG recommends reducing the pavers surface with lawn or landscaped coverage to reduce the surface runoff. **Area drains have been replaced by permeable unit paver design, resolved.**

8.6. Sewer Utility – the proposed Oil & Grease Separator shown at the northeastern building corner appeared to be proposed for the subsurface garage drain connection only. A properly sized Oil & Grease Separator would be required for restaurant use, if allowed, the separator location should be shown on the plan. **The response letter stated that if a restaurant use is the proposed commercial use in the future, an internal oil/water separator would be shown on the restaurant build-out plans as part of the building permit process. Resolved.**

8.7. The applicant should verify the ceiling clearance in front of the dumpster pad, the Architectural plan sheet A303 shows a clearance of 19'-6". The required dumpster front end pick-up height clearance is 24 feet minimum. **The response letter stated that the trash hauling company will be able to empty by picking up, backing up, empty contents, and then drive forward to place**

dumpster(s) back on the pad. GCG concurs with the trash hauling company's assessments. However, the truck maneuvering path would impose live loading impacts in front of the dumpster pad. Where the proposed 6" drainage pipe has less than 10 inches of pipe cover. GCG recommends replacing the 6" drainpipe with ductile iron pipe and expand installing concrete pavement in front of the dumpster pad. A cement lined ductile iron drainpipe has been proposed, the dumpster concrete pad has been extended to provide additional support for the truck load, resolved.

9. The drainage field design was based on the ESHGW elevation 161.0 found in TH-1, which was 0.5 feet lower than the water level recorded at the nearby monitoring well B3(MW) on the 5/28/2024 and much lower than the water level recorded in B1(MW) at 164.6, dated 4/23/2024. Additional soil test pits are required to determine the ESHGW. Resolved.

10. High point spot grades should be provided at the fire lane and garage access driveway along the Massachusetts Averne right-of-way to match drainage watershed divide. Spot grades should incorporate with the sidewalk through driveway ADA/AAB cross slope requirements. There are discrepancies between landscape grading and civil grading on the plan set and should be addressed. The Area Drain (AD) details should be provided. AD1 and AD2 were proposed at the property boundary. Detail grading should be provided to ensure no surface runoff bypassing the area drains and created surface runoff flowing toward Massachusetts Avenue. GCG recommends relocating area drains toward the middle of the front plaza. **Area drains have been eliminated by replacing with permeable unit paver and 12" crushed stone base layer for runoff retention, resolved.**

11. This plan showed grading within the rear yard along the MBTA ROW. The proposed grading in the rear yard area is part of the drainage overflow path to be designed to work with the overflow device CB-2. Proposed contour 167 should be shown on this engineer certified/stamped grading plan sheet. And should be reviewed by the engineer to assure the drainage overflow device (CB-2) rim grade works as intended. SMH-1's rim elevation as part of the utility design should be specified in the Civil plan set. (SMH-1's finish rim grade was not found on both plan sets). Landscape plan should be based on the Civil plan's grading design. The landscape grading along the rear yard does not allow the drainage overflow through CB-1. The proposed Subsurface Infiltration systems were designed with exfiltration outflow only. Excessive runoff beyond the design storm events appeared to overflow into the garage and discharge to the sewer line through the garage drain. The applicant should revise the contour 167 at the area between the dumpster and transformer pads, there should be an opening at 166.9 between the two BC=166.9 spot grades. The proposed contour 167 at the northern side of the transformer pad should be revised. Portion of the subsurface system #2 and the inlet water quality unit are below the three-story building bump out and future replacement clearance and complication should be considered. **A section of the curbing (next to the dumpster pad) was removed to allow excessive runoff overflow northeastward onto the bike path during the extreme storm events (beyond the 100-year design storm). However, GCG believes the drainage chambers system is undersized. (See additional Stormwater Report comments below). GCG recommends increasing the infiltration system storage volume to eliminate any surcharge or ponding situations at the underground garage entrance. Icy hazardous situations at the bottom of a relatively steep 10% driveway pitching toward the dumpster pad with**

the 90-degree turning ingress and egress maneuvering to the garage should be avoided. GCG recommends adding an additional clean-out port on top of the 4" outlet pipe opening shown on the Detail "A" (plan sheet C-7). This 4" pipe opening has only 0.1' clearance to the ceiling of the concrete chamber, the clean-out port would increase the clearance to the concrete ceiling and provide maintenance access. The proposed northeasterly row of Retain-It chambers' top of concrete elevation at 171.94, which is approximately 5+/-" below the proposed driveway finish grade.

12. Drainage structure chart's CB-1 invert out should be a single 12" HDPE only. (10" + 12" HDPE) were shown on the table, but the plan shown a single outlet pipe). Resolved.

13. DMH-1's outlet inverts should be lower than the inlet invert to compensate the hydraulic loss through the concrete structure. Pipes with different sizes should match their pipe crown. Resolved.

14. Reach Chart's, reach R-4's lower invert should be 163.75 to match the pipe slope and DMH-2 inlet invert. Reach R5 pipe size should be increased to 12" diameter to match R4 pipe diameter and HydroCAD model. Reaches R1, R2, and R3 pipe slopes are too steep, maximum pipe full flow velocity should be controlled below 10 feet per second, with maximum flow velocity (during partial flow at 80%+/- discharge capacity) to under 12 feet per second. Verify R5 and R6 pipe labels (duplicated), see comment 8.F above. Resolved.

15. CB-2's open grate rim elevation as an emergency overflow outlet device should be lower than the CB-1 rim grade to avoid flooding in front of the garage. (Plan shown CB-1 and CB-2 rims have same elevation at 166.7). CB-1 rim grade is 0.3 feet lower than the subsurface garage entrance threshold at 167. During extreme storm events, the excessive surface runoff would pond on top of CB-1 to build up sufficient hydraulic head to push through the infiltration chambers system and overflow through CB-2. The applicant should calculate the peak water level on top of CB-1 and design the system accordingly. Stormwater overflows to the subsurface garage and discharge to the sewer line through garage floor drain is prohibited by State regulations. (See additional HydroCAD modeling comments below). CB-2 eliminated, resolved.

16. The proposed 4-inch diameter garage sewer connection was intended to collect the subsurface garage's minor runoff from parked vehicles' snow/ice melt, dripping, and emergency spills, which would be treated by the oil & grease separator prior to discharge to the sewer line. The system is not intended to manage stormwater runoff. The site grading and drainage system should be designed to eliminate excessive runoff entering the garage floor drain. As shown, the surrounding top of curb elevations are higher than the garage entrance. Therefore, excessive runoff would be entering the garage and discharge through the floor drain to the sewer line, prior to overtopping the vertical granite curbs. GCG recommends providing an emergency overflow through the top of curb (by regrading) to release excessive water during extreme storm events. See HydroCAD review comments. There appeared to be an opening at elevation 166.90 between the dumpster and transformer pads. See comment # 11 above, revise proposed contour 167 required. **Contour 167 lines added, resolved.**

17. Provide estimate sewer flow calculations. Based on the 73 bedrooms and 5,000 square feet retail uses. The proposed 6-inch diameter sewer line should have the capacity to carry the expected peak flow. However, GCG recommends providing the existing 20" VC

sewer main's upstream and downstream sewer structure inverts, so that the existing sewer invert at the proposed SMH-1 could be verified. An estimate of 8,920 gpd sewage flow is proposed. Lexington Sewer Department approval of available capacity required. **Lexington Engineering Department has accepted the proposed sewer connection, resolved.**

18. Water flow test should be performed to assure sufficient capacity and water pressure for fire protection. Fire service line should be shown on the plan. There is an existing hydrant within 200 feet of the proposed building on Massachusetts Avenue. Fire Flow test report provided; Fire Department approval required. **Should be addressed by the Fire Department during the building permit application.**

18a. The 6" diameter R3 pipe length should be 30' instead of the 59' shown on the plan, slope should be 0.004 ft/ft instead of 0.002 ft/ft. GCG recommends increasing the 6" pipe slope to 0.005 ft/ft minimum to maintain a minimum of 2 feet per second self-cleaning velocity. Pipe revised, resolved.

18b. The 12" diameter R 4 pipe should be 0.003 ft/ft instead of 0.005 ft/ft shown on the chart. See stormwater report for pipe diameter discrepancy used in the HydroCAD calculations. Pipe revised, resolved.

Construction Detail (C-7)

19. No weepholes should be allowed in concrete structures. (Precast Concrete Catch Basin detail drawing called for 4" diameter weepholes precast in base section.) All structures should be watertight. Resolved.

19a. GCG recommends adding a splash pad at the pipe R5 outlet.

19b. An additional clean-out port should be provided on top of the 4" pipe opening shown on Detail "A".

19c. Provide a detail to clarify how the 12" roof drainpipe (R1) outlet (inv=170.1) discharges to the reduced size splash pad. Retain-It's standard detail calls for a 6" thick precast concrete floor at the inlet chamber base (7' x 7'). The proposed 12" roof drain inlet invert is 5-foot above the crushed stone floor. If the 2' x 2' x 6" splash pad is proposed, the applicant should demonstrate the splash pad would function as intended.

19d. The Precast Concrete Catch Basin (shown on sheet C-8) 4-foot sump label should be pointed at the outlet pipe invert instead of the center of the pipe.

Landscape Plan L-1.

The plan has called for permeable pavers along the southern, western, and northern yards. The pavers were equipped with a 12" crushed stone base (cross section details shown in plan sheet L-4) to mitigate the surface runoff and provide retention and exfiltration. The Play Equipment area was specified with safety surface under and around the play equipment. There are no details called out for the safety surface, which could be mulched finish or rubber safety mat. There should not be any issues with the mulched surface. However, if rubber mat or any other similar surface proposed should be water permeable (no impervious base). The minimum water permeable rate should be specified and should not be less than 0.4 gal/yd2/second.

Stormwater Report:

1. Based on the Existing Conditions Plan (C-1), there appeared to be an existing lawn depression in the rear yard of building #217 Massachusetts Avenue, where also retain and infiltrate portion of the predevelopment runoff. However, the local Wetland Protection Rules Chapter 130, Section 5. (6) has required the Pre-Development Conditions impervious area to be modeled as open space in good condition which should offset the existing infiltration function of the depression as indicated in the predevelopment HydroCAD report with zero outflow and volume during the 2-year storm event. Hence, GCG determined that the calculations met the intent of the predevelopment site runoff conditions. Statement.

2. Post-Development calculations. The proposed stormwater management system consists of infiltration BMPs. The time span used in the HydroCAD calculations should be expanded to cover the full runoff volume, for a 24-hour storm, HydroCAD recommended a span of 0-30 hours. (5.00 -20.00 hrs. used). Furthermore, the time step (dt) should be reduced to avoid the oscillations errors/warning message during exfiltration calculations. GCG recommends using 0.01 to 0.02 hours dt, which would not trigger the warning message. Resolved.

3. The post-development HydroCAD calculations utilized Woods, good condition coverage in small portions of the post-development watershed. GCG recommends changing the woods surface to lawns, based on the landscape plan, the planting areas are small and not dense enough to consider as woods. Resolved.

4. There were approximately 3,173 square feet of permeable pavers used in the post-development calculations. However, Plan L-1's Materials Legend stated Unit Pavers (Porous within Riverfront), does that mean the remaining unit pavers are impervious? Plan L-1 also shows concrete pavement in front of the commercial spaces, and the spot grads in front of the building showing pitching toward the Massachusetts Avenue sidewalk and discharge onto the roadway which does not match with the Post-Development Drainage plan C-6 and the HydroCAD calculations. The landscape plan shows concrete pavement in front of the southeast building corner along Massachusetts Avenue. Based on the landscape grading plan L-3. The front patio, walkway and fire lane drain toward Massachusetts Avenue and created an increased runoff rate and volume toward Massachusetts Avenue. ((HydroCAD report Link 2L). This increase should be addressed. Sub-catchment 5S drains to Massachusetts Avenue. This is a new untreated discharge point to Massachusetts Avenue, which does not exist in the pre-development conditions. Although watershed area 5S is relatively small (485 s.f.), the discharge does not meet MSH standard #1 and does not meet the Town of Lexington Chapter 130, Wetland Protection, Section 5(2) – Increase in Runoff, the new discharge point will result in an increase in the total volume of the surface runoff for the 1-year return period storm to Massachusetts Avenue. There is no indication of the existing Massachusetts Avenue drainage system discharge point, However, the public street storm drain system would discharge to a protected resource area, applicant should verify the drainage system on Massachusetts Avenue. **Runoff towards Massachusetts Avenue will be collected by trench drain TD-1 and discharge to the infiltration system, resolved.**

5. MSH Vol. 2, Ch.2, Pg. 1187 stated permeable paving systems as part of the Porous Pavement and Vol. 3, Ch.1, Pg.15 stated that "Porous Pavement is considered to be an

imperious surface for the purposes of calculating the required Water Quality Volume (WQV) and the Required Recharge Volume (RRV). When using porous pavement, the larger of the WQV or RRV must be used to size the storage media under the porous pavement." Furthermore, porous pavement/paver should meet the setback requirements as listed in the MSH Vol. 2, Ch.2, Pg. 120. – including but not limited to Steep Slope less than 5%, 50 feet; Cellar Foundations, 20 feet; Slab Foundations, 10 feet; Property Lines, 10 feet. Porous Pavement storage volume should be designed according to the Storage Bed Design. (MSH, Vol.2, Ch.2, Pg. 121) and maintained accordingly per MSH. Porous Paver with stone storage course detail drawing should be provided. The porous paver was modeled with CN valid 70, which created increased runoff rate and volume toward Massachusetts Avenue, See comment 4 above. Sub-catchment 3S consists of 1,529 s.f. permeable pavers and 750 s.f. of Turfstone driveway. Both surfaces were assigned a CN value of 35 on the HydroCAD calculations, which is equivalent to the previous woods' coverage surface (between good (CN 30) to fair (CN 36) woods conditions. The assigned CN 35 value is acceptable with proper permeable pavers or Turfstone surface design. GCG recommends resolving the discrepancy between the Civil sheet C-2, (which calls for pavers) and the Landscape Plan sheet R-1, (which calls for concrete pavement) at the exterior bike racks and sitting area in front of the southerly building corner. Only permeable pavers should be used to match the HydroCAD calculations. The permeable pavers and Turfstone cross-section details should be equipped with a stone reservoir layer should be sized to resemble the CN 35 value. The Landscape Details plan sheet L-4 shows a Unit Pavers detail with pavers set on top of a 1 ½" sharp sand setting bed over a 12" dense graded aggregate is part of the drainage system and should be sized and detailed by the engineer. The proposed "3/8" max joints (smaller is acceptable)" label shown on the Unit Pavers detail should have the minimum pavers joint opening specified; Sub-catchment 4S utilized 4,884 s.f. of Woods surface coverage in 'Good' conditions. Since there are existing Right of Way and Sewer easements over the rear yard, Woods coverage would be limited. GCG recommends using Open Space – Good conditions (CN=39) to compensate for the Fibar path and shrubs in the rear yard. **The proposed stabilized stone dust pathway to meet ADA requirements is a compacted gravel surface and should be modeled as impervious area (CN 98) as required under Section 181-73.B.(2).(f). GCG recommends revising sub-catchment 3S's permeable paver CN value to 98, as an impervious surface per MSH Vol. 3, Ch.1, Pg. 15, 'Impervious Area' calculation instructions. Utilizing the CN 35 value for permeable paver and route through the infiltration Pond 3P: Permeable Paver Storage with exfiltration resulted doubling the exfiltration credits (credited from both reduced CN value and exfiltration rate). Alternatively, the applicant could provide a separate calculation to demonstrate the typical impervious surface runoff discharges to the 12" thick crushed stone storage layer (40% void) with exfiltration rate and keep the sub-catchments 3S and 4S's permeable paver's CN 35 value. The applicant should revise the pre- and post-development runoff rate and volume comparison table accordingly. Based on the 12" crushed stone layer storage volume and exfiltration capacity, GCG concludes that the permeable paver design has sufficient volume to handle the 100-year storm event. However, the calculations should be performed and certified by the applicant.**

6. HydroCAD Pond 1P infiltration Fields appeared to be undersized. The top of stone storage is at elevation 166.21. The 100-year storm event peak elevation was calculated at 166.74, which is above the storage volume. (Hydrograph output above the assigned storage volume is invalid per HydroCAD warning message.) GCG recommends modeling the system with the ponding volume on top of CB-1, (volume enclosed by the garage entrance threshold and top of curb elevations) to evaluate the actual peak

elevation with the emergency overflow device (CB-2), CB-2 overflow path should be equipped with erosion protection and/or utilizing level spreader and avoid concentrated discharge point. HydroCAD Pond 1P, outlet devise #2 utilized two (2) – 2' x 2' Horizontal office/grate, which included CB-1 and CB-2 top grates. However, CB-1's open grate does not have an outflow path and should not be qualified as an outlet device. CB-2's emergency overflow path should depend on the proposed grading around the open grate and should be modeled accordingly. As modeled, the open grate should be set at the top of the slope and allow flow from all four sides. Subcatchment 2S shows 396 s.f. of grass area, GCG scaled the two narrow landscape island and measured approximately 80+/- s.f.; Subcatchment 3S should include the 440+/- s.f. concrete pavement in front of the southeast building corner; Subcatchment 5S appeared larger than 51 s.f.; Reach 1R pipe slope at 0.5750 ft/ft (57% slope) should be verified, (plan shown R2 with 0% slope); Reaches 4R and 5R do not match with the pipe slopes shown on the plan; Pond 1P, single outlet 12" horizontal Orifice/grate should be double, the applicant should verify the downstream 12" pipe laid level has the capacity to handle the orifice flow; Pond 2P – Field #2 consists of 22 Cultec C-100 chambers embedded within a combined 91.75'L x 9'W x 2'H stone bed. The plan shows 56.75'L x 9'W x 2'H trench with 14 Cultec HD-100 chambers. The system is undersized as shown on the plan. The top of the storage volume elevation is at 166.00 and the 25-year storm peak elevation is at 166.71, which is higher than the system storage. The proposed 2'x2' horizontal orifice/grate overflow outlet at elevation 166.70 (CB-1) is above the storage volume, and the CB-1 grate is trapped in the low spot with no outlet. These calculations need to be reviewed and corrected. The subsurface infiltration system has been split into two fields, the minimum separation between the fields is not met, (a 100 feet separation is required) See comment item 8.3 above. The applicant should verify the HydroCAD modeling for the infiltration system Pond 1P and Pond 2P. Pond 1P consists of the stacked Infiltration System (Field #1) to retain and infiltrate the roof runoff. However, the Pond 1P's calculated infiltration/discarded rate appeared to be excessive. Pond 1P consists of 1,152 s.f. of stone bed surface area with the 0.003347 feet per minute exfiltration rate, which calculated the maximum exfiltration/discarded rate over the surface area to be 0.06 cubic feet per second (cfs). But this HydroCAD report showed 0.06 cfs, 0.08 cfs, 0.13 cfs, and 0.14 cfs exfiltration/discarded rates for the 2-yr, 10-yr, 25-yr, and 100-yr storm events, respectively. Since the exfiltration is fixed, the infiltration rate should not exceed 0.06 cfs. In comparison, Pond 2P (field 2) has a constant infiltration rate of 0.03 cfs, which reflects the exfiltration through the stone bed surface area below the 8 chamber units only. Furthermore, based on the "retain-it module storage volumes & weight by height" sheet provided by retain-it Stormwater Management Systems. The storage volume used in the HydroCAD calculations appeared to be conservative. GCG recommends revising the HydroCAD modeling for the infiltration systems (utilizing the bottom of the stone bed surface are for exfiltration only) and resolving the two systems separation/setback issue. **GCG does not agree with the infiltration outflow rate shown on the HydroCAD pond 1P: Retain-it Drainage Field (Common Field). Infiltration system's exfiltration is limited to the bottom surface area only as required by MSH. The proposed 8'x8'x18 chamber units with stone base for exfiltration has a surface area of 1,152 s.f., which multiplied by the Rawls exfiltration rate of 0.003347 fpm (feet per minute) and divided by 60 seconds per minute would result a 0.06 cfs infiltration rate for the associated stone bed dimensions, which should be the maximum exfiltration rate allowed by MSH. The HydroCAD model used exfiltration rates of 0.11 cfs to 0.19 cfs during the 2-year and 100 year storm events, respectively which indicated the exfiltration surface area of the system was changing at various stages of the water level. Similarly,**

the model Pond 2P, with 11 units of 8'x8' infiltration chambers has 704 s.f. of stone bed surface area, and the calculated maximum infiltration/discarded rate would be 0.04 cfs, (704 s.f. x 0.003347 fpm / 60 second = 0.039 fps ~ 0.04 fps). GCG recommends utilizing the "Constant Flow" input option (0.06 cfs and 0.04 cfs for models pond 1 and pond 2, respectively) in the exfiltration outlet model to limit the maximum outflow/discarded rate. Based on the reduced exfiltration rates stated above, Pond 2 appeared to be undersized and should be re-evaluated. GCG recommends re-sizing the system to eliminate any surcharge or water ponding on top of trench drain TD-2, which would potentially create hazardous conditions during the winter months.

7. Both infiltration BMPs (Pond 1P, Infiltration Field (field 1) and Pond 2P, stone base under Fire Lane) do not meet the required 10 feet setback to building foundation and property line (stone under Fire Lane system), calculations should be revised accordingly. See comments 4 and 5 above. **The northeasterly three-story overhang building consists of 6 dwelling units and supported by the proposed four 4 columns and footings. The final footing sizing and design should be incorporated with the proximity of the infiltration system and groundwater level fluctuation impacted by the drainage infiltration system. Statement.**

8. Where bottom of infiltration system does not meet the minimum 4 feet separation to ESHGW should provide water Mounding Analysis per MSH, Vol. 3, Ch.1, Pg. 28. Water mounding calculation should be provided. The proposed precast concrete boxes storage volume consists of 3,808 c.f., (the chamber will be filled to elevation 165.96, 0.04 feet below the top of the storage volume during the 100-year storm event). Majority of this volume is designed to discharge through the two 1" orifices connecting to Field #2 which is substantially undersized for infiltration. The applicant should provide a draw down calculations to prove the system could empty out within 72 hours. Mounding calculations should be revised with systems separation setback resolution. **Resolved.**

9. There are discrepancies between the ESHGW elevation found on soil test pit TH-1 and the on-site monitoring wells readings. TH-1 also identified medium and fine sand material, but the soil boring logs by GEI called out silty sand in their logs. The applicant should request through GEI and submit the Garin Size Test reports to support the site soil's exfiltration rate used in the calculations. Additional soil test pits should be performed to determine the ESHGW across the existing steep grade. Test pits should be witnessed by the Town or its assignee. GCG concurs with the soil test results. Resolved.

10. MSH Standard #8 - Construction period Operation and Maintenance (O&M) plan, (shown in plan sheet C-4) should be duplicated in a separate document and suitable for the construction period responsible party's signature. This project is below the 1-acre land disturbance threshold and does not require an NPDES CGP. Statement.

11. MSH Standard #9 – Long-term O&M plan should call out the catch basin grate and sump should be inspected at least 4 times per year. (3 times per year specified). The inlet grate should also be cleaned four times per year. Porous paver maintenance should be added to the O&M plan. O&M plan should be modified in corporate with the future drainage design changes.

12. Total Phosphorous (TP) calculations should be provided. Downstream receiving water Mill Brook is classified as impaired water with TDML requirements. TP removal calculations are not provided. Resolved.

13. During the 19-18-2024 site visit, GCG observed a low point/depression within the paved bikeway behind the development site. Any drainage overflow discharges onto the bike path should address any potential water ponding and icy hazardous conditions during cold weather months. The proposed Field #2 overflow grate (CB-1) has no outlet and is invalid. Infiltration Systems minimum separation should be addressed, system calculations should be revised per comment #6 above.

14. **Operation and Maintenance Plan should specify Stormceptor catch basin open grate and trench drain (TD-1 and TD-2) inlet grates be inspected and cleaned at least four (4) times per year, the garage ground drain oil and grease separator should be included in the O&M plan. Even though the separator discharges to the sewer system, the unit is collecting drainage and snow dripping and requires inspection and cleaning. GCCG recommends including an annual O&M budget and provide a sample O&M log and reference the BMPs to the site plan. Resolved.**

15. **The HydroCAD model Reach 4R pipe diameter (3") should be 12" to match plan sheet C-3. The undersized pipe is restricting the runoff flow to the infiltration system. The 100-year storm event report showed 0.22 cfs inflow and only 0.06 cfs outflow, flow rate should not be reduced through a 3 feet length pipe. Resolved.**

Conservation Commission Notice of Intent Comments:

The site is in the outer 100' to 220' riparian zone of the Riverfront Area of Mill Brook (impaired water). The report did not indicate any Bordering Vegetated Wetland (BVW) associated with the Mill Brook bank; the wetland delineation needs Conservation Commission approval. The Riverfront Area is partially degraded, the total Riverfront Area is 13,212 s.f. The existing degraded or impervious area is 6,316 s.f. The project proposes an additional 6,896 s.f. of impervious area within the 200 feet Riverfront Area. The future (offsite -MBTA property) proposed an additional 800 s.f. of disturbance. The total proposed work within the 200 feet Riverfront Area is 7,776 s.f. The applicant has proposed 16,000 s.f. of mitigation, which is the is invasive species management for Japanese Knotweed (Polygonum cuspidatum) and Norway Maple (Acer platanoides) on the parcel Map 13 Lot 383, (2.36 Acres), owned by the Town of Arlington, located at the northern side of the Minuteman Commuter Bikeway, with mitigation ratio of or greater than 2:1. No alternative analysis has been provided which is required for Conservation Commission review and approval. Under 310 CMR 10.58 (4. The NOI narrative stated that Norse Environmental Services, Inc., (NES), confirmed and agreed with the Band flags flagged by LEC. The applicant should clarify if any BVW resource area was identified with the river Band and provide the associated MassDEP BVW Field Data Form(s) to support the finding. If no BVW is identified, which should be stated in the report.

The applicant has provided four alternative analyses for the proposed development within the 200 Riverfront Area which the commission should review and discuss. The alternatives are as follows:

1. First alternative - Reduce the scope of the project and relocate the mixed-use building outside the 200 ft. Riverfront Area. This alternative will reduce the building footprint by 58% (7,396 s.f.) and is considered cost prohibitive.

2. Second alternative – to Comply with 310CMR 10.58(5)(e) – The area of proposed work shall not exceed the amount of degraded area. The applicant stated that the 4 lots combined total 30,866 s.f., with 13,212 s.f. in the outer riparian area and existing 6,316 s.f. of degraded area. The redevelopment of these properties requires a new building footprint, drive aisles, onsite parking, and drainage improvements. The 5-story mixed-use building would be eliminated to comply with 310 CMR 10.58(5)(e). This alternative is cost-prohibited.

3. The third alternative is to reduce the size and scope of the project and eliminate the retail/restaurant space. And reduce the building story to three-story with the similar building footprints. However, this alternative still requires work within the 200 Riverfront Area and offsite mitigation measures to comply with the Riverfront Regulations. The Town strongly encouraged the (5) story mixed-use multifamily retail/restaurant rath than the 3-story residential option.

4. The fourth alternative is to eliminate the mixed-use residential building/restaurant space and construct Commercial Retail Shopping (CRS). This alternative will also encroach with the 200 ft. Riverfront area and require offsite mitigation. This alternative does not address the intent of the Village Overlay district as part of the MBTA housing directive to increase residential housing supply.

5. The last and preferred alternative is the site plan as presented with the mixed-use building with off site improvements.

Alternatives analysis is subject to Conservation Commission approval.

The existing site consists of 13,212 s.f. Riverfront Area (outer riparian, 100' to 200' from the riverbank) with existing 6,316 s.f. degraded area (impervious surface consists of hot mix asphalt pavement and accessary structures/garages and sheds. This development proposed approximately 8,500+/- s.f. of combined building, pavement, concrete pad, and pavers area, (impervious surface) and approximately 530+/- s.f. of play structure "safety surface" and 750+/- s.f. of Fibar – engineered wood chip accessible pathway (semi-pervious) within the Riverfront Area. A net increase of approximately 2,200+/- s.f. of new impervious area in the riverfront area. The new 530+/- s.f. of safety surface and the 750+/- s.f. Fibar pathway are semi-impervious. The project has proposed to improve an off-site Riverfront Area (Map 13 Lot 383, owned by the Town of Arington) by removing invasive vegetation and placing tree and shrub plantings on approximate 10,450 s.f. area. (Approximate area scaled from plan set).

310 CMR 10.58 (5)(g) - Mitigation and restoration of degraded riverfront area either on-site at ratio in square feet of at least 1:1 or in the riverfront area within the same general area of the river basin, alternation may be allowed at a ratio in square feet of at least 2:1 is allowed under 10.58 (5)(g).

The restoration required under 10.58 (5)(f) were stated as:

1. removal of all debris but retaining any trees or other mature vegetation.
2. grading to a topography which reduces runoff and increases infiltration.
3. coverage by topsoil at a depth consistent with natural conditions at the site; and
4. seeding and planting with an erosion control seed mixture, followed by plantings of herbaceous and woody species appropriate to the site.

This project has proposed 8,500+/- s.f. impervious areas (6,316 s.f. was existing degraded impervious surface) and 530+/- s.f. of safety surface and the 750+/- s.f. Fibar pathway within the outer riparian riverfront area on-site (the safety surface and Fibar wood chip path are considered pervious surface, but not natural surface) and the plans propose restoring approximately 10,450 s.f. of invasive species vegetated off-site area within the same general area to native plantings coverage. Typically, increased impervious surfaces are restored by removal of impervious area on-site or in the same general area. The Commission should determine the proposed restoration meets the intent of an equivalent level of environmental protection.

310 CMR 10.58(4)(c)1. - The alternative's practicable and feasible should be considered by the Commission based on the four factors: a. Costs; b. Existing Technology; c. The Proposed Use: and d. Logistics as described in 10.58(4)(c)1.

An Invasive Plant Management Strategy (IPMS) report was submitted by Norse Environmental Services, Inc. and two Riverfront Mitigation Plan sheets were submitted by SEG. Typical resource area mitigation/replication takes place within the development site, where the applicant has full control of the mitigation area. However, this is an off-site mitigation/restoration, the IPMS report has specified for 3 years of invasive species management period, by removal of invasive species and installing of specified mitigation plantings on Tax Map 13 Lot 383, owned by the Town of Arlington. The proposed mitigation appeared to be limited to 3-year terms, which requires the Conservation Commission approval. If accepted, GCG recommends requiring a legal instrument to provide legal rights to access and perform improvements over Lot 383, legal document should specify the responsible party, funding (and provide performance and guaranty bonds as necessary), and provide Conservation Commission and/or its assignee to access the mitigation project site, guaranty period and any long term maintenance and access of the parcel should be established as desired. Otherwise, the Conservation Commission and the applicant would not have any further rights to perform maintenance and improvement or access to Parcel 383.

The development site is partially in the outer 200 feet Riverfront Area. The existing site surface runoff discharges to the Riverfront Area without any drainage treatment. Hence, it is subject to the Stormwater Management Handbook Standards and Regulations. A Checklist for Stormwater Report should be submitted. A Checklist for Stormwater Report stamped and signed by a P.E. should be included in the package.

A Checklist for Stormwater Report submitted, GCG would like to point out that this project has proposed development within the outer riparian (100' to 200') Riverfront Area resource area. The project is a mix of new development and redevelopment project. Proposed new impervious area is considered new development and require meeting the stormwater standards to the full extent.

Local Wetland Protection Code Chapter 130:

Chapter 130 - Section 5-(6): The pre-development conditions drainage calculations utilized the 'Open Space in Good Conditions' for the existing structures and impervious groundcover to be demolished, removed, or otherwise taken out of service requirements. The pre-development calculations met the requirements, see Stormwater Report comment #1 above. Statement.

Chapter 130 – Section 5-(2): The post-development drainage calculations indicated reductions in peak discharge rates during the 2-year, 10-year, and 100-year return period storm events and decreased total surface runoff volume for the 1-year return period storm at all design points which complies with the intent of Section 5-(2). There are indications of increased peak runoff and volume toward Massachusetts Avenue with the post-development conditions. (1 year storm event stormwater runoff volume not included in the pre-development and post-development calculations.) However, there are some major drainage calculations discrepancies not matching with the plan set and the drainage calculations will need to be corrected and modified as plans are changed. GCG is unable to determine the drainage compliance with the Massachusetts Stormwater Handbook nor Section 5-(2) of Chapter 130. Based on the latest stormwater report, there is a net increase of surface runoff flows and volume southward to the Massachusetts Avenue catch basin system from post-development sub-catchment 5S. This sub-catchment surface runoff drains northward in the pre-development conditions. Although the peak flow rates from sub-catchment 5S were small, (0.02 cfs during 2-year storm event to 0.09 cfs and during 100-year storm event), but these are untreated new discharge to Massachusetts Avenue. GCG recommends collecting the sub-catchment 5S surface runoff to the subsurface infiltration system with pre-treatment. Stormwater should be managed according to standards established by the Department in its Stormwater Policy. (10.58(4)(d)1.b.) **The applicant has eliminated all untreated runoffs toward Massachusetts Avenue. The lower infiltration system component appeared to be undersized, additional analysis is required. The infiltration system was sized to retain the roof and driveway runoff for up to the 100-year storm events. The proposed permeable paver within the 200' Riverfront Area is impervious surface in Conservation standards. The paver was designed with a 12" thick crushed stone course to mitigate (retain and exfiltrate) the surface runoff. And the proposed playground safety surface does not qualify as natural surface. GCG has requested the surface cover must be water permeable cover. Both proposed surface finish should be review and approved by the Commission.**

Please call with any questions.

Respectfully Submitted,
GCG ASSOCIATES, INC.

Michael J. Carter

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President

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To: **Lexington Planning Board**

From: **Meghan McNamara, Assistant Planning Director**

Re: **Site Plan Review and Special Permit for 217-241 Massachusetts Ave.; Village High-Rise Overlay District (Memo #4)**

Date: **April 30, 2025**

The Applicant submitted the following documentation in advance of the May 7, 2025 Planning Board meeting: Memo response to building commissioner (dated 4/14/25), Construction Mgmt Plan & Schedule (rev. 4/14/25), civil & architectural planset (rev. 4/14/25), IDU Description (rev. 4/14/25), response to Planning Staff memo (dated 4/14/25), stormwater report (rev. 4/9/25), and response to peer review memo (dated 4/9/25).

At Annual Town Meeting 2025, Article 2 passed which moved the project site (4 parcels) from the VO District to the VLO District and permits this project from continuing under the old zoning. A preliminary subdivision was also submitted prior to Town Meeting vote, which, if followed by a Definitive Subdivision application submittal in 7 months, allows the 2024 Zoning Bylaw to be frozen on the project site. The Applicant is pursuing this Site Plan Review application under the 2024 Zoning Bylaw.

A 5th memo from peer review consultant, Michael Carter, PE, GCG Associates, dated April 23, 2025 is provided as a separate letter; only minor issues remain and are solvable.

The Applicant filed a Notice of Intent with the Conservation Commission as the project proposes redevelopment of a site within the 200-foot Riverfront Area. At the April 29, 2025 Conservation Commission meeting, continued to May 13 to address the final outstanding items requested in the April 23 GCG memo.

Planning Staff Comments:

- As a recommended condition of approval, staff request that the applicant provide a landscape plan that labels all proposed plant species. The current Planting Plan refers to the civil site plan for rear property planting schedule (plantings within the 200-foot Riverfront Area), however no planting plan has been provided. The final civil and landscape plans approved by the Conservation Commission shall be incorporated into the final approved plans by the Planning Board.
- Applicant has been made aware that an existing 11-inch tree is not shown on the existing conditions plan and is having plans updated accordingly. This tree proposed for removal is subject to the Tree Bylaw.
- The proposed building height, as measured from ANG to the top of the parapet, is 59.98 feet. This complies as 60 feet is the allowed max. height.

Suggested Findings:

1. Per 135-7.5.5.10(a) – In the VO District where the underlying zoning district is a Commercial District, the maximum height is 60 feet when at least 30% of the gross floor area of the street floor level or buildings' footprint, whichever is greater, of the entire development is occupied by commercial principal uses, not including associated parking, shown in Table 1 §3.4 Permitted Uses and Development Standards as permitted in the underlying district in the following categories: Commercial Office Uses; Personal, Business or General Services Uses; Sales or Rental of Goods and Equipment; Eating and Drinking; and Commercial, Recreational, Amusements, Entertainment. The Applicant is proposing 4,586 SF of commercial space on the first floor, exceeding the required 4,527 SF to meet the 30% requirement. [4586 SF / 15090 SF (ground floor footprint) = 30.39%]. The current proposal meets the criteria to receive the height bonus.

Waiver from Number of Parking Spaces for Commercial Use Requested:

- Pursuant to §135-7.5.6.3 to allow fewer parking spaces than required for the commercial use(s). Because this is a walkable area with nearby on-street parking, MBTA bus service, and located on the Minuteman Bikeway, staff supports the reduction of required number of commercial spaces estimated for a restaurant use, which requires 19 parking spaces (8 provided, relief of 11 spaces requested).

Relief Required:

- 135-§5.1.13(1a) (*) to allow parking spaces that abut a wall to have less than a 12-foot width. Of the 38 garage parking spaces, two (#15 & #16) do not meet the 12-foot width requirement, and are instead 11'-8" and 10'-0". Staff believe this request is justified because drivers pulling into these two spaces can pull all the way through, eliminating the need to drive in reverse to exit a space. These spaces are for residents only and not available to the public.
- 135-§5.1.11 (3): to allow parking within the 10-foot setback from the street line. Applicant proposes one van accessible parking space in close proximity to Mass Ave. The space where the vehicle will be parked is 12 feet from the street line, while the required access aisle at its closest is 4-feet 2-inches. Applicant requests a waiver if the Board considers the access aisle to be a parking space.
- 135-§5.1.12(1) and (3a) and (3b): to allow proposed landscaping to serve as screening because this project is across the street and across the Minuteman Bikeway from Residential Districts. Design includes a 4-foot wide landscape buffer with plantings at 30" along Mass. Ave and the accessible space, however, the zoning requires 6 ft. in height. The applicant requests waiver due to sight visibility concerns for cars entering and exiting.
- 135-§5.1.13 (1c) to allow structural column to be within 3 feet of the drive aisle. At its closest, the distance between the drive aisle and columns is ± 2'2". Concrete bollards are proposed for protection.
- 176-12.4.2(7) each bicycle parking space shall be at least six feet by two feet. In an effort to accommodate oversized bike parking spaces requested by the Bicycle Advisory Committee, the Applicant proposes 28 bike spaces utilizing the dero-decker system, which do not meet the 6x2 requirement.
- 176-12.4.2(9) parking shall not require lifting bicycle off the floor or carrying bicycles up or down stairs, whether indoors or outdoors. See note above

- Chapter 120 Tree Bylaw & Street Trees The project proposes one mature tree is removed from the front setback on the property. There are two trees (a 2" and 16" specimen tree) along the frontage of Mass. Ave. within the right of way. The 2" tree is proposed to be removed and the 16" is to be protected. The limit of work line in the rear of the property does not extend beyond the property line. Obvious signage shall be installed to inform construction crew that the bikeway trees are not to be removed or pruned. Staff recommends partially waiving jurisdiction of the Tree Bylaw to the Planning Board for the property but recommends an application to the Tree Warden for the tree proposed to be removed within the right-of-way.

Unit Count:

Unit-Type	Total Number	# of Market Rate	# of IDU	Bedroom Count	Average Unit Size SF)	Percentage of Total
1-Bedroom	16	14	2	16	995	36%
2-Bedroom	24	21	3	48	1255	55%
3-Bedroom	4	3	1	12	1939	9%

Vehicle and Bicycle Parking:

Parking Type	Amount Required		Provided	Notes
Long-Term Bicycles	1.5 per dwelling unit	66	66	Waiver req. for lifting and space dimensions
Short-Term Bicycles	0.1 per dwelling unit	5	10	In Compliance
Residential Vehicle Spaces	1 per dwelling unit	44	38 inside & 6 outside	Waiver req. for 3-foot wall offset
Commercial Vehicle Spaces	**Eating Establishment**: 1 per 5 seats or 1 per 200 SF of Net Floor Area[1], whichever is greater	19	8	See Special Permit request
	Retail: 1 per 600 SF of Net Floor Area[1]	7	8	
EV Parking	Minimum 4%	2	8	In Compliance

Important Dates/Timelines	
Public Meeting	September 25, 2024, and continued to November 20, January 30, and March 5, April 10, and May 7, 2025
Filed with Town Clerk	August 20, 2024
Decision Deadline (150 days)	February 12, 2025 and extended to April 1, April 24, and May 21, 2025

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

952 Waltham Street - Public Hearing

PRESENTER: **ITEM NUMBER:**

Applicant: Hongsheng Tang

SUMMARY:

Public hearing on an application from Hongsheng Tang for approval of a major site plan review under §135-7.5 [Village & Multi-Family Overlay Districts] and 9.5 [Site Plan Review] of the Zoning Bylaw and Article VI of §181-71 Stormwater Management Regulations. Proposal also requires a special permit, pursuant to Section 5.1.14 and 5.1 [Off-Street Parking and Loading]. Application is to construct 8 townhouse-style ownership units in 3 buildings with garages, visitor parking, stormwater management, and landscaping.

The property is located at 952 Waltham Street, Lexington, MA also known as Map 10, Lot 19A in the RO (One Family Dwelling) and VO (Village Overlay) zoning districts.

Application material may be viewed online at https://lexingtonma.portal.opengov.com/records/101348

A staff memo and peer review memos are attached.

The Applicant will present to the Board, staff and the per review consultant will summarize reports, and board members will discuss. The Chair will then open the hearing up to public comments. After public comments the board will return to board and applicant for discussion. At the end of the night the Board will vote to continue the hearing to a future meeting date to respond to comments.

SUGGESTED MOTION:

At the end of the night, staff recommends continuing the public hearing to Wednesday June 25, 2025 (please submit revised material by June 4).

Move to continue the public hearing for a Village and Multi-Family Overlay Site Plan Review of 952 Waltham Street to **Wednesday, June 25, 2025 at or after 6:00 p.m. on Zoom** to allow the applicant time to respond to the staff memo, the peer review memo, and comments raised at the public hearing.

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025

ATTACHMENTS:

Description	Type
Staff Memo 5.1.2025	Cover Memo
Peer Review Civil Memo 5.2.25	Cover Memo
Engineering Staff Memo 5.6.25	Cover Memo
Plan Set 952 Waltham St	Cover Memo

TOWN OF LEXINGTON
PLANNING OFFICE

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Abby McCabe, Planning Director
Meghan McNamara, Assistant Director
Aaron Koepper, Planner
Carolyn Morrison, Planning Coordinator

To: **Lexington Planning Board**

From: **Aaron Koepper, Planner**

Re: **Site Plan Review for 952 Waltham Street; Village and Multi-Family Overlay District**

Date: **May 1, 2025**

Property Information	
Project Address	952 Waltham Street
Parcel ID	Map 10 Lot 19A
Permit #	PLAN-25-10
Applicant	Fred Gilgun on behalf of Hongsheng Tang
Property Owner	Hongsheng Tang & Limei Wang
Type of Review	Site Plan Review; Village and Multi-Family Overlay District
Zoning District	RO – One Family Dwelling (VO – Village Overlay previously but was removed by Specail Town Meeting on March 17, 2025)
Property Size	24,359 SF or 0.56 Acres
Existing Site Conditions	The site consists of a single lot, comprised of one (1) single-family dwelling with a brick walkway, attached deck, and retaining wall towards the east side of property behind the house. Paved driveway is present to the left of the house, northwest corner of the lot, with access to Waltham Street. House, walkway and retaining wall all to be razed and removed. The site is not located within a wetland area or buffer. Overhead utility wires and poles are located along both sides of Waltham Street and overhead wires run parallel to the southern property line, servicing 354 Concord Avenue. The site has experienced significant regrading, fill/cut removal and construction of large retaining wall since ~2017. Residential properties abut the site to the sides and rear, while the Waltham/Concord intersection ~375 ft from the site contains small office buildings, a gas station, and Wagon Wheel.

Important Dates/Timelines	
Public Meeting	Advertised for March 27, 2025 and continued to May 7, 2025 without discussion
Filed with Town Clerk	February 12, 2025
Decision Deadline (150 days)	July 12, 2025

Approval Information	
Action Required at Decision Deadline	The decision of the Planning Board shall be by a majority vote of the Board. The Project is permitted by right, and site plan review approval is required. The Planning Board shall review and act upon the site plan, requiring such conditions as necessary to satisfy the Review Standards and the Zoning Regulations.
Applicability	Under the provisions of c. 135 § 7.5.1, the purpose of the Village Overlay District is to provide family housing, ensuring compliance with MGL c. 40A § 3A, and to promote multi-family housing in areas that are close to public transportation, shopping, and local services, by offering a variety of housing types. Planning Staff believes the proposed development meets the purposes stated in c. 135 § 7.5.1. On March 17, 2025, Special Town Meeting (STM 2025-1) convened and approved Article 2 – Amend Section 7.5 of the Zoning Bylaw to Reduce Multi-Family Dwelling Unit Capacity. Per Article 2, line O, "map changes and amendments shall not apply to any development project for which an application for site plan review under c. 135 § 7.5.3 has been filed before 3/1/2025." This project will be reviewed under the 2024 Zoning Bylaw so long as there are no major modifications of proposal.

