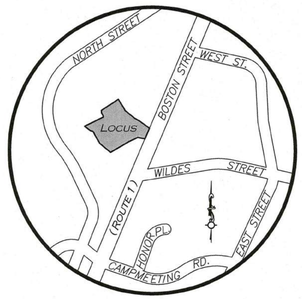
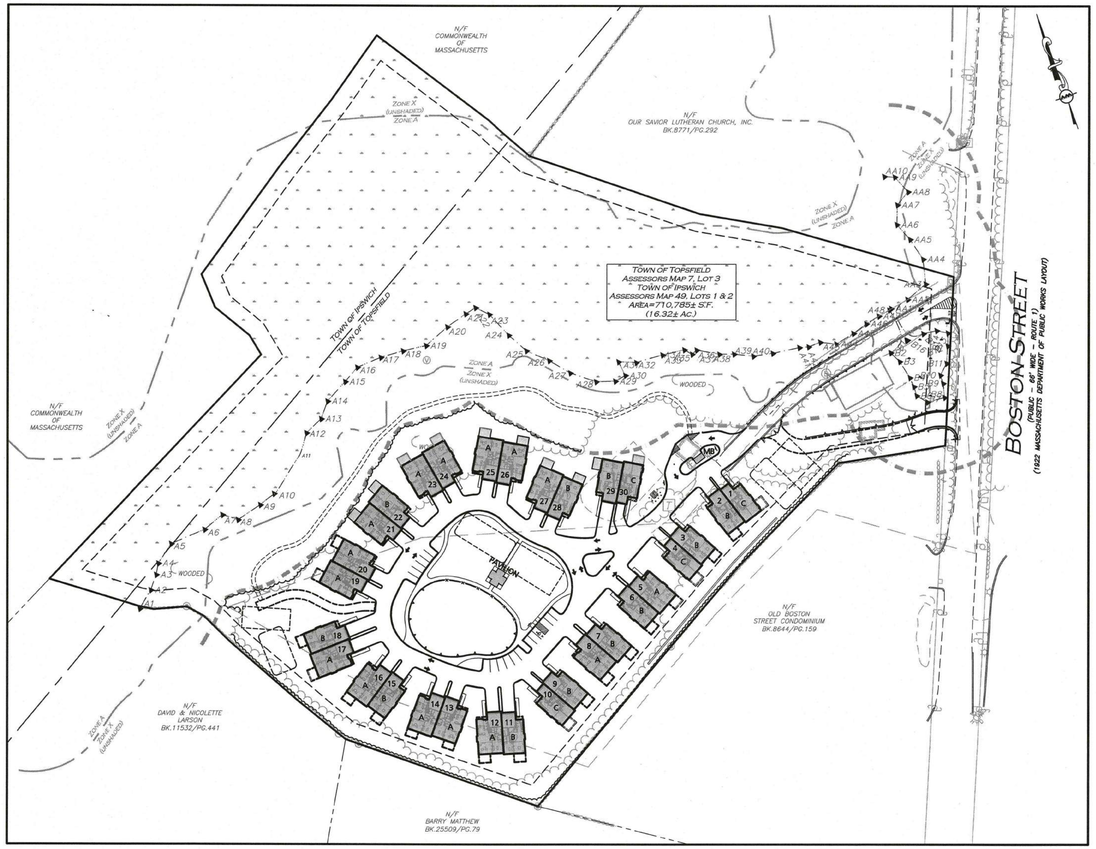
SITE DEVELOPMENT PLANS FOR OVER 55 RESIDENTIAL DEVELOPMENT

470 BOSTON STREET

TOPSFIELD, MA



LOCUS MAP
(NOT TO SCALE)



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SEEKAMP ENVIRONMENTAL CONSULTANTS
129 ROUTE 125
KINGSTON, NH 03848
603.642.8300

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CIVIL LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.	ISSUED	LAST REVISED
EXISTING CONDITIONS PLAN	1	10-13-2016	----------
ABBREVIATIONS & NOTES	ABB-1