Executive Summary

Main items to be resolved:

- Applicant to provide updated architectural plans & renderings based on revised proposal for 8 units.
- Submit completed ANG and elevations/height calculation forms that include existing elevations to verify building heights. The maximum height has not yet been confirmed. Units 6-7 in the front of the property may exceed the height limits.
- Provide at least one van accessible parking space.
- Satisfy tree replacement requirements of the Tree Bylaw with more tree plantings on the property.

Project Summary

The proposed development includes three (3) buildings, positioned to form a C shape on the east, north, and west sides of the property. Each building is townhouse-style and proposed to have ground floor garaged parking, with three stories of living space above. Buildings are made up of two (2) or three (3), four-bedroom units each, with a total of eight (8) ownership units for the project. Each townhouse-style unit follows a similar layout, with a lower level for a two-car garage, gym, and small mechanical room. The first floor of living space has a kitchen, living room, dining room, and bathroom. The second story of living space includes three (3) bedrooms with closets, and two (2) bathrooms. The upper dwelling story contains a master bedroom with two (2) walk-in closets, a bathroom, and one (1) study. Resident amenities include combined backyard space behind each building and a common open-space area located

next to Unit 3 in the back of the site. Short-term bicycle storage is present on a landscaped island next to visitor parking, with space for two (2) bicycles, and a bike path is proposed to connect the project site with Waltham Street. A driveway is located by the south western corner of the property, giving access to/from Waltham Street with a single entrance/exit and turnaround area in front of buildings. A curbed island and five (5) visitor parking spots are located in the center of the driveway turnaround. Landscaping is proposed around the periphery of the property.

On December 18, 2024, the Applicant met with staff for a Development Review Team (DRT) meeting to review the proposal. The Applicant held neighborhood meetings via Zoom on January 21, 2025 at 12:00pm and 8:00pm as well as January 22, 2025 at 12:00pm and 8:00pm.

The Planning Board hired a peer review consultant to assist in this review. Peer Review memo from Dylan O'Donnell of Apex Companies dated March 20, 2025 is included and focused on site stormwater management, sanitary sewer, water supply system and other utility site planning elements. Comments regarding stormwater management and site utilities have been limited in the staff memo for this reason. An updated memo second memo is expected May 2.

Planning Board members and staff conducted a site visit on April 29, 2025. Photographs are included with this memo.

Chapter 135 Zoning Bylaw Review

Staff believes the proposed development meets the requirements of Chapter 135, unless otherwise noted below.

Section 5.0 General Regulations

5.1.8 Bicycle Parking Facilities
Section 5.1.8.2 states that bicycle parking shall be situated in such a way that snow storage does not impact the bicycle parking. Plans show snow storage area around bicycle parking on the landscaped island. Plans show sufficient snow storage even when excluding this area, remove snow storage at this location.

Section 5.1.8.3 states that each bicycle parking space shall be sufficient to accommodate a bicycle 6' in length and 2' in width. Applicant should provide plans showing the dimensions of long-term bicycle parking within unit garages to demonstrate compliance.

Per Section 5.1.13(1a)(*), where one or both of the long sides ofa parking space abut a wall or similar obstruction, the width shall be 12 feet. The surface parking space proposed next to Unit 5 does not comply with this requirement.

Section 7.0 Special District Regulations

7.5.5 Dimensional Controls
Maximum Height: The maximum height in feet of a building in the VO District is 40' and the number of stories is not restricted. The Applicant's average natural grade forms are missing "existing elevation" information and will need to be resubmitted. The Applicant shall also provide building height/elevations form for the Building Commissioner to confirm the building's height, and a plan showing all locations of

spot grade elevations. Units in the front 6-8 may exeed the maximum height due to the existing grades and may need to be redesigned.

Chapter 176 Planning Board Zoning Regulations Review

Staff believes the proposed development meets the requirements and/or expectations of Chapter 176, except as noted otherwise below.

5.0 Submission Materials

Section 5.2.2.1(b) requires a map showing steep slopes distinguished as follows: Slopes greater than 15% but less than 25%; Slopes greater than 25% but less than 40%; and Slopes greater than 40%. This was missing from the submission and shall be provided for existing and proposed conditions of the site.

Section 5.2.10.1 requires the number and dimensions of all parking spaces. Provide plans showing the dimensions of parking spaces within unit garages.

Section 12.0 Site Plan Review Design Regulations

12.6 Landscaping

The proposed plantings on the planting schedule dated 4/22/2025 (L-102) are all on the Lexington Preferred Plant List.

The Tree Mitigation Plan last revised 4/22/25 does not show the proposed locations of the two deciduous shade trees. Please advise.

Snow storage should not be on top of proposed landscaping.

12.6.9 Outdoor Gathering & Amenity Space

Provide more details on the proposed outdoor shared amenity space next to unit 3. Staff recommends a more centralized location.

Town Staff & Board/Committee Comments

Planning Staff Comments:

Submit updated architectural plans and renderings for review for revised 8 unit proposal.

Provide the Existing Conditions Topographic Base Plan performed by A.S. Elliott Land Surveyors dated October 10, 2024.

Please update construction plans to provide adequate tree protection, to the drip line, per the Tree Management Manual. This shall apply to protection of trees and roots on abutting properties to the maximum extent possible.

There appears to be a conflict between one-way traffic and two-way traffic in front of Unit 1. Recommend applicant retain the one-way traffic around visitor parking to promote orderly traffic flow.

Plans only show compact parking available for Unit 6, if full size parking is available in this unit please update plans to reflect. If unit is intended to have compact parking please indicate that as well on architectural plans.

Where will trash and recylying collection take place? Staff appreciates the removal of the dumpster, but would like to see a location dedicated for refuse collection shown on plans, and a plan showing a garbage truck accessing the collection area. Will pick up be private?

Any off site parking arrangements would require property owner permission if needed for overflow.

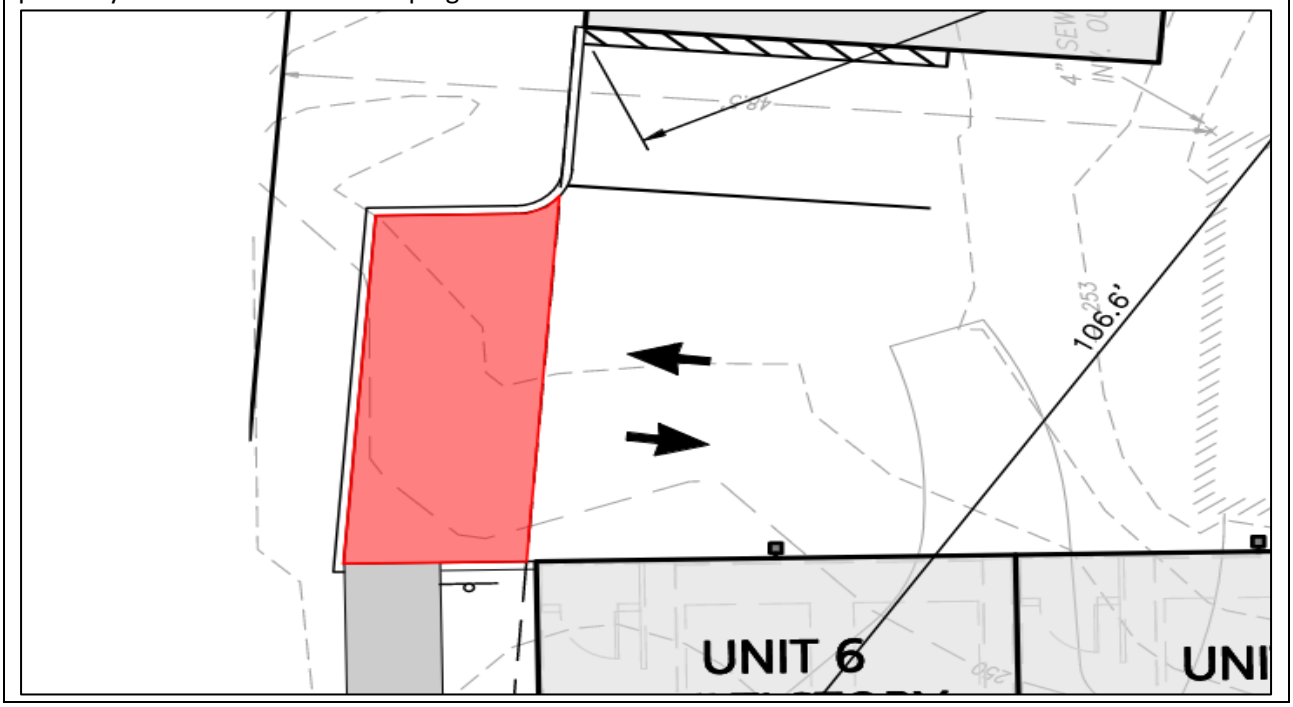
Please provide renderings to show viewpoints from each side.

Has the applicant considered plantings where painted striping is proposed next to surface parking? Staff sees this as an opportunity to break up the paved area with some grass and if possible tree plantings if it can avoid the infiltration systems.

Has the applicant considered use of permeable pavers or a variation in pavement type/color to add visual variety and break in the surface pavement? Perhaps a different material for the visitor surface parking spaces?

Plans note a 6 foot tall black chain link fence for fall protection on the south (right) side retaining wall. At it's highest, the retaining wall measures 15.2 feet, and will include a 6-foot tall fence a top of it, measuring 21.2 feet in height. While staff understand the fence is necessary for fall protection, it is unfortunate that a 20+ foot wall is proposed.

What is the reason for the paved surface shown in red below? Can this area be redesigned with the pathway connection and landscaping instead?



Tree Removal – Tree Bylaw General Bylaw Chapter 120
Provide an updated tree mitigation landscape plan sheet L-102 dated April 22 has been provided

Applicant is proposing the removal of 15 trees within the setbacks (totaling 185 DBH inches removed). This equates to 365 DBH inches required for replanting or payment into a Tree Fund for mitigation under the Tree Bylaw.

Staff recommends mitigation be with replanting on the property. Staff recommends updating the landscape plan to provide an additional 180 DBH on the project site.

Zoning:
Request ANG Calculation sheets and plot plan showing where each measurement was taken for each building and an elevation form for each building in order to confirm height.

Fire:
The Fire Truck Vehicle Movements plan shows the fire vehicle crossing over the landscaped island next to visitor parking, the truck should be able to maneuver unimpeded.

Plans show fire truck reversing onto Waltham Street, is there a way to have the fire truck back up in front of Units 6 & 7, and then be able to exit in a forward facing direction? Having the truck pull forwards onto Waltham Street is preferable.

Need to show that a fire-hose can reach from the closest fire engine using no more than 250/ft to go around each structure, from either side, and meet in the rear. This may need to be done for all three buildings, depending on the height of the retaining wall facing Waltham Street.

There needs to be access to a sprinkler room from the exterior of each building. Applicant please include in next architectural plan update.

Sustainability & Resilience:
Consider composting options for residents.

Engineering:
Waltham Street was paved in 2023 and is under a 5 year moratorium.

Building:
Average Natural Grade and Building Height forms will be checked during the site plan review process and at the building permit stage. Forms uploaded April 30 are missing the existing elevations.

Please provide at least one “van accessible” parking space.

A noise study is necessary to confirm that post-construction the noise level at the lot line is not increased by over 10 dBA from the existing (pre-construction) ambient noise level.

Building Code will require one EV space per unit garage. Applicant to show on plans which spaces these will be.

Photos

Photo 1: GIS map showing the property

Photo 2: Aerial Photograph – April 10, 2024

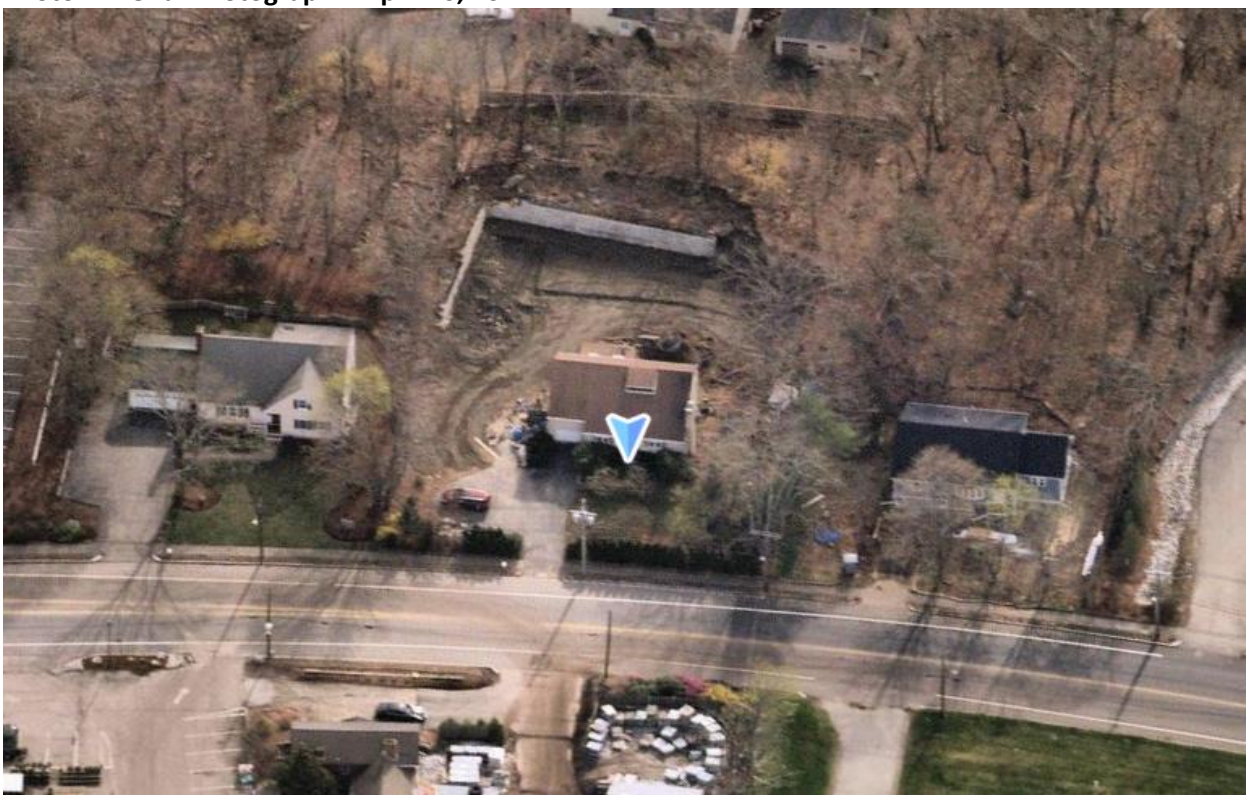


Photo 3: Aerial Photograph – April 10, 2024

Photo 4: Aerial Photograph – October 19, 2024

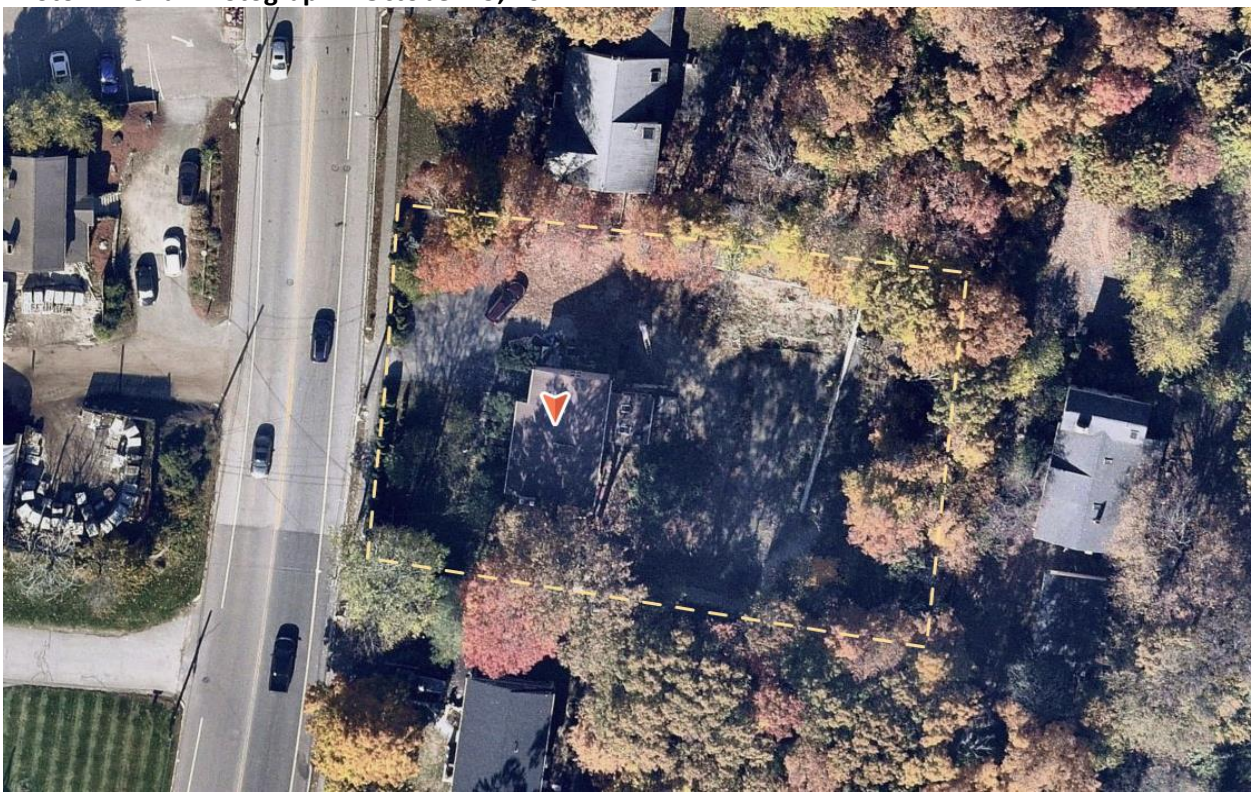
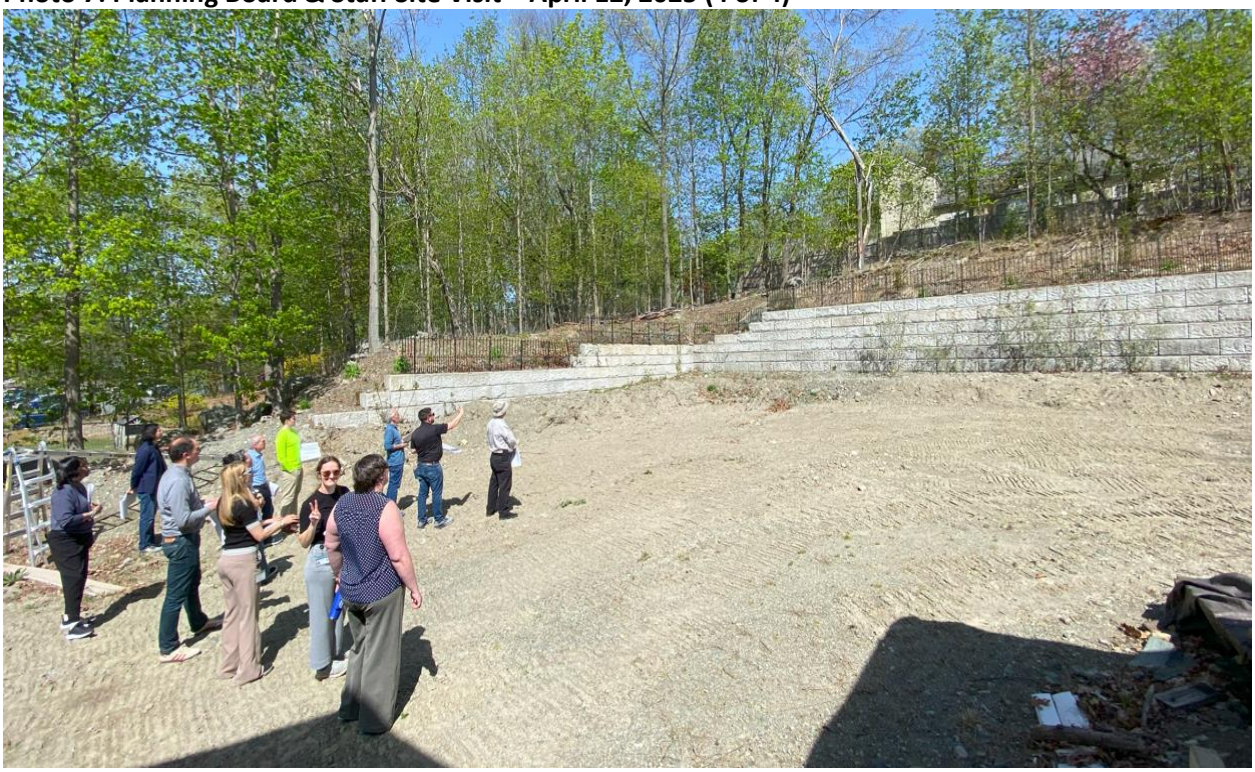


Photo 5: Planning Board & Staff Site Visit – April 12, 2025 (1 of 4)

Photo 6: Planning Board & Staff Site Visit – April 12, 2025 (2 of 4)

Photo 7: Planning Board & Staff Site Visit – April 12, 2025 (3 of 4)

Photo 7: Planning Board & Staff Site Visit – April 12, 2025 (4 of 4)



MEMORANDUM

TO: Planning Director, Planning

FROM: Marissa Martel (Liggiero), Engineering

DATE: May 1, 2025

SUBJECT: 166 Spring Street Comments 2

The Engineering Division has reviewed the updated Site Plans at 166 Spring Street. We submit the following:

Stormwater note:

- Rainfall data should be taken from the NRCC Cornell extreme precipitation tables.
- Proposed recharge system #2 shows 18 chambers on the plan, but in the analysis, it shows 12 chambers.
- Watershed map showing subcatchment routing should be uploaded.
- Contech recharge systems and Jellyfish filters should be detailed more clearly on plans. There are two outlet pipes coming from the jellyfish filters. One to the recharge system and one to the drain manhole. Which one has the treated water? Flow paths for these systems are unclear.
- Grading plan should be shown on the Utility and Drainage plan in the permit set.
- Test pit information not shown.

Utility note:

Water and sewer utilities not shown on plan set.

Roadway note:

See general comments above

May 2, 2025

Ms. Abby McCabe, AICP, Planning Director
Town of Lexington
1625 Massachusetts Avenue
Lexington, MA 02420

RE: Technical Review Letter #2
952 Waltham Street – Townhouse-style Development

Dear Abby,

This letter is to advise the Town of Lexington's Planning Board that Apex Companies, LLC (Apex) has reviewed the revised materials submitted for the proposed townhouse-style development project located at 952 Waltham Street. The Applicant's submission includes the following documents:

- Response to comments letter prepared by Allen & Major Associates, Inc (A&M), dated April 22, 2025.
- Plans entitled "Civil Site Plans For: Townhouse Development," prepared by Allen & Major Associates, Inc, revised through April 18, 2025.
- Report entitled "Drainage Report," prepared by Allen & Major Associates, Inc, revised through April 17, 2025.
- Landscape plan sheet L-102 entitled "Tree Mitigation Plan" prepared by Allen & Major Associates, Inc, revised through April 22, 2025.

These documents have been reviewed for conformance to the following Town Bylaws and Regulations:

- Chapter 176 of the Code of Lexington, Section 12.9 Utilities
- Chapter 181 Article VI of the Code of Lexington, Stormwater Management Compliance
- The Massachusetts Stormwater Management Standards
- Standard engineering practice regarding stormwater management and site design.

Background

The Applicant, Hongsheng Tang, has submitted a Site Plan Review and Stormwater Permit application to the Lexington Planning Board for a proposed townhouse-style development. The project proposes to redevelop the existing 0.57 acre, single-family lot located at 952 Waltham Street, into three townhouse buildings with three units in each building.

Comments

Planning Board Zoning Regulations – Chapter 176 of the Code of Lexington (Section 12.9 Utilities)

1. *Section 12.9.4 – Utility meters and other infrastructure elements shall be located in low visibility areas, screened from view, and designed to blend in with the design.*

   The site plans do not show any utility meters or electrical transformers. The Applicant should clarify if any utility meters or electrical transformers will be required for the proposed development and show them on the plans.

A&M Response 4/22/25: Water and electric meters have been added to the revised Utility Plan. Final location of meters to be coordinated with utility providers. It is not yet known whether an electrical transformer will be required to meet the electrical demands of the project and further review is required by the electrical engineer prior to the Building Permit process to determine the project electrical needs. Although an electrical transformer is not anticipated as part of the project, a potential pad location has been shown on the Utility plan in the southeast corner of the site.

Apex Response 5/2/25: Acknowledged. Water and electric meters have been added to the Site Plans. We understand that it remains uncertain whether a pad-mounted transformer will ultimately be required for this project. However, electrical utility service providers such as National Grid and Eversource typically require vehicular access to pad-mounted transformers for installation, maintenance, and replacement. Based on our review, it does not appear that the proposed transformer location would provide adequate vehicular access. We recommend that any approval by the Planning Board be conditioned upon review and approval of the final transformer location by the applicable utility provider prior to construction.

2. *Section 12.9.5.1 – Projects shall meet the erosion control performance standards of § 181-75C.*

   See the section "Stormwater Management Regulations – Chapter 181 Article VI of the Code of Lexington" below for the project's conformance to the performance standards of § 181-75C.

   A&M Response 4/22/25: No response required.

   Apex Response 5/2/25: Per our review in the section "Stormwater Management Regulations – Chapter 181 Article VI of the Code of Lexington", we note no non-compliance to the performance standards of § 181-75C. **Item closed.**

3. *Section 12.9.5.2 – Projects disturbing more than 10,000 square feet of land area shall meet the performance standards of § 181-73 for above-threshold projects.*

   See the section "Stormwater Management Regulations – Chapter 181 Article VI of the Code of Lexington" below for the project's conformance to the performance standards of § 181-73.

   A&M Response 4/22/25: No response required.

   Apex Response 5/2/25: See our outstanding comments pertaining to the performance standards of § 181-73 in the section "Stormwater Management Regulations – Chapter 181 Article VI of the Code of Lexington" below. **Item closed.**

4. *Section 12.9.5.3 – All basement floors and slabs shall be at least two feet above the estimated seasonal high groundwater table.*

   There were two test pits excavated on site (TP-101 and TP-102). TP-101 was excavated in the vicinity of the western townhouse complex (units 7-9), and TP-102 was excavated in the vicinity of the northern townhouse complex (units 4-6). There was no test pit excavated in the vicinity of the eastern townhouse complex (units 1-3). We recommend the Applicant excavate an additional test pit in the vicinity of units 1-3 to confirm compliance with this regulation.

TP-101 and TP-102 indicated estimated seasonal high groundwater (ESHGW) at elevation 240. The lowest proposed basement ground elevation, according to the architectural plans, is elevation 246. Therefore, assuming the slab is less than four feet thick, there is at least two feet of separation between the slab and the estimated seasonal high groundwater table.

A&M Response 4/22/25: Test Pit TP-105 was performed on April 9, 2025 as near to the proposed footprint of Units 1-3 as practicable due to an existing retaining wall and steep slopes. Ledge was uncovered at elevation 249.5. No groundwater was noted. Additional Test Pits were performed on the same day within the footprint of the proposed drainage system as detailed in the revised Grading and Drainage plan and test pit Form 11 Logs within the revised drainage report.

Apex Response 5/2/25: Acknowledged. The Applicant performed test pit TP-105 approximately 11 feet from the nearest edge of the proposed building for units 1-3 and encountered ledge at elevation 249.5. The finished floor elevation of Units 2 and 3 are 252.70. Assuming the slab is 2 feet thick, the bottom of slab is at elevation 250.70. Therefore, to comply with this regulation, the elevation of estimated seasonal high groundwater (ESHGW) must be 248.70 or lower. Ledge was encountered at elevation 249.50, and the submitted test pit log did not indicate any mottling. Therefore, we believe the proposed design complies with this regulation.

5. *Section 12.9.5.4 – Country drainage is preferred along roadways, sidewalks, pathways, and other compacted surfaces where soils permit.*

   The Applicant proposes vegetated swales along the east, north, and south sides of the proposed development.

   A&M Response 4/22/25: Comment has been noted and the Applicant takes no exception to this comment.

   Apex Response 5/2/25: Item closed.

6. *Section 12.9.5.5 – Pocket parks, plazas, terraces, and other civic gathering spaces shall incorporate low-impact development techniques consistent with Appendix VI-B of Chapter 181 that address stormwater on-site quantity and quality.*

   Appendix VI-B of Chapter 181 indicates that cisterns can be used to harvest and store rainwater runoff from roofs, which can help reduce flooding and erosion caused by stormwater runoff. The project proposed two subsurface stormwater infiltration chambers systems that function as cisterns per this regulation. The Applicant proposes vegetated swales along the east, north, and south sides of the proposed development. Vegetated swales are an accepted low impact development (LID) technique.

   A&M Response 4/22/25: Comment has been noted and the Applicant takes no exception to this comment.

   Apex Response 5/2/25: Item closed.

7. *Section 12.9.5.6 – Reduce impervious surfaces and consider opportunities for permeable pavement where applicable. Drain impervious surfaces into on-site landscape areas. Reduce stormwater collection and removal from site.*

The project does not include the use of permeable pavement. A paved bike path is proposed at the northwestern corner of the site, with runoff directed into the adjacent roadway. Additionally, no rain gardens or vegetated retention basins are proposed. Instead, the project relies on a subsurface infiltration chamber system, which has been designed to maximize available space for the townhouse development.

A&M Response 4/22/25: Comment has been noted and the Applicant takes no exception to this comment.

Apex Response 5/2/25: We defer to the Planning Board whether permeable pavement is required.

8. *Section 12.9.5.7 –Strive to replicate natural hydrologic conditions and manage precipitation on-site by exceeding the LID and conservation design requirements.*

   As mentioned above, the project proposes several LID techniques, including subsurface stormwater infiltration chambers and vegetated swales.

   A&M Response 4/22/25: Comment has been noted and the Applicant takes no exception to this comment.

   Apex Response 5/2/25: Item closed.

9. *Section 12.9.5.8 – Use stormwater harvesting systems, such as cisterns and ponds, for plant irrigation.*

   The Applicant should confirm if the project includes any irrigation for plants or grass at the surface level.

   A&M Response 4/22/25: No irrigation is proposed for the project. It is understood that the plantings will require hand-watering after installation until fully established. Plantings shall remain established and in good health for a period of 2-years after the issuance of an Occupancy Permit or shall be replaced in kind.

   Apex Response 5/2/25: Acknowledged. We defer to the Planning Board whether irrigation is required.

Stormwater Management Regulations – Chapter 181 Article VI of the Code of Lexington

10. This project is classified as an above-threshold project because it requires site plan review and will disturb more than 10,000 square feet of land area, and therefore is subject to Chapter 181 in its entirety. The project is required to meet the above-threshold performance standards and the stormwater permit is consolidated into the site plan review application, pursuant to § 181-72.A.(4).

    A&M Response 4/22/25: Comment has been noted and the Applicant takes no exception to this comment.

    Apex Response 5/2/25: Acknowledged. **Item closed.**

11. *§ 181-73.B.(2)(d) – The minimum time of concentration for street drainage shall be five (5) minutes.*

    The submitted HydroCAD calculations use a minimum time of concentration of 6 minutes. The HydroCAD calculations should be revised to use a minimum time of concentration of 5 minutes.

A&M Response 4/22/25: The HydroCAD minimum time of concentrations have been updated to 5 minutes in the revised drainage report submitted with this response letter.

Apex Response 5/2/25: The HydroCAD report submitted in the revised drainage report continues to use a minimum time of concentration of 6 minutes and has not been updated to use a minimum time of concentration of 5 minutes.

12. *§ 181-73.B.(2)(f) – Impervious cover is measured from the Site plan and includes any material or structure on or above the ground that prevents water from infiltrating through the underlying soil (including compacted gravel).*

    The Applicant should add the property's proposed ratio of impervious coverage to the dimensional requirements table on Sheet C-102.

    A&M Response 4/22/25: The impervious coverage ratio has been added to the dimensional requirements table on revised Sheet C-102.

    Apex Response 5/2/25: Acknowledged. The impervious coverage ratio has been added to the dimensional requirements table. **Item closed.**

13. *§ 181-73.B.(2)(g) – Off-site areas shall be assessed based on their predeveloped condition for computing the water quality volume (i.e., treatment of only on-site areas is required). However, if an off-site area drains to a proposed stormwater management facility, flow from that area must be accounted for in the sizing of a specific Facility.*

    The Proposed Watershed Plan (PWS) in the Drainage Report limits the area of analysis in the HydroCAD model to the project site. Additionally, the existing conditions plan does not depict topography beyond the property limits, making it unclear whether off-site areas contribute runoff to the site. To ensure accurate watershed delineation and proper stormwater management system sizing, we recommend that the Applicant supplement the surveyed topography with publicly available LIDAR data, such as from MassMapper, to identify any off-site drainage areas that may require consideration.

    A&M Response 4/22/25: LIDAR data from the Town of Lexington's online GIS program, MAPGEO, has been added to the Existing and Proposed Watershed Plans. The abutting property to the east of the site has a small portion of grassed area (west of the abutting house) that flows onto the site. All other abutting landcover flows to the north and south of the site.

    Apex Response 5/2/25: Acknowledged. We take no exceptions to the delineation of overland flow from the abutting property. **Item closed.**

14. *§ 181-73.B.(2)(l-n) – Retain the volume of runoff equivalent to, or greater than, 1.0 inch multiplied by the total post-construction impervious surface area on the redeveloped site, including any directly connected impervious area draining onto the redeveloped site; **and/or** remove 90% of the average annual load of Total Suspended Solids generated from the impervious area on the site; and remove 60% of the average annual load of Total Phosphorus (TP) generated from the total area on the site.*

    The "Stormwater Recharge/Water Quality Volume Table" and the "TSS Removal Calculation Worksheet" provided in Section 6 of the Drainage Report demonstrate compliance with these requirements. The proposed design retains runoff equivalent to 1.0 inch multiplied by the total post-construction impervious surface area on the redeveloped site and removes 90% of the average annual load of Total Suspended Solids generated from the impervious area on the site.

A&M Response 4/22/25: Comment has been noted and the Applicant takes no exception to this comment.

Apex Response 5/2/25: The revised drainage calculations continue to demonstrate compliance with this requirement. **Item closed.**

15. *§ 181-74.A.(5) – Stormwater runoff velocities shall be minimized to the greatest extent practicable. Increases in runoff velocities due to the removal of existing vegetative cover during development and the resulting increase in impermeable surface area after development must be taken into account when providing for erosion control.*

    The proposed vegetated swales along the northern and southern extents of the site include sections with steep slopes, exceeding 20% in some areas. These slopes may result in higher runoff velocities, potentially leading to erosion and reduced treatment effectiveness. We recommend incorporating flow-dissipating measures, such as check dams, stone weirs, or similar velocity control structures, to slow and disperse runoff within the swales and enhance their overall performance.

    A&M Response 4/22/25: Check dams have been added to the steep slopes all the grassed swales as detailed in the revised Grading and Drainage plan.

    Apex Response 5/2/25: Acknowledged. The Applicant has proposed stone check dams within the vegetated swales at intervals of approximately 30–40 feet and has reinforced sections of the swales with rip rap where slopes exceed 3:1. We recommend that the Applicant provide a construction detail for the proposed check dams to clarify their dimensions, materials, and installation method. Additionally, we suggest that A&M coordinate with the project landscape architect to ensure that slope stabilization measures are compatible with existing and proposed vegetation, particularly where slopes intersect with tree root zones or proposed planting areas.

16. *§ 181-74.A.(7) –Sediment trapping and settling devices shall be employed to trap and/or retain suspended sediments and allow time for them to settle out in cases where perimeter sediment controls (e.g., silt fence and hay bales) are deemed to be ineffective in trapping suspended sediments on-site.*

    The Erosion Control Plan (C-101) does not currently include temporary diversion swales or sediment traps. The existing site has relatively steep grades that will be exposed during earthwork activities. The planned cut areas will leave sections of bare soil vulnerable to erosion and sediment transport. To mitigate these risks, we recommend that the Applicant incorporate temporary diversion swales and sediment traps into the Erosion Control Plan. These measures will help manage runoff, slow flow velocities, and improve sediment retention during construction, particularly in areas where steep existing slopes are disturbed. Temporary sediment traps should not be located within the footprints of the proposed stormwater infiltration chamber systems.

    A&M Response 4/22/25: A linear temporary sediment trap for temporary use during construction has been added to C-101, along the low point of the site to mitigate off-site flow to Waltham Street during heavy rainfall and to trap stormwater flowing to the relative low-point of the site.

    Apex Response 5/2/25: Acknowledged. The Applicant has included a temporary linear sediment trap at the site's low point to help intercept and retain runoff during construction. However, no temporary diversion swales are shown on the Erosion Control Plan. Given the steep existing and proposed slopes and the extent of site clearing, we recommend the use of temporary diversion swales to route runoff toward the sediment trap during active earthwork. These measures should be repositioned as needed

throughout construction, consistent with the Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas, to maximize sediment capture and minimize off-site impacts.

17. *§ 181-75.D. – Operation and Maintenance Plan.*

The Applicant should make the following modifications to the Operation & Maintenance Plan (O&M) consistent with the requirements of § 181-75.D.:

a. The owner should sign the O&M plan.

b. Add to the O&M plan a plan or map drawn to scale showing the location of the systems and stormwater management facilities, including existing and proposed easements, catch basins, manholes/access lids, main, and stormwater management facilities along with the discharge point.

A&M Response 4/22/25: The Owner, HongSheng Tang, has signed the "Illicit Discharge Statement" at the end of the drainage report. The drainage report contains the O&M report under Section 2.0. A simplistic BMP Plan has been added to the O&M Plan as requested.

Apex Response 5/2/25: Per the requirement § 181-75.D.(2)(b), the O&M plan should be signed by the owner. The O&M plan should function as a standalone document and is separate from the Illicit Discharge Statement.

The Applicant has included a BMP Plan in the O&M plan, consistent with the requirement.

Massachusetts Stormwater Management Standards

18. *Standard 1: No new untreated discharges to wetlands*

Standard 1 restricts new stormwater conveyances or outfalls from discharging untreated stormwater to wetland resources. The submitted HydroCAD calculations indicate that the proposed stormwater infiltration systems retain stormwater runoff up to the 100-year storm event. However, our comments in this letter—specifically under Comment #19 below—should be addressed before we can confirm compliance with Standard 1.

A&M Response 4/22/25: Comment has been noted and the Applicant takes no exception to this comment. Please see A&M response to Comment #19, below.

Apex Response 5/2/25: We cannot confirm compliance with this standard until Comment 19.a is reconciled.

19. *Standard 2: Peak rate attenuation*

The "Proposed Conditions – Peak Rate of Runoff" section of the Drainage Report provides a table that compares post-development peak rates of runoff to pre-development rates at the design point for the 1-, 2-, 10-, and 100-year storm events. We have the following comments pertaining to Standard 2:

a. According to the Massachusetts Stormwater Handbook, test pits must be conducted at each proposed infiltration BMP location to confirm soil texture, permeability, and depth to ESHGW. The two test pits were excavated approximately 35 feet outside of the proposed infiltration system footprint. Given the presence of ledge outcroppings on site, subsurface conditions may be variable. We recommend the Applicant excavate an additional test pit within the footprint

of the proposed infiltration area to confirm suitability, prior to any potential approval by the Planning Board.

A&M Response 4/22/25: Additional test pits have been conducted around the proposed infiltration system. See Grading and Drainage Plan as well as submitted Form 11's in the revised drainage report for TP-103 – 106.

Apex Response 5/2/25: Test pits were excavated to a depth of two feet below the bottom of the proposed chamber systems. While groundwater was not encountered at that depth, the seasonal high groundwater elevation (ESHGW) is conservatively assumed to be two feet below the bottom of the systems due to the absence of deeper data.

Volume 3 of the Massachusetts Stormwater Handbook ("Documenting Compliance") states that a mounding analysis is required when the vertical separation between the bottom of an infiltration BMP and ESHGW is less than four (4) feet and the BMP is used to attenuate the peak discharge from the 10-year or greater 24-hour storm. Based on the current assumptions, this requirement appears to apply.

Accordingly, we recommend that the Applicant either (a) perform a mounding analysis to demonstrate that groundwater mounding will not impact system performance, or (b) excavate additional test pits to a depth of four feet below the bottom of the infiltration systems to verify that greater separation to groundwater exists and that mounding analysis is not required.

b. The time of concentration for Subcatchments P-6 and P-7 in the post-development condition is calculated as 12.8 minutes, which exceeds the corresponding time of concentration in the pre-development condition. Typically, post-development times of concentration are shorter due to increased impervious surfaces and more direct flow paths. However, in this case, the proposed vegetated swales extend the flow paths around the site perimeter, potentially increasing travel time. The calculations for post-development time of concentration use a "Woods + Light Brush" land cover classification. To verify the appropriateness of this assumption, the Applicant should provide a construction detail of the vegetated swales, including proposed land cover, vegetation type, and final surface treatment.

   A&M Response 4/22/25: The vegetated swales have been updated to use a dense grass land cover classification. The time of concentration for these swales has been reduced to 7.7 minutes.

   Apex Response 5/2/25: Acknowledged. We take no exception to this land cover assumption. The revised time of concentration of 7.7 minutes is less than the corresponding time of concentration in the pre-development condition. **Item closed.**

c. The proposed HydroCAD model for Subcatchments P-6 and P-7 assign a Curve Number (CN) of 55, corresponding to a "Woods" land cover classification. However, our understanding is that the existing wooded area within these areas will be cleared up to the property line as part of the project. The Applicant should update the model to reflect the post-development land cover conditions accurately, ensuring that the assigned Curve Number aligns with the actual site modifications.

   A&M Response 4/22/25: The land cover classification for these sub catchments has been updated to Grass "Good".

Apex Response 5/2/25: Acknowledged. We take no exception to this land cover classification. **Item closed.**

d. The proposed infiltration chamber system does not include a dedicated emergency overflow mechanism. If the system exceeds capacity due to an extreme storm or becomes clogged from poor maintenance, stormwater may back up through the proposed catch basins at the site's entrance, potentially discharging onto Waltham Street. The Massachusetts Stormwater Handbook (Volume 2, Chapter 2) recommends that subsurface infiltration systems incorporate an outlet near the top of the system to accommodate emergency overflows. However, due to site constraints, there are no existing wetlands or stormwater infrastructure available for connection. Given that the 100-year storm event does not result in any stormwater backing up to the elevation of the upstream catch basins, we take no exceptions to the proposed design. However, maintenance of the proposed stormwater infiltration systems consistent with the O&M Plan and the manufacturer's guidelines are imperative to avoid flooding.

   A&M Response 4/22/25: Comment has been noted and the Applicant takes no exception to this comment. An Operation and Maintenance log has been included in the drainage report under Section 2.0 "An Operation and Maintenance".

   Apex Response 5/2/25: Acknowledged. **Item closed.**

20. *Standard 3: Recharge*

    Section 6 of the Drainage Report provides recharge calculations. The calculations demonstrate that the provided recharge volume far exceeds the required volume.

    We cannot confirm compliance with this standard until the additional test pit log is submitted per our comment above.

    A&M Response 4/22/25: Additional test pits have been submitted. The recharge volume still far exceeds the required volume.

    Apex Response 5/2/25: We cannot confirm compliance with this standard until our response to Comment 19.a is reconciled.

21. *Standard 4: Water quality*

    The project is subject to the standard removal rate of 80% of the annual average TSS load. The calculations provided in Section 6 of the Drainage Report show 98% proposed TSS removal in compliance with these requirements. TSS removal is achieved via deep sump hooded catch basins, a proprietary hydrodynamic separator, and a subsurface isolator row prior to discharge to each of the subsurface infiltration systems. We recommend the Applicant delineate the limits of the isolator row on the Grading & Drainage Plan.

    We cannot confirm compliance with this standard until the new test pit log is submitted.

    A&M Response 4/22/25: Additional test pits have been submitted. The limits of the isolator row have been added to the Grading & Drainage Plan.

Apex Response 5/2/25: Acknowledged. Isolator rows are shown on the Grading & Drainage Plan. We cannot confirm compliance with the TSS removal standard until our response to Comment 19.a is reconciled.

22. *Standard 5: Land use with higher potential pollutant loads (LUHPPL)*

    The project is not considered a LUHPPL. Therefore, Standard 5 does not apply.

    A&M Response 4/22/25: No response required. The Applicant takes no exception to this comment.

    Apex Response 5/2/25: Item closed.

23. *Standard 6: Critical areas*

    The project site does not discharge to or near a critical area and therefore Standard 6 does not apply.

    A&M Response 4/22/25: No response required. The Applicant takes no exception to this comment.

    Apex Response 5/2/25: Item closed.

24. *Standard 7: Redevelopment*

    The project is not considered a redevelopment. Therefore, Standard 7 does not apply.

    A&M Response 4/22/25: No response required. The Applicant takes no exception to this comment.

    Apex Response 5/2/25: Item closed.

25. *Standard 8: Construction period pollution prevention and erosion and sedimentation control*

    a. The proposed project will disturb less than one (1) acre of land and is therefore exempt from filing a National Pollutant Discharge Elimination System (NPDES) Stormwater Construction General Permit.

    b. To prevent compaction of underlying soils, which could significantly reduce infiltration capacity, the applicant should adhere to the manufacturer's installation guidelines for the subsurface infiltration chamber system. The Massachusetts Stormwater Handbook recommends that infiltration areas be roped or fenced off before construction, and that construction equipment should not be allowed to traverse these areas to preserve soil permeability. We recommend the Applicant add fencing to the Erosion Control Plan to protect the area of the proposed infiltration systems from sedimentation and compaction during construction.

    c. The Stormwater Management Report contains a Construction Maintenance Plan consistent with the requirements of Standard 8.

    A&M Response 4/22/25: No response required. The Applicant takes no exception to these three comments 25a-c.

    Apex Response 5/2/25: We have no further comments pertaining to items (a) and (c). Per item (b), we recommend the Applicant add fencing to the Erosion Control Plan to protect the area of the proposed infiltration systems from sedimentation and compaction during construction.

26. *Standard 9: Operation and maintenance plan (O&M plan)*

    Section 2.0 of the Drainage Report contains an Operation & Maintenance Plan consistent with the requirements of Standard 9.

    A&M Response 4/22/25: No response required. The Applicant takes no exception to this comment.

    Apex Response 5/2/25: Item closed.

27. *Standard 10: Prohibition of illicit discharges*

    An illicit discharge statement was provided. However, it has not been signed. Apex recommends the Applicant submit an illicit discharge statement signed by the Owner consistent with Standard 10 requirements.

    A&M Response 4/22/25: An illicit discharge statement signed by the property owner has been provided on the last page of the revised drainage report.

    Apex Response 5/2/25: Acknowledged. The Applicant has provided a signed illicit discharge statement. **Item closed.**

General Comments

28. The project includes several proposed retaining walls and a landscaped boulder wall; however, the plans do not specify the type of retaining walls proposed, nor do they include construction details. We recommend that the Applicant provide detailed descriptions and construction details for each type of retaining wall.

    Additionally, any required perforated subdrains and their connections to the site's drainage infrastructure should be clearly shown on the Grading & Drainage Plan to ensure proper drainage and wall stability.

    Several of the proposed retaining walls reach heights of up to 14 feet, yet no fall protection (e.g., fencing or guardrails) is depicted. To enhance safety, we recommend that the Applicant incorporate appropriate fall protection measures where required by applicable building codes and best practices.

    A&M Response 4/22/25: Typical retaining wall details have been added to Detail Sheet C-507. Fall protection in the form of a 6' tall chain-link fence has been added to the Layout and Materials sheet. All walls over 48 inches in height are to be designed and stamped by a structural engineer during the Building Permit phase. An underdrain has been added to the southern retaining wall to ensure proper drainage, and the details of the underdrain shall be coordinated and confirmed with the wall designer during the building permit phase. A detail of the landscaped boulder wall will be provided in subsequent site plan revisions during the Site Plan Review permitting process.

    Apex Response 5/2/25: Acknowledged. We recommend that the Planning Board condition any project approval on the submission of fully engineered retaining wall plans and calculations, stamped by a licensed professional engineer, prior to building permit issuance.

29. The proposed retaining walls are located close to abutting property lines, raising concerns about whether there is adequate space for proper construction, including material staging, equipment access, and backfill placement. The Applicant should confirm that sufficient clearance is available for these activities and that erosion and sediment controls can be properly installed and maintained within the available space during construction.

    Additionally, the Applicant should clarify how construction activities will be contained within the property limits and whether temporary construction access restrictions or protective barriers will be implemented to prevent unintended disturbance to adjacent properties.

    To ensure structural integrity and compliance with best practices, we recommend that the Applicant provide detailed retaining wall design drawings stamped by a professional structural engineer before construction.

    A&M Response 4/22/25: Additional callouts have been added to the Layout & Materials Plan, highlighting the distance to abutting property lines and heights of the wall. The wall has been designed to be a lessor height than the distance to abutting property lines. All walls over 48 inches in height are to be designed and stamped by a structural engineer during the Building Permit phase. It is anticipated that the retaining walls will be gravity block walls without the need for geogrid.

    Apex Response 5/2/25: Acknowledged. Consistent with our response to Comment 28, we recommend that the Planning Board condition any approval on the submission of fully engineered retaining wall plans and calculations, stamped by a licensed professional structural engineer, prior to building permit issuance.

30. The project proposes four street-level parking spaces with a cross slope of approximately 7%. Excessive cross slopes can create vehicle stability issues and make it difficult for passengers to enter and exit vehicles safely. We recommend that parking space cross slopes do not exceed 5% to maintain functionality and user comfort.

    The Applicant should clarify if the four street-level parking spaces are considered visitor spaces for all units. The Massachusetts Accessibility Code (521 CMR) requires that “common-use” parking areas include accessible parking spaces. If these spaces are shared parking, the Applicant may be required to provide an accessible parking space. The Applicant has provided construction details of accessible parking spaces, but none are shown on the plans.

    A&M Response 4/22/25: Slopes have been reduced to 5% across the bituminous parking area. A potential accessible stall has been shown, and the grades meet minimum ADA/MAAB requirements, however, the Applicant has refrained from expressly declaring the stall as handicapped-only, to avoid this restriction due to limited visitor parking on-site. Additional discussion with the Lexington Planning Board during the Hearing process will be required.

    Apex Response 5/2/25: Acknowledged. The Applicant has reduced cross slopes in the parking area to 5%. This is generally acceptable for parking areas without accessible spaces. However, ADA requirements limit all slopes in accessible parking areas to 2%. The proposed grading of the potential accessible stall is not compliant with ADA requirements. If the Applicant wishes to provide a marked or potential ADA accessible stall, the slope of the parking space and adjacent access aisle must be reduced to a maximum slope of 2% in all directions.

31. The Utilities Plan does not show any proposed gas utilities on site. It is assumed that the project is designed to be fully electric, but the applicant should confirm whether natural gas service is required for the development. If gas utilities are needed, their proposed locations should be shown on the plans to ensure coordination with other site infrastructure.

    A&M Response 4/22/25: Gas is not proposed for this site due to Lexington's fossil fuel-free initiative, as requested by the Town. Units will utilize electric heat and cooling.

    Apex Response 5/2/25: Acknowledged. **Item closed.**

32. There is no rip rap pad shown at the outlet of FES-1. Rip rap should be provided at the outlet to prevent erosion. We recommend the Applicant show rip rap on the plan set or provide a detail for this outlet.

    A&M Response 4/22/25: FES-1 has been eliminated, and area drain "AD-1" has been re-routed to roof drain lateral "RD-1."

    Apex Response 5/2/25: Acknowledged. AD-1 has been rerouted to roof drain lateral RD-1. The proposed pipe sizing in the Drainage Report indicates that the pipe from RD-1 to DMH-1 has sufficient capacity for this design. However, AD-1 is proposed as a drop structure in order to make up grade differential. The resulting structure has a depth from rim to invert of 27.5 feet. This depth raises concerns related to structural integrity, constructability, and long-term maintenance.

    Additionally, the proposed invert of the discharge into the lateral from RD-1 to DMH-1 is 243.9. This is located approximately 12 feet from TP-105 which encountered ledge at elevation 249.5. There is a reasonable probability that ledge removal may be required in order to construct this drain line as proposed.

33. Several areas on the Grading & Drainage Plan show proposed contours tying into existing contours where the existing slopes are as steep as 1H:1V (notably in the northeastern corner of the site). While we recognize that some existing slopes on-site are naturally steep, the proposed earthwork near these areas may increase the risk of erosion and slope instability.

    To mitigate potential stability concerns, we recommend that the Applicant provide slope stabilization measures, such as riprap or other appropriate treatments, in areas where slopes are steeper than 2H:1V.

    A&M Response 4/22/25: Riprap has been proposed along existing slopes 2:1 or greater.

    Apex Response 5/2/25: Acknowledged. The Applicant has proposed riprap in areas in and around the proposed swales where existing or proposed slopes are 2:1 or steeper. We suggest that A&M coordinate with the project landscape architect to ensure that slope stabilization measures are compatible with existing and proposed vegetation, particularly where slopes intersect with tree root zones or proposed planting areas. **Item closed.**

34. Based on the proposed inverts and slopes, the pipe downstream of AD-1 appears to conflict with the finished grade, potentially daylighting between the two nearby retaining walls. The Applicant should clarify the pipe's alignment and confirm that it remains properly buried throughout its length. Adjustments may be necessary to maintain adequate cover and prevent exposure.

A&M Response 4/22/25: FES-1 has been eliminated, and area drain "AD-1" has been re-routed to roof drain lateral "RD-1."

Apex Response 5/2/25: See response to Comment 32 above.

35. The proposed sewer design includes a deep manhole with a rim-to-invert depth of 22.5 feet (SMH-1). While deep sewer manholes can be necessary in certain conditions, this depth raises concerns related to structural integrity, constructability, and long-term maintenance.

    We recommend that the Applicant provide additional documentation confirming the following:

    - Structural Design: The manhole is designed to withstand soil pressure at this depth, with an appropriate diameter and reinforcement as required by industry standards.
    - Constructability: The excavation plan addresses trench stability, dewatering (if necessary), and worker safety in compliance with OSHA regulations.
    - Maintenance Accessibility: The proposed depth does not create challenges for routine maintenance, including jetting and vacuum truck operations.
    - Alternative Considerations: Whether adjustments to pipe slopes, intermediate manholes, or other design modifications could reduce the required depth.

    We recommend that the Applicant coordinate with the Lexington Engineering Department to confirm that the proposed depth is acceptable and meets all applicable regulations.

    A&M Response 4/22/25: Proposed sewer manhole "SMH-1" has been re-routed to under the bituminous parking lot, reducing the rim to invert depth. Proposed sewer manhole "SMH-3" has been labeled as a drop manhole with a distance of 10.5 feet from the rim to the proposed invert elevation.

    Apex Response 5/2/25: Acknowledged. SMH-1 is no longer proposed as a drop structure. We take no exception to the revised design, including the 10.5 foot drop at SMH-3. **Item closed.**

36. The Fire Truck Vehicle Movements Plan (C-105) indicates that the fire apparatus must reverse out of the site. Some fire departments prohibit apparatus from reversing due to safety concerns and operational limitations. We recommend that the Applicant confirm whether this maneuver is acceptable to the Lexington Fire Department or if modifications to the site layout are necessary to accommodate forward egress.

    A&M Response 4/22/25: The fire apparatus has been updated to make a left turn into the site as detailed in the submitted revised Fire Truck Turning Plan.

    Apex Response 5/2/25: Acknowledged. The Fire Truck Vehicle Movements Plan continues to indicate that the fire apparatus must reverse out of the site. We recommend that the Applicant confirm whether this maneuver is acceptable to the Lexington Fire Department or if modifications to the site layout are necessary to accommodate forward egress.

Our review is based on the information that has been provided. As noted above, additional review is required to verify comments have been incorporated into the revised submission.

We appreciate the opportunity to assist you with this important project. Please feel free to contact me at (617) 657-0278 or dylan.odonnell@apexcos.com with any questions or comments.

Sincerely,

Apex Companies, LLC

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MEMORANDUM

TO: Planning Director, Planning

FROM: Marissa Martel, Engineering

DATE: May 6, 2025

SUBJECT: 952 Waltham St Comments

The Engineering Division has reviewed the Site Plans at 952 Waltham St. We submit the following:

Utility Comments:

- Water main diameter should be a minimum of 8 inches.
- Sewer main diameter should be a minimum of 8 inches. Sewer service diameter should be a minimum of 6" with cleanouts no more than 10 feet from the building.
- Any existing water and/or sewer services that will be abandoned, must be capped at their respective mains.
- Detail of drop manhole in street should be shown.
- Hydrant should be coming off of water main and not from the 6" fire service to building.

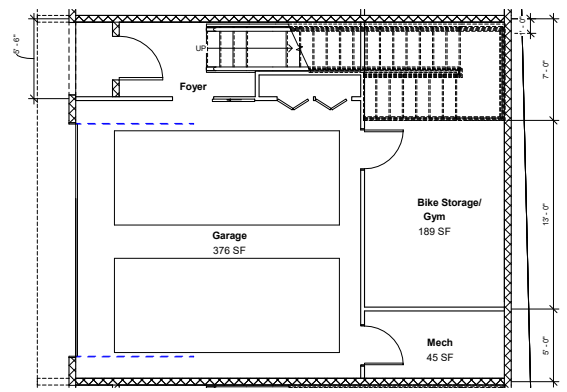
Roadway Design Comments:

- NA

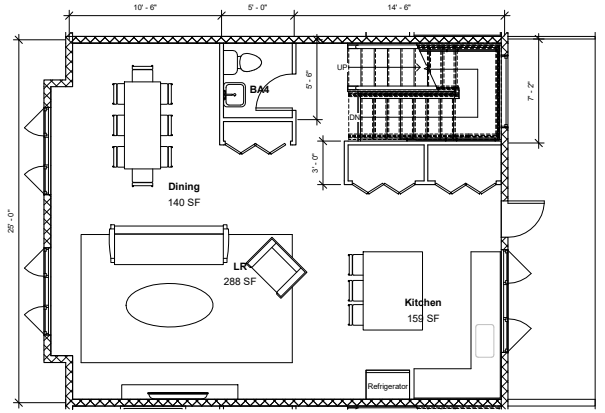
952 WALTHAM STREET, LEXINGTON

NEXT PHASE STUDIOS

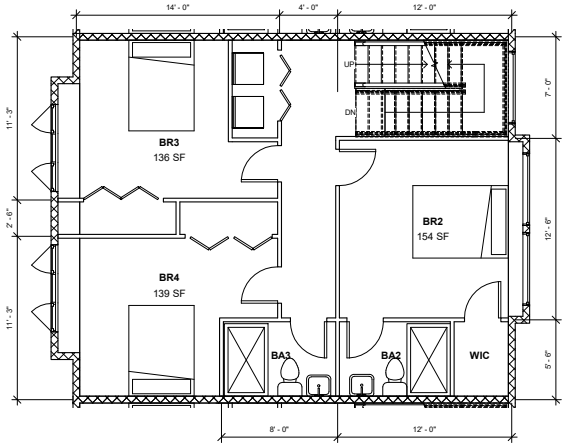
ONE HOLDEN STREET, BROOKLINE, MA 02445



1 Unit Plan Basement
1/4" = 1'-0"



2 Unit Plan Fl1
1/4" = 1'-0"



3 Unit Plan Fl2
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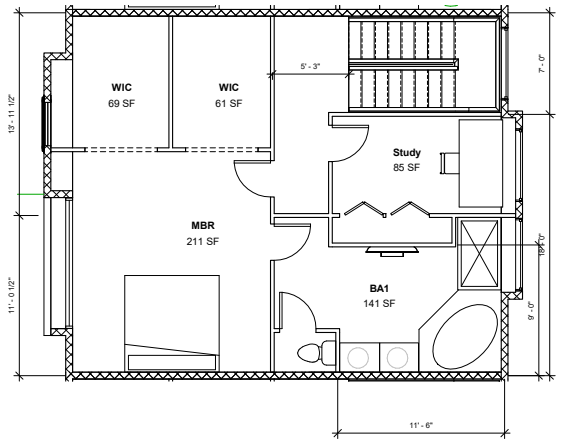


4 Upper 3
1/4" = 1'-0"

PROJECT NAME:

952 WALTHAM ST

LEXINGTON, MA

ARCHITECT:

NEXT PHASE STUDIOS

1 Holden Street, Brookline, MA 02445

REVISIONS

NO.	DATE	DESCRIPTION

SHEET NAME

UNIT FLOOR PLANS
UNITS 1/2/3, 6/7/8

SHEET NUMBER

A101

2/9/2025 10:25:02 PM

PROJECT NAME:

952 WALTHAM ST

LEXINGTON, MA

ARCHITECT:

NEXT PHASE STUDIOS

1 Holden Street, Brookline, MA 02445

REVISIONS

NO.	DATE	DESCRIPTION

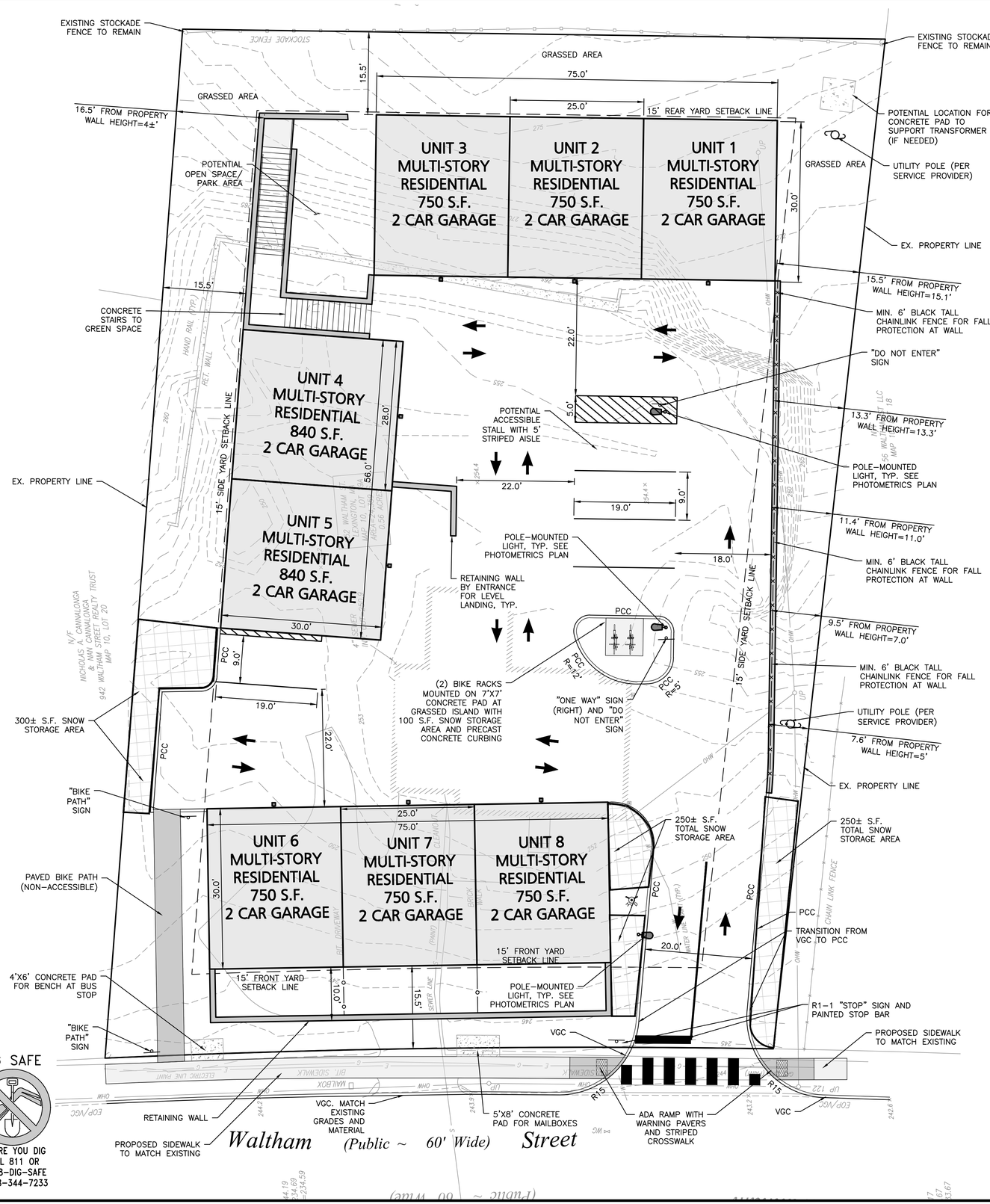
SHEET NAME

UNIT FLOOR PLANS
UNIT 4/5

SHEET NUMBER

A102

2/9/2025 10:25:02 PM



GENERAL NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR IT'S REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
3. PRECAST CONCRETE CURB (PCC) AND VERTICAL GRANITE CURB (VGC) WILL BE USED.
4. EXISTING CONDITIONS TOPOGRAPHIC BASE PLAN FOR ALL SITE PLAN SHEETS TAKEN FROM AN ON-THE-GROUND SURVEY PERFORMED BY A.S. ELLIOTT LAND SURVEYORS DATED OCTOBER 10, 2024.
5. 925± S.F. TOTAL SNOW STORAGE AREA AVAILABLE ON-SITE. SNOW SHALL BE REMOVED FROM THE SITE AS NEEDED IF IT DOES NOT FIT IN DESIGNATED AREAS. SNOW BANKS ALONG WALTHAM STREET AT DRIVEWAY SHALL BE KEPT LESS THAT 3 FEET IN HEIGHT AND SHALL BE PROMPTLY REMOVED AS NEEDED TO ENSURE SAFE SIGHT DISTANCES FOR VEHICLES EXITING THE SITE. THE PROPOSED HYDRANT SHALL BE ACCESSIBLE AT ALL TIMES AND NO SNOW SHALL BE STORED IN FRONT OR IMMEDIATELY ADJACENT TO THE HYDRANT.

LEGEND

PROP. PROPERTY LINE	
SIGN	
SIDEWALK	
BUILDING	
CURB	
RETAINING WALL	
ADA ACCESSIBLE RAMP	
ADA DET. WARNING SURFACE	
SETBACK LINE	
BASELINE	
BOLLARD	
LIGHTING	

DIMENSIONAL REQUIREMENTS: ONE FAMILY DWELLING (RO-1) AND VILLAGE OVERLAY DISTRICTS (VO)

ITEM	REQUIRED/ALLOWED	PROPOSED
LOT AREA (MIN.)	N/A	24,358± S.F. 0.56± ACRES
LOT FRONTAGE (MIN.)	N/A	125'
FRONT YARD BUILDING SETBACK	15'	15.5'
SIDE YARD BUILDING SETBACK	15' (B)(C)	15.5'
REAR YARD BUILDING SETBACK	15' (B)	15.5'
BUILDING HEIGHT (MAX.)	40' (A)	VARIES (D)
PROPOSED IMPERVIOUS COVER (%)	N/A	67.4% (16,412± S.F.)

(A) IN THE VO DISTRICT, WHERE AT LEAST 30% OF THE TOTAL NET FLOOR AREA OF THE STREET FLOOR OF THE DEVELOPMENT IS OCCUPIED BY NONRESIDENTIAL PRINCIPAL USES, THE MAXIMUM HEIGHT IS 60 FEET IF THE NONRESIDENTIAL USES ARE PERMITTED IN THE UNDERLYING DISTRICT OR 52 FEET IF THE NONRESIDENTIAL USES ARE NOT PERMITTED IN THE UNDERLYING DISTRICT.
(B) FOR INSTITUTIONAL USES (SEE TABLE 1) THE MINIMUM SETBACK FOR A BUILDING SHALL BE THE GREATER OF 25 FEET OR A DISTANCE EQUAL TO THE HEIGHT OF THE BUILDING AS DEFINED IN § 4.3. FOR OTHER NONRESIDENTIAL USES (SEE TABLE 1), INCREASE THE REQUIRED SIDE YARD TO 20 FEET PLUS ONE FOOT FOR EVERY ½ ACRE (OR FRACTION THEREOF) OVER 1/2 ACRE LOT AREA.
(C) FOR NONCONFORMING ONE- AND TWO-FAMILY RESIDENTIAL STRUCTURES, THE SIDE YARD SETBACK MAY BE REDUCED AS ALLOWED IN SECTION 8.4.1, NO INCREASE IN NONCONFORMING NATURE.
(D) SEE SUBMITTED BUILDING HEIGHT CALCULATION SHEETS.

OFF-STREET PARKING SUMMARY

USE: VO DISTRICT
ONE SPACE PER ONE UNIT

PARKING SUMMARY:
USE: 8 UNITS = 8 REQUIRED STALLS

20'x20' GARAGE STALLS	SURFACE STALLS	TOTAL PROVIDED	TOTAL REQUIRED
16	5	21	8

GENERAL NOTES:

1. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

COMMONWEALTH OF MASSACHUSETTS
CARLTON M. QUINN
CIVIL
No.49923
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	2025-04-18	REVISED FOR VO SITE PLAN REVIEW

APPLICANT\OWNER:
HONGSHENG TANG
952 WALTHAM STREET
LEXINGTON, MA, 02421

PROJECT:
TOWNHOUSE DEVELOPMENT
VILLAGE OVERLAY DISTRICT
952 WALTHAM STREET
LEXINGTON, MA

PROJECT NO.	3358-01	DATE:	2025-02-07
SCALE:	1" = 10'	DWG. NAME:	C-3358-01
DESIGNED BY:	DMR/BDP	CHECKED BY:	CMQ/ND

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801
TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

DRAWING TITLE:	SHEET No.
LAYOUT & MATERIALS PLAN	C-102

N:\PROJECTS\3358-01\CIVIL\DRAWINGS\CURRENT\C-3358-01_LAYOUT & MATERIALS.DWG

PLAN VIEW
952 WALTHAM STREET

AERIAL VIEW
952 WALTHAM STREET

AERIAL VIEW
952 WALTHAM STREET

AERIAL VIEW
952 WALTHAM STREET

AERIAL VIEW
952 WALTHAM STREET

AERIAL VIEW
952 WALTHAM STREET

PERSPECTIVE
952 WALTHAM STREET

PERSPECTIVE
952 WALTHAM STREET

PERSPECTIVE

952 WALTHAM STREET

PERSPECTIVE
952 WALTHAM STREET

INTERIOR
952 WALTHAM STREET

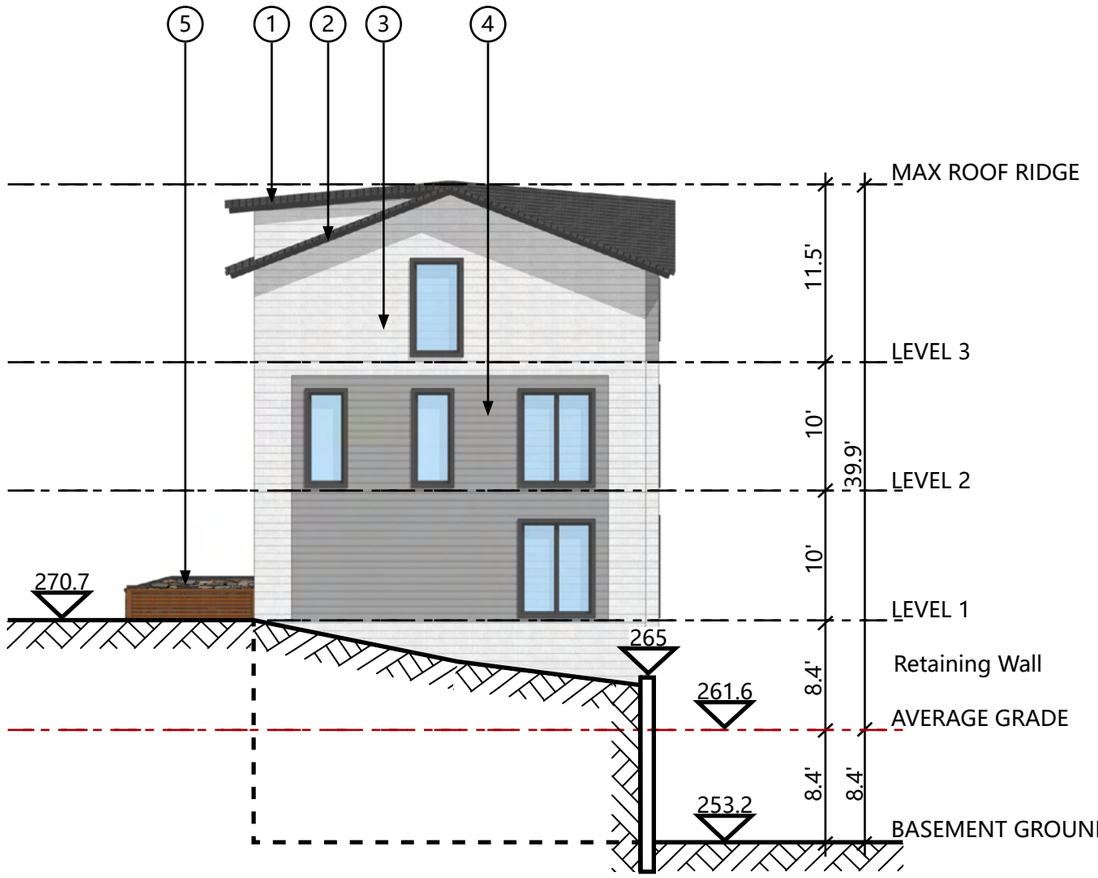
INTERIOR
952 WALTHAM STREET

1 WEST ELEVATION

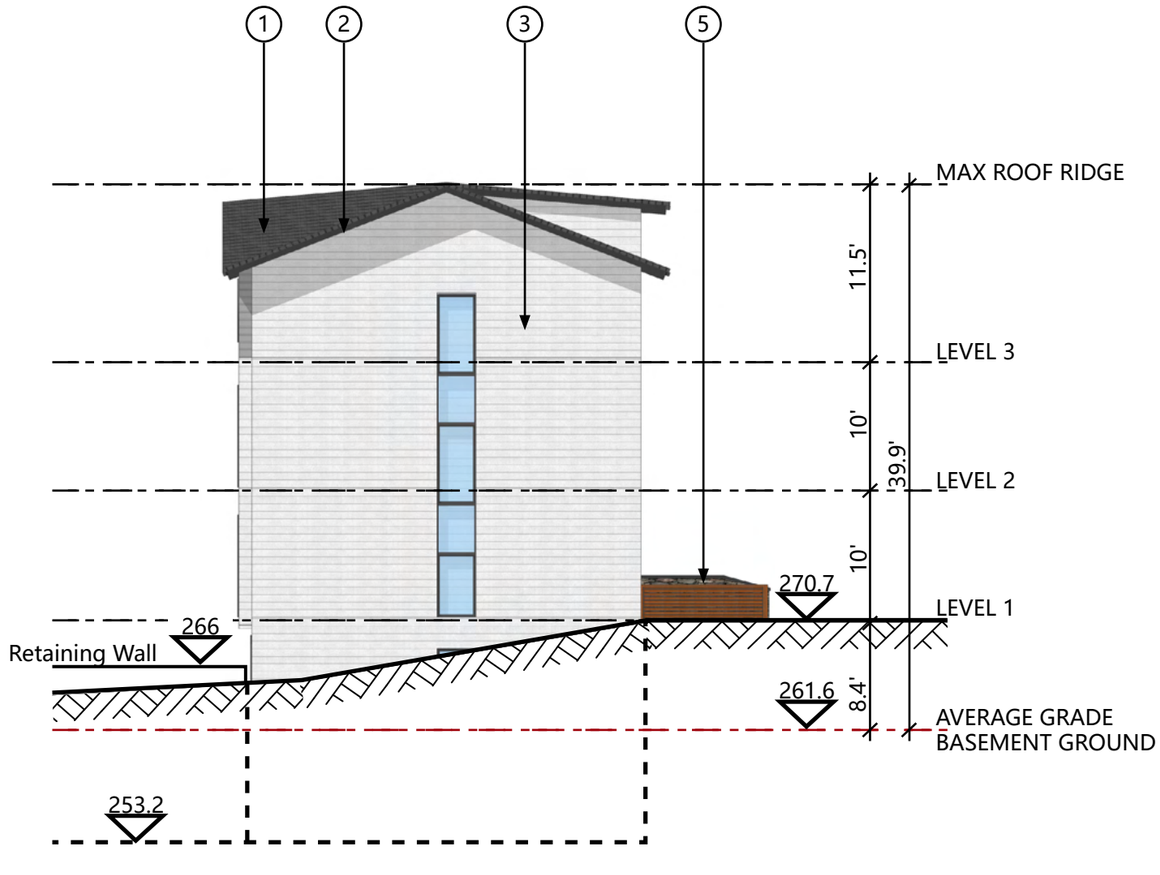
2 EAST ELEVATION

ELEVATION LEGEND	
1 ASPHALT SHINGLES	4 7" LAP SIDING - COLOR B
2 METAL TRIM	
3 7" LAP SIDING - COLOR A	

UNIT 1/2/3 ELEVATIONS
952 WALTHAM STREET



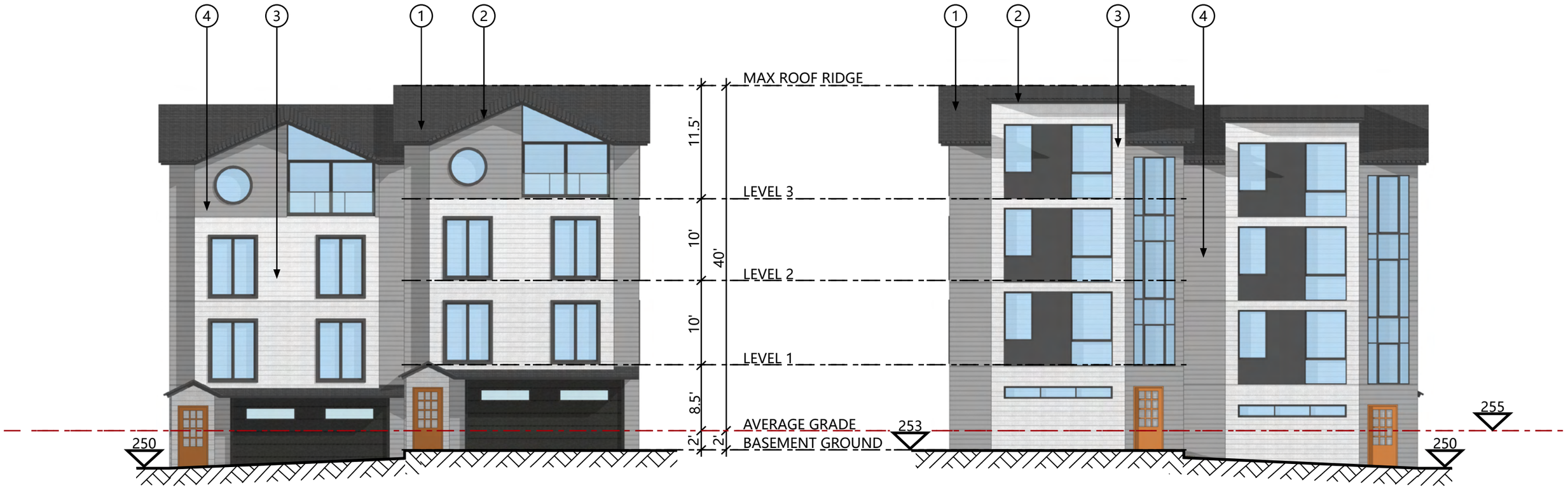
1 NORTH ELEVATION



2 SOUTH ELEVATION

ELEVATION LEGEND	
1 ASPHALT SHINGLES	4 7" LAP SIDING - COLOR B
2 METAL TRIM	5 GRANITE
3 7" LAP SIDING - COLOR A	

UNIT 1/2/3 ELEVATIONS
952 WALTHAM STREET

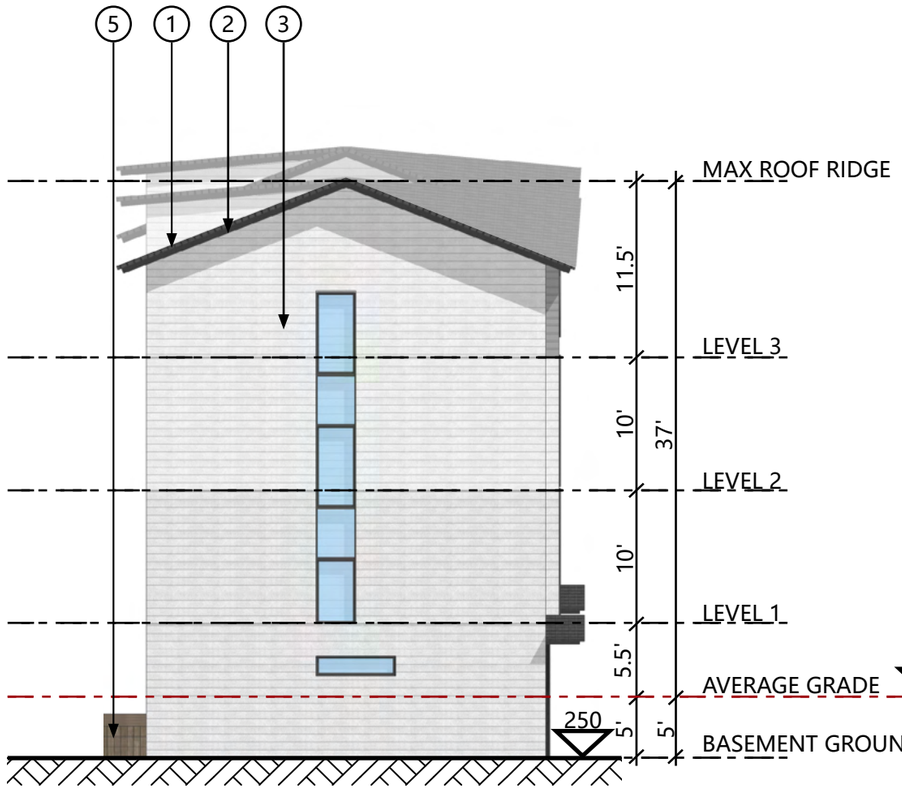


1 SOUTH ELEVATION

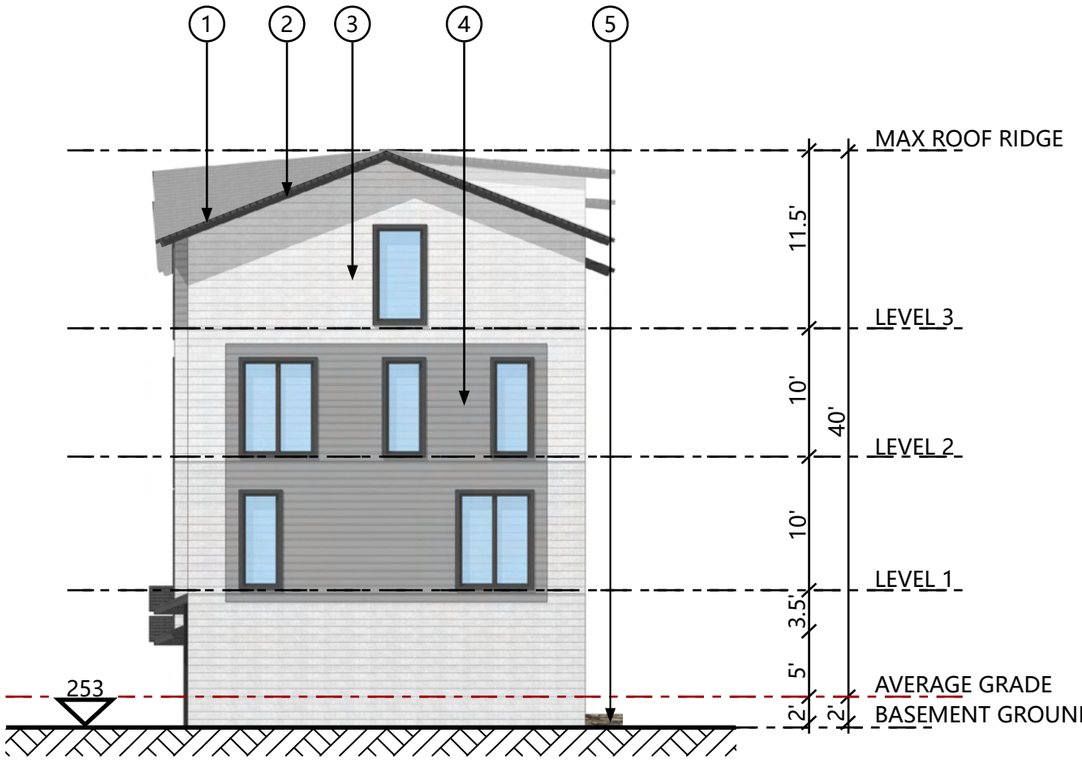
2 NORTH ELEVATION

ELEVATION LEGEND	
1 ASPHALT SHINGLES	4 7" LAP SIDING - COLOR B
2 METAL TRIM	5 GRANITE
3 7" LAP SIDING - COLOR A	

UNIT 4/5 ELEVATIONS
952 WALTHAM STREET



1 WEST ELEVATION



2 EAST ELEVATION

ELEVATION LEGEND	
1 ASPHALT SHINGLES	4 7" LAP SIDING - COLOR B
2 METAL TRIM	5 GRANITE
3 7" LAP SIDING - COLOR A	

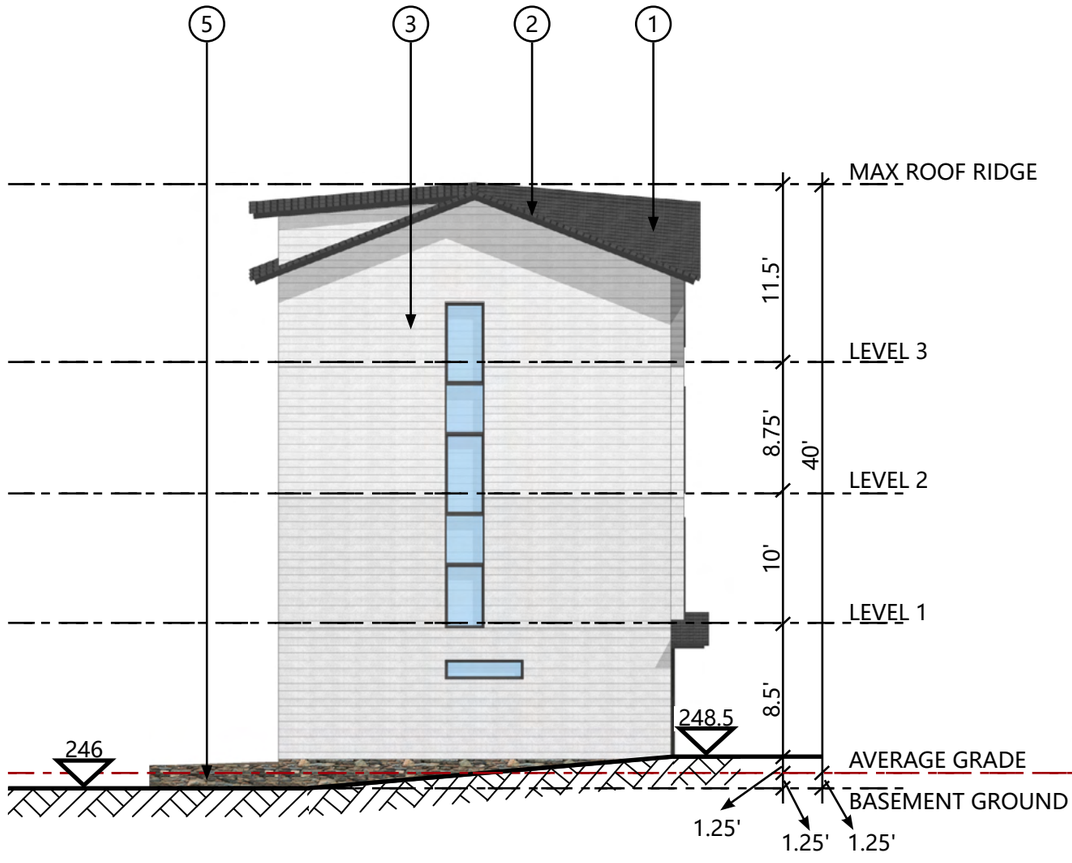
UNIT 4/5 ELEVATIONS
952 WALTHAM STREET

1 EAST ELEVATION

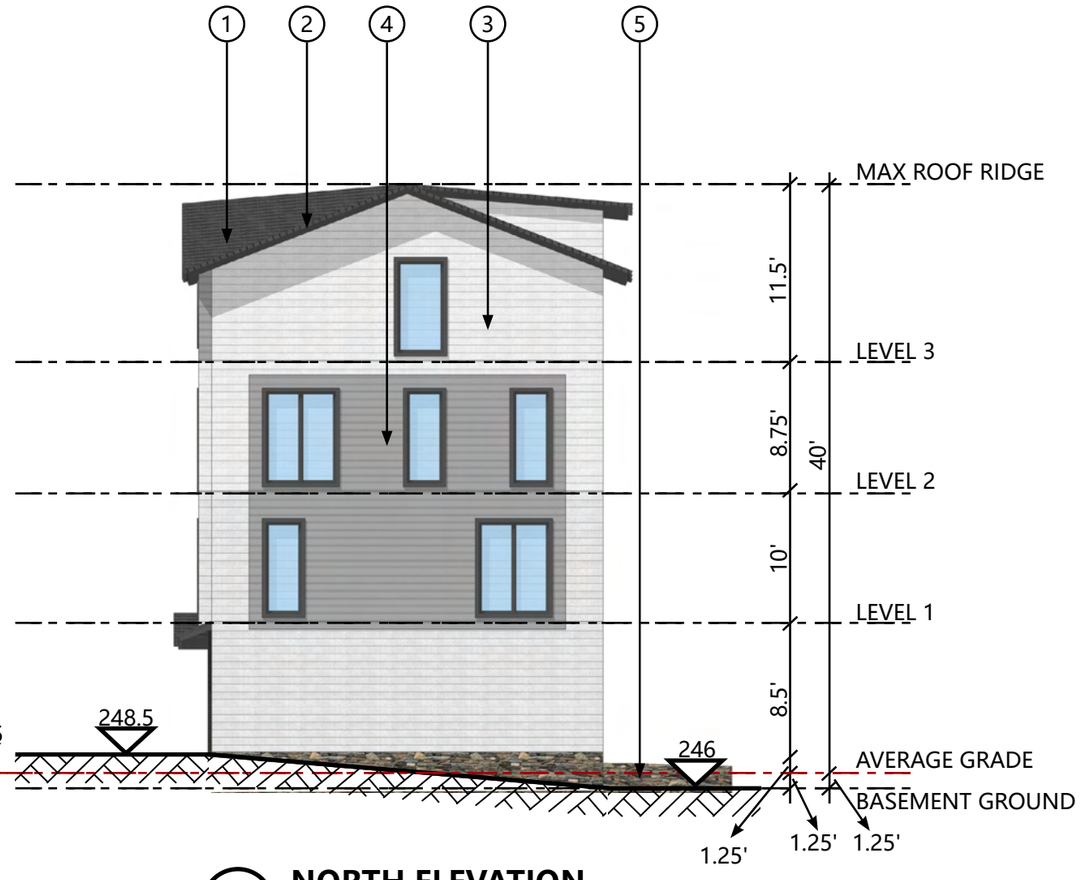
2 WEST ELEVATION

ELEVATION LEGEND	
1 ASPHALT SHINGLES	4 7" LAP SIDING - COLOR B
2 METAL TRIM	5 GRANITE
3 7" LAP SIDING - COLOR A	

UNIT 6/7/8 ELEVATIONS
952 WALTHAM STREET



1 **SOUTH ELEVATION**



2 **NORTH ELEVATION**

ELEVATION LEGEND	
(1) ASPHALT SHINGLES	(4) 7" LAP SIDING - COLOR B
(2) METAL TRIM	(5) GRANITE
(3) 7" LAP SIDING - COLOR A	

UNIT 6/7/8 ELEVATIONS
952 WALTHAM STREET

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

407 Waltham Street – Public Meeting

PRESENTER:

Applicant: Jonathan Silverstein

ITEM NUMBER:

SUMMARY:

Public meeting on an application from 407 Waltham Street LLC, for approval of a preliminary subdivision plan under §175-5.0 of the Planning Board's Subdivision Regulations. Application proposes subdividing property into 2 lots with an easement.

The property is located at 407 Waltham Street, Lexington, MA also known as Map 32, Lot 14 in the CRS-2 (Retail Shopping) and VO (Village Overlay) zoning districts. Application materials may be viewed at https://lexingtonma.portal.opengov.com/records/102082

SUGGESTED MOTION:

Staff recommends approval with conditions of items to be incorporated into a definitive subdivision plan submission.

Move to approve the preliminary subdivision application for 407 Waltham Street with the conditions in the draft decision as recommendations to be included in the Definitive Subdivision application.

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025

ATTACHMENTS:

Description	Type
Plan Set 407 Waltham St	Cover Memo

REGISTERED PROFESSIONAL LAND SURVEYOR:

PETER J. NOLAN P.L.S.
PETER NOLAN & ASSOCIATES LLC

80 JEWETT ST, SUITE 1,
NEWTON, MA 02038

PHONE: 617-816-0722
PNOLAN@PNASURVEYORS.COM

REFERENCES:

DEED REFERENCE: BOOK 1515, PAGE 128, CERTIFICATE NO. 266037

PLAN REFERENCE: LCC 18315-F
PLAN REFERENCE: LCC 18315-E
PLAN REFERENCE: LCC 18315-B
PLAN REFERENCE: LCC 18315-I
PLAN REFERENCE: PLAN 1366 OF 1985
PLAN REFERENCE: PLAN 290 OF 1969
MIDDLESEX SOUTH DISTRICT REGISTRY OF DEEDS

NOTES:

1. INFORMATION SHOWN ON THIS PLAN IS THE RESULT OF A FIELD SURVEY PERFORMED BY PETER NOLAN & ASSOCIATES LLC AS OF 08/08/2024.

2. DEED REFERENCE: BOOK 1515, PAGE 128, CERTIFICATE NO. 266037

PLAN REFERENCE: LCC 18315-F
PLAN REFERENCE: LCC 18315-E
PLAN REFERENCE: LCC 18315-B
PLAN REFERENCE: LCC 18315-I
PLAN REFERENCE: PLAN 1366 OF 1985
PLAN REFERENCE: PLAN 290 OF 1969
MIDDLESEX SOUTH DISTRICT REGISTRY OF DEEDS

3. THIS PLAN IS NOT INTENDED TO BE RECORDED.

4. I CERTIFY THAT THE DWELLING SHOWN IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD ZONE. IT IS LOCATED IN ZONE X, ON FLOOD HAZARD BOUNDARY MAP NUMBER 25017C0411E, IN COMMUNITY NUMBER: 250198, DATED 06/04/2010.

5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT USES OF THE LAND; HOWEVER THIS NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.

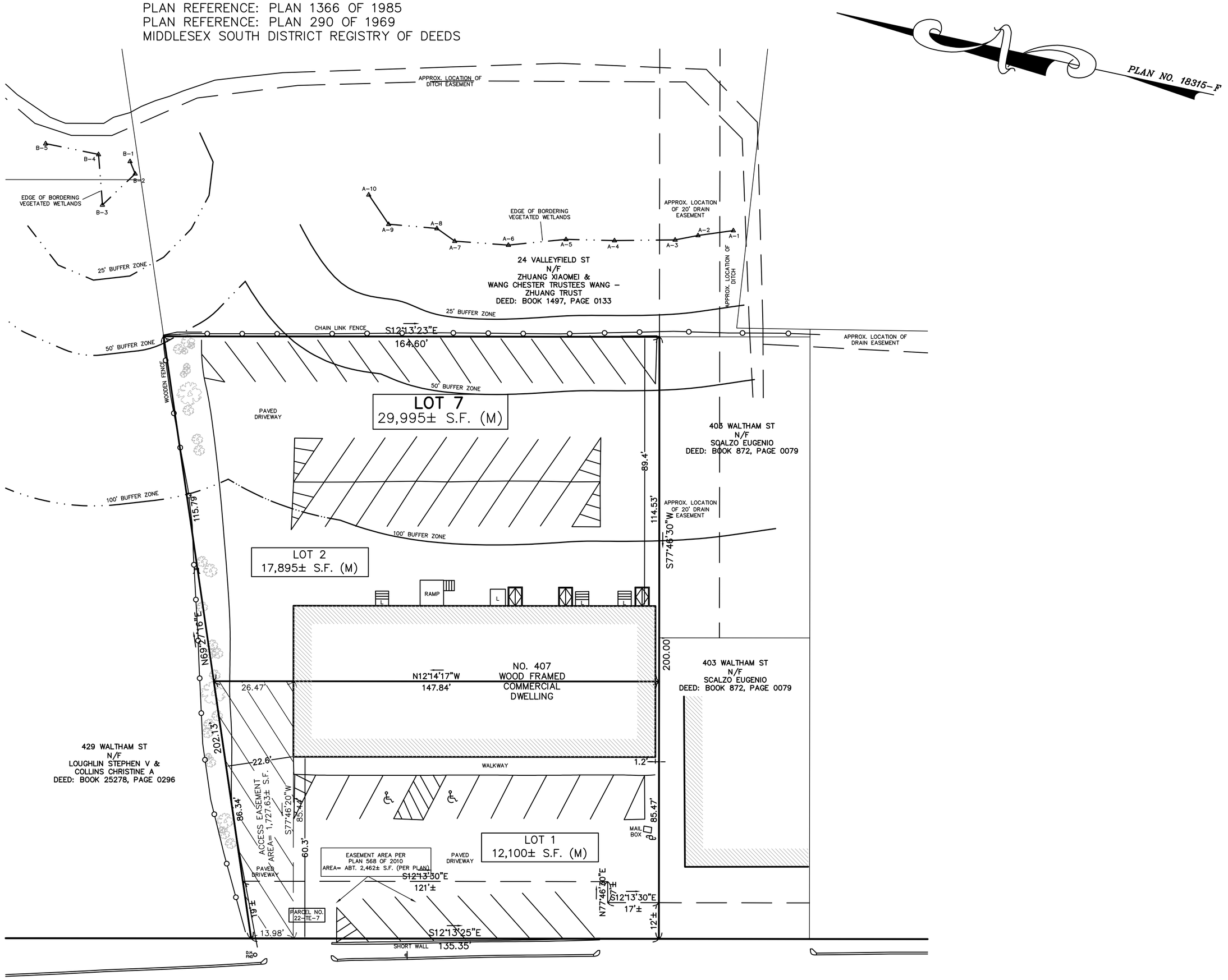
6. NO RESPONSIBILITY IS TAKEN FOR ZONING TABLE AS PETER NOLAN & ASSOCIATES LLC ARE NOT ZONING EXPERTS. TABLE IS TAKEN FROM TABLE PROVIDED BY LOCAL ZONING ORDINANCE. CLIENT AND/OR ARCHITECT TO VERIFY THE ACCURACY OF ZONING ANALYSIS.

7. ZONING DISTRICT: CRS- RETAIL SHOPPING.

8. LOT 7 CONTAINING 29.995± S.F. TO BE SUBDIVIDED INTO TWO LOTS, LOT 1 AND LOT 2:
LOT 1: 17,895± S.F.
LOT 2: 12,100± S.F.

9. OWNER OF RECORD: TRICON PROPERTIES, LLC.

THE SURVEYOR'S ENDORSEMENT OF THE PLAN DOES NOT CONSTITUTE A DETERMINATION ON COMPLIANCE WITH LOCAL ZONING REQUIREMENTS.



WALTHAM STREET
(PUBLIC WAY - 60' WIDE)

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

ZONING LEGEND

ZONING DISTRICT: CRS

	REQUIRED	LOT 1	LOT 2
MIN. AREA	15,500 S.F.	12,100 S.F.	17,895 S.F.
MIN. FRONTAGE	125'	135.35'	-
MIN. YARD FRONT	30'	-	-
SIDE	15'	-	-
REAR	20'	-	-
MIN. SIDE/REAR YARD ADJ. TO OR FRNT. YARD ACROSS ST	30'	-	-

PETER NOLAN & ASSOCIATES, LLC

LAND SURVEYORS/CIVIL
ENGINEERING CONSULTANTS
80 JEWETT ST, SUITE 1
NEWTON, MA 02458
Tel:857-891-7478
617-782-1533

407 WALTHAM STREET, LEXINGTON, MASSACHUSETTS

REVISION BLOCK

DESCRIPTION	DATE

PRELIMINARY SUBDIVISION PLAN

COMMONWEALTH OF MASSACHUSETTS
PETER J. NOLAN
49185
REGISTERED PROFESSIONAL LAND SURVEYOR

PREPARED FOR:	
SCALE:	1/20
DATE:	01/17/2025
DRAWN BY:	MG
CHECKED BY:	PN
APPROVED BY:	PN

SHEET: 1

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

162 Bedford St. & 5 Reed Street - Public Meeting

PRESENTER:

Applicant: Jonathan Silverstein

ITEM NUMBER:

SUMMARY:

Public meeting on an application from Bob Phelan, for approval of a preliminary subdivision plan under §175-5.0 of the Planning Board's Subdivision Regulations. Application proposes subdividing property into 3 lots.

The properties are located at 162 Bedford Street and 5 Reed Street, Lexington, MA also known as Map 64, Lot 65 and 66 in the CN (Neighborhood Business), RS (One Family Dwelling) and VO (Village Overlay) zoning districts.

Application materials may be viewed online at https://lexingtonma.portal.opengov.com/records/102143.

SUGGESTED MOTION:

Staff recommends approval with conditions of items to be incorporated into a definitive subdivision plan submission.

Move to approve the preliminary subdivision application for 162 Bedford Street and 5 Reed Street with the conditions in the draft decision as recommendations to be included in the Definitive Subdivision application.

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025

ATTACHMENTS:

Description	Type
Plan Set 162 Bedford St	Cover Memo

EXISTING CONDITIONS NOTES:

1. EXISTING CONDITION INFORMATION BASED ON AN ON-THE-GROUND TOPOGRAPHIC AND BOUNDARY SURVEY PERFORMED BY GOLDSMITH, PREST & RINGWALL, INC. DATED FEBRUARY 27, 2025.

ASSESSORS REFERENCE:

162 BEDFORD STREET – ASSESSORS MAP 64, BLOCK 66
RECORD OWNER: MTM LLC
7 CROWN ROAD
WESTFORD, MA 01886

5 REED STREET – ASSESSORS MAP 64, BLOCK 65
RECORD OWNER: MTM LLC
7 CROWN ROAD
WESTFORD, MA 01886

LEGEND

EXISTING		PROPOSED
100	ELEVATION CONTOUR	100
X100.0	SPOT GRADE	100.0 FG
	PROPERTY LINE	
WF-1	WETLAND DELINEATION	
	WETLAND BUFFER ZONE	
	SHORELINE	
	100-YEAR FLOODPLAIN LIMIT	
	TREE LINE / EDGE OF VEGETATION	
	EDGE OF PAVEMENT	
	CAPE COD BERM CURBING	
	GRANITE CURBING	
	GRAVEL/DIRT ROAD	
	STOCKADE FENCE	
	STONE WALL	
W	WATER MAIN	W
WS	WATER SERVICE	WS
FS	FIRE SERVICE	FS
WV	WATER VALVE	WV
	FIRE HYDRANT	
FM	FORCE MAIN	FM
SS	GRAVITY SEWER LINE	SS
S	SEWER MANHOLE	SMH
G	GAS LINE	
GS	GAS SERVICE	GS
GV	GAS VALVE	
E	BURIED POWER LINE	E
OHW	OVERHEAD POWER LINE	OHW
	UTILITY POLE	
	GUY WIRE	
E	ELECTRIC BOX	E
SD	STORM DRAIN	SD
UD	UNDERDRAIN	UD
RD	ROOF DRAIN	RD
FD	FOUNDATION DRAIN	FD
CB	CATCH BASIN	
DMH	DRAIN MANHOLE	
	SILT FENCE BARRIER	
	STRAW WATTLES	
199-1	DEEP SOIL OBSERVATION HOLE	
	SITE LUMINAIRE	
	SIGN	
	SURFACE RUNOFF DIRECTION	
	STONE BOUND	
	DRILL HOLE	
	IRON ROD	

ABBREVIATIONS

EL	ELEVATION	HDPE	HIGH DENSITY POLYETHYLENE
INV	INVERT	PVC	POLYVINYL CHLORIDE
SF	SQUARE FEET	RCP	REINFORCED CONCRETE PIPE
AC	ACRES	N/F	NOW OR FORMERLY
FT	FEET	VP	VERNAL POOL
R	RADIUS	WF	WETLAND FLAG
DIA	DIAMETER	TW	TOP OF WALL
BIT	BITUMINOUS	BW	BOTTOM OF WALL
CONC	CONCRETE	FG	FINISH GRADE
L	LENGTH	BSMT	BASEMENT
S	SLOPE	FF	FINISH FLOOR

N/F
LEXINGTON COUNCIL
#94 &
KNIGHTS OF
COLUMBUS
9903/343

N/F
THEODORE R
WEILER &
REBECCA A
WEILER
50659/312

N/F
172 BEDFORD
STREET LLC
69732/254

N/F
FANG FANG &
LEI LIU
79996/517

N/F
TOWN OF LEXINGTON
68288/413

N/F
XING ZHU &
HUI ZHU
50084/236

N/F
OJDROVIC TR RASKO &
BOVAN TR MILJANA ROJ
FAMILY REV TRUST &
BOVAN FAMILY REV TRUST
81294/137

N/F
JONATHAN FRIEDMAN &
BRENDA FRIEDMAN
24663/491

N/F
ROSS ELIZABETH &
WRANGHAM RICHARD TRTEES &
WRANGHAM – ROSS FAMILY TRUST 2018
73992/168

N/F
(#159)
LOW TZE-PING &
KOH KAR HWEE
58689/184

N/F
(#161)
ADIWIJAYA BAMBANG SENOAJI &
ADIWIJAYA CAROLINE
63665/0508

N/F
NATHANIEL WOODS &
CHARLENE CASWELL
49913/576

N/F
PHILLIP M PHAM &
TRANG M PHAM
62812/442

#162
0.30± AC.
12,917± SF

#5
0.18± AC.
7,886± SF

REED STREET
(STREET WIDTH - 28'±)

BEDFORD STREET
(STREET WIDTH - 34'±)

LARCHMONT LANE
(STREET WIDTH - 24'±)

CARLEY ROAD
(STREET WIDTH - 24'±)

(CN) – NEIGHBORHOOD BUSINESS
[COMMERCIAL / INDUSTRIAL DISTRICT]

(RS) – ONE FAMILY DWELLING
[RESIDENTIAL DISTRICT]

(CLO) – LOCAL OFFICE
[COMMERCIAL / INDUSTRIAL DISTRICT]

(VO) – VILLAGE OVERLAY
[OVERLAY DISTRICT]

67.8'±
40.7'±
84.6'±
20.9'±
31.0'±
65.0'±
22.0'±
123.8'±
154.5'±
FRONTAGE=186.0'±
FRONTAGE=103.8'±
R=250.5
ARC=61.8'±
R=250
ARC=62.0'±
BUILDING SETBACK (TYP.)
15'
20'
30'
35'

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 INCH = 20 FEET

DRAWING ISSUED FOR:

☐ CONCEPT ☐ CONSTRUCTION
■ PERMIT ☐ CONSTRUCTION RECORD

THIS DRAWING MAY NOT SHOW CONSTRUCTION DETAILS AND SPECIFICATIONS FOR ALL PROPOSED IMPROVEMENTS, AND MAY NOT IDENTIFY ALL CONSTRUCTION WORK ITEMS/AREAS OF CONTRACTOR JURISDICTION.

PER 250 CMR 5.03(13), THE FOLLOWING ARE EXCLUDED FROM THE PROFESSIONAL ENGINEER'S RESPONSIBILITY: ALL BOUNDARY INFORMATION; LOCATION OF EXISTING STRUCTURES, TREES, UTILITIES, TOPOGRAPHY OR SIMILAR FEATURES; DESIGN OF RETAINING WALLS, PROPRIETARY EQUIPMENT. SEE EXISTING CONDITION NOTES.

NO.	DATE	BY	APP.	REVISION DESCRIPTION
1	3/6/25	LT	BDR	DIMENSION NOTE

GPR Engineering Solutions for Land & Structures

GOLDSMITH, PREST & RINGWALL, INC.
39 MAIN STREET, SUITE 301, AYER, MA 01432
CIVIL ENGINEERING • LAND SURVEYING • LAND PLANNING
VOICE: 978.772.1590 FAX: 978.772.1591
www.gpr-inc.com

PRELIMINARY SUBDIVISION RESIDENTIAL / COMMERCIAL

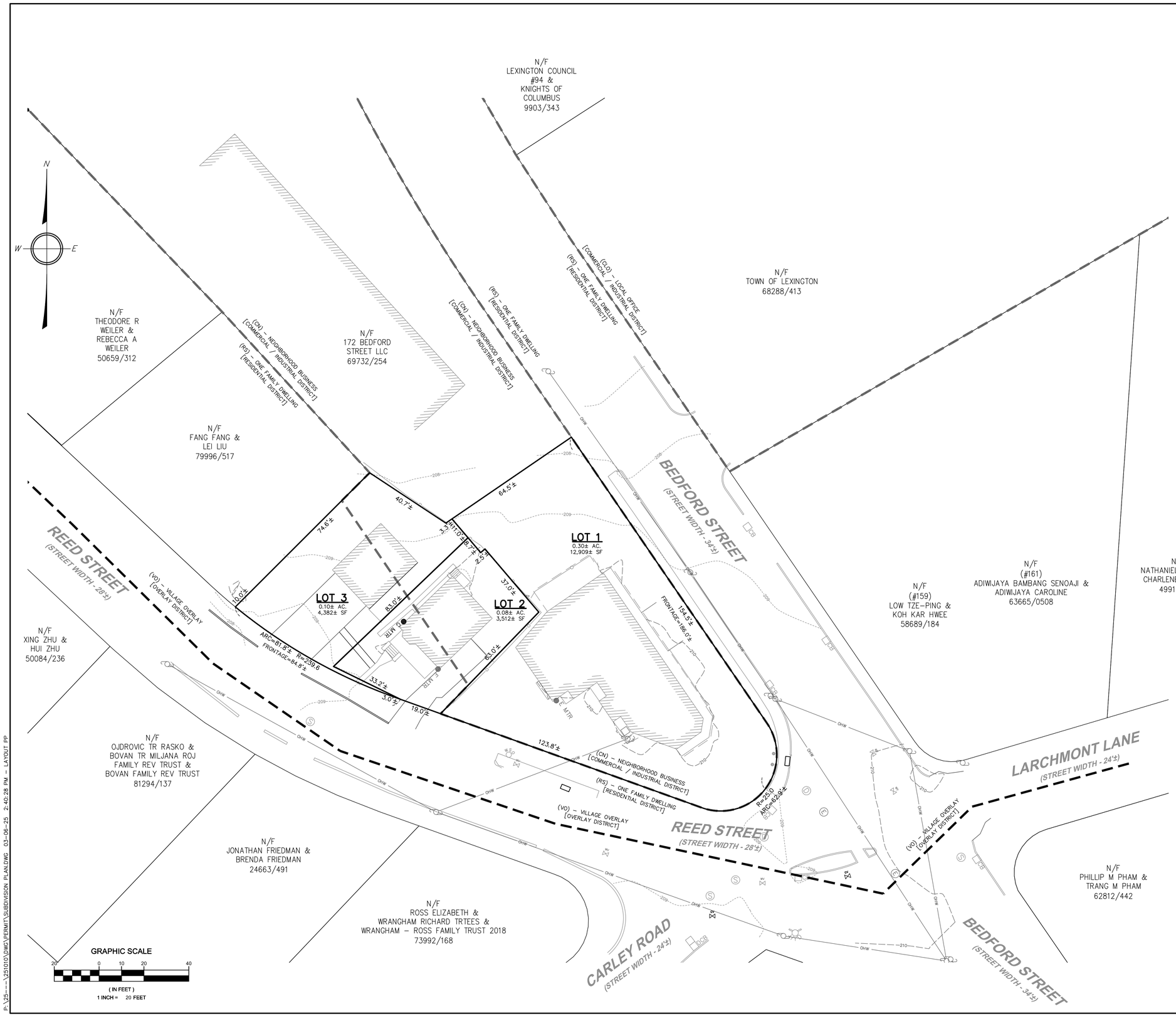
EXISTING CONDITIONS

162 BEDFORD STREET &
5 REED STREET
LEXINGTON, MA

PREPARED FOR:
ROBERT PHELAN
152 REED STREET
LEXINGTON, MA 02421

DES. BY: JFB	DATE: FEBRUARY 2025	JOB 251010	1 OF 2
CHK. BY: EAC			

P:\25----\251010\DWG\PERMIT\SUBDIVISION PLAN.DWG 03-06-25 2:39:43 PM – LAYOUT EC



LEGEND

EXISTING		PROPOSED
100	ELEVATION CONTOUR	100
X100.0	SPOT GRADE	100.0 FG
	PROPERTY LINE	
WF-1	WETLAND DELINEATION	
	WETLAND BUFFER ZONE	
	SHORELINE	
	100-YEAR FLOODPLAIN LIMIT	
	TREE LINE / EDGE OF VEGETATION	
	EDGE OF PAVEMENT	
	CAPE COD BERM CURBING	
	GRANITE CURBING	
	GRAVEL/DIRT ROAD	
	STOCKADE FENCE	
	STONE WALL	
W	WATER MAIN	W
WS	WATER SERVICE	WS
FS	FIRE SERVICE	FS
WV	WATER VALVE	WV
	FIRE HYDRANT	
FM	FORCE MAIN	FM
SS	GRAVITY SEWER LINE	SS
S	SEWER MANHOLE	SMH
G	GAS LINE	
GS	GAS SERVICE	GS
GV	GAS VALVE	
E	BURIED POWER LINE	E
OHW	OVERHEAD POWER LINE	OHW
	UTILITY POLE	
	GUY WIRE	
E	ELECTRIC BOX	E
SD	STORM DRAIN	SD
UD	UNDERDRAIN	UD
RD	ROOF DRAIN	RD
FD	FOUNDATION DRAIN	FD
CB	CATCH BASIN	
DMH	DRAIN MANHOLE	
	SILT FENCE BARRIER	
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199-1	DEEP SOIL OBSERVATION HOLE	
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	SIGN	
	SURFACE RUNOFF DIRECTION	
	STONE BOUND	
	DRILL HOLE	
	IRON ROD	

ABBREVIATIONS

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SF	SQUARE FEET	RCP	REINFORCED CONCRETE PIPE
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FT	FEET	VP	VERNAL POOL
R	RADIUS	WF	WETLAND FLAG
DIA	DIAMETER	TW	TOP OF WALL
BIT	BITUMINOUS	BW	BOTTOM OF WALL
CONC	CONCRETE	FG	FINISH GRADE
L	LENGTH	BSMT	BASEMENT
S	SLOPE	FF	FINISH FLOOR

DRAWING ISSUED FOR:

- ☐ CONCEPT
- ☐ CONSTRUCTION
- ■ PERMIT
- ☐ CONSTRUCTION RECORD

THIS DRAWING MAY NOT SHOW CONSTRUCTION DETAILS AND SPECIFICATIONS FOR ALL PROPOSED IMPROVEMENTS, AND MAY NOT IDENTIFY ALL CONSTRUCTION WORK ITEMS/AREAS OF CONTRACTOR JURISDICTION.

PER 250 CMR 5.03(13), THE FOLLOWING ARE EXCLUDED FROM THE PROFESSIONAL ENGINEER'S RESPONSIBILITY: ALL BOUNDARY INFORMATION; LOCATION OF EXISTING STRUCTURES, TREES, UTILITIES, TOPOGRAPHY OR SIMILAR FEATURES; DESIGN OF RETAINING WALLS, PROPRIETARY EQUIPMENT. SEE EXISTING CONDITION NOTES.

NO.	DATE	BY	APP.	REVISION DESCRIPTION
1	3/6/25	LT	BDR	LOT AREAS

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GOLDSMITH, PREST & RINGWALL, INC.
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www.gpr-inc.com

PRELIMINARY SUBDIVISION
RESIDENTIAL / COMMERCIAL

PRELIMINARY PLAN

162 BEDFORD STREET &
5 REED STREET
LEXINGTON, MA

PREPARED FOR:
ROBERT PHELAN
152 REED STREET
LEXINGTON, MA 02421

DES. BY: JFB	DATE: FEBRUARY 2025	JOB 251010	2 OF 2
CHK. BY: EAC			

P:\25----\251010\DWG\PERMIT\SUBDIVISION PLAN.DWG 03-06-25 2:40:28 PM - LAYOUT PP

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

450 Marrett Road - Public Meeting

PRESENTER:

Applicant: Jonathan Silverstein

ITEM NUMBER:

SUMMARY:

Public meeting on an application from Tara Curtin, for approval of a preliminary subdivision plan under §175-5.0 of the Planning Board's Subdivision Regulations. Application proposes subdividing property into 2 lots.

The property is located at 450 Marrett Road, Lexington, MA also known as Map 33, Lot 83 in the RS (One Family Dwelling) and VO (Village Overlay) zoning districts.

Application materials may be viewed online at https://lexingtonma.portal.opengov.com/records/102244.

SUGGESTED MOTION:

Staff recommends approval with conditions of items to be incorporated into a definitive subdivision plan submission.

Move to approve the preliminary subdivision application for 450 Marrett Road with the conditions in the draft decision as recommendations to be included in the Definitive Subdivision application.

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025

ATTACHMENTS:

Description	Type
Plan Set 450 Marrett Rd	Cover Memo

PLAN REFERENCES

1. "FARMHURST SEC. 4, LEXINGTON, MASS." PREPARED FOR NEIL MCINTOSH TRUSTEE BY C.H. GANNETT C.E. DATED JANUARY 1923. MIDDLESEX SOUTH DISTRICT REGISTRY OF DEEDS. PLAN BOOK 361, PLAN 29.

ASSESSORS REFERENCE:

ASSESSORS MAP 33, PARCEL 83, 0.28 ACRES
RECORD OWNER: TARA CURTIN & CARSTEN A. HOCHMUTH
450 MARRET ROAD
LEXINGTON, MA 02421

EXISTING CONDITIONS NOTES:

1. EXISTING CONDITION INFORMATION BASED ON AVAILABLE MUNICIPAL RESOURCES (TOWN OF LEXINGTON GIS AND MASS MAPPER GIS).

LEGEND

EXISTING		PROPOSED
100	ELEVATION CONTOUR	100
X100.0	SPOT GRADE	100.0 FG
	PROPERTY LINE	
WF-1	WETLAND DELINEATION	
	WETLAND BUFFER ZONE	
	SHORELINE	
	100-YEAR FLOODPLAIN LIMIT	
	TREE LINE / EDGE OF VEGETATION	
	EDGE OF PAVEMENT	
	CAPE COD BERM CURBING	
	GRANITE CURBING	
	GRAVEL/DIRT ROAD	
	STOCKADE FENCE	
	STONE WALL	
W	WATER MAIN	W
WS	WATER SERVICE	WS
FS	FIRE SERVICE	FS
WV	WATER VALVE	WV
	FIRE HYDRANT	
FM	FORCE MAIN	FM
SS	GRAVITY SEWER LINE	SS
	SEWER MANHOLE	SMH
G	GAS LINE	
GS	GAS SERVICE	GS
	GAS VALVE	
E	BURIED POWER LINE	E
OHW	OVERHEAD POWER LINE	OHW
	UTILITY POLE	
	GUY WIRE	
E	ELECTRIC BOX	E
SD	STORM DRAIN	SD
UD	UNDERDRAIN	UD
RD	ROOF DRAIN	RD
FD	FOUNDATION DRAIN	FD
CB	CATCH BASIN	
DMH	DRAIN MANHOLE	
	SILT FENCE BARRIER	
	STRAW WATTLES	
199-1	DEEP SOIL OBSERVATION HOLE	
	SITE LUMINAIRE	
	SIGN	
	SURFACE RUNOFF DIRECTION	
	STONE BOUND	
	DRILL HOLE	
	IRON ROD	

ABBREVIATIONS

EL	ELEVATION	HDPE	HIGH DENSITY POLYETHYLENE
INV	INVERT	PVC	POLYVINYL CHLORIDE
SF	SQUARE FEET	RCP	REINFORCED CONCRETE PIPE
AC	ACRES	N/F	NOW OR FORMERLY
FT	FEET	VP	VERNAL POOL
R	RADIUS	WF	WETLAND FLAG
DIA	DIAMETER	TW	TOP OF WALL
BIT	BITUMINOUS	BW	BOTTOM OF WALL
CONC	CONCRETE	FG	FINISH GRADE
L	LENGTH	BSMT	BASEMENT
CB	CATCH BASIN	FF	FINISH FLOOR
DMH	DRAINAGE MANHOLE		
SMH	SEWER MANHOLE		
S	SLOPE		

DRAWING ISSUED FOR:

- ☐ CONCEPT
- ☐ CONSTRUCTION
- ■ PERMIT
- ☐ CONSTRUCTION RECORD

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NO.	DATE	BY	APP.	REVISION DESCRIPTION

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Engineering Solutions for Land & Structures

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PRELIMINARY SUBDIVISION
RESIDENTIAL

EXISTING CONDITIONS

450 MARRETT ROAD
LEXINGTON MA

PREPARED FOR:
TARA CURTIN & CARSTEN HOCHMUTH
450 MARRETT ROAD
LEXINGTON, MA 02421

DES. BY: JAAB	DATE: MARCH 2025	JOB 251013	1 OF 2
CHK. BY: BDR			

P:\25----\251013\C3DWG\PERMIT\PRELIMINARY SUBDIVISION PLAN_450 MARRETT ROAD.DWG 03-06-25 3:17:49 PM – LAYOUT EC

LEGEND

EXISTING		PROPOSED
100	ELEVATION CONTOUR	100
X100.0	SPOT GRADE	100.0 FG
	PROPERTY LINE	
WF-1	WETLAND DELINEATION	
	WETLAND BUFFER ZONE	
	SHORELINE	
	100-YEAR FLOODPLAIN LIMIT	
	TREE LINE / EDGE OF VEGETATION	
	EDGE OF PAVEMENT	
	CAPE COD BERM CURBING	
	GRANITE CURBING	
	GRAVEL/DIRT ROAD	
	STOCKADE FENCE	
	STONE WALL	
W	WATER MAIN	W
WS	WATER SERVICE	WS
FS	FIRE SERVICE	FS
WV	WATER VALVE	WV
	FIRE HYDRANT	
FM	FORCE MAIN	FM
SS	GRAVITY SEWER LINE	SS
	SEWER MANHOLE	SMH
G	GAS LINE	
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	UTILITY POLE	
	GUY WIRE	
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CB	CATCH BASIN	FF	FINISH FLOOR
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NO.	DATE	BY	APP.	REVISION DESCRIPTION

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PRELIMINARY SUBDIVISION
RESIDENTIAL

PRELIMINARY PLAN

450 MARRETT ROAD
LEXINGTON MA

PREPARED FOR:
TARA CURTIN & CARSTEN HOCHMUTH
450 MARRETT ROAD
LEXINGTON, MA 02421

DES. BY: JAAB	DATE: MARCH 2025	JOB 251013	2 OF 2
CHK. BY: BDR			

P:\25----\251013\C3DWG\PERMIT\PRELIMINARY SUBDIVISION PLAN_450 MARRETT ROAD.DWG 03-06-25 3:13:44 PM – LAYOUT PRELIMINARY PLAN

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

5-7 Piper Road - Public Meeting

PRESENTER:

Applicant: Morgan Point, LLC &
Michael Novak

ITEM NUMBER:

SUMMARY:

Public meeting on an application by Morgan Point LLC, for approval of a preliminary subdivision plan under §175-5.0 of the Planning Board's Subdivision Regulations. Application proposes subdividing properties into 3 lots on a cul-de-sac.

The properties are located at 5 Piper Road and 7 Piper Road, Lexington, MA also known as Map 10, Lots 58A and 59A in the RO (One Family Dwelling) and VO (Village Overlay) zoning districts.

Application materials may be viewed at: https://lexingtonma.portal.opengov.com/records/102655

SUGGESTED MOTION:

Staff recommends approval with conditions of items to be incorporated into a definitive subdivision plan submission.

Move to approve the preliminary subdivision application for 5-7 Piper Road with the conditions in the draft decision as recommendations to be included in the Definitive Subdivision application.

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025

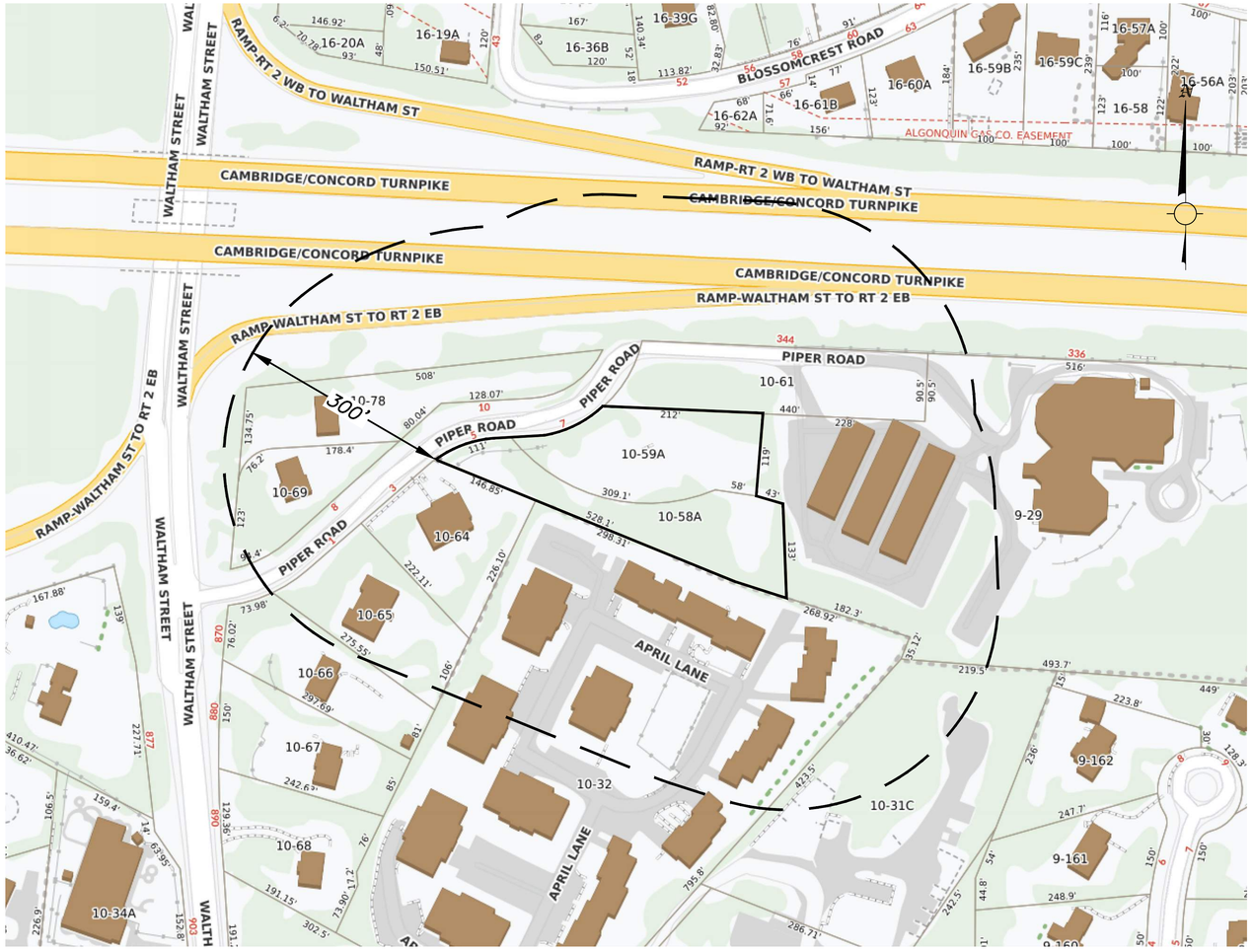
ATTACHMENTS:

Description	Type
Plan Set 5-7 Piper Rd	Cover Memo

NOTES:

1. THE INFORMATION DEPICTED ON THIS PLAN HAS BEEN COMPILED FROM THE TOWN OF LEXINGTON GIS SYSTEM
2. LAND USE WITHIN 300 FEET OF THE SUBJECT PROPERTY CONSISTS OF A MIX OF SINGLE FAMILY DWELLINGS, AN APARTMENT COMPLEX AND COMMERCIAL USE

5-7 PIPER ROAD
ASSESSORS MAP 10 LOTS 58A AND 59A
PRELIMINARY SUBDIVISION PLAN
LOCATED IN LEXINGTON, MA
MARCH 16, 2025



LOCUS CONTEXT MAP
(SCALE 1"=100')

PREPARED BY:

PATRIOT Engineering
PO BOX 362
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2654
www.patriot-eng.com

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
CIVIL
No. 50596
REGISTERED PROFESSIONAL ENGINEER

SHEET INDEX

LEGEND

(NOT ALL FEATURES CONTAINED IN THIS LEGEND APPEAR ON THE PLAN)

	BOUNDARY LINE
	ABUTTING LOT LINE
	EASEMENT LINE
S S	SEWER LINE
D D	DRAIN LINE
W W	WATER LINE
G G	GAS LINE
E E	ELECTRIC LINE
T T	TELECOMMUNICATION LINE
ohw ohw	OVERHEAD WIRES
	GUARDRAIL
X X X X	CHAIN LINK FENCE
	STOCKADE FENCE
	FIELDSTONE WALL
100	INDEX CONTOUR
98	INTERMEDIATE CONTOUR

(DASHED UTILITY LINES INDICATES RECORD LOCATION FROM PLANS, ALL LOCATIONS ARE APPROXIMATE)

UP	UTILITY POLE
LP	LIGHT POLE
	ELECTRIC HAND HOLE
Ⓒ	CABLE MANHOLE
Ⓔ	ELECTRIC MANHOLE
Ⓢ	SEWER MANHOLE
Ⓓ	DRAIN MANHOLE
	CATCH BASIN
	WATER VALVE
	FIRE HYDRANT
SPR	SPRINKLER CONNECTION
PIV	POST INDICATOR VALVE
	BOLLARD
GM	GAS METER
	GAS VALVE
RD	ROOF DRAIN
AD	AREA DRAIN

CC	CONCRETE CURB
VGC	VERTICAL GRANITE CURB
BCC	BITUMINOUS CONCRETE CURB
BCB	BITUMINOUS CONCRETE BERM
CONC.	CONCRETE
LS	LANDSCAPE AREA
	ENTRANCE DOOR
	SIGN
R=	RIM ELEVATION
I=	PIPE INVERT ELEVATION
(REC)	FROM RECORD PLANS
×114.7	SPOT GRADE
	DECIDUOUS TREE
	CONIFEROUS TREE
	RETAINING WALL
	DETECTABLE WARNING PAD

NOTES:

1. THE TOPOGRAPHY, SITE DETAIL & SURFACE IMPROVEMENTS DEPICTED HEREON WERE OBTAINED FROM A PLAN PREPARED BY RJ O'CONNELL AND ASSOCIATES.
2. THE SUBJECT PROPERTY DEPICTED IS LOCATED WITHIN THE RO ZONING DISTRICT.
3. THE SUBJECT PROPERTY IS DEPICTED AS LOTS 58A AND 59A ON THE TOWN OF LEXINGTON ASSESSOR'S MAP 10
4. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED UPON A PARTIAL FIELD SURVEY AND PLANS OF RECORD. THIS PLAN DOES NOT GUARANTEE THE LOCATION OF UTILITIES DEPICTED. THE CONTRACTOR, PRIOR TO COMMENCEMENT OF CONSTRUCTION, SHALL VERIFY THE LOCATION OF ALL UTILITIES AND CONTACT DIG SAFE AT 1-888-344-7233.
5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST.

TABLE OF DIMENSIONAL REQUIREMENTS

ITEM	REQUIREMENT	
	ZONE: CRS	ZONE: VO (VILLAGE OVERLAY)
MIN LOT AREA	15,500 S.F.	DOES NOT APPLY
MIN FRONTAGE	125'	20'
MIN FRONT YARD	30'	0' or 15'
MIN SIDE YARD	15'	7.5' - 15'
MIN REAR YARD	15'	15'
MIN REAR YARD (ADJACENT TO RESIDENTIAL)	30'	DOES NOT APPLY

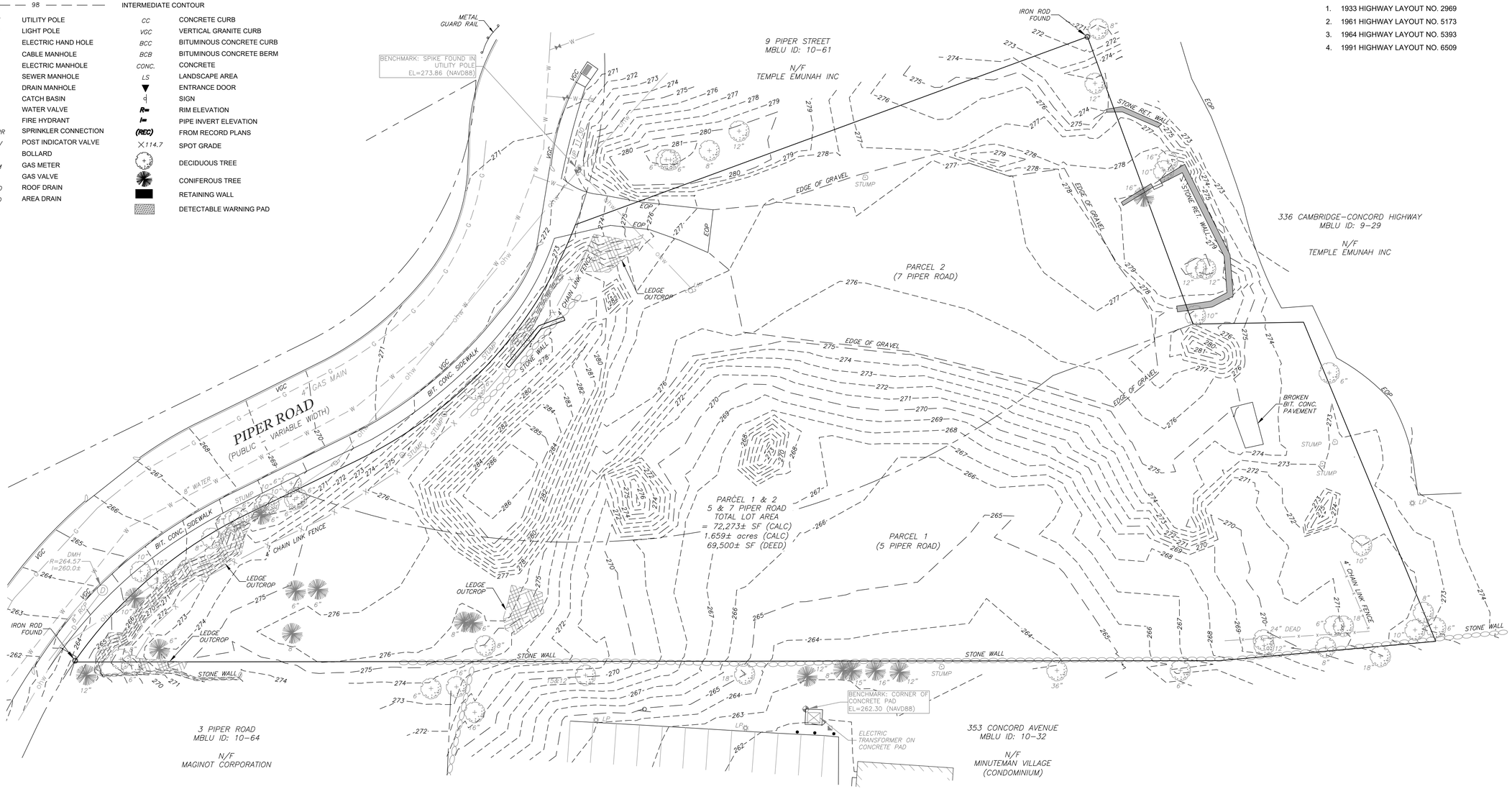
PLAN REFERENCES:

PLAN BOOK AND PAGES REFERENCE THE MIDDLESEX SOUTH REGISTRY OF DEEDS

1. 1916 PLAN IN PLAN BK. 248 PLAN 7
2. 1955 PLAN NO. 1370
3. 1960 PLAN NO. 1337
4. 1975 PLAN NO. 521
5. 1984 PLAN NO. 33
6. 1992 PLAN NO. 543
7. 2004 PLAN NO. 721
8. 2009 PLAN NO. 22

LAYOUT PLANS ON FILE WITH THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION LAYOUT SECTION:

1. 1933 HIGHWAY LAYOUT NO. 2969
2. 1961 HIGHWAY LAYOUT NO. 5173
3. 1964 HIGHWAY LAYOUT NO. 5393
4. 1991 HIGHWAY LAYOUT NO. 6509



20 0 10 20 40

GRAPHIC SCALE IN FEET

NOT FOR CONSTRUCTION

5-7 PIPER ROAD
LEXINGTON, MA

DRAWN BY: MVC
CHECKED BY: MIN
DATE: 3-13-2025

REVISIONS

DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
NOVAK
No. 50696
REGISTERED PROFESSIONAL ENGINEER

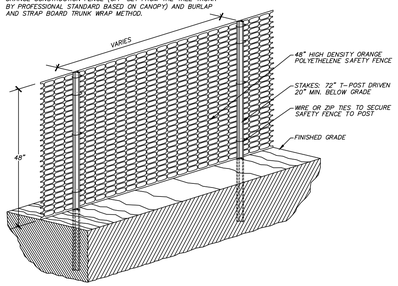
PATRIOT Engineering
PO BOX 362
LEXINGTON, MASSACHUSETTS 02420
T.: (978) 726-2654
www.patriot-eng.com

EXISTING CONDITIONS PLAN
LOCATED IN
LEXINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
PORTER BUILDERS

SHEET
C - 1

NOTE:

1. EXISTING TREES TO BE SAVED SHALL BE PROTECTED WITH ORANGE CONSTRUCTION FENCE (OFF-SET FROM THE TREE TRUNK BY PROFESSIONAL STANDARD BASED ON CANOPY) AND BURLAP AND STRAP BOARD TRUNK WRAP METHOD.



CONSTRUCTION FENCE/TREE PROTECTION
(NOT TO SCALE)

PHASE I CONSTRUCTION SEQUENCE

1. INSTALL ALL EROSIONS CONTROL MEASURES AS REQUIRED.
2. MEET WITH LEXINGTON PLANNING STAFF, SITE CONTRACTOR, AND EROSION CONTROL MONITOR AT PRE-CONSTRUCTION MEETING TO REVIEW EROSION CONTROL MEASURES AND SITE PLAN REVIEW CONDITIONS.
3. INSTALL TEMPORARY, HIGH VISIBILITY, ORANGE CONSTRUCTION FENCING AROUND ENTIRE PROPERTY TO DELINEATE WORK AREA. TEMPORARY CONSTRUCTION FENCING WILL BE INSTALLED BEHIND EROSION CONTROL MEASURES TO ENSURE ADEQUATE ACCESS TO THE EROSION CONTROLS FOR INSPECTION, MAINTENANCE, AND REPAIR AS NEEDED FOR THE DURATION OF CONSTRUCTION.
4. REMOVE AND DISPOSE OF ALL TRASH AND DEBRIS FROM SITE.
5. REMOVE ALL SPECIFIED TREES AND STUMPS.
6. TEST REMAINING SOIL FOR CONTAMINANTS AND PLANTING SUITABILITY.
7. DRESS THE TEMPORARY STAGING AND PARKING AREAS ON SITE WITH CRUSHED STONE.

PHASE II CONSTRUCTION SEQUENCE

1. EXCAVATE BASEMENT AREAS TO BOTTOM OF FOOTING. STOCKPILE MATERIAL FOR BACKFILL AND HAUL REMAINDER OF MATERIAL OFF SITE.
2. FURNISH AND INSTALL BASEMENT FOOTINGS AND FOUNDATION WALLS.
3. WATERPROOF, INSULATE AND BACKFILL BASEMENT FOOTINGS AND FOUNDATION WALLS
4. EXCAVATE FOR AND INSTALL PERIMETER FOOTINGS AND FOUNDATION FROST WALLS AND INTERIOR FOOTINGS. WATERPROOF, INSULATE AND BACKFILL THESE AREAS.
5. EXCAVATE AND BACKFILL ALL NECESSARY TRENCHES IN ORDER TO FURNISH AND INSTALL ALL UNDERGROUND PLUMBING, SECONDARY ELECTRICAL, ETC.
6. EXCAVATE FOR AND CONSTRUCT INFILTRATION SYSTEM(S).
7. FROM THIS POINT ON, THE VERTICAL CONSTRUCTION CONTINUES IN THE SAME CONVENTIONAL MANNER AS ANY MAJOR URBAN DEVELOPMENT PROJECT.

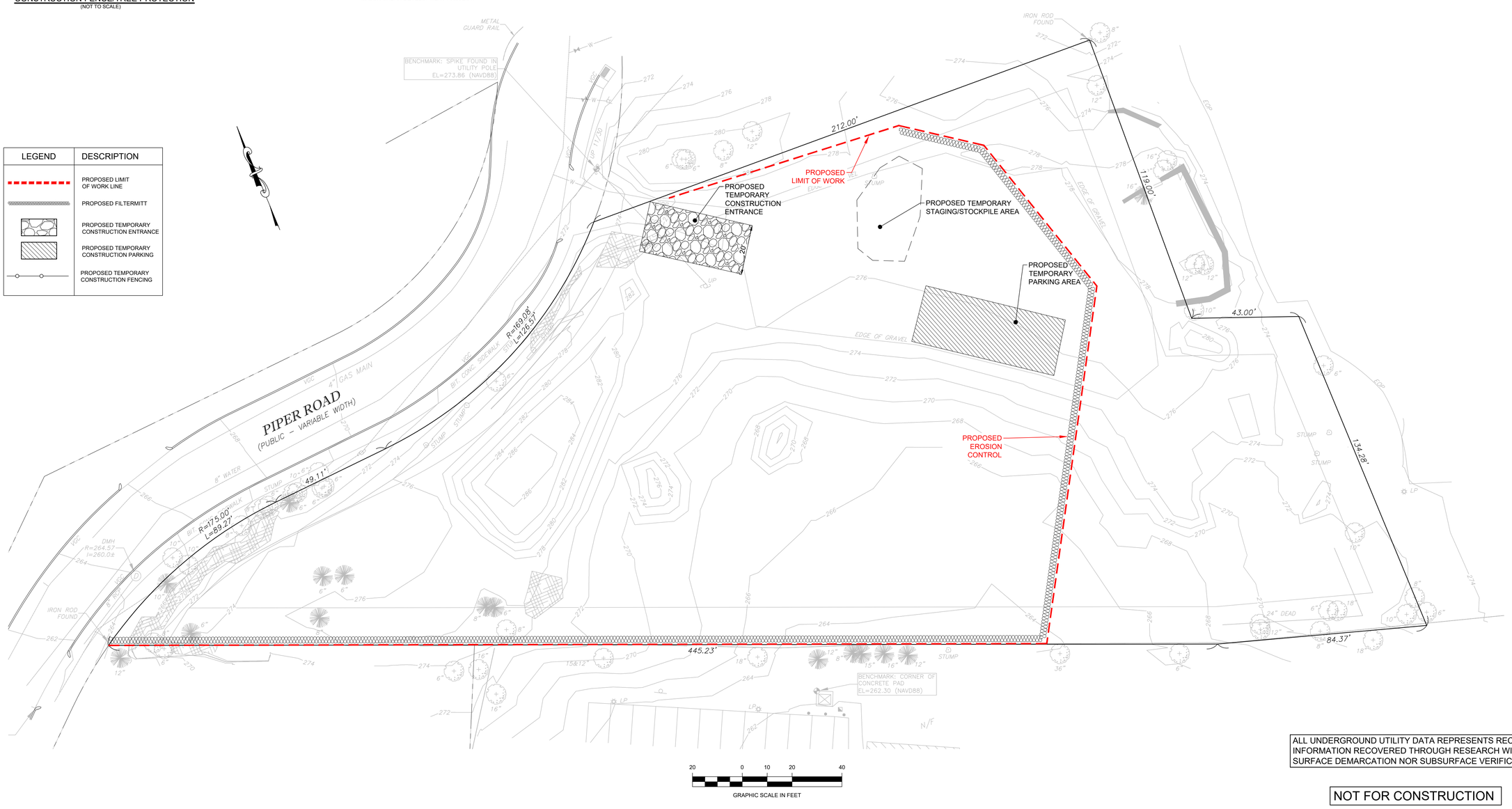
PHASE III CONSTRUCTION SEQUENCE

1. TILL SUBSOIL OR SCARIFY WITH EXCAVATOR BUCKET TEETH TO ENSURE FRIABLE SOIL PLANTING MEDIUM BENEATH TOPSOIL
2. FURNISH AND SPREAD APPROVED TOPSOIL FROM SUB GRADE TO FINISH GRADE PER TOPSOIL SPECIFICATIONS ON APPROVED LANDSCAPE PLANS. TOPSOIL TO BE TESTED FOR LOAMY SAND TEXTURE AND 5-8% ORGANIC CONTENT
3. FURNISH, DELIVER AND INSTALL ALL PLANT MATERIAL PER APPROVED DESIGN DOCUMENTS. PROJECT WETLAND SCIENTIST AND/OR LANDSCAPE ARCHITECT SHALL INSPECT PLANTS PRIOR TO INSTALLATION, AND OVERSEE SITING AND INSTALLATION OF ALL PLANTS.
4. AT THE TIME OF INSTALLATION, ALL PLANTS TO RECEIVE A DEEP WATERING.
5. CLEANUP AND DEMOBILIZE.
6. UPON SUCCESSFUL SEED GERMINATION AND SOIL STABILIZATION, REMOVE EROSION CONTROLS.

ADDITIONAL CONSTRUCTION NOTES:

- TRASH REMOVAL: THE 30 YARD DUMPSTER THAT IS REQUIRED FOR GENERAL CONSTRUCTION WASTE IS APPROXIMATELY 22'X 8'. IT WILL BE SCREENED BY SIX FOOT TALL TEMPORARY FENCING AND SCRIM.
- TEMPORARY RESTROOM FACILITIES: TEMPORARY RESTROOM FACILITIES WILL BE LOCATED BEHIND THE DUMSTER AREA WITHIN THE CONSTRUCTION ZONE SO THAT THEY WILL BE SCREENED FROM THE ROAD, THERE WILL BE A TOTAL OF TWO TO FOUR RESTROOM COMPARTMENTS REQUIRED FOR THE PROJECT DURATION.
- SNOW MANAGEMENT: DURING CONSTRUCTION SNOW WILL BE REMOVED IN ITS ENTIRETY ON THE CONSTRUCTION SIDE OF THE FENCE BY THE GENERAL CONTRACTOR AND HAULED OFF SITE AS REQUIRED. THE TOWN OF LEXINGTON WILL REMOVE SNOW ON THE PUBLIC SIDE OF THE FENCE AS IT NORMALLY WOULD. ANY RESIDUAL SNOW THAT MAY BE IN CONTACT WITH THE PUBLIC SIDE OF THE TEMPORARY FENCING WILL BE REMOVED BY THE GENERAL CONTRACTOR.
- ONCE INFILTRATION SYSTEMS ARE IN PLACE NO PARKING OR MATERIAL STORAGE IS PERMITTED ABOVE THEM.
- NO STORMWATER RUNOFF SHOULD BE DISCHARGED TO THE ON-SITE STORMWATER MANAGEMENT SYSTEM UNTIL THE SITE IF FULLY STABILIZED; WITH THE EXCEPTION OF ROOF LEADERS THAT CAN BE CONNECTED ONCE ABLE TO BE INSTALLED.
- THE ON-SITE INFILTRATION SHOULD BE BLOCKED FROM VEHICLE TRAFFIC DURING CONSTRUCTION UNTIL THE SITE IS FULLY STABILIZED.
- SOIL STOCKPILES MUST BE STABILIZED OR COVERED AT THE END OF EACH WORK DAY. SIDE SLOPES NOT TO EXCEED 2:1. 12" DIAMETER (MINIMUM) FILTERMITT SHALL BE INSTALLED AROUND EACH STOCKPILE
- NO ONSITE REFUELING OF CONSTRUCTION VEHICLES OR EQUIPMENT.
- DUST CONTROL LIMITED TO POTABLE WATER. CALCIUM CHLORIDE SHALL NOT BE USED FOR DUST CONTROL.
- SEGMENTS OF MASS AVE ON WHICH ANY SEDIMENT IS DEPOSITED SHALL BE SWEPT WITHIN 24 HOURS OR MORE FREQUENTLY AS REQUIRED OR DIRECTED BY TOWN STAFF.
- ANY SEDIMENT OR DEBRIS DISCHARGED TO ANY TOWN DRAINAGE STRUCTURE OR DRAINLINE SHALL BE REMOVED WITHIN 24 HOURS.

LEGEND	DESCRIPTION
	PROPOSED LIMIT OF WORK LINE
	PROPOSED FILTERMITT
	PROPOSED TEMPORARY CONSTRUCTION ENTRANCE
	PROPOSED TEMPORARY CONSTRUCTION PARKING
	PROPOSED TEMPORARY CONSTRUCTION FENCING



20 0 10 20 40
GRAPHIC SCALE IN FEET

ALL UNDERGROUND UTILITY DATA REPRESENTS RECORD INFORMATION RECOVERED THROUGH RESEARCH WITHOUT SURFACE DEMARCATION NOR SUBSURFACE VERIFICATION.

NOT FOR CONSTRUCTION

5-7 PIPER ROAD
LEXINGTON, MA

DRAWN BY: MVC
CHECKED BY: MJN
DATE: 3-13-2025

REVISIONS

DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOWAK
CIVIL
No. 50696
REGISTERED PROFESSIONAL ENGINEER

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PO BOX 362
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2654
www.patriot-eng.com

CONSTRUCTION MANAGEMENT PLAN
LOCATED IN
LEXINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
PORTER BUILDERS

SHEET
C - 2

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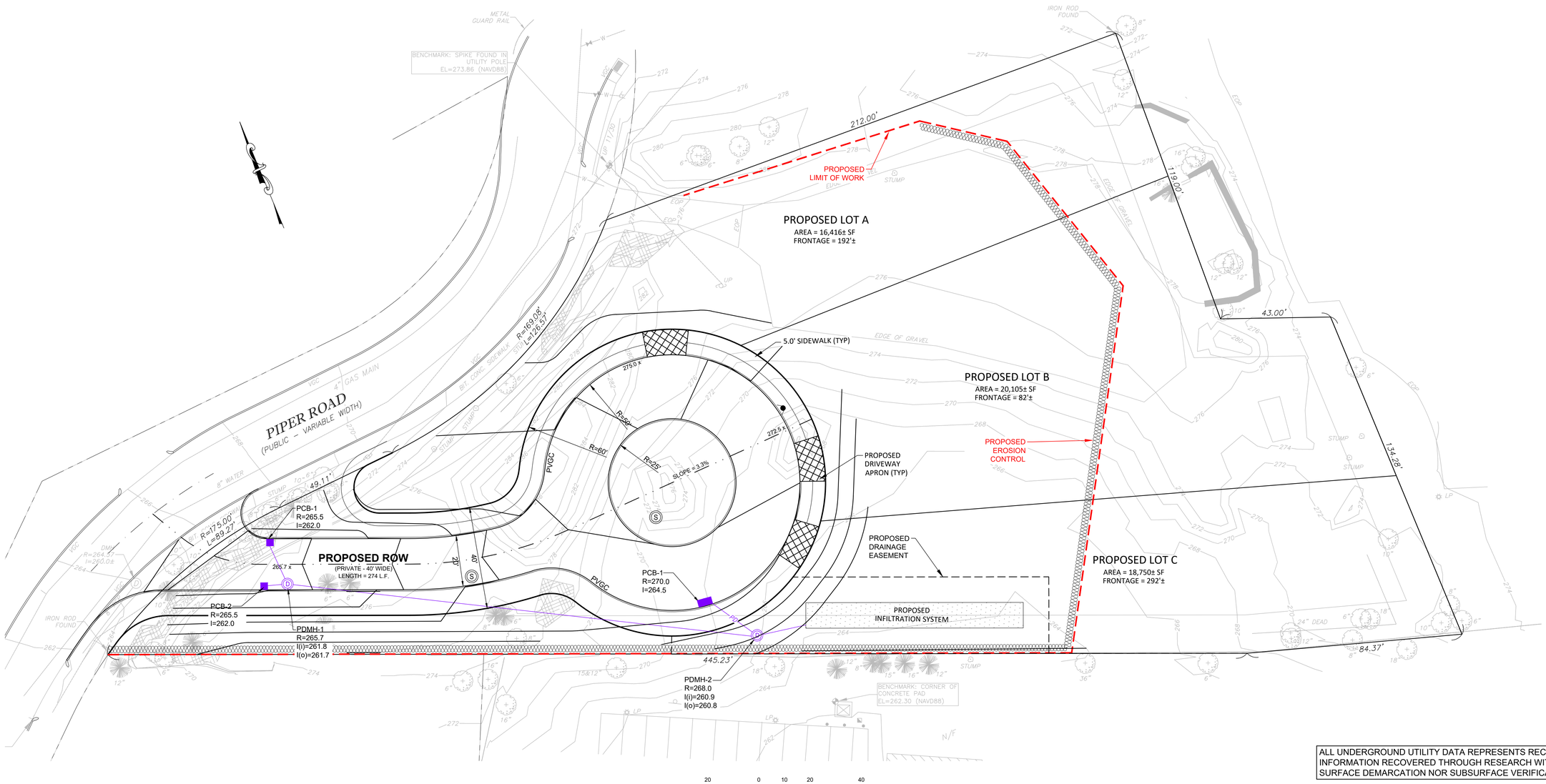
TABLE OF DIMENSIONAL REQUIREMENTS

ITEM	REQUIREMENT	
	ZONE: CRS	ZONE: VO (VILLAGE OVERLAY)
MIN LOT AREA	15,500 S.F.	DOES NOT APPLY
MIN FRONTAGE	125'	20'
MIN FRONT YARD	30'	0' or 15'
MIN SIDE YARD	15'	7.5' - 15'
MIN REAR YARD	15'	15'
MIN REAR YARD (ADJACENT TO RESIDENTIAL)	30'	DOES NOT APPLY

LEGEND	DESCRIPTION
PEOP	PROPOSED EDGE OF PAVEMENT
PVGC	PROPOSED VERTICAL GRANITE CURB
■	PROPOSED CATCH BASIN (PCB)
178	PROPOSED CONTOUR
Ⓓ	PROPOSED DRAIN MANHOLE (PDMH)
	PROPOSED FIRE HYDRANT
	PROPOSED FILTERMITT
	PROPOSED LIMIT OF WORK LINE
Ⓢ	PROPOSED SEWER MANHOLE (PSMH)



20 0 10 20 40

GRAPHIC SCALE IN FEET

ALL UNDERGROUND UTILITY DATA REPRESENTS RECORD INFORMATION RECOVERED THROUGH RESEARCH WITHOUT SURFACE DEMARCATION NOR SUBSURFACE VERIFICATION.

NOT FOR CONSTRUCTION

5-7 PIPER ROAD
LEXINGTON, MA

DATE: 3-13-2025
DRAWN BY: MVC
CHECKED BY: MJN

REVISIONS

DATE	BY	DESCRIPTION

PATRIOT Engineering
PO BOX 362
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2654
www.patriot-eng.com

SITE PLAN - GRADING & DRAINAGE
LOCATED IN
LEXINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
PORTER BUILDERS

SHEET
C - 4

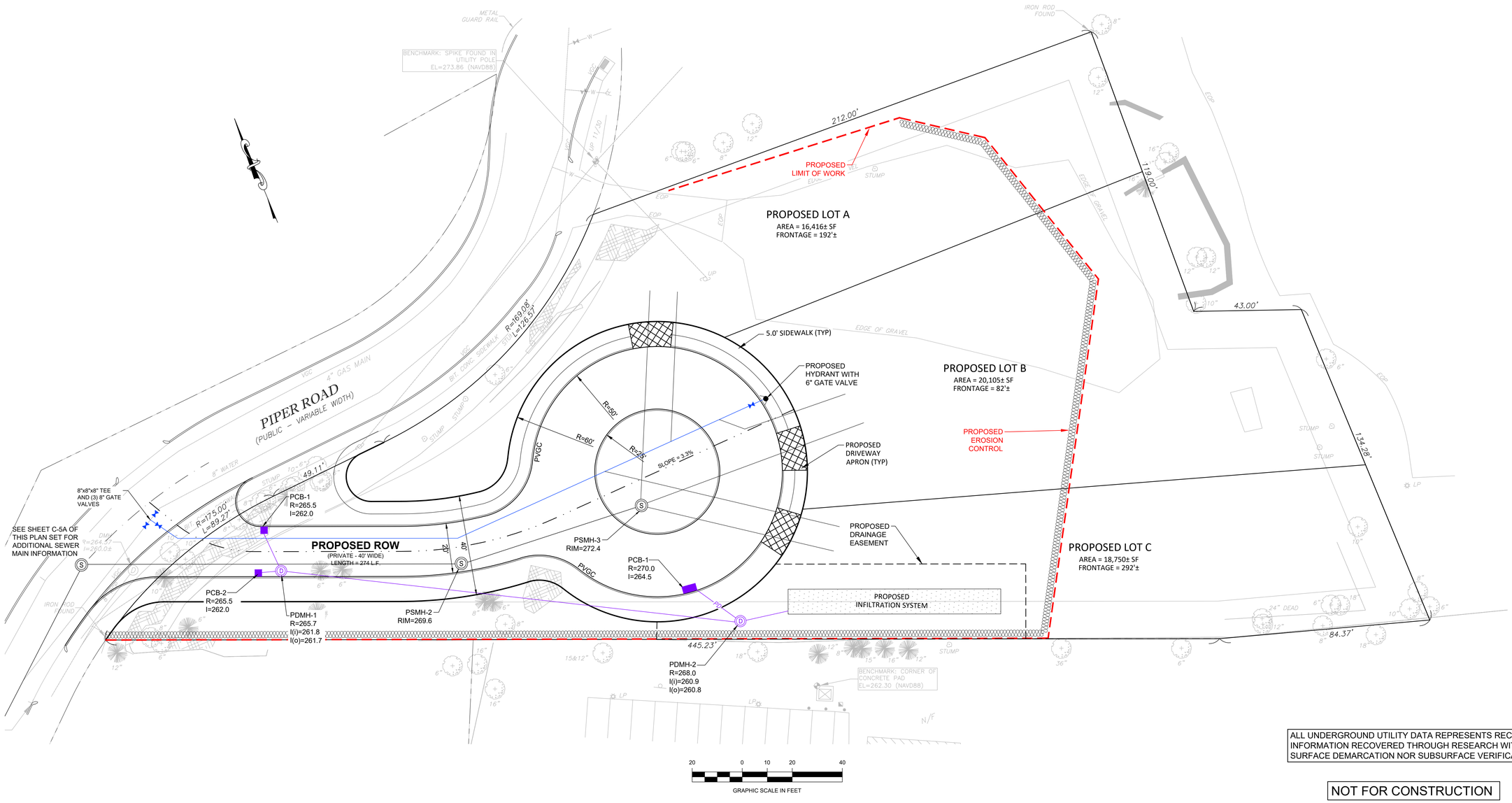
NOTES:

1. THE TOPOGRAPHY, SITE DETAIL & SURFACE IMPROVEMENTS DEPICTED HEREON WERE OBTAINED FROM A PLAN PREPARED BY RJ O'CONNELL AND ASSOCIATES.
2. THE SUBJECT PROPERTY DEPICTED IS LOCATED WITHIN THE RO ZONING DISTRICT.
3. THE SUBJECT PROPERTY IS DEPICTED AS LOTS 58A AND 59A ON THE TOWN OF LEXINGTON ASSESSOR'S MAP 10
4. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED UPON A PARTIAL FIELD SURVEY AND PLANS OF RECORD. THIS PLAN DOES NOT GUARANTEE THE LOCATION OF UTILITIES DEPICTED. THE CONTRACTOR, PRIOR TO COMMENCEMENT OF CONSTRUCTION, SHALL VERIFY THE LOCATION OF ALL UTILITIES AND CONTACT DIG SAFE AT 1-888-344-7233.
5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST.

UTILITY NOTES:

1. ALL SEWER MAINS SHALL BE 8" SCH 40 PVC, UNLESS OTHERWISE NOTED.
2. ALL PROPOSED SEWER SERVICES SHALL BE 6" SCH 40 PVC AND AT A MINIMUM 2% SLOPE, UNLESS OTHERWISE NOTED.
3. ALL WATER MAINS SHALL BE 6" DI, UNLESS OTHERWISE NOTED.
4. ALL PROPOSED WATER SERVICES SHALL BE 1.5" COPPER, UNLESS OTHERWISE NOTED.
5. SEPARATION OF SEWER AND WATER LINES SHALL BE 18 INCHES (18") VERTICALLY OR 10 FEET (10') HORIZONTALLY, IF THIS CANNOT BE ACHIEVED THE SEWER SHALL BE INCASED IN CONCRETE.
6. ALL STORM DRAIN MAINS AND LATERALS SHALL BE 12" SCHEDULE 40 PVC. (EXCEPT ROOF AND YARD DRAIN CONNECTIONS WHICH SHALL BE 6" SCHEDULE 40 PVC OR APPROVED EQUAL)
7. ALL CABLE/POWER UTILITIES TO BE INSTALLED UNDERGROUND ONSITE

LEGEND	DESCRIPTION
PEOP	PROPOSED EDGE OF PAVEMENT
PVGC	PROPOSED VERTICAL GRANITE CURB
■	PROPOSED CATCH BASIN (PCB)
Ⓓ	PROPOSED DRAIN MANHOLE (PDMH)
PD	PROPOSED DRAIN LINE
PS	PROPOSED SEWER LINE
PWS	PROPOSED WATER SERVICE
PSS	PROPOSED SEWER SERVICE
	PROPOSED FIRE HYDRANT
Ⓢ	PROPOSED SEWER MANHOLE (PSMH)
PW	PROPOSED WATER LINE



20 0 10 20 40

GRAPHIC SCALE IN FEET

ALL UNDERGROUND UTILITY DATA REPRESENTS RECORD INFORMATION RECOVERED THROUGH RESEARCH WITHOUT SURFACE DEMARCATION NOR SUBSURFACE VERIFICATION.

NOT FOR CONSTRUCTION

5-7 PIPER ROAD
LEXINGTON, MA

DRAWN BY: MVC
CHECKED BY: MIN
DATE: 3-13-2025

REVISIONS

DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
CIVIL
No. 50696
REGISTERED PROFESSIONAL ENGINEER

PATRIOT Engineering
PO BOX 362
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2654
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SITE PLAN - UTILITY
LOCATED IN
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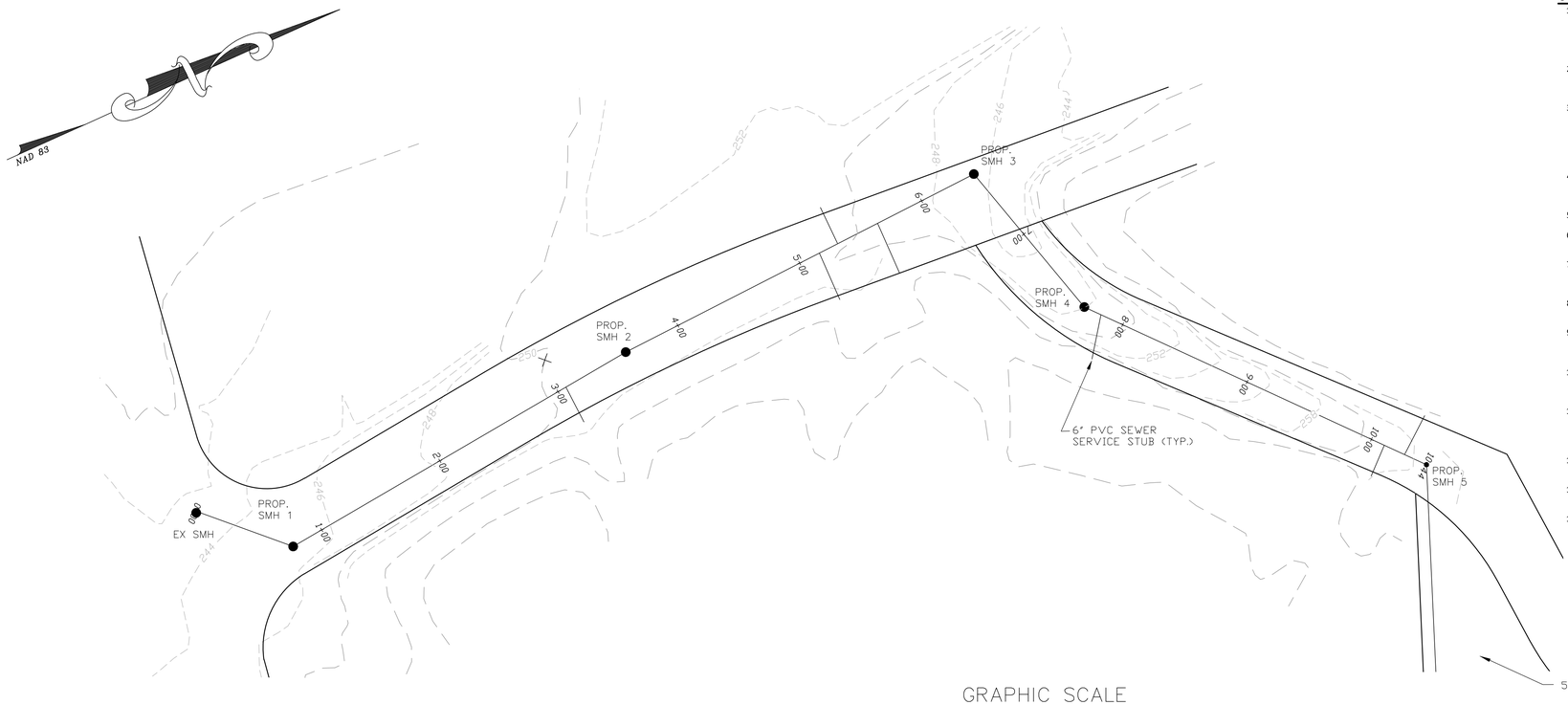
SHEET
C - 5



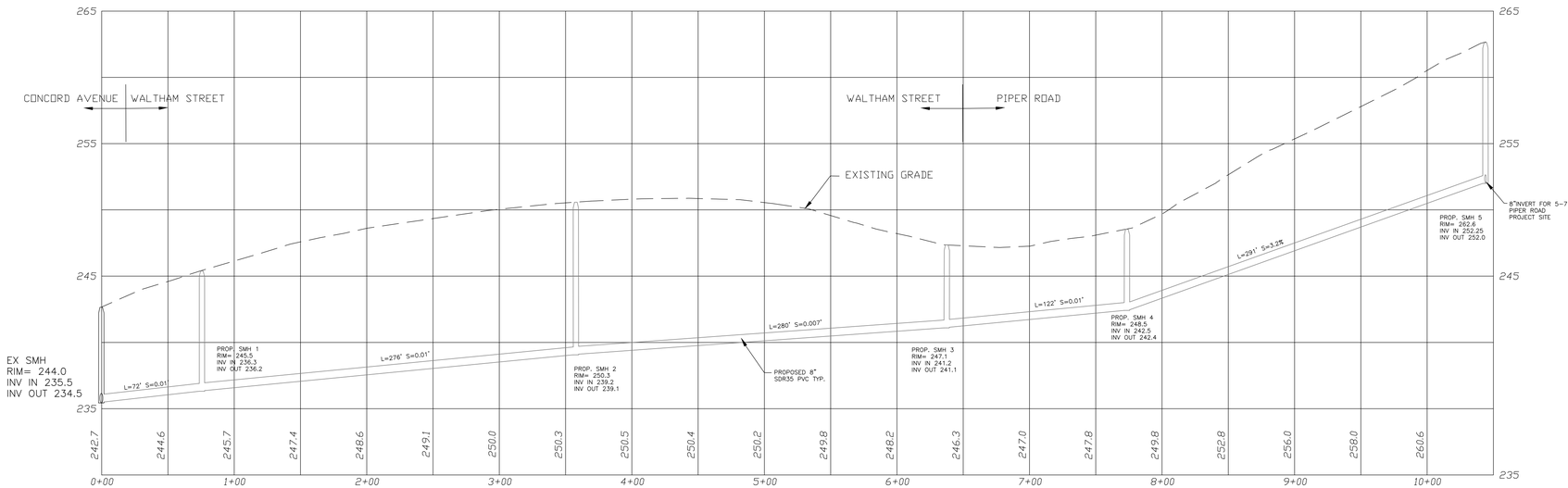
GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)

UTILITY NOTES:

1. ALL SITE WORK SHALL MEET OR EXCEED THE SITE WORK SPECIFICATIONS PREPARED FOR THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ARCHITECT PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK WHICH WOULD BE AFFECTED.
2. AT ALL LOCATIONS WHERE EXISTING CURBING OR PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE. BLEND NEW PAVEMENT, CURBS AND EARTHWORK SMOOTHLY INTO EXISTING BY MATCHING LINES, GRADES AND JOINTS.
3. THE CONTRACTOR SHALL VERIFY EXISTING GRADES IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ARCHITECT. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES, AS REQUIRED. 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 AND ARCHITECT FOR RESOLUTION.
4. ALL UTILITY COVERS, GRATES, ETC. SHALL BE ADJUSTED TO BE FLUSH WITH THE PAVEMENT FINISH GRADE UNLESS OTHERWISE NOTED. RIM ELEVATIONS OF DRAINAGE STRUCTURES AND MANHOLES ARE APPROXIMATE.
5. RESIDENTIAL SEWER SERVICE CONNECTIONS: MIN. PIPE SIZE 6", OF SDR35 PVC PIPE.
6. INSTALL ALL UTILITIES (INCLUDING CONCRETE MECHANICAL PADS) PER UTILITY COMPANY AND LEXINGTONENGINEERING AND DPW STANDARDS.
7. CONTRACTOR SHALL PROTECT ALL UNDERGROUND DRAINAGE, SEWER AND UTILITY FACILITIES FROM EXCESSIVE VEHICULAR LOADS DURING CONSTRUCTION. ANY DAMAGE TO THESE FACILITIES RESULTING FROM CONSTRUCTION LOADS WILL BE RESTORED TO ORIGINAL CONDITION AT NO COST TO OWNER.
8. ABANDON EXISTING UTILITY SERVICES ONSITE ACCORDING TO UTILITY COMPANY AND TOWN OF LEXINGTON REQUIREMENTS.
9. EXCAVATION REQUIRED WITHIN THE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
10. PITCH EVENLY BETWEEN SPOT GRADES. ALL PAVED AREAS MUST PITCH TO DRAIN AT A MINIMUM OF 1/8" PER FOOT UNLESS SPECIFIED. ANY DISCREPANCIES NOT ALLOWING THIS MINIMUM PITCH SHALL BE REPORTED TO THE ARCHITECT PRIOR TO CONTINUING WORK.
11. THE CONTRACTOR SHALL SCHEDULE HIS WORK TO ALLOW THE FINISHED SUBGRADE ELEVATIONS TO DRAIN PROPERLY WITHOUT PUDDLING. SPECIFICALLY, ALLOW WATER TO ESCAPE WHERE PROPOSED CURB MAY RETAIN RUNOFF PRIOR TO APPLICATION OF THE FINISH SUBGRADE AND/OR SURFACE PAVING. PROVIDE TEMPORARY POSITIVE DRAINAGE AS REQUIRED.
12. COORDINATE UTILITY CONSTRUCTION WITH ALL TRADES AND CORRESPONDING DESIGN PLANS FOR CONNECTION TO EXISTING BUILDING AND SITE UTILITIES.
13. CONTRACTOR TO VERIFY UTILITY STUB LOCATIONS AND ELEVATIONS IN THE FIELD PRIOR TO COMMENCING WORK.
14. REFER TO SHEET __ FOR LEGEND AND GENERAL NOTES.



PROFILE SCALES

HORIZONTAL 1"=50'

20 0 10 20 40

GRAPHIC SCALE IN FEET

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5-7 PIPER ROAD
LEXINGTON, MA

DRAWN BY: MVC
DATE: 3-13-2025
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REVISIONS

DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
CIVIL
No. 50896
REGISTERED PROFESSIONAL ENGINEER

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SITE PLAN - UTILITY
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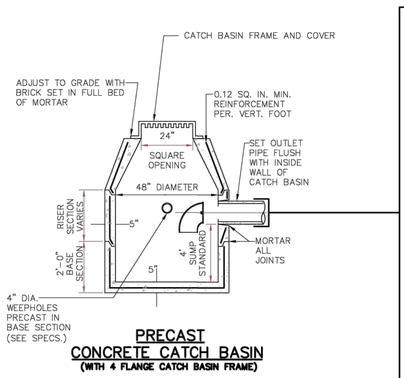
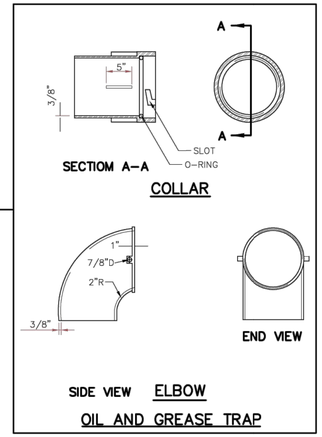
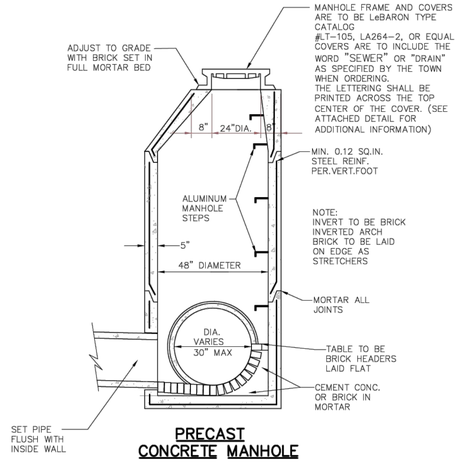
SHEET
C - 5A

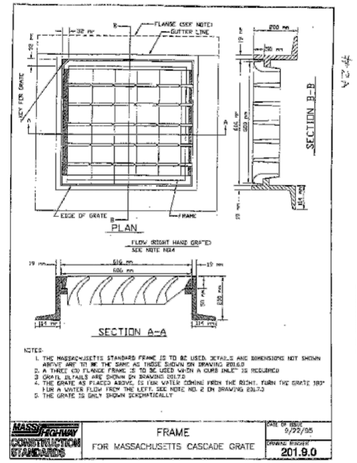


PRECAST CONCRETE CATCH BASIN
(WITH 4 FLANGE CATCH BASIN FRAME)

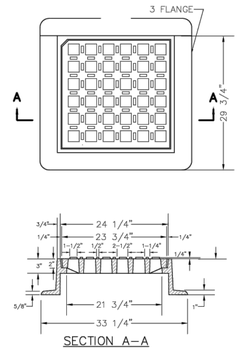




PRECAST CONCRETE MANHOLE



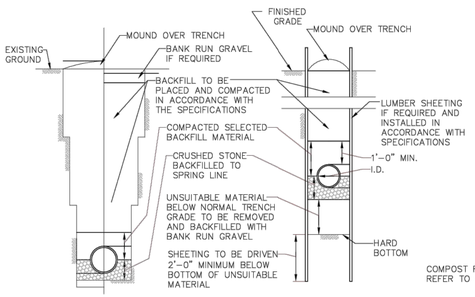
CATCH BASIN FRAME AND GRATE
N.T.S.



NOTE: FRAME AND GRATE SHALL BE HEAVY DUTY CLASS 30 GRAY IRON.

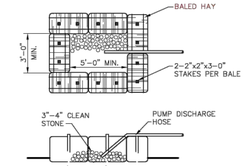
CATCH BASIN FRAME AND GRATE
N.T.S.

NOTE: CATCH BASIN FRAME AND COVERS ARE TO BE LeBARON TYPE CATALOG #LF248-3 OR EQUAL



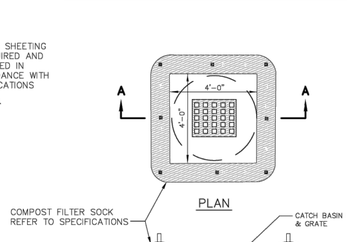
TYPICAL TRENCH SECTION STABLE GROUND

TYPICAL TRENCH SECTION UNSUITABLE MATERIAL

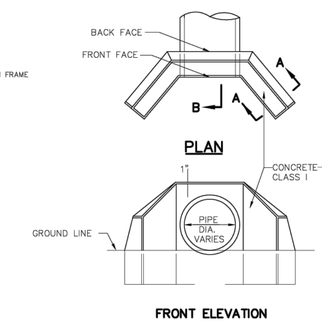


NOTE:
SEDIMENT TRAPS TO BE PLACED IN UPLAND LOCATIONS ONLY

SEDIMENT CONTROL TRAP
N.T.S.

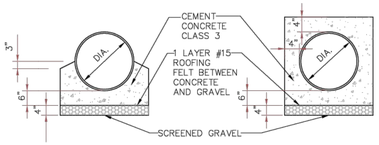


BALED HAY SILT BARRIER AROUND CATCH BASIN
N.T.S.



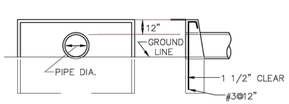
CONCRETE HEADWALL DETAILS FOR 30" TO 84" PIPE CULVERTS

1 1/2:1 & 2:1 SLOPES								1 1/2 SLOPES			2:1 SLOPES		
PIPE DIA.	E	G	H	J	L	N	P	F	CU. YDS.	LBS.	F	CU. YDS.	LBS.
30"	4'-0"	4'-0"	5'-6"	3'-6"	1'-6"	2'-0"	5'-3"	3'-0"	2.60	45	4'-3"	3.16	54
36"	4'-6"	4'-3"	6'-0"	4'-0"	1'-8"	2'-3"	5'-11"	3'-6"	3.39	54	5'-0"	4.15	64
42"	5'-0"	4'-6"	6'-6"	4'-6"	1'-10"	2'-6"	6'-6"	4'-0"	4.20	59	5'-9"	5.25	70
48"	5'-6"	4'-9"	7'-0"	5'-0"	2'-0"	2'-9"	7'-2"	4'-6"	5.19	65	6'-6"	6.50	83
54"	6'-0"	5'-0"	7'-6"	5'-6"	2'-2"	3'-0"	7'-10"	5'-0"	6.26	73	7'-3"	7.86	93
60"	6'-6"	5'-3"	8'-0"	6'-0"	2'-4"	3'-3"	8'-5"	5'-6"	7.43	85	8'-0"	9.37	106
72"	7'-6"	5'-9"	9'-0"	7'-0"	2'-8"	3'-9"	9'-9"	6'-6"	10.25	98	9'-6"	12.99	128
84"	8'-6"	6'-3"	10'-0"	8'-0"	3'-0"	4'-3"	11'-0"	7'-6"	13.49	120	11'-0"	17.32	154



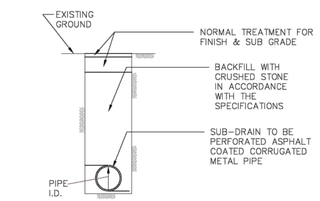
DETAIL CONCRETE CRADLE

DETAIL CONCRETE ENCASEMENT

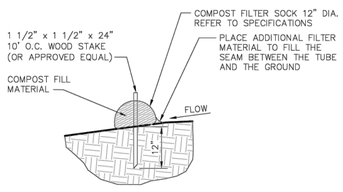


CONCRETE HEADWALL DETAILS FOR 8" TO 30" PIPE CULVERTS

PIPE DIA.	1 1/2:1 SLOPE			2:1 SLOPE		
	L	CU.YDS.	LBS.	L	CU.YDS.	LBS.
8"	4'-2"	0.77	15	5'-10"	1.08	21
10"	4'-10"	0.92	20	6'-8"	1.28	23
12"	5'-6"	1.08	21	7'-6"	1.49	29
15"	6'-6"	1.34	24	8'-9"	1.82	32
18"	7'-6"	1.61	30	10'-0"	2.18	39
21"	8'-8"	1.95	34	11'-6"	2.62	43
24"	9'-3"	2.16	35	12'-6"	2.97	50
30"	10'-6"	2.63	44	15'-6"	3.86	62
	Q=4 INCHES			Q=6 INCHES		

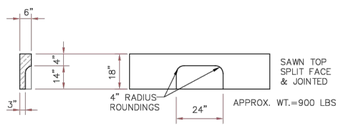


SUB-DRAIN DETAIL



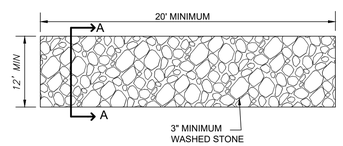
NOTE: EROSION CONTROL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH ORDER OF CONDITIONS.

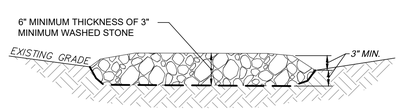
SEDIMENTATION BARRIER

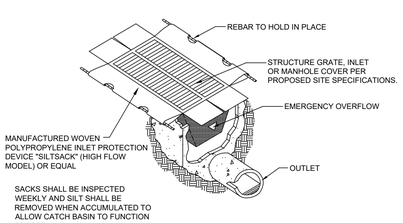


GRANITE CURB INLET DETAILS

NOTES:
1. ALL CONCRETE CORNERS SHALL BE CHAMFERED
2. ALL CONCRETE SHALL BE 3000 PSI







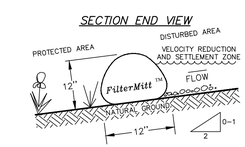
SACKS SHALL BE INSPECTED WEEKLY AND SILT SHALL BE REMOVED WHEN ACCUMULATED TO ALLOW CATCH BASIN TO FUNCTION PROPERLY

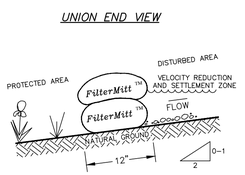
SILT SAC
(NOT TO SCALE)

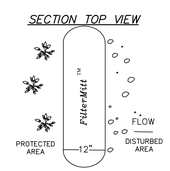
FilterMitt™ **COMPONENTS:**
OUTSIDE CASING: 100% organic hessian.
FILLER INGREDIENT: *FiberRoot Mulch*™
- A blend of coarse and fine compost and shredded wood. Particle sizes: 100% passing a 3" screen; 90-100% passing a 1" screen;
- 70-100% passing a 0.75" screen; 30-75% passing a 0.25" screen.

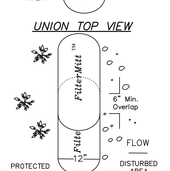
Weight: Approx. 310 lbs./cu.yd. (Ave. 11.5 lbs./f.f.)

For more information visit:
www.groundscapesexpress.com or contact us at:
Groundscapes Express, Inc.
P.O. Box 737
Wrentham, MA 02093 (508) 384-7140









FILTERMITT 2:1 SLOPES OR LESS

FilterMitt™ **INSTALLATION:**
With the newest technology and equipment, sections can be constructed on site in lengths from 1' to 100'.

Sections can also be delivered to the site in lengths from 1' to 8'.

The flexibility of allows it to conform to any contour or terrain while holding a slightly round shape at 8" high by 8" wide.

Where section ends meet, there shall be an overlap of 6" or greater.

ALL DETAILS ARE NOT TO SCALE

NOT FOR CONSTRUCTION

5-7 PIPER ROAD
LEXINGTON, MA

DRAWN BY: MVC
DATE: 3-13-2025
CHECKED BY: MJN

REVISIONS

DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
CIVIL
No. 50696
REGISTERED PROFESSIONAL ENGINEER

PATRIOT Engineering
P.O. BOX 362
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2854
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DETAILS
LOCATED IN
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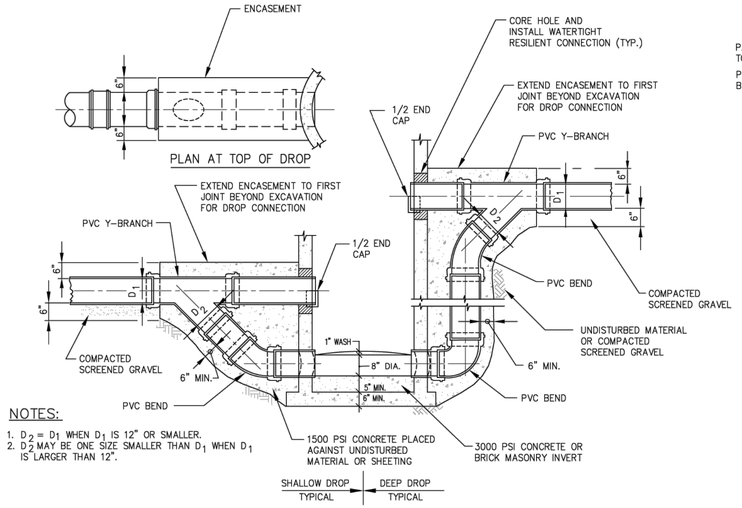
(MIDDLESEX COUNTY)
PREPARED FOR
PORTER BUILDERS

SHEET
C-6.1

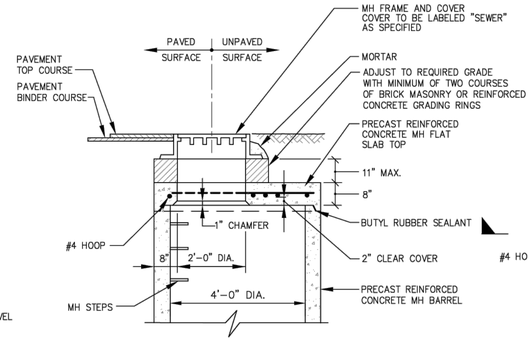


NOTES:

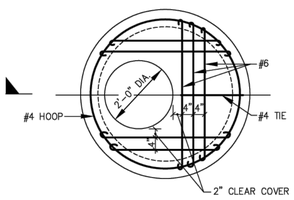
1. $D_2 = D_1$ WHEN D_1 IS 12" OR SMALLER.
2. D_2 MAY BE ONE SIZE SMALLER THAN D_1 WHEN D_1 IS LARGER THAN 12".

DROP INLETS FOR PVC PIPE SEWERS

NOT TO SCALE
2-1.4.1 (REV. 03-15-95)



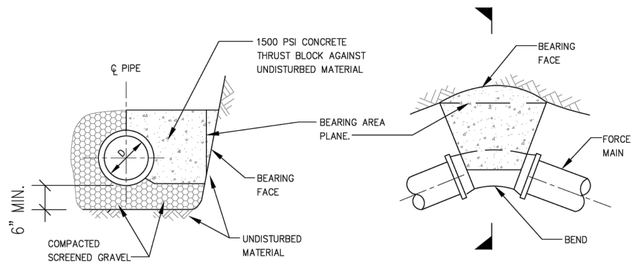
SECTION



PLAN OF PRECAST SLAB

PRECAST FLAT SLAB TOP FOR SHALLOW MANHOLE

NOT TO SCALE
2-1.5.43 (REV. 03-15-95)



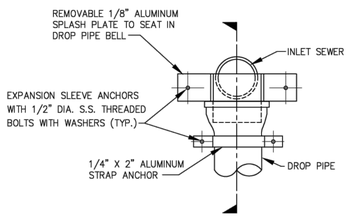
SECTION PLAN

NOTES:

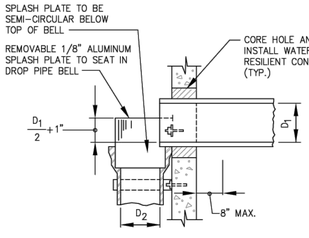
1. WHERE SO INDICATED ON PLANS, THE FORCE MAIN BENDS SHALL BE BACKED UP WITH A CONCRETE THRUST BLOCK BETWEEN THE PIPE AND UNDISTURBED MATERIAL.
2. REQUIRED BEARING AREA TO BE CALCULATED ON VERTICAL PLANE 90 DEG. TO RADIAL PLANE PASSING THROUGH MIDPOINT OF BEND.
3. MINIMUM BEARING AREA: 2.0 SQ.FT.
4. SEE PLANS FOR REQUIRED BEARING AREAS GREATER THAN MINIMUM.

FORCE MAIN THRUST BLOCK

NOT TO SCALE
2-1.6.1 (REV. 03-15-95)

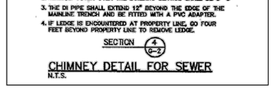


ELEVATION



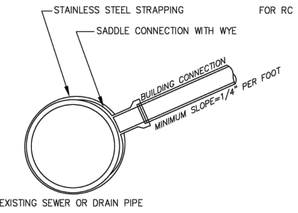
SECTION

ALUMINUM SPLASH PLATE DETAIL



TYPICAL CHIMNEY DETAIL

NO SCALE

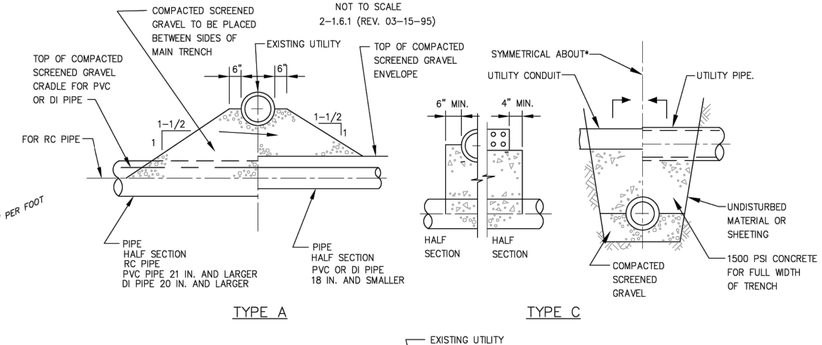


NOTES:

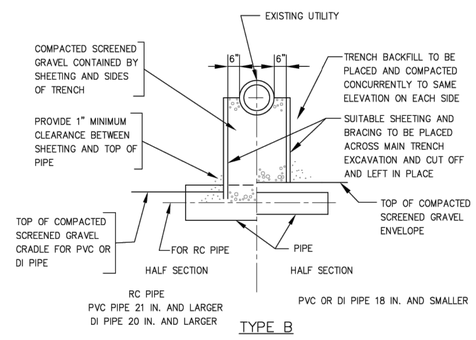
1. FULL PVC OR IRON SADDLE MAY BE USED TO CONNECT TO EXISTING PVC, CLAY, CONCRETE OR IRON PIPE.
2. SADDLES MUST HAVE RUBBER GASKETS AND SHALL BE TIGHTENED WITH STRAPS. SADDLES WILL NOT BE CEMENT ONTO THE PIPE.
3. FULL WYE CONNECTION FITTINGS MAY BE USED.
4. PIPE SHALL BE CUT TO CONFORM TO THE OPENING IN THE SADDLE.
5. CONNECTIONS DIRECTLY INTO THE EXISTING PIPE WITHOUT A SADDLE OR A FULL WYE FITTING ARE NOT ALLOWED.

SEWER SERVICE SADDLE CONNECTION

NO SCALE



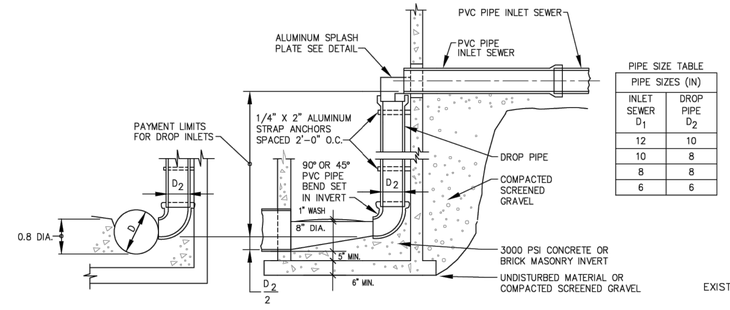
TYPE A TYPE C



TYPE B

TYPICAL SUPPORTS FOR UTILITIES

NOT TO SCALE
2-1.8 (REV. 03-15-95)



PIPE SIZE TABLE

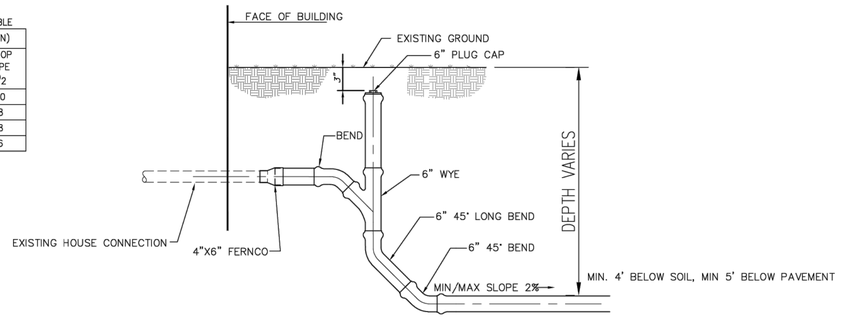
PIPE SIZES (IN)	
INLET SEWER D_1	DROP PIPE D_2
12	10
10	8
8	8
6	6

INVERT DETAIL AT SIDE DROPS

INVERT DETAIL AT MAIN RUN DROPS

INSIDE DROP INLETS FOR PVC PIPE SEWERS 12 INCH DIAMETER AND SMALLER

NOT TO SCALE
2-1.4.3 (REV. 03-15-95)



ELEVATION

CLEAN OUT RISER FOR SHALLOW BUILDING CONNECTIONS

NO SCALE

ALL DETAILS ARE NOT TO SCALE

NOT FOR CONSTRUCTION

5-7 PIPER ROAD
LEXINGTON, MA

DRAWN BY: MVC
DATE: 3-13-2025
CHECKED BY: MJN

REVISIONS

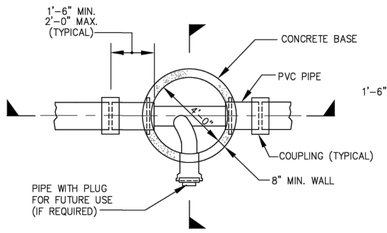
DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
CIVIL
No. 50666
REGISTERED PROFESSIONAL ENGINEER

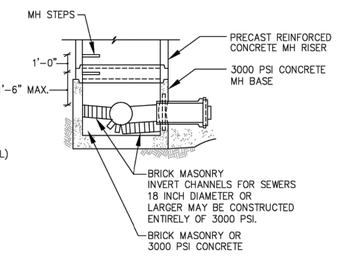
PATRIOT Engineering
P.O. BOX 362
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2654
www.patriot-eng.com

DETAILS
LOCATED IN
LEXINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
PORTER BUILDERS

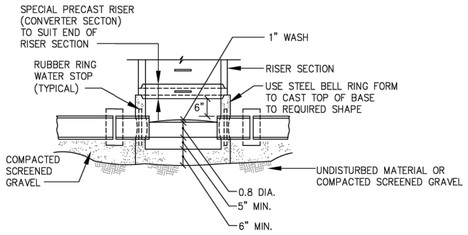
SHEET
C-6.2



PLAN



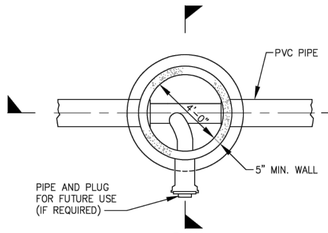
SECTION



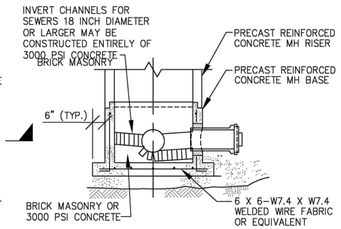
SECTION

CAST-IN-PLACE CONCRETE BASE FOR PVC SEWERS

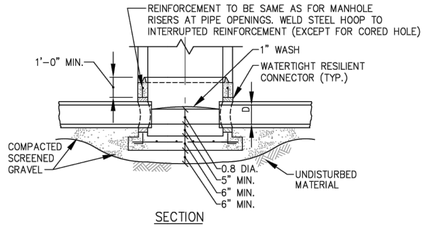
NOT TO SCALE
2-1.5.4 (REV. 03-15-95)



PLAN



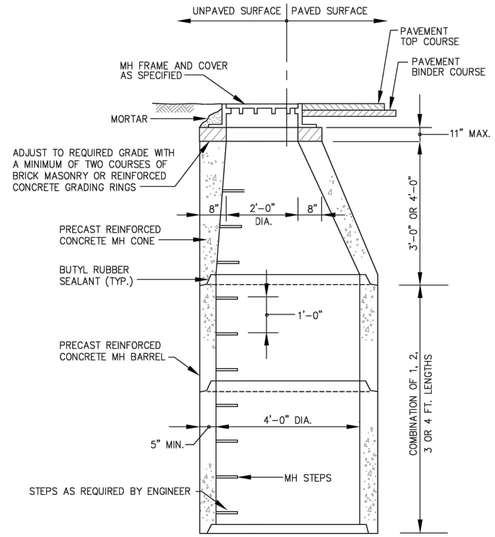
SECTION



SECTION

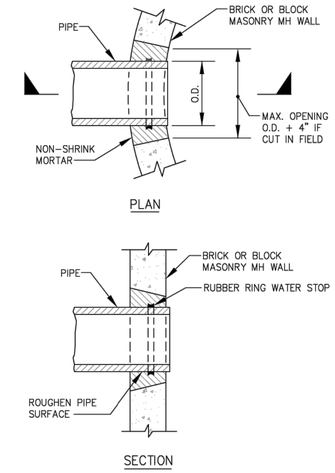
4'-0" PRECAST REINFORCED CONCRETE MANHOLE BASE FOR PVC SEWERS AND DRAINS

NOT TO SCALE
2-1.5.14 (REV. 03-15-95)



MANHOLE RISER WITH ECCENTRIC CONE TOP

NOT TO SCALE
2-1.5.41 (REV. 03-15-95)

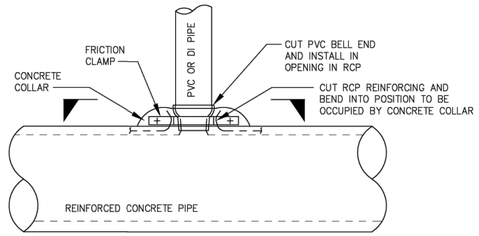


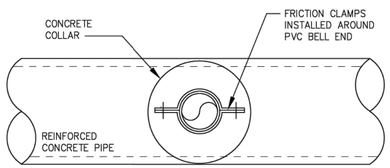
PLAN

SECTION

NON-SHRINK MORTAR JOINTS FOR CONNECTING PIPES TO BRICK OR BLOCK MASONRY MANHOLES

NOT TO SCALE
2-1.5.62 (REV. 4-5-96)

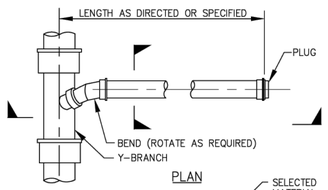




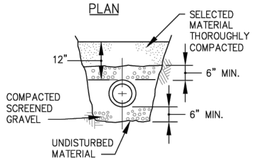
SECTION

T-BRANCH FOR BUILDING OR CHIMNEY CONNECTION IN RC PIPE (PVC OR DI PIPE BRANCH)

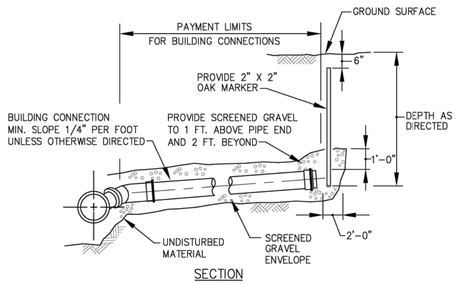
NTS
2-1.2.15 (REV. 08-17-95)



PLAN



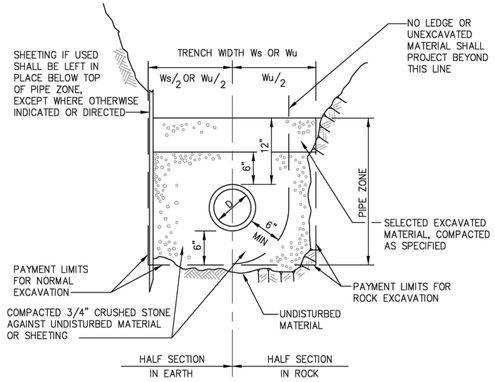
SECTION



SECTION

BUILDING CONNECTION FOR DI OR PVC PIPE

NOT TO SCALE
2-1.2.1 (REV. 03-15-95)

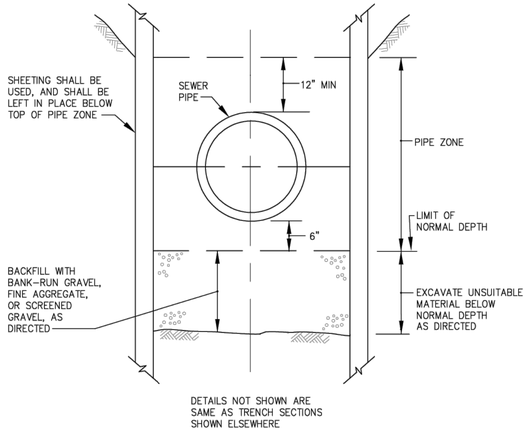


1. PIPE TRENCHES MAY BE EXCAVATED WIDER THAN TRENCH WIDTH Ws (SHEETED) OR Wu (UNSHEETED) ABOVE THE TOP OF PIPE ZONE.
2. TRENCHES SHALL NOT BE EXCAVATED BEYOND THE TRENCH WIDTH Wu BELOW THE TOP OF PIPE ZONE.
3. SHEETING MUST BE USED IF EXCAVATION AND BACKFILL, BELOW NORMAL DEPTH, IS REQUIRED. SHEETING SHALL BE LEFT IN PLACE BELOW A LINE 1'-0" ABOVE THE TOP OF PIPE.
4. ALL ROCK WITHIN 3'-0" HORIZONTALLY OF THE ENDS OF BUILDING CONNECTIONS, BRANCHES OR STUBS AND DOWN TO A HORIZONTAL PLANE 6" BELOW THE BOTTOMS OF SUCH CONNECTIONS, BRANCHES OR STUBS, SHALL BE EXCAVATED.

TRENCH WIDTH Ws OR Wu

NOMINAL PIPE DIAMETER D	DEPTH OF PIPE INVERT BELOW GROUND SURFACE	
	0 TO 12'	12' TO 20'
24" AND SMALLER	5'-0"	7'-0"
OVER 24"	D + 3'-0"	D + 5'-0"

TRENCH SECTION FOR PVC PIPE



DETAILS NOT SHOWN ARE SAME AS TRENCH SECTIONS SHOWN ELSEWHERE

TRENCH SECTION IN UNSUITABLE MATERIAL

NOT TO SCALE
2-1.1.21 (REV. 03-15-95)

ALL DETAILS ARE NOT TO SCALE

NOT FOR CONSTRUCTION

5-7 PIPER ROAD
LEXINGTON, MA

DRAWN BY: MVC
DATE: 3-13-2025
CHECKED BY: MJN

REVISIONS

DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
CIVIL
No. 50656
REGISTERED PROFESSIONAL ENGINEER

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P.O. BOX 362
LEXINGTON, MASSACHUSETTS 02420
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DETAILS
LOCATED IN
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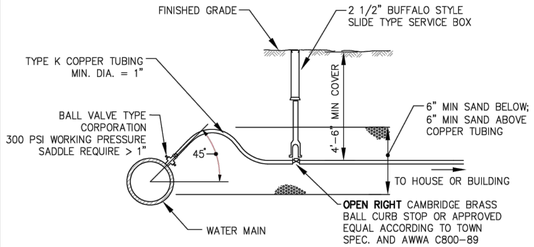
PREPARED FOR
PORTER BUILDERS

SHEET
C-6.3

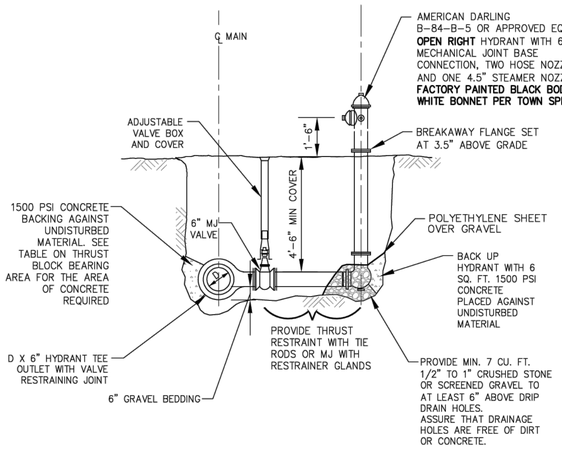


NOTES:

1. A 10' HORIZONTAL SEPARATION MUST BE MAINTAINED FROM THE SEWER SERVICE UNLESS OTHERWISE AUTHORIZED BY THE ENGINEERING DIVISION.
2. FOR SERVICE RENEWALS, TUBING SHALL BE REPLACED TO THE PROPERTY LINE UNLESS OTHERWISE AUTHORIZED BY THE ENGINEERING DIVISION.
3. WHERE AN EXISTING SERVICE IS BEING REPLACED TO THE MAIN, THE OLD SERVICE SHALL BE CAPPED AT THE CORPORATION.
4. THE WATER AND SEWER DIVISION MUST BE NOTIFIED IF LEAD OR STEEL SERVICES ARE ENCOUNTERED.
5. SERVICE TAPS SHALL BE PERFORMED BY CONTRACTOR OR SUBCONTRACTOR AND ARE SUBJECT TO APPROVAL BY THE WATER DIVISION.
6. SERVICE TAPS GREATER THAN 1" REQUIRE A SADDLE AND ARE SUBJECT TO THE APPROVAL OF THE ENGINEERING DIVISION.
7. USE QUICK STYLE COMPRESSION CONNECTIONS FOR ALL SERVICE BRASS.
8. FOR 1" CONNECTIONS TO EXIST. 3/4" CURB STOP CONNECT ADAPTER DIRECTLY TO CURB STOP. MOST EXISTING CURB STOPS REQUIRE 3/4" X 1" FEMALE ADAPTERS FOR NEW ENGLAND STYLE THREADS.
9. ALL CONNECTIONS TO EXIST. CURB STOPS SHALL REPLACE SERVICE BOXES IF NOT BUFFALO STYLE.
10. WATER SERVICE SHALL INCLUDE A BALL VALVE WITH COMPRESSION FITTING JUST BEFORE METER.

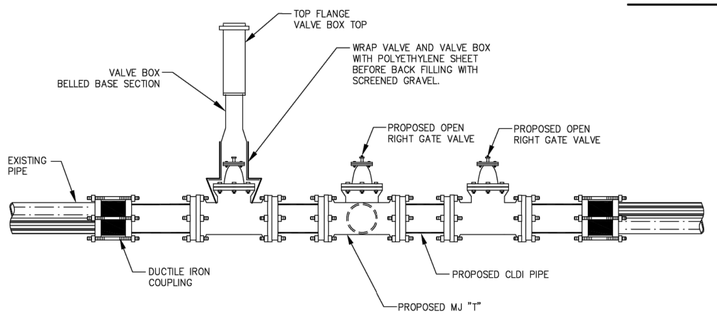
WATER SERVICE CONNECTION (1" MIN TO 2" MAX)

NTS



TYPICAL HYDRANT ASSEMBLY WITH DRAIN

NTS



ELEVATION

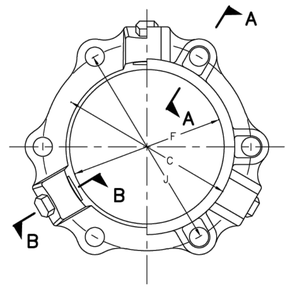
PLAN

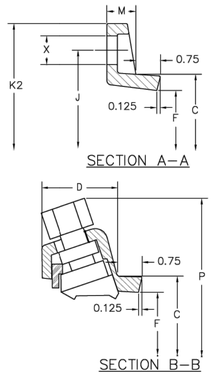
TRIPLE GATE CUT IN WATER MAIN CONNECTION

NTS

NOTES:

1. SIZES 3" THROUGH 24" ARE LISTED BY UNDERWRITER'S LABORATORIES, INC. CATEGORY HJKF FOR USE ON DUCTILE IRON PIPE. THE LISTING FILE NUMBER IS EX2836. SIZES 3" THROUGH 12" ARE FACTORY MUTUAL APPROVED.
2. GLAND AND COLLAR BOLTS ARE MADE OF DUCTILE IRON CONFORMING TO ASTM A536-80. WEDGES ARE MADE OF DUCTILE IRON HEAT TREATED TO A MINIMUM BRINELL HARDNESS OF 370.
3. GLAND CONFORMS TO THE APPLICABLE REQUIREMENTS OF ANSI/AWWA A21.11/C111 AND ANSI\AWWA C153/A21.53 OF THE LATEST REVISION.
4. FOR TEST PRESSURES ABOVE THE RATED PRESSURES SHOWN, CONSULT THE ENGINEERING DEPARTMENT OF EBAA IRON INC. FOR RECOMMENDATIONS. EBAA-SEAL GASKETS ARE PROVIDED WITH THE 30" THROUGH 48" MEGALUGS. ALSO PROVIDED WITH THE 42" AND 48" SIZES ARE EXTRA LENGTH T-BOLTS. THE GASKETS AND BOLTS ARE PROVIDED TO FACILITATE EASIER ASSEMBLY OF THE MECHANICAL JOINT AND ARE REQUIRED ON THE ABOVE REFERENCED SIZES TO OBTAIN THE LISTED PRESSURE RATINGS WITH A 2:1 SAFETY FACTOR.

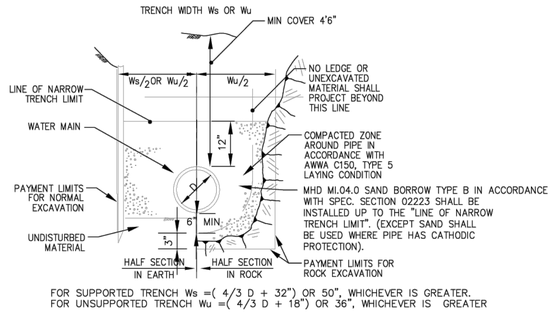




SERIES	PRESSURE RATING	C	D	F	J	M	X	NO. OF WEDGES	NO. OF BOLTS	P	P (W/ NUTS TWISTED OFF)	K2
1103	350	4.84	2.27	4.06	6.19	0.62	3/4	2	4	9.36	9.06	7.69
1104	350	5.92	2.27	4.90	7.50	0.75	7/8	2	4	10.20	9.90	9.12
1106	350	8.02	2.27	7.00	9.50	0.88	7/8	3	6	12.30	12.00	11.12
1108	350	10.17	2.31	9.15	11.75	1.00	7/8	4	6	14.45	14.15	13.37
1110	350	12.22	2.37	11.20	14.00	1.00	7/8	6	8	16.50	16.20	15.62
1112	350	14.32	2.37	13.30	16.25	1.25	7/8	8	8	18.60	18.30	17.88
1114	350	16.40	2.69	15.44	18.75	1.50	7/8	10	10	20.64	20.94	20.25
1116	350	18.50	2.69	17.54	21.00	1.56	7/8	12	12	22.60	22.90	22.50
1118	250	20.60	2.69	19.64	23.25	1.63	7/8	12	12	24.70	25.00	24.75
1120	250	22.70	2.69	21.74	25.50	1.69	7/8	14	14	26.80	27.10	27.00
1124	250	26.90	3.20	25.94	30.00	1.81	7/8	16	16	32.94	32.64	31.50
1130	250	33.29	3.20	32.17	36.88	2.25	1 1/8	20	20	39.17	38.87	39.12
1136	250	39.59	3.20	38.47	43.75	2.25	1 1/8	24	24	45.47	45.17	46.00
1142	250	45.79	4.56	44.67	50.62	3.88	1 3/8	28	28	55.87	55.57	53.48
1148	250	52.09	4.56	50.97	57.50	3.88	1 3/8	32	32	62.17	61.87	60.36

MEGALUG DETAIL

N.T.S.



FOR SUPPORTED TRENCH Ws =(4/3 D + 32") OR 50", WHICHEVER IS GREATER.
FOR UNSUPPORTED TRENCH Wu =(4/3 D + 18") OR 36", WHICHEVER IS GREATER

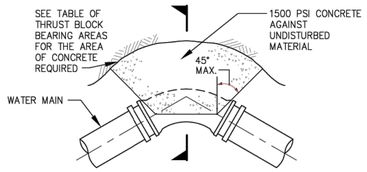
NOTES:

1. TRENCHES MAY BE EXCAVATED WIDER THAN TRENCH WIDTH Ws ABOVE THE "LINE OF NARROW TRENCH LIMIT".
2. BELOW THE "LINE OF NARROW TRENCH LIMIT" THE TRENCH SHALL NOT BE EXCAVATED BEYOND THE TRENCH WIDTH Ws.
3. SHEETING, IF USED, IN ALL CASES SHALL BE LEFT IN PLACE BELOW A LINE 1'-0" ABOVE THE TOP OF THE PIPE, UNLESS OTHERWISE INDICATED OR DIRECTED.
4. "COVER" AT ANY POINT SHALL BE DEFINED AS THE VERTICAL DISTANCE FROM THE UPPERMOST POINT OF THE PIPE TO A LINE WHICH CONNECTS THE SURFACE OF UNDISTURBED GROUND AT EITHER SIDE OF THE TRENCH AND IS AT RIGHT ANGLES TO THE DIRECTION OF THE PIPE.
5. WHERE FUTURE EXTENSION OF A PLUGGED PIPE OR A PLUGGED BRANCH WILL ENTAIL ROCK EXCAVATION, TRENCH EXCAVATION IN ROCK SHALL BE EXTENDED FOR A DISTANCE OF 3'-0" BEYOND THE PLUG.
6. BANK RUN GRAVEL OR EXCAVATED MATERIAL THAT MEETS SPEC. SECTION 02224 SHALL BE INSTALLED ABOVE THE LINE OF NARROW TRENCH LIMIT.
7. WHERE SPECIFIED, CONTROLLED DENSITY FILL WILL BE USED FROM TOP OF SCREENED GRAVEL TO BOTTOM OF BITUMINOUS PAVEMENT.

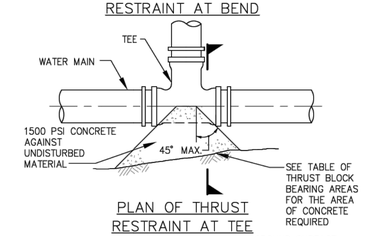
WATER MAIN TRENCH SECTION

NTS

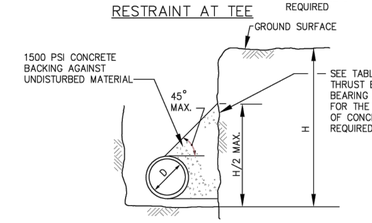
ALL DETAILS ARE NOT TO SCALE



PLAN OF THRUST RESTRAINT AT BEND



PLAN OF THRUST RESTRAINT AT TEE



THRUST BLOCK SECTION

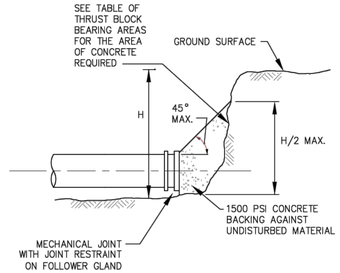
THRUST RESTRAINT AT FITTINGS

NTS

BEARING AREA FOR VARIOUS DIAMETERS						
FITTING	4"	6"	8"	10"	12"	16"
1/32 BEND (11 1/4°)	2 S.F.	2 S.F.	2 S.F.	2 S.F.	3 S.F.	5 S.F.
1/16 BEND (22 1/2°)	2 S.F.	2 S.F.	3 S.F.	3 S.F.	4 S.F.	5 S.F.
1/8 BEND (45°)	2 S.F.	2 S.F.	3 S.F.	5 S.F.	7 S.F.	12 S.F.
1/4 BEND (90°)	3 S.F.	3 S.F.	6 S.F.	9 S.F.	12 S.F.	21 S.F.
TEE/PLUG	2 S.F.	3 S.F.	4 S.F.	6 S.F.	9 S.F.	16 S.F.

NOTES:

1. ALL ELBOWS, BENDS, AND CAPS SHALL BE BRACED WITH CONCRETE THRUST BLOCKS. JOINTS SHALL NOT BE ENCASED IN CONCRETE.
2. BEARING AREA IS AREA OF CONCRETE IN CONTACT WITH WALL OF TRENCH (H X L).
3. HEIGHT AND LENGTH AS REQUIRED TO OBTAIN BEARING AREA SHOWN IN THE TABLE W/ H APPROX. 1/2 L.
4. THRUST BLOCK SIZING BASED ON 150 PSI WATER PRESSURE AND 2000 PSI SOIL BEARING CAPACITY.



THRUST RESTRAINT AT PLUG

NTS

NOT FOR CONSTRUCTION

5-7 PIPER ROAD
LEXINGTON, MA

DRAWN BY: MVC
DATE: 3-13-2025
CHECKED BY: MJN

REVISIONS		
DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
CIVIL
No. 50686
REGISTERED PROFESSIONAL ENGINEER

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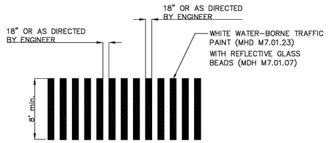
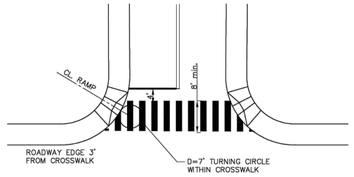
DETAILS
LOCATED IN
LEXINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
PORTER BUILDERS

SHEET
C-6.4



CROSSWALK ALL LOCATIONS



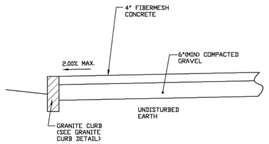
DETAIL~FOR CROSSWALK ALL LOCATIONS

NOTES:

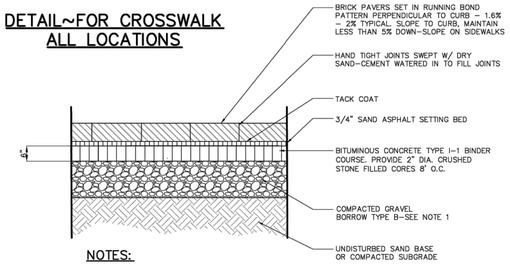
1. WHERE PROVIDED, STOP LINES SHOULD BE PLACED NO LESS THAN 4 FEET BEHIND AN ADJACENT CROSSWALK LINE.

2. MID-BLOCK CROSSWALKS SHALL NOT BE INSTALLED IN AREAS WITH THE SIGHT DISTANCE LESS THAN THAT SHOWN IN THE TABLE BELOW.

DESIGN SPEED	SIGHT DISTANCE
30	200
40	275
50	375
60	525
70	625



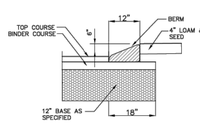
CONCRETE SIDEWALK



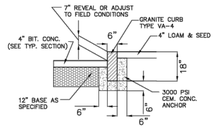
NOTES:

1. DETAIL AS SHOWN SHALL BE USED ON TYPICAL BRICK SIDEWALKS. WHERE SHOWN ON PLANS AT LOCATIONS FOR "TREEWAY", GRAVEL BORROW SHALL BE SUBSTITUTED WITH COMPACTED DENSE GRADED CRUSHED STONE AND 2" DEPTH OF SAND BASED.

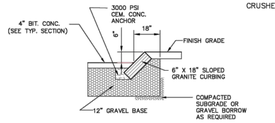
BRICK SIDEWALK PAVING



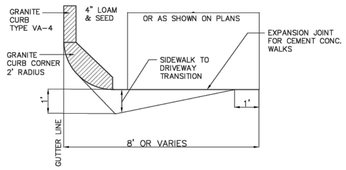
BIT. CONC. BERM



GRANITE CURB TYPE VA-4

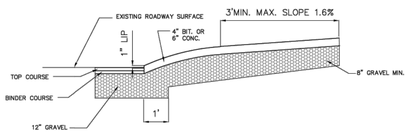


SLOPED GRANITE CURB DETAIL

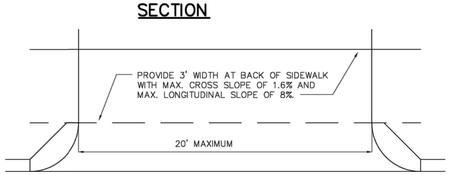


PLAN VIEW

TYPICAL CURB RETURN DETAIL



DRIVEWAY SECTION



ZONING OFFSETS

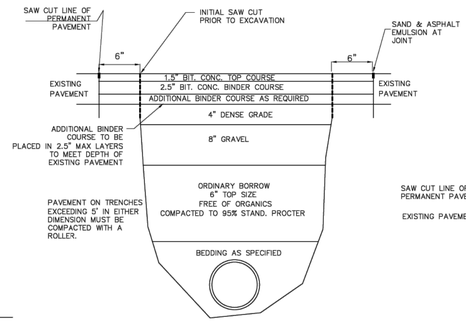
ZONING DISTRICT	DISTANCE FROM STREET INTERSECTION	DISTANCE FROM LOT LINE	WALL OF PRINCIPAL BUILDING
RS,RO,RT	25	5	5
RD,RM	25	8	5
CRO,CLO,CM	50	10	5
CRS,CS,CB,CN	10	NO REQUIREMENT	5

MAXIMUM DRIVEWAY GRADE = 12%

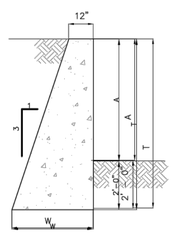
DRIVEWAY PLAN-RESIDENTIAL

NOTE:

NUMBER OF DRIVEWAYS PER LOT LINE IS LIMITED TO TWO. ZONING BY LAW SECTION 5.1.10.2



TRENCH RESTORATION

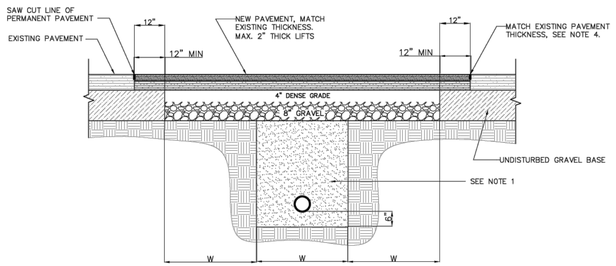


LOW RETAINING WALL

NOTES

1. CLASS I CEMENT CONC. TO BE USED
2. EXPANSION JOINTS TO BE PLACED 90' O.C. MAX. WITH INTERMIDIATE CONSTRUCTION JOINTS 30' O.C.
3. ALL CONC. DIMENSIONS SHOWN ARE MINIMUM

HEIGHT		WIDTH	AREA	CU. YDS.
A	T	W	SQ. FT.	PER. LIN. FT.
2'-0"	4'-0"	2'-4"	6.667	0.247
2'-6"	4'-6"	2'-6"	7.875	0.292
3'-0"	5'-0"	2'-8"	9.165	0.339
3'-6"	5'-6"	2'-10"	10.541	0.390
4'-0"	6'-0"	3'-0"	12.000	0.444
4'-6"	6'-6"	3'-2"	13.541	0.502
5'-0"	7'-0"	3'-4"	15.162	0.562



TYPICAL DETAIL TRENCH RESTORATION FOR MORATORIUM STREETS

NOTES:

1. THE TRENCH EXCAVATION AROUND THE UTILITY WILL BE BACK FILLED WITH FLOWABLE FILL OR, IN CASE OF NATURAL GAS SERVICE, WITH GRAVEL COMPACTED TO 95% DENSITY.
2. NEW GRAVEL SUB BASE WILL BE INSTALLED AND COMPACTED TO 95% DENSITY.
3. THE FINAL TRENCH PATCH WILL BE FROM CURB TO CURB, OR AS APPROVED BY THE ENGINEER.
4. PAVEMENT THICKNESS AND MATERIAL IN ACCORDANCE WITH THE TOWN OF LEXINGTON SPECIFICATIONS. APPLY HEAT BY APPROVED INFRARED METHOD TO SEAL ALL JOINTS.
5. JOINT BETWEEN EXISTING PAVEMENT AND PATCH MUST BE INFRARED.

ALL DETAILS ARE NOT TO SCALE

NOT FOR CONSTRUCTION

5-7 PIPER ROAD
LEXINGTON, MA

DRAWN BY: MVC
CHECKED BY: MJN
DATE: 3-13-2025

REVISIONS

DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
CIVIL
No. 50696
REGISTERED PROFESSIONAL ENGINEER

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DETAILS
LOCATED IN
LEXINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
PORTER BUILDERS

SHEET
C-6.5

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

7-9 Muzzey Street, 11-13 Muzzey Street, 1834-1840 Massachusetts Avenue - Public meeting

PRESENTER:

Applicant: Sheldon Corp. & Michael Novak

ITEM NUMBER:

SUMMARY:

Public meeting on an application by Sheldon Corp, for approval of a preliminary subdivision plan under §175-5.0 of the Planning Board's Subdivision Regulations. Application proposes subdividing properties into 3 lots with a cul-de-sac.

The properties are located at 7-9 Muzzey Street, 11-13 Muzzey Street, and 1834-1840 Massachusetts Avenue, Lexington, MA also known as Map 49, Lots 69, 70A, and 74-75 in the CB (Central Business) and MFO (Multi-Family Overlay) zoning districts. The properties are also located in the Battle Green Historic District; any exterior renovations will be subject to Historic Districts Commission approval.

Application materials may be viewed online at: https://lexingtonma.portal.opengov.com/records/102654

SUGGESTED MOTION:

Staff recommends approval with conditions of items to be incorporated into a definitive subdivision plan submission.

Move to approve the request waiver for the reduced intersection radius and the approve the preliminary subdivision application for 7-9 and 11-13 Muzzey Street and 1834-1840 Massachusetts Avenue with the conditions in the draft decision as recommendations to be included in the Definitive Subdivision application.

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025

ATTACHMENTS:

Description	Type
Plan Set 9 Muzzey St	Cover Memo

NOTES:

1. THE INFORMATION DEPICTED ON THIS PLAN HAS BEEN COMPILED FROM THE TOWN OF LEXINGTON GIS SYSTEM
2. LAND USE WITHIN 300 FEET OF THE SUBJECT PROPERTY CONSISTS OF A MIX OF SINGLE FAMILY DWELLINGS, AN APARTMENT COMPLEX AND COMMERCIAL USE

1834 AND 1840 MASSACHUSETTS AVENUE, 7-9 AND 11-13 MUZZEY STREET
ASSESSORS MAP 49 LOTS 69,70A,74 AND 75
PRELIMINARY SUBDIVISION PLAN
LOCATED IN LEXINGTON, MA
MARCH 16, 2025

LOCUS CONTEXT MAP
(SCALE 1"=100')

PREPARED BY:

PATRIOT Engineering
PO BOX 362
LEXINGTON, MASSACHUSETTS 02420
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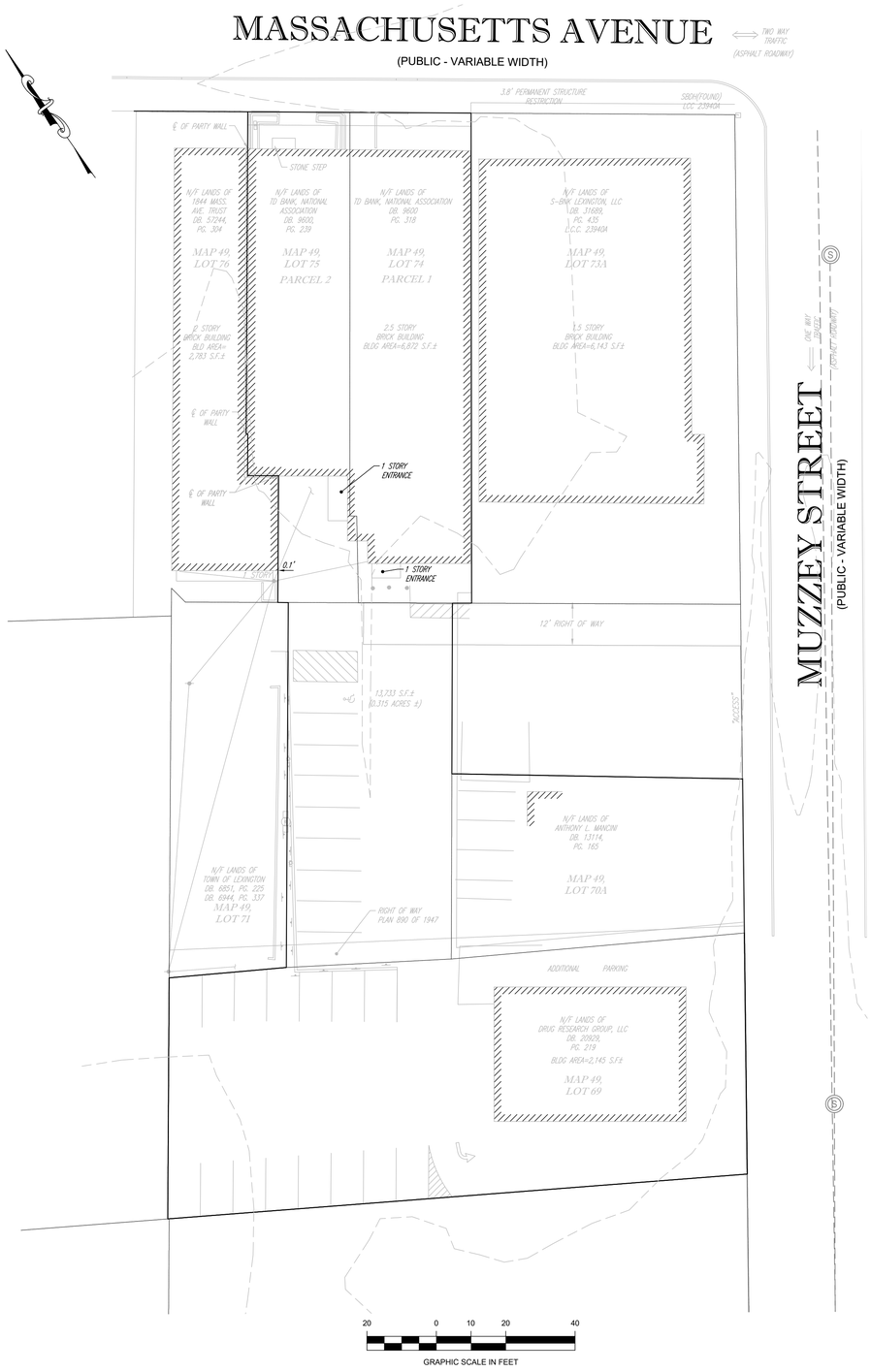
COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
CIVIL
No. 50596
REGISTERED PROFESSIONAL ENGINEER

SHEET INDEX



NOTES:

1. THIS PLAN IS BASED ON A PARTIAL SURVEY PERFORMED ON THE GROUND BY CONTROL POINT, LEXINGTON GIS AND RECORD PLANS.
2. THE SUBJECT PROPERTY DEPICTED IS LOCATED WITHIN THE CRS ZONING DISTRICT.
3. THE SUBJECT PROPERTY IS DEPICTED AS LOTS 74, 75, 69 AND 70A ON THE TOWN OF LEXINGTON ASSESSOR'S MAP 49.
4. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED UPON A PARTIAL FIELD SURVEY AND PLANS OF RECORD. THIS PLAN DOES NOT GUARANTEE THE LOCATION OF UTILITIES DEPICTED. THE CONTRACTOR, PRIOR TO COMMENCEMENT OF CONSTRUCTION, SHALL VERIFY THE LOCATION OF ALL UTILITIES AND CONTACT DIG SAFE AT 1-888-344-7233.
5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST.

TABLE OF DIMENSIONAL REQUIREMENTS

ITEM	REQUIREMENT	
	ZONE: CB	ZONE: MFO (MULTI-FAMILY OVERLAY)
MIN LOT AREA	NA	DOES NOT APPLY
MIN FRONTAGE	20'	20'
MIN FRONT YARD	NR	0' or 15'
MIN SIDE YARD	NR	7.5' - 15'
MIN REAR YARD	10'	15'
MIN REAR YARD (ADJACENT TO RESIDENTIAL)	30'	DOES NOT APPLY

ALL UNDERGROUND UTILITY DATA REPRESENTS RECORD INFORMATION RECOVERED THROUGH RESEARCH WITHOUT SURFACE DEMARCATION NOR SUBSURFACE VERIFICATION.

NOT FOR CONSTRUCTION

1834 MASS AVE
LEXINGTON, MA

DRAWN BY: MVC
DATE: 3-16-2025
CHECKED BY: MJN

REVISIONS

DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
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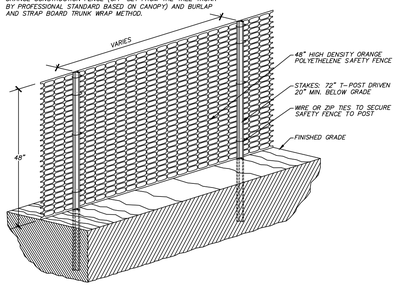
EXISTING CONDITIONS PLAN
LOCATED IN
LEXINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
SHELDON CORP.

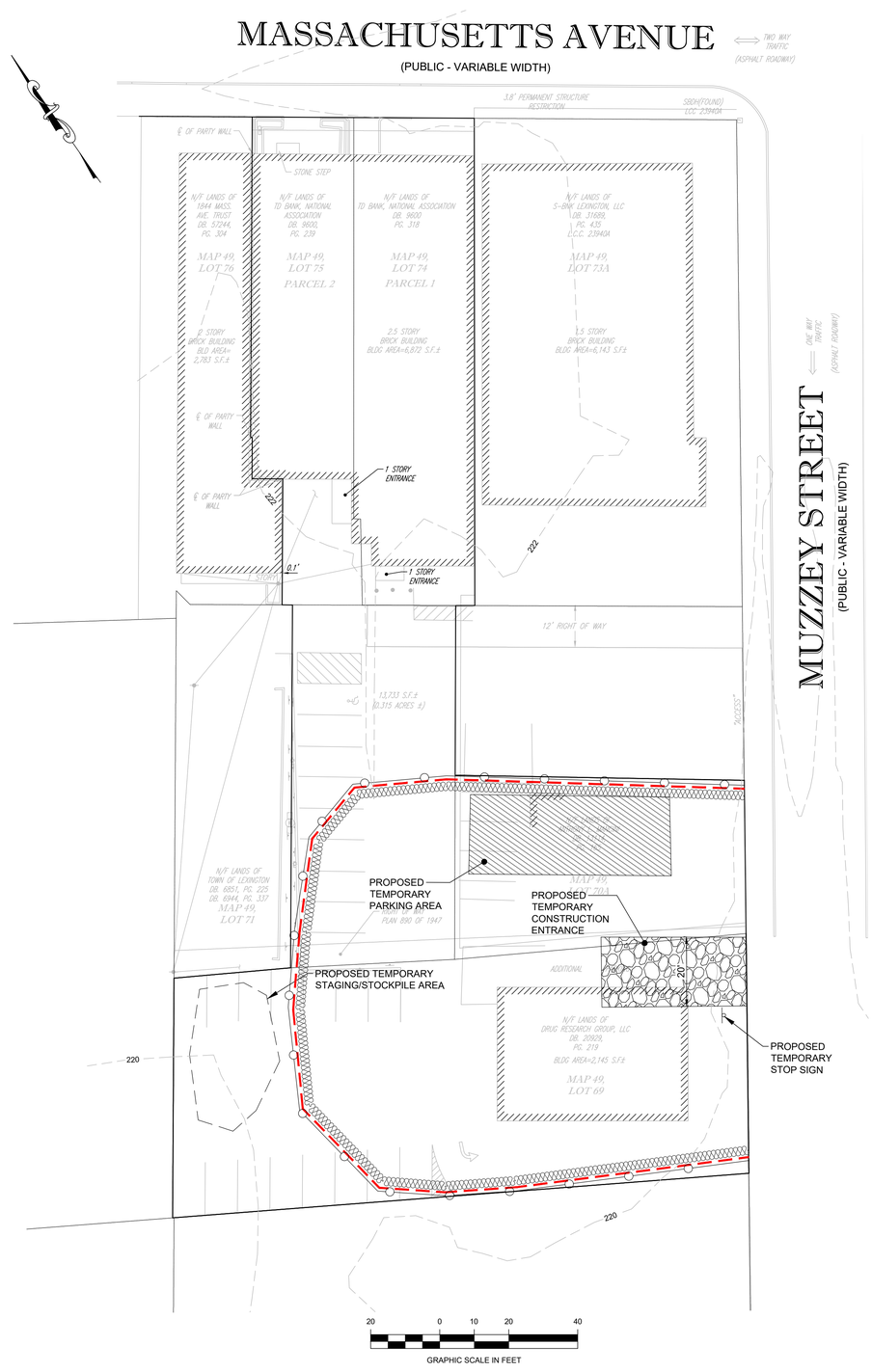
SHEET
C - 1

NOTE:

1. EXISTING TREES TO BE SAVED SHALL BE PROTECTED WITH ORANGE CONSTRUCTION FENCE (OFF-SET FROM THE TREE TRUNK BY PROFESSIONAL STANDARD BASED ON CANOPY) AND BURLAP AND STRAP BOARD TRUNK WRAP METHOD.



CONSTRUCTION FENCE/TREE PROTECTION
(NOT TO SCALE)



LEGEND	DESCRIPTION
	PROPOSED LIMIT OF WORK LINE
	PROPOSED FILTERMITT
	PROPOSED TEMPORARY CONSTRUCTION ENTRANCE
	PROPOSED TEMPORARY CONSTRUCTION PARKING
	PROPOSED TEMPORARY CONSTRUCTION FENCING

PHASE I CONSTRUCTION SEQUENCE

1. INSTALL ALL EROSIONS CONTROL MEASURES AS REQUIRED.
2. MEET WITH LEXINGTON PLANNING STAFF, SITE CONTRACTOR, AND EROSION CONTROL MONITOR AT PRE-CONSTRUCTION MEETING TO REVIEW EROSION CONTROL MEASURES AND SITE PLAN REVIEW CONDITIONS.
3. INSTALL TEMPORARY, HIGH VISIBILITY, ORANGE CONSTRUCTION FENCING AROUND ENTIRE PROPERTY TO DELINEATE WORK AREA. TEMPORARY CONSTRUCTION FENCING WILL BE INSTALLED BEHIND EROSION CONTROL MEASURES TO ENSURE ADEQUATE ACCESS TO THE EROSION CONTROLS FOR INSPECTION, MAINTENANCE, AND REPAIR AS NEEDED FOR THE DURATION OF CONSTRUCTION.
4. REMOVE AND DISPOSE OF ALL TRASH AND DEBRIS FROM SITE.
5. REMOVE ALL SPECIFIED TREES AND STUMPS.
6. TEST REMAINING SOIL FOR CONTAMINANTS AND PLANTING SUITABILITY.
7. DRESS THE TEMPORARY STAGING AND PARKING AREAS ON SITE WITH CRUSHED STONE.

PHASE II CONSTRUCTION SEQUENCE

1. EXCAVATE BASEMENT AREAS TO BOTTOM OF FOOTING. STOCKPILE MATERIAL FOR BACKFILL AND HAUL REMAINDER OF MATERIAL OFF SITE.
2. FURNISH AND INSTALL BASEMENT FOOTINGS AND FOUNDATION WALLS.
3. WATERPROOF, INSULATE AND BACKFILL BASEMENT FOOTINGS AND FOUNDATION WALLS
4. EXCAVATE FOR AND INSTALL PERIMETER FOOTINGS AND FOUNDATION FROST WALLS AND INTERIOR FOOTINGS. WATERPROOF, INSULATE AND BACKFILL THESE AREAS.
5. EXCAVATE AND BACKFILL ALL NECESSARY TRENCHES IN ORDER TO FURNISH AND INSTALL ALL UNDERGROUND PLUMBING, SECONDARY ELECTRICAL, ETC.
6. EXCAVATE FOR AND CONSTRUCT INFILTRATION SYSTEM(S).
7. FROM THIS POINT ON, THE VERTICAL CONSTRUCTION CONTINUES IN THE SAME CONVENTIONAL MANNER AS ANY MAJOR URBAN DEVELOPMENT PROJECT.

PHASE III CONSTRUCTION SEQUENCE

1. TILL SUBSOIL OR SCARIFY WITH EXCAVATOR BUCKET TEETH TO ENSURE FRIABLE SOIL PLANTING MEDIUM BENEATH TOPSOIL
2. FURNISH AND SPREAD APPROVED TOPSOIL FROM SUB GRADE TO FINISH GRADE PER TOPSOIL SPECIFICATIONS ON APPROVED LANDSCAPE PLANS. TOPSOIL TO BE TESTED FOR LOAMY SAND TEXTURE AND 5-8% ORGANIC CONTENT
3. FURNISH, DELIVER AND INSTALL ALL PLANT MATERIAL PER APPROVED DESIGN DOCUMENTS. PROJECT WETLAND SCIENTIST AND/OR LANDSCAPE ARCHITECT SHALL INSPECT PLANTS PRIOR TO INSTALLATION, AND OVERSEE SITING AND INSTALLATION OF ALL PLANTS.
4. AT THE TIME OF INSTALLATION, ALL PLANTS TO RECEIVE A DEEP WATERING.
5. CLEANUP AND DEMOBILIZE.
6. UPON SUCCESSFUL SEED GERMINATION AND SOIL STABILIZATION, REMOVE EROSION CONTROLS.

CONSTRUCTION AND TRAFFIC MANAGEMENT LOGISTICS

1. SIDEWALKS ALONG BUILDING FRONTAGE TO BE CLOSED UNTIL VERTICAL CONSTRUCTION IS SUBSTANTIALLY COMPLETED.
2. PEDESTRIAN TRAFFIC WILL BE DIVERTED TO THE SOUTHERN SIDE OF MUZZEY ST.
3. FURNISH AND INSTALL ROADWAY MARKINGS DEPICTING THE LIMITS OF THE SIDEWALKS MUZZEY ST.

ADDITIONAL CONSTRUCTION NOTES:

- TRASH REMOVAL: THE 30 YARD DUMPSTER THAT IS REQUIRED FOR GENERAL CONSTRUCTION WASTE IS APPROXIMATELY 22' X 8'. IT WILL BE SCREENED BY SIX FOOT TALL TEMPORARY FENCING AND SCRIM.
- TEMPORARY RESTROOM FACILITIES: TEMPORARY RESTROOM FACILITIES WILL BE LOCATED BEHIND THE DUMSTER AREA WITHIN THE CONSTRUCTION ZONE SO THAT THEY WILL BE SCREENED FROM THE ROAD, THERE WILL BE A TOTAL OF TWO TO FOUR RESTROOM COMPARTMENTS REQUIRED FOR THE PROJECT DURATION.
- SNOW MANAGEMENT: DURING CONSTRUCTION SNOW WILL BE REMOVED IN ITS ENTIRETY ON THE CONSTRUCTION SIDE OF THE FENCE BY THE GENERAL CONTRACTOR AND HAULED OFF SITE AS REQUIRED. THE TOWN OF LEXINGTON WILL REMOVE SNOW ON THE PUBLIC SIDE OF THE FENCE AS IT NORMALLY WOULD. ANY RESIDUAL SNOW THAT MAY BE IN CONTACT WITH THE PUBLIC SIDE OF THE TEMPORARY FENCING WILL BE REMOVED BY THE GENERAL CONTRACTOR.
- ONCE INFILTRATION SYSTEMS ARE IN PLACE NO PARKING OR MATERIAL STORAGE IS PERMITTED ABOVE THEM.
- NO STORMWATER RUNOFF SHOULD BE DISCHARGED TO THE ON-SITE STORMWATER MANAGEMENT SYSTEM UNTIL THE SITE IF FULLY STABILIZED; WITH THE EXCEPTION OF ROOF LEADERS THAT CAN BE CONNECTED ONCE ABLE TO BE INSTALLED.
- THE ON-SITE INFILTRATION SHOULD BE BLOCKED FROM VEHICLE TRAFFIC DURING CONSTRUCTION UNTIL THE SITE IS FULLY STABILIZED.
- SOIL STOCKPILES MUST BE STABILIZED OR COVERED AT THE END OF EACH WORK DAY. SIDE SLOPES NOT TO EXCEED 2:1. 12" DIAMETER (MINIMUM) FILTERMITT SHALL BE INSTALLED AROUND EACH STOCKPILE
- NO ONSITE REFUELING OF CONSTRUCTION VEHICLES OR EQUIPMENT.
- DUST CONTROL LIMITED TO POTABLE WATER. CALCIUM CHLORIDE SHALL NOT BE USED FOR DUST CONTROL.
- SEGMENTS OF THE ROAD ON WHICH ANY SEDIMENT IS DEPOSITED SHALL BE SWEPT WITHIN 24 HOURS OR MORE FREQUENTLY AS REQUIRED OR DIRECTED BY TOWN STAFF.
- ANY SEDIMENT OR DEBRIS DISCHARGED TO ANY TOWN DRAINAGE STRUCTURE OR DRAINLINE SHALL BE REMOVED WITHIN 24 HOURS.

ALL UNDERGROUND UTILITY DATA REPRESENTS RECORD INFORMATION RECOVERED THROUGH RESEARCH WITHOUT SURFACE DEMARCATION NOR SUBSURFACE VERIFICATION.

NOT FOR CONSTRUCTION

1834 MASS AVE
LEXINGTON, MA

DRAWN BY: MVC
DATE: 3-16-2025
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REVISIONS

DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
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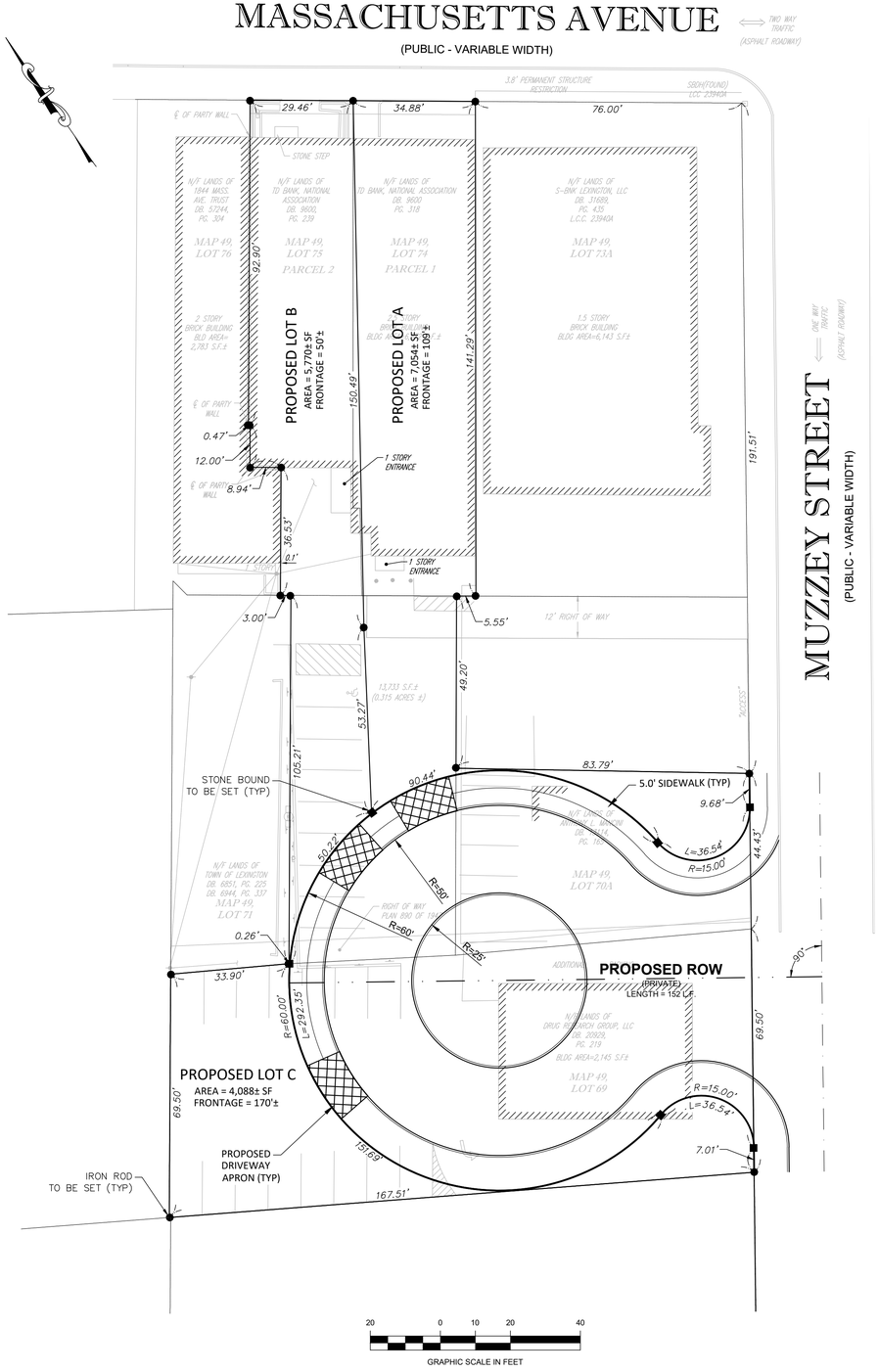
CONSTRUCTION MANAGEMENT PLAN
LOCATED IN
LEXINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
SHELDON CORP.

SHEET
C - 2



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3. THE SUBJECT PROPERTY IS DEPICTED AS LOTS 74, 75, 69 AND 70A ON THE TOWN OF LEXINGTON ASSESSOR'S MAP 49.
4. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED UPON A PARTIAL FIELD SURVEY AND PLANS OF RECORD. THIS PLAN DOES NOT GUARANTEE THE LOCATION OF UTILITIES DEPICTED. THE CONTRACTOR, PRIOR TO COMMENCEMENT OF CONSTRUCTION, SHALL VERIFY THE LOCATION OF ALL UTILITIES AND CONTACT DIG SAFE AT 1-888-344-7233.
5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST.

TABLE OF DIMENSIONAL REQUIREMENTS

ITEM	REQUIREMENT	
	ZONE: CB	ZONE: MFO (MULTI-FAMILY OVERLAY)
MIN LOT AREA	NA	DOES NOT APPLY
MIN FRONTAGE	20'	20'
MIN FRONT YARD	NR	0' or 15'
MIN SIDE YARD	NR	7.5' - 15'
MIN REAR YARD	10'	15'
MIN REAR YARD (ADJACENT TO RESIDENTIAL)	30'	DOES NOT APPLY

LEGEND:

- APPROXIMATE EXISTING PROPERTY LINES
- PROOF CIRCLE
- PROPOSED CENTERLINE
- R= RADIUS
- TYP TYPICAL
- PEOP PROPOSED EDGE OF PAVEMENT
- SF SQUARE FEET
- ROW RIGHT OF WAY
- PROPOSED PAVEMENT
- PROPOSED DRIVEWAY APRON
- PROPOSED STONE BOUND
- PROPOSED IRON ROD

NOT FOR CONSTRUCTION

1834 MASS AVE
LEXINGTON, MA

DRAWN BY: MVC | DATE: 3-16-2025
CHECKED BY: MJN

REVISIONS

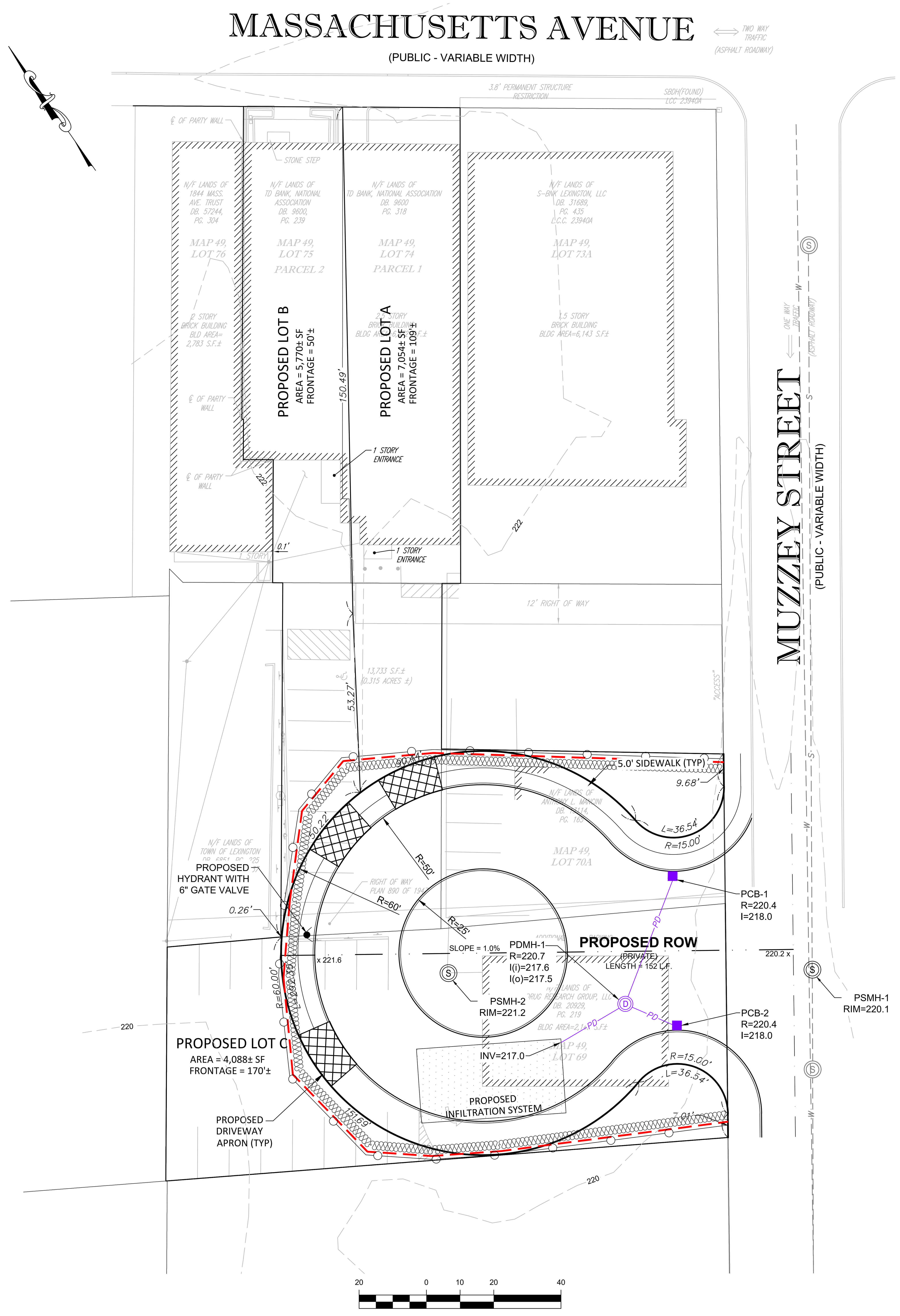
DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
No. 50696
REGISTERED PROFESSIONAL ENGINEER

PATRIOT Engineering
PO BOX 362
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2654
www.patriot-eng.com

PRELIMINARY SUBDIVISION PLAN
LOCATED IN
LEXINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
SHELDON CORP.

SHEET
C - 3



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LEGEND	DESCRIPTION
PEOP	PROPOSED EDGE OF PAVEMENT
PVGC	PROPOSED VERTICAL GRANITE CURB
	PROPOSED CATCH BASIN (PCB)
178	PROPOSED CONTOUR
D	PROPOSED DRAIN MANHOLE (PDMH)
	PROPOSED FIRE HYDRANT
	PROPOSED FILTERMITT
	PROPOSED LIMIT OF WORK LINE
S	PROPOSED SEWER MANHOLE (PSMH)

ALL UNDERGROUND UTILITY DATA REPRESENTS RECORD INFORMATION RECOVERED THROUGH RESEARCH WITHOUT SURFACE DEMARCATION NOR SUBSURFACE VERIFICATION.

NOT FOR CONSTRUCTION

1834 MASS AVE
LEXINGTON, MA

DATE: 3-16-2025
DRAWN BY: MVC
CHECKED BY: MJN

DATE	BY	DESCRIPTION

REVISIONS

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
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REGISTERED PROFESSIONAL ENGINEER

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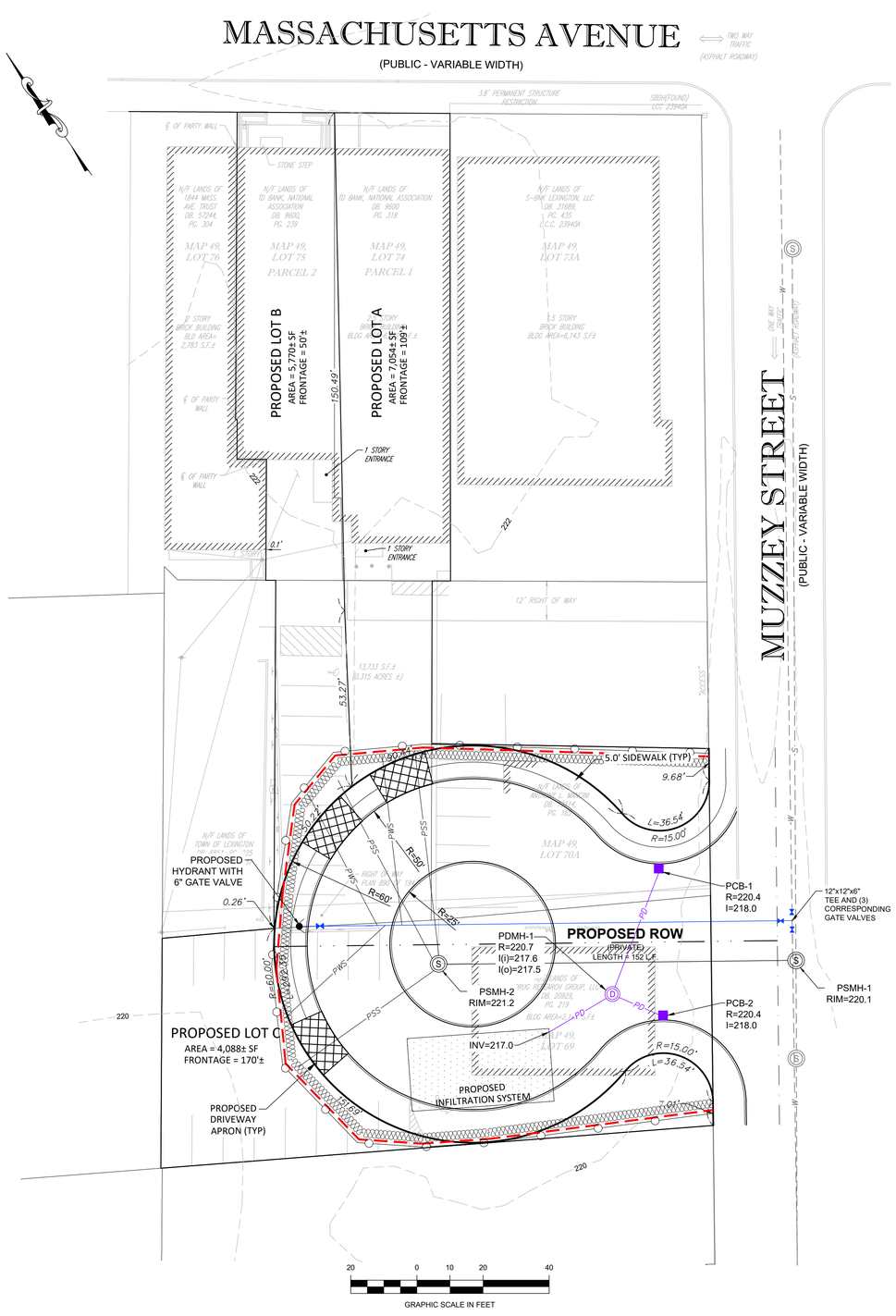
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2654
www.patriot-eng.com

SITE PLAN - GRADING & DRAINAGE
LOCATED IN
LEXINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
SHELDON CORP.

SHEET
C - 4



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UTILITY NOTES:

1. ALL SEWER MAINS SHALL BE 8" SCH 40 PVC, UNLESS OTHERWISE NOTED.
2. ALL PROPOSED SEWER SERVICES SHALL BE 6" SCH 40 PVC AND AT A MINIMUM 2% SLOPE, UNLESS OTHERWISE NOTED.
3. ALL WATER MAINS SHALL BE 6" DI, UNLESS OTHERWISE NOTED.
4. ALL PROPOSED WATER SERVICES SHALL BE 1.5" COPPER, UNLESS OTHERWISE NOTED.
5. SEPARATION OF SEWER AND WATER LINES SHALL BE 18 INCHES (18") VERTICALLY OR 10 FEET (10') HORIZONTALLY, IF THIS CANNOT BE ACHIEVED THE SEWER SHALL BE INCASED IN CONCRETE.
6. ALL STORM DRAIN MAINS AND LATERALS SHALL BE 12" SCHEDULE 40 PVC. (EXCEPT ROOF AND YARD DRAIN CONNECTIONS WHICH SHALL BE 6" SCHEDULE 40 PVC OR APPROVED EQUAL)
7. ALL CABLE/POWER UTILITIES TO BE INSTALLED UNDERGROUND ONSITE

LEGEND	DESCRIPTION
PEOP	PROPOSED EDGE OF PAVEMENT
PVGC	PROPOSED VERTICAL GRANITE CURB
■	PROPOSED CATCH BASIN (PCB)
Ⓓ	PROPOSED DRAIN MANHOLE (PDMH)
PD	PROPOSED DRAIN LINE
PS	PROPOSED SEWER LINE
PWS	PROPOSED WATER SERVICE
PSS	PROPOSED SEWER SERVICE
	PROPOSED FIRE HYDRANT
Ⓢ	PROPOSED SEWER MANHOLE (PSMH)
PW	PROPOSED WATER LINE

ALL UNDERGROUND UTILITY DATA REPRESENTS RECORD INFORMATION RECOVERED THROUGH RESEARCH WITHOUT SURFACE DEMARCATION NOR SUBSURFACE VERIFICATION.

NOT FOR CONSTRUCTION

1834 MASS AVE
LEXINGTON, MA

DRAWN BY: MVC
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REVISIONS

DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
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CIVIL
No. 36986
REGISTERED PROFESSIONAL ENGINEER

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SITE PLAN - UTILITY
LOCATED IN
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PREPARED FOR
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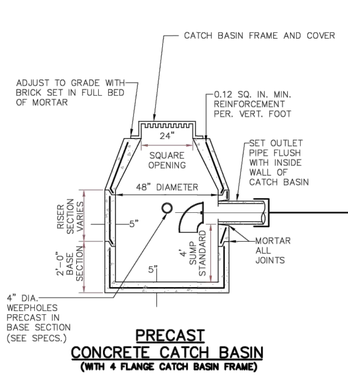
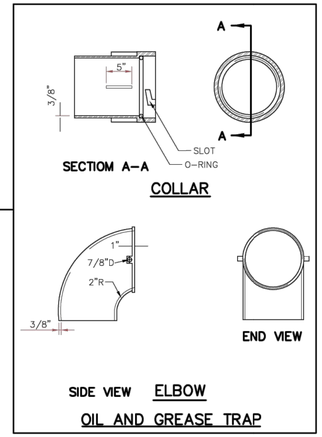
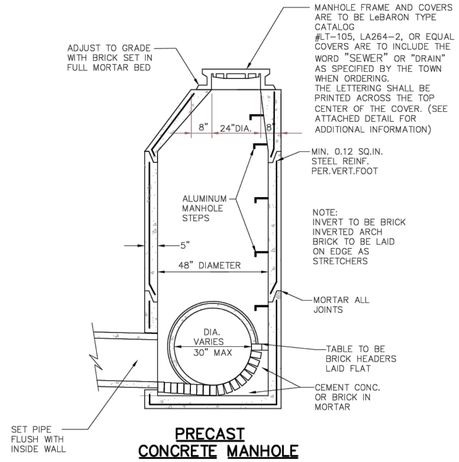
SHEET
C - 5

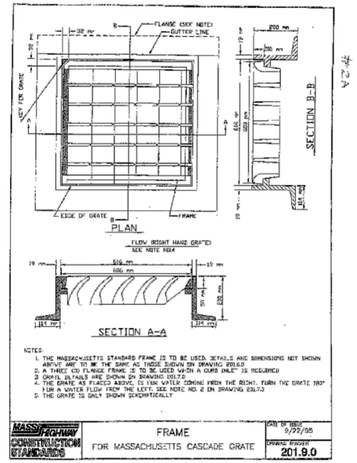


PRECAST CONCRETE CATCH BASIN
(WITH 4 FLANGE CATCH BASIN FRAME)

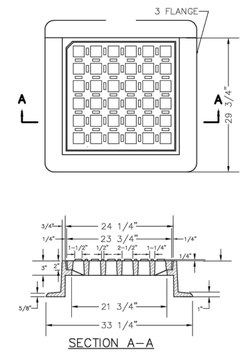




PRECAST CONCRETE MANHOLE



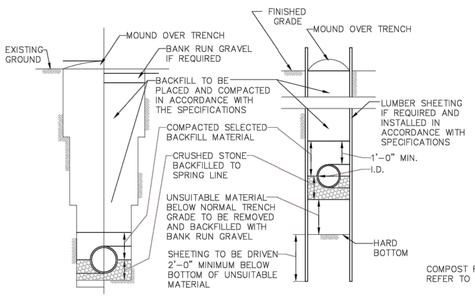
CATCH BASIN FRAME AND GRATE
N.T.S.



NOTE: FRAME AND GRATE SHALL BE HEAVY DUTY CLASS 30 GRAY IRON.

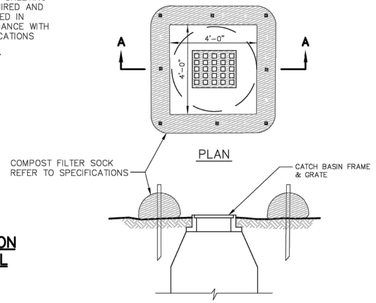
CATCH BASIN FRAME AND GRATE
N.T.S.

NOTE: CATCH BASIN FRAME AND COVERS ARE TO BE LeBARON TYPE CATALOG #LF248-3 OR EQUAL

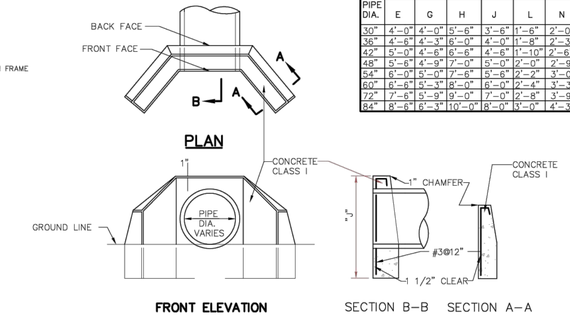


TYPICAL TRENCH SECTION STABLE GROUND

TYPICAL TRENCH SECTION UNSUITABLE MATERIAL

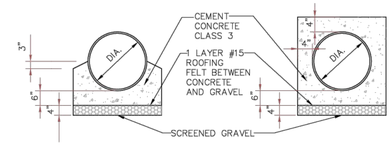


BALED HAY SILT BARRIER AROUND CATCH BASIN
N.T.S.



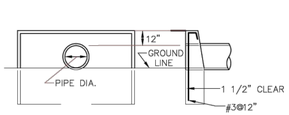
CONCRETE HEADWALL DETAILS FOR 30" TO 84" PIPE CULVERTS

PIPE DIA.	1 1/2:1 & 2:1 SLOPES E	G	H	J	L	N	P	1 1/2 SLOPES F	CU. YDS.	LBS.	2:1 SLOPES F	CU. YDS.	LBS.
30"	4'-0"	4'-0"	5'-6"	3'-6"	1'-6"	2'-0"	5'-3"	3'-0"	2.60	45	4'-3"	3.16	54
36"	4'-6"	4'-3"	6'-0"	4'-0"	1'-8"	2'-3"	5'-11"	3'-6"	3.39	54	5'-0"	4.15	64
42"	5'-0"	4'-6"	6'-6"	4'-6"	1'-10"	2'-6"	6'-6"	4'-0"	4.20	59	5'-9"	5.25	70
48"	5'-6"	4'-9"	7'-0"	5'-0"	2'-0"	2'-9"	7'-2"	4'-6"	5.19	65	6'-6"	6.50	83
54"	6'-0"	5'-0"	7'-6"	5'-6"	2'-2"	3'-0"	7'-10"	5'-0"	6.26	73	7'-3"	7.86	93
60"	6'-6"	5'-3"	8'-0"	6'-0"	2'-4"	3'-3"	8'-5"	5'-6"	7.43	85	8'-0"	9.37	106
72"	7'-6"	5'-9"	9'-0"	7'-0"	2'-8"	3'-9"	9'-9"	6'-6"	10.25	98	9'-6"	12.99	128
84"	8'-6"	6'-3"	10'-0"	8'-0"	3'-0"	4'-3"	11'-0"	7'-6"	13.49	120	11'-0"	17.32	154



DETAIL CONCRETE CRADLE

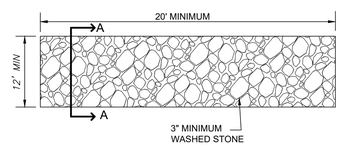
DETAIL CONCRETE ENCASEMENT

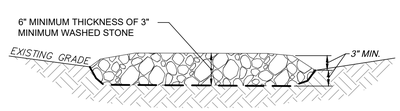


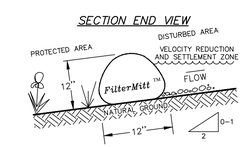
CONCRETE HEADWALL DETAILS FOR 8" TO 30" PIPE CULVERTS

PIPE DIA.	1 1/2:1 SLOPE L	CU.YDS.	LBS.	2:1 SLOPE L	CU.YDS.	LBS.
8"	4'-2"	0.77	15	5'-10"	1.08	21
10"	4'-10"	0.92	20	6'-8"	1.28	23
12"	5'-6"	1.08	21	7'-6"	1.49	29
15"	6'-6"	1.34	24	8'-9"	1.82	32
18"	7'-6"	1.61	30	10'-0"	2.18	39
21"	8'-8"	1.95	34	11'-6"	2.62	43
24"	9'-3"	2.16	35	12'-6"	2.97	50
30"	10'-6"	2.63	44	15'-6"	3.86	62
	Q=4 INCHES			Q=6 INCHES		

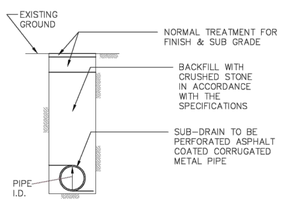
NOTES:
1. ALL CONCRETE CORNERS SHALL BE CHAMFERED
2. ALL CONCRETE SHALL BE 3000 PSI



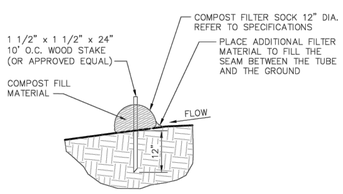




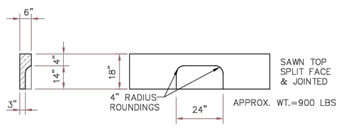
SEDIMENT CONTROL TRAP
N.T.S.



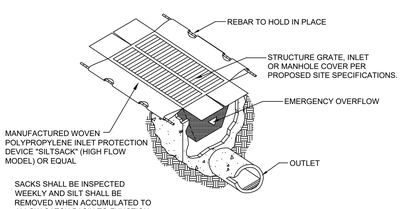
SUB-DRAIN DETAIL



SEDIMENTATION BARRIER



GRANITE CURB INLET DETAILS



SILT SAC
(NOT TO SCALE)

***FilterMitt*™ COMPONENTS:**
OUTSIDE CASING: 100% organic hessian.
FILLER INGREDIENT: *FiberRoot Mulch*™
- A blend of coarse and fine compost and shredded wood. Particle sizes: 100% passing a 3" screen; 90-100% passing a 1" screen;
- 70-100% passing a 0.75" screen; 30-75% passing a 0.25" screen.

Weight: Approx. 310 lbs./cu.yd. (Ave. 11.5 lbs./f.f.)

For more information visit: www.groundscapesexpress.com or contact us at:
Groundscapes Express, Inc.
P.O. Box 737
Wrentham, MA 02093 (508) 384-7140

FILTERMITT 2:1 SLOPES OR LESS

FilterMitt™ **INSTALLATION:**
With the newest technology and equipment, sections can be constructed on site in lengths from 1' to 100'.

Sections can also be delivered to the site in lengths from 1' to 8'.

The flexibility of allows it to conform to any contour or terrain while holding a slightly round shape at 8" high by 8" wide.

Where section ends meet, there shall be an overlap of 6" or greater.

ALL DETAILS ARE NOT TO SCALE

NOT FOR CONSTRUCTION

1834 MASS AVE
LEXINGTON, MA

DRAWN BY: MVC
DATE: 3-16-2025
CHECKED BY: MJN

REVISIONS

DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
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DETAILS
LOCATED IN
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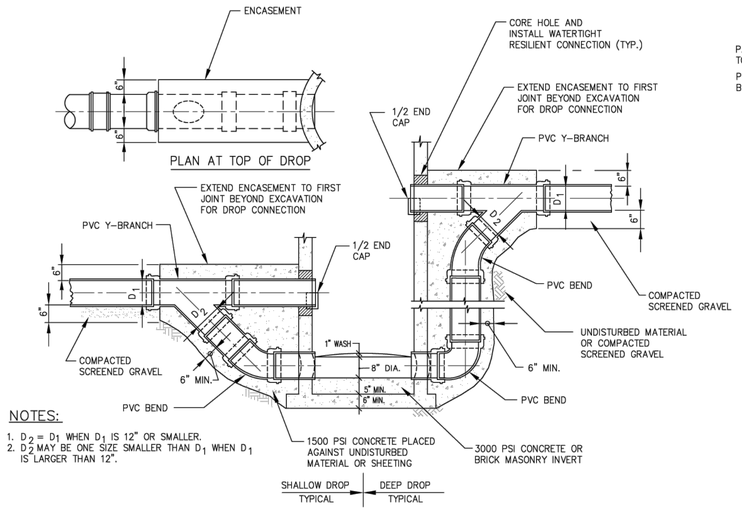
(MIDDLESEX COUNTY)
PREPARED FOR
SHELDON CORP.

SHEET
C-6.1

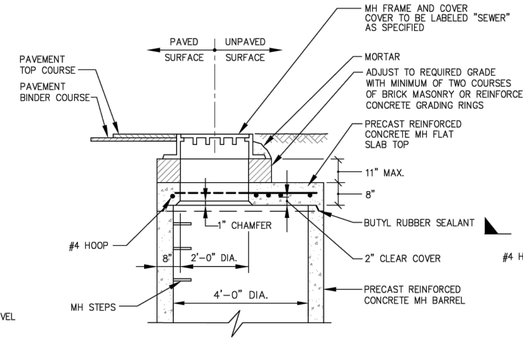


NOTES:

1. $D_2 = D_1$ WHEN D_1 IS 12" OR SMALLER.
2. D_2 MAY BE ONE SIZE SMALLER THAN D_1 WHEN D_1 IS LARGER THAN 12".

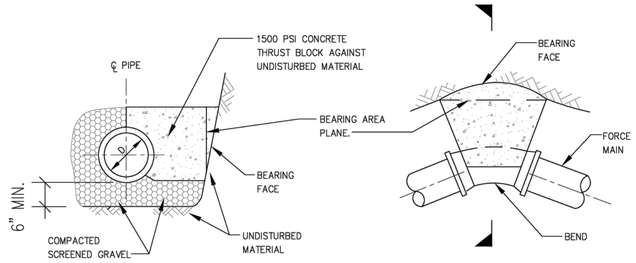
DROP INLETS FOR PVC PIPE SEWERS

NOT TO SCALE
2-1.4.1 (REV. 03-15-95)



PRECAST FLAT SLAB TOP FOR SHALLOW MANHOLE

NOT TO SCALE
2-1.5.43 (REV. 03-15-95)

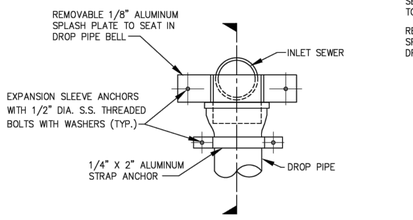


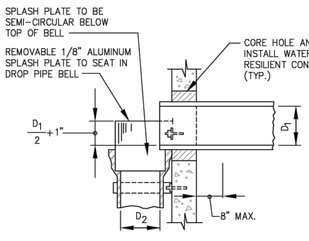
NOTES:

1. WHERE SO INDICATED ON PLANS, THE FORCE MAIN BENDS SHALL BE BACKED UP WITH A CONCRETE THRUST BLOCK BETWEEN THE PIPE AND UNDISTURBED MATERIAL.
2. REQUIRED BEARING AREA TO BE CALCULATED ON VERTICAL PLANE 90 DEG. TO RADIAL PLANE PASSING THROUGH MIDPOINT OF BEND.
3. MINIMUM BEARING AREA: 2.0 SQ.FT.
4. SEE PLANS FOR REQUIRED BEARING AREAS GREATER THAN MINIMUM.

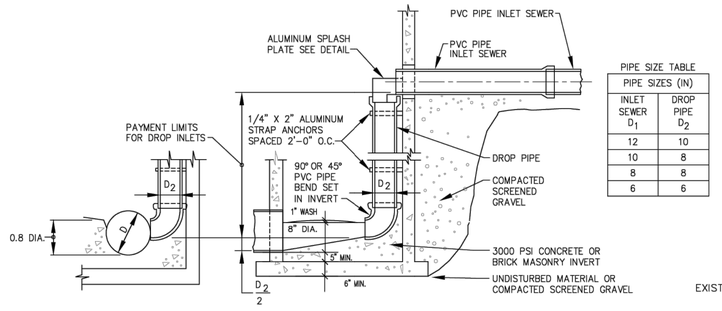
FORCE MAIN THRUST BLOCK

NOT TO SCALE
2-1.6.1 (REV. 03-15-95)





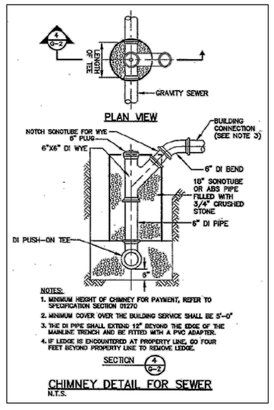
ALUMINUM SPLASH PLATE DETAIL



PIPE SIZE TABLE	
PIPE SIZES (IN)	
INLET SEWER D_1	DROP PIPE D_2
12	10
10	8
8	8
6	6

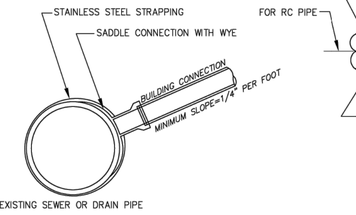
INSIDE DROP INLETS FOR PVC PIPE SEWERS 12 INCH DIAMETER AND SMALLER

NOT TO SCALE
2-1.4.3 (REV. 03-15-95)



TYPICAL CHIMNEY DETAIL

NO SCALE

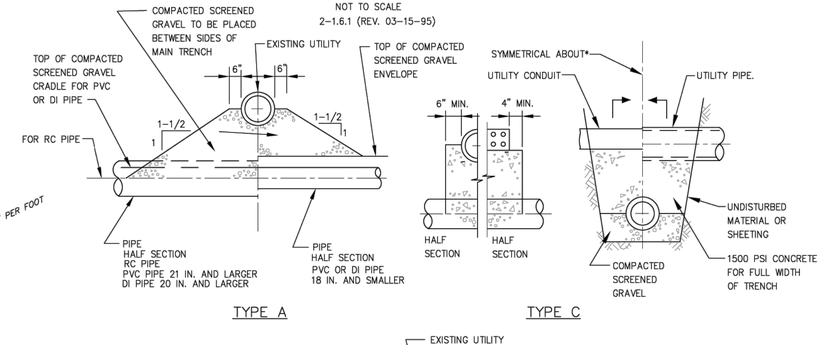


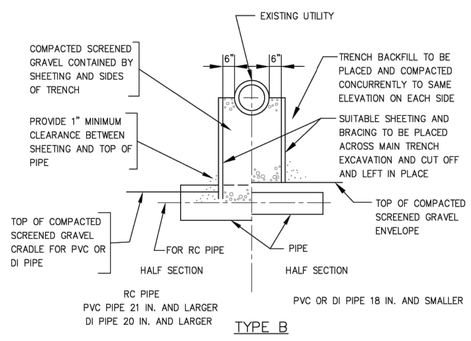
NOTES:

1. FULL PVC OR IRON SADDLE MAY BE USED TO CONNECT TO EXISTING PVC, CLAY, CONCRETE OR IRON PIPE.
2. SADDLES MUST HAVE RUBBER GASKETS AND SHALL BE TIGHTENED WITH STRAPS. SADDLES WILL NOT BE CEMENT ONTO THE PIPE.
3. FULL WYE CONNECTION FITTINGS MAY BE USED.
4. PIPE SHALL BE CUT TO CONFORM TO THE OPENING IN THE SADDLE.
5. CONNECTIONS DIRECTLY INTO THE EXISTING PIPE WITHOUT A SADDLE OR A FULL WYE FITTING ARE NOT ALLOWED.

SEWER SERVICE SADDLE CONNECTION

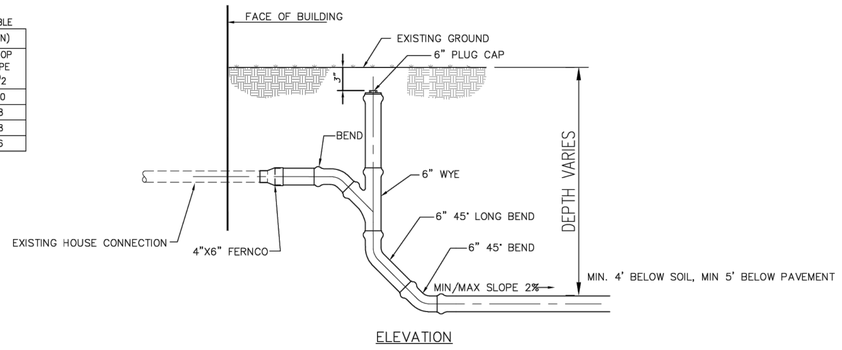
NO SCALE





TYPICAL SUPPORTS FOR UTILITIES

NOT TO SCALE
2-1.8 (REV. 03-15-95)



CLEAN OUT RISER FOR SHALLOW BUILDING CONNECTIONS

NO SCALE

ALL DETAILS ARE NOT TO SCALE

NOT FOR CONSTRUCTION

1834 MASS AVE
LEXINGTON, MA

DRAWN BY: MVC
DATE: 3-16-2025
CHECKED BY: MJN

REVISIONS

DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
CIVIL
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DETAILS
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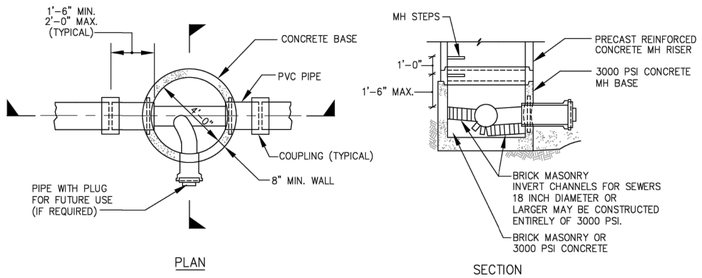
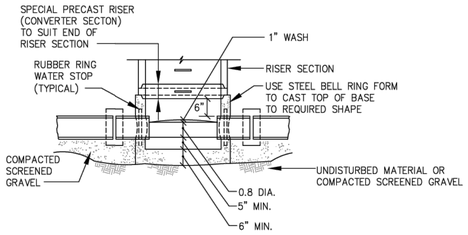
PREPARED FOR
SHELDON CORP.

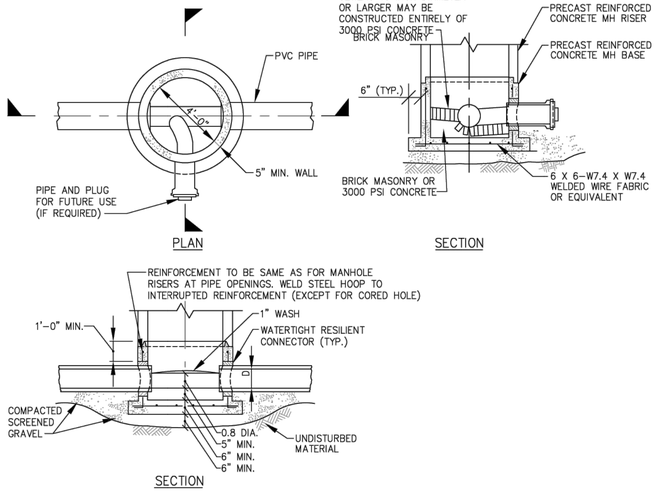
SHEET
C-6.2





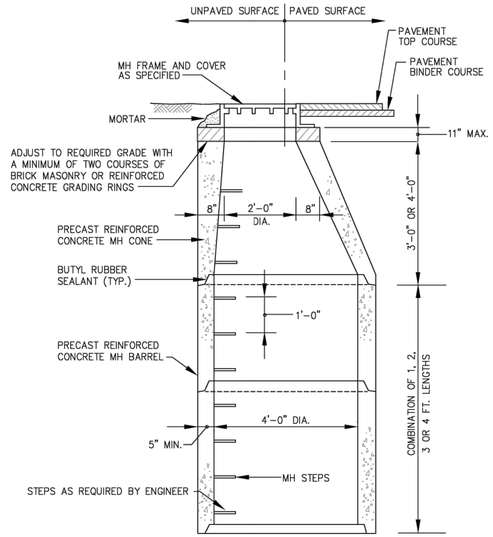
CAST-IN-PLACE CONCRETE BASE FOR PVC SEWERS

NOT TO SCALE
2-1.5.4 (REV. 03-15-95)



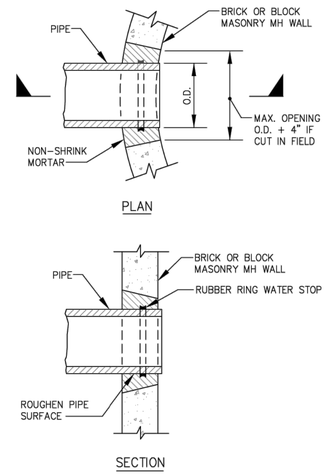
4'-0" PRECAST REINFORCED CONCRETE MANHOLE BASE FOR PVC SEWERS AND DRAINS

NOT TO SCALE
2-1.5.14 (REV. 03-15-95)



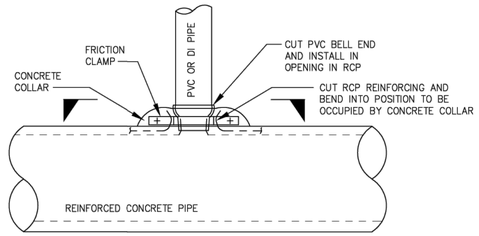
MANHOLE RISER WITH ECCENTRIC CONE TOP

NOT TO SCALE
2-1.5.41 (REV. 03-15-95)



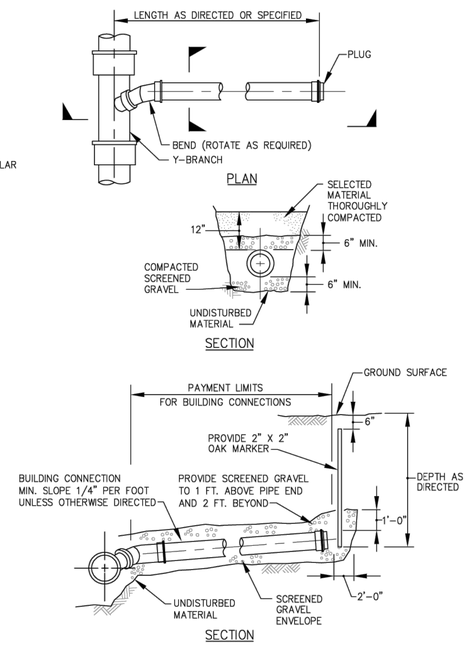
NON-SHRINK MORTAR JOINTS FOR CONNECTING PIPES TO BRICK OR BLOCK MASONRY MANHOLES

NOT TO SCALE
2-1.5.62 (REV. 4-5-96)



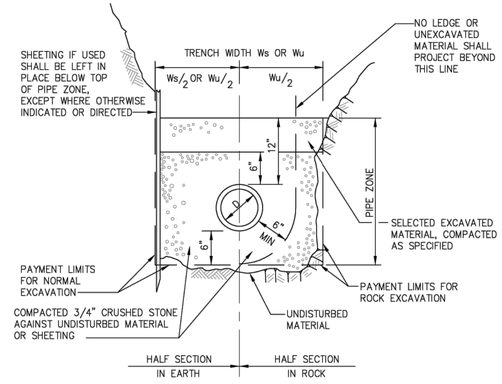
T-BRANCH FOR BUILDING OR CHIMNEY CONNECTION IN RC PIPE (PVC OR DI PIPE BRANCH)

NTS
2-1.2.15 (REV. 08-17-95)



BUILDING CONNECTION FOR DI OR PVC PIPE

NOT TO SCALE
2-1.2.1 (REV. 03-15-95)

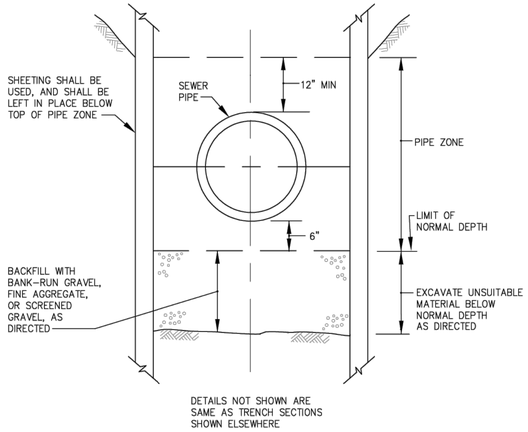


1. PIPE TRENCHES MAY BE EXCAVATED WIDER THAN TRENCH WIDTH Ws (SHEETED) OR Wu (UNSHEETED) ABOVE THE TOP OF PIPE ZONE.
2. TRENCHES SHALL NOT BE EXCAVATED BEYOND THE TRENCH WIDTH Wu BELOW THE TOP OF PIPE ZONE.
3. SHEETING MUST BE USED IF EXCAVATION AND BACKFILL, BELOW NORMAL DEPTH, IS REQUIRED. SHEETING SHALL BE LEFT IN PLACE BELOW A LINE 1'-0" ABOVE THE TOP OF PIPE.
4. ALL ROCK WITHIN 3'-0" HORIZONTALLY OF THE ENDS OF BUILDING CONNECTIONS, BRANCHES OR STUBS AND DOWN TO A HORIZONTAL PLANE 6" BELOW THE BOTTOMS OF SUCH CONNECTIONS, BRANCHES OR STUBS, SHALL BE EXCAVATED.

TRENCH WIDTH Ws OR Wu

NOMINAL PIPE DIAMETER D	DEPTH OF PIPE INVERT BELOW GROUND SURFACE	
	0 TO 12'	12' TO 20'
24" AND SMALLER	5'-0"	7'-0"
OVER 24"	D + 3'-0"	D + 5'-0"

TRENCH SECTION FOR PVC PIPE



DETAILS NOT SHOWN ARE SAME AS TRENCH SECTIONS SHOWN ELSEWHERE

TRENCH SECTION IN UNSUITABLE MATERIAL

NOT TO SCALE
2-1.1.21 (REV. 03-15-95)

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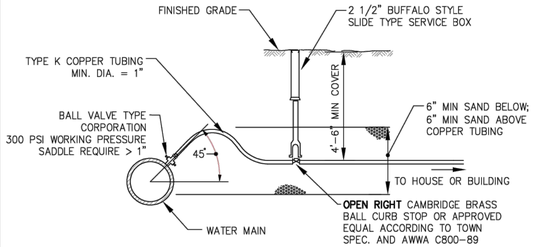
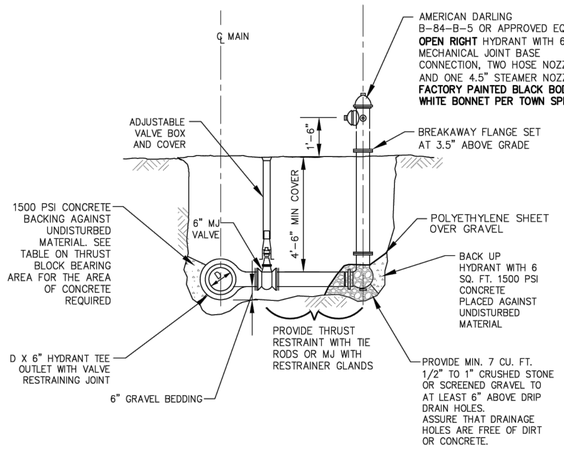


NOTES:

1. A 10' HORIZONTAL SEPARATION MUST BE MAINTAINED FROM THE SEWER SERVICE UNLESS OTHERWISE AUTHORIZED BY THE ENGINEERING DIVISION.
2. FOR SERVICE RENEWALS, TUBING SHALL BE REPLACED TO THE PROPERTY LINE UNLESS OTHERWISE AUTHORIZED BY THE ENGINEERING DIVISION.
3. WHERE AN EXISTING SERVICE IS BEING REPLACED TO THE MAIN, THE OLD SERVICE SHALL BE CAPPED AT THE CORPORATION.
4. THE WATER AND SEWER DIVISION MUST BE NOTIFIED IF LEAD OR STEEL SERVICES ARE ENCOUNTERED.
5. SERVICE TAPS SHALL BE PERFORMED BY CONTRACTOR OR SUBCONTRACTOR AND ARE SUBJECT TO APPROVAL BY THE WATER DIVISION.
6. SERVICE TAPS GREATER THAN 1" REQUIRE A SADDLE AND ARE SUBJECT TO THE APPROVAL OF THE ENGINEERING DIVISION.
7. USE QUICK STYLE COMPRESSION CONNECTIONS FOR ALL SERVICE BRASS.
8. FOR 1" CONNECTIONS TO EXIST. 3/4" CURB STOP CONNECT ADAPTER DIRECTLY TO CURB STOP. MOST EXISTING CURB STOPS REQUIRE 3/4" X 1" FEMALE ADAPTERS FOR NEW ENGLAND STYLE THREADS.
9. ALL CONNECTIONS TO EXIST. CURB STOPS SHALL REPLACE SERVICE BOXES IF NOT BUFFALO STYLE.
10. WATER SERVICE SHALL INCLUDE A BALL VALVE WITH COMPRESSION FITTING JUST BEFORE METER.

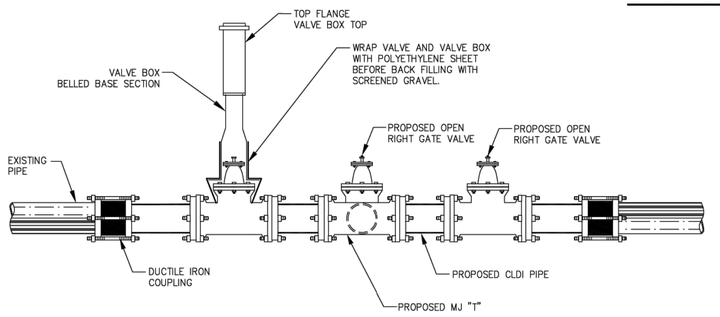
WATER SERVICE CONNECTION (1" MIN TO 2" MAX)

NTS



TYPICAL HYDRANT ASSEMBLY WITH DRAIN

NTS



ELEVATION

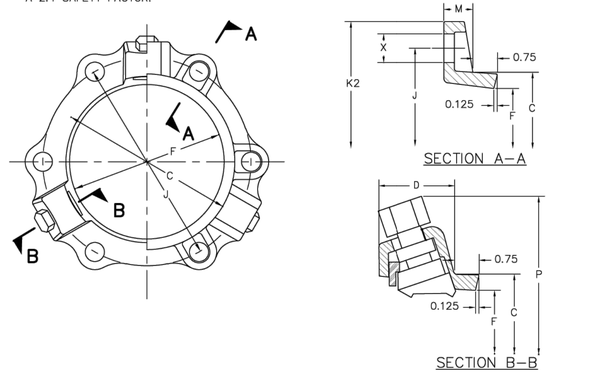
PLAN

TRIPLE GATE CUT IN WATER MAIN CONNECTION

NTS

NOTES:

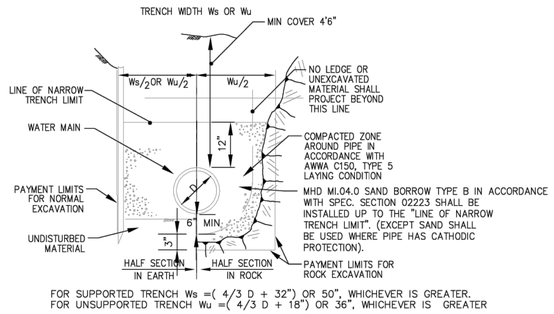
1. SIZES 3" THROUGH 24" ARE LISTED BY UNDERWRITER'S LABORATORIES, INC. CATEGORY HJKF FOR USE ON DUCTILE IRON PIPE. THE LISTING FILE NUMBER IS EX2836. SIZES 3" THROUGH 12" ARE FACTORY MUTUAL APPROVED.
2. GLAND AND COLLAR BOLTS ARE MADE OF DUCTILE IRON CONFORMING TO ASTM A536-80. WEDGES ARE MADE OF DUCTILE IRON HEAT TREATED TO A MINIMUM BRINELL HARDNESS OF 370.
3. GLAND CONFORMS TO THE APPLICABLE REQUIREMENTS OF ANSI/AWWA A21.11/C111 AND ANSI\AWWA C153/A21.53 OF THE LATEST REVISION.
4. FOR TEST PRESSURES ABOVE THE RATED PRESSURES SHOWN, CONSULT THE ENGINEERING DEPARTMENT OF EBAA IRON INC. FOR RECOMMENDATIONS. EBAA-SEAL GASKETS ARE PROVIDED WITH THE 30" THROUGH 48" MEGALUGS. ALSO PROVIDED WITH THE 42" AND 48" SIZES ARE EXTRA LENGTH T-BOLTS. THE GASKETS AND BOLTS ARE PROVIDED TO FACILITATE EASIER ASSEMBLY OF THE MECHANICAL JOINT AND ARE REQUIRED ON THE ABOVE REFERENCED SIZES TO OBTAIN THE LISTED PRESSURE RATINGS WITH A 2:1 SAFETY FACTOR.



SERIES	PRESSURE RATING	C	D	F	J	M	X	NO. OF WEDGES	NO. OF BOLTS	P	P (W/ NUTS TWISTED OFF)	K2
1103	350	4.84	2.27	4.06	6.19	0.62	3/4	2	4	9.36	9.06	7.69
1104	350	5.92	2.27	4.90	7.50	0.75	7/8	2	4	10.20	9.90	9.12
1106	350	8.02	2.27	7.00	9.50	0.88	7/8	3	6	12.30	12.00	11.12
1108	350	10.17	2.31	9.15	11.75	1.00	7/8	4	6	14.45	14.15	13.37
1110	350	12.22	2.37	11.20	14.00	1.00	7/8	6	8	16.50	16.20	15.62
1112	350	14.32	2.37	13.30	16.25	1.25	7/8	8	8	18.60	18.30	17.88
1114	350	16.40	2.69	15.44	18.75	1.50	7/8	10	10	20.64	20.94	20.25
1116	350	18.50	2.69	17.54	21.00	1.56	7/8	12	12	22.60	22.90	22.50
1118	250	20.60	2.69	19.64	23.25	1.63	7/8	12	12	24.70	25.00	24.75
1120	250	22.70	2.69	21.74	25.50	1.69	7/8	14	14	26.80	27.10	27.00
1124	250	26.90	3.20	25.94	30.00	1.81	7/8	16	16	32.94	32.64	31.50
1130	250	33.29	3.20	32.17	36.88	2.25	1 1/8	20	20	39.17	38.87	39.12
1136	250	39.59	3.20	38.47	43.75	2.25	1 1/8	24	24	45.47	45.17	46.00
1142	250	45.79	4.56	44.67	50.62	3.88	1 3/8	28	28	55.87	55.57	53.48
1148	250	52.09	4.56	50.97	57.50	3.88	1 3/8	32	32	62.17	61.87	60.36

MEGALUG DETAIL

N.T.S.



FOR SUPPORTED TRENCH Ws =(4/3 D + 32") OR 50", WHICHEVER IS GREATER.
FOR UNSUPPORTED TRENCH Wu =(4/3 D + 18") OR 36", WHICHEVER IS GREATER

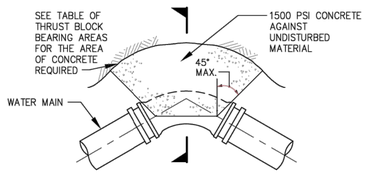
NOTES:

1. TRENCHES MAY BE EXCAVATED WIDER THAN TRENCH WIDTH Ws ABOVE THE "LINE OF NARROW TRENCH LIMIT".
2. BELOW THE "LINE OF NARROW TRENCH LIMIT" THE TRENCH SHALL NOT BE EXCAVATED BEYOND THE TRENCH WIDTH Ws.
3. SHEETING, IF USED, IN ALL CASES SHALL BE LEFT IN PLACE BELOW A LINE 1'-0" ABOVE THE TOP OF THE PIPE, UNLESS OTHERWISE INDICATED OR DIRECTED.
4. "COVER" AT ANY POINT SHALL BE DEFINED AS THE VERTICAL DISTANCE FROM THE UPPERMOST POINT OF THE PIPE TO A LINE WHICH CONNECTS THE SURFACE OF UNDISTURBED GROUND AT EITHER SIDE OF THE TRENCH AND IS AT RIGHT ANGLES TO THE DIRECTION OF THE PIPE.
5. WHERE FUTURE EXTENSION OF A PLUGGED PIPE OR A PLUGGED BRANCH WILL ENTAIL ROCK EXCAVATION, TRENCH EXCAVATION IN ROCK SHALL BE EXTENDED FOR A DISTANCE OF 3'-0" BEYOND THE PLUG.
6. BANK RUN GRAVEL OR EXCAVATED MATERIAL THAT MEETS SPEC. SECTION 02224 SHALL BE INSTALLED ABOVE THE LINE OF NARROW TRENCH LIMIT.
7. WHERE SPECIFIED, CONTROLLED DENSITY FILL WILL BE USED FROM TOP OF SCREENED GRAVEL TO BOTTOM OF BITUMINOUS PAVEMENT.

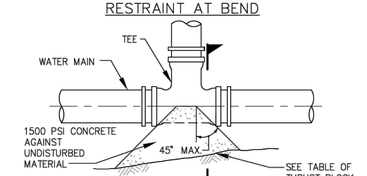
WATER MAIN TRENCH SECTION

NTS

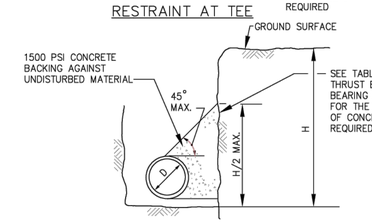
ALL DETAILS ARE NOT TO SCALE



PLAN OF THRUST RESTRAINT AT BEND



PLAN OF THRUST RESTRAINT AT TEE



THRUST BLOCK SECTION

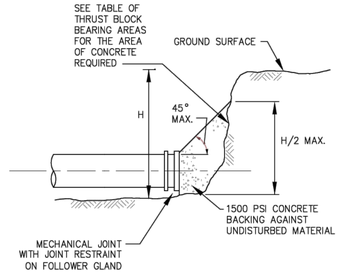
THRUST RESTRAINT AT FITTINGS

NTS

BEARING AREA FOR VARIOUS DIAMETERS						
FITTING	4"	6"	8"	10"	12"	16"
1/32 BEND (11 1/4°)	2 S.F.	2 S.F.	2 S.F.	2 S.F.	3 S.F.	5 S.F.
1/16 BEND (22 1/2°)	2 S.F.	2 S.F.	3 S.F.	3 S.F.	4 S.F.	5 S.F.
1/8 BEND (45°)	2 S.F.	2 S.F.	3 S.F.	5 S.F.	7 S.F.	12 S.F.
1/4 BEND (90°)	3 S.F.	3 S.F.	6 S.F.	9 S.F.	12 S.F.	21 S.F.
TEE/PLUG	2 S.F.	3 S.F.	4 S.F.	6 S.F.	9 S.F.	16 S.F.

NOTES:

1. ALL ELBOWS, BENDS, AND CAPS SHALL BE BRACED WITH CONCRETE THRUST BLOCKS. JOINTS SHALL NOT BE ENCASED IN CONCRETE.
2. BEARING AREA IS AREA OF CONCRETE IN CONTACT WITH WALL OF TRENCH (H X L).
3. HEIGHT AND LENGTH AS REQUIRED TO OBTAIN BEARING AREA SHOWN IN THE TABLE W/ H APPROX. 1/2 L.
4. THRUST BLOCK SIZING BASED ON 150 PSI WATER PRESSURE AND 2000 PSI SOIL BEARING CAPACITY.



THRUST RESTRAINT AT PLUG

NTS

NOT FOR CONSTRUCTION

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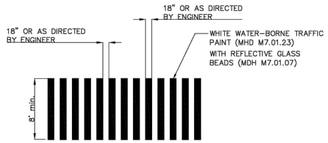
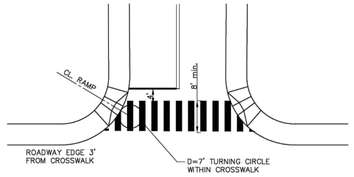


CROSSWALK ALL LOCATIONS



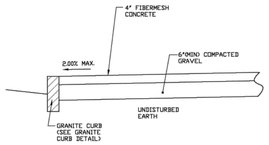
DETAIL~FOR CROSSWALK ALL LOCATIONS

NOTES:

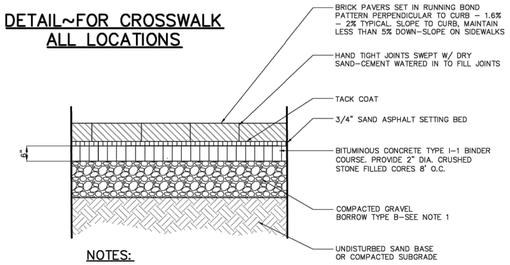
1. WHERE PROVIDED, STOP LINES SHOULD BE PLACED NO LESS THAN 4 FEET BEHIND AN ADJACENT CROSSWALK LINE.

2. MID-BLOCK CROSSWALKS SHALL NOT BE INSTALLED IN AREAS WITH THE SIGHT DISTANCE LESS THAN THAT SHOWN IN THE TABLE BELOW.

DESIGN SPEED	SIGHT DISTANCE
30	200
40	275
50	375
60	525
70	625



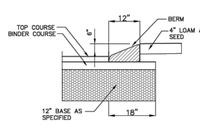
CONCRETE SIDEWALK



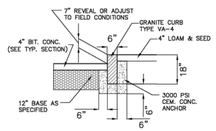
NOTES:

1. DETAIL AS SHOWN SHALL BE USED ON TYPICAL BRICK SIDEWALKS. WHERE SHOWN ON PLANS AT LOCATIONS FOR "TREEWAY", GRAVEL BORROW SHALL BE SUBSTITUTED WITH COMPACTED DENSE GRADED CRUSHED STONE AND 2' DEPTH OF SAND BASED.

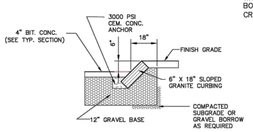
BRICK SIDEWALK PAVING



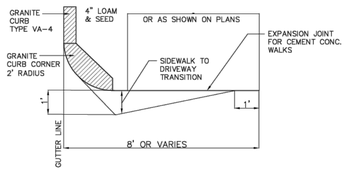
BIT. CONC. BERM



GRANITE CURB TYPE VA-4

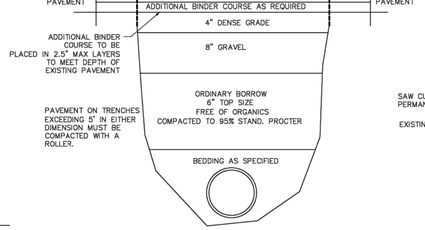


SLOPED GRANITE CURB DETAIL

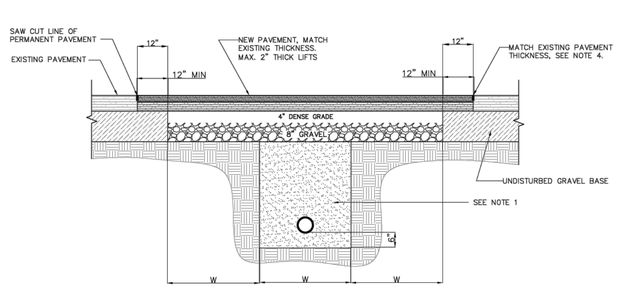


PLAN VIEW

TYPICAL CURB RETURN DETAIL



TRENCH RESTORATION



TYPICAL DETAIL TRENCH RESTORATION FOR MORATORIUM STREETS

NOTES:

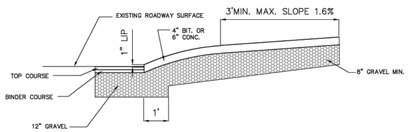
1. THE TRENCH EXCAVATION AROUND THE UTILITY WILL BE BACK FILLED WITH FLOWABLE FILL OR, IN CASE OF NATURAL GAS SERVICE, WITH GRAVEL COMPACTED TO 95% DENSITY.

2. NEW GRAVEL SUB BASE WILL BE INSTALLED AND COMPACTED TO 95% DENSITY.

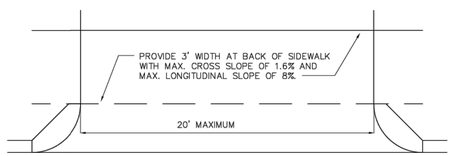
3. THE FINAL TRENCH PATCH WILL BE FROM CURB TO CURB, OR AS APPROVED BY THE ENGINEER.

4. PAVEMENT THICKNESS AND MATERIAL IN ACCORDANCE WITH THE TOWN OF LEXINGTON SPECIFICATIONS. APPLY HEAT BY APPROVED INFRARED METHOD TO SEAL ALL JOINTS.

5. JOINT BETWEEN EXISTING PAVEMENT AND PATCH MUST BE INFRARED.



DRIVEWAY SECTION



ZONING OFFSETS

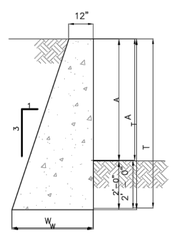
ZONING DISTRICT	DISTANCE FROM STREET INTERSECTION	DISTANCE FROM LOT LINE	WALL OF PRINCIPAL BUILDING
RS,RO,RT	25	5	5
RD,RM	25	8	5
CRO,CLO,CM	50	10	5
CRS,CS,CB,CN	10	NO REQUIREMENT	5

MAXIMUM DRIVEWAY GRADE = 12%

DRIVEWAY PLAN-RESIDENTIAL

NOTE:

NUMBER OF DRIVEWAYS PER LOT LINE IS LIMITED TO TWO. ZONING BY LAW SECTION 5.1.10.2



LOW RETAINING WALL

NOTES

1. CLASS I CEMENT CONC. TO BE USED
2. EXPANSION JOINTS TO BE PLACED 90' O.C. MAX. WITH INTERMIDIATE CONSTRUCTION JOINTS 30' O.C.
3. ALL CONC. DIMENSIONS SHOWN ARE MINIMUM

HEIGHT		WIDTH	AREA	CU. YDS.
A	T	W	SQ. FT.	PER. LIN. FT.
2'-0"	4'-0"	2'-4"	6.667	0.247
2'-6"	4'-6"	2'-6"	7.875	0.292
3'-0"	5'-0"	2'-8"	9.165	0.339
3'-6"	5'-6"	2'-10"	10.541	0.390
4'-0"	6'-0"	3'-0"	12.000	0.444
4'-6"	6'-6"	3'-2"	13.541	0.502
5'-0"	7'-0"	3'-4"	15.162	0.562

ALL DETAILS ARE NOT TO SCALE

NOT FOR CONSTRUCTION

1834 MASS AVE
LEXINGTON, MA

DRAWN BY: MVC
DATE: 3-16-2025
CHECKED BY: MJN

REVISIONS

DATE	BY	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. NOVAK
CIVIL
No. 50696
REGISTERED PROFESSIONAL ENGINEER

PATRIOT Engineering
P.O. BOX 362
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2854
www.patriot-eng.com

DETAILS
LOCATED IN
LEXINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
SHELDON CORP.

SHEET
C-6.5

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

Board reorganization

PRESENTER:

Board Discussion

ITEM NUMBER:

SUMMARY:

Board members will vote to reorganize and select representatives to be liaisons to other boards and committees.

SUGGESTED MOTION:

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025

ATTACHMENTS:

	Description	Type
🗋	Liaison representatives	Exhibit

Planning Board Representatives/ Liaisons to Boards & Committees May 8, 2024

Select Board Appointments

Board/ Committee	Role	Planning Board Designee
Housing Partnership Board	Voting Member	Mr. Hornig (9/2025)
Vision for Lexington Committee	Voting Member	Mr. Peters (9/2025)

Planning Board Appointments

Board/ Committee	Role	Planning Board Designee
MAGIC (MAPC Subregion) alternate	Voting Member	Mr. Creech (6/2025)
Hanscom Area Towns Committee	Non-Voting Member	Mr. Hornig (6/2025)
Community Preservation Committee	Voting Member	Mr. Creech (6/2025)
Economic Development Advisory Committee	Liaison	Mr. Hornig (6/2025)
Transportation Advisory Committee	Liaison	Ms. Thompson (6/2025)
Bicycle Advisory Committee	Liaison	Mr. Peters (6/2025)
Sustainable Lexington Committee	Liaison	Mr. Peters (6/2025)
Greenways Corridor Committee	Liaison	Mr. Hornig (6/2025)
Lexington Center Committee	Liaison	Mr. Hornig (6/2025)
Turning Mill NCD	Voting Member	Mr. Schanbacher (10/2025)
Pierce- Lockwood NCD	Voting Member	Mr. Creech (3/2026)
Design Advisory Committee	Liaison	Mr. Schanbacher(6/2025)

Planning Board Observing

Board/ Committee	Role	Planning board Designee
Tree Committee		Mr. Schanbacher
Historic Districts Commission		Mr. Creech
Historic Commission		Mr. Creech
Conservation Commission		Mr. Hornig
Zoning Board of Appeals		Ms. Thompson

School Committee Appointments

Board/ Committee	Role	Planning Board Designee
School Master Plan Advisory Committee (School appointment)	Voting Member	Mr. Schanbacher

Tally: Schanbacher =4; Creech= 5; Hornig = 6; Thompson =2; Peters =3

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

Board Member & Staff Updates

PRESENTER:

ITEM NUMBER:

SUMMARY:

SUGGESTED MOTION:

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

Review of Draft Meeting Minutes: 4/10 & 4/17

PRESENTER:

ITEM NUMBER:

SUMMARY:

SUGGESTED MOTION:

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

Upcoming Meetings

PRESENTER:

ITEM NUMBER:

SUMMARY:

SUGGESTED MOTION:

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

Adjourn – The meeting will continue until all items are finished. The estimated adjournment time is 10:00 pm.

PRESENTER:

ITEM NUMBER:

SUMMARY:

SUGGESTED MOTION:

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

Zoom Details - https://www.lexingtonma.gov/377/Access-Virtual-Meetings

PRESENTER:

ITEM NUMBER:

SUMMARY:

SUGGESTED MOTION:

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/7/2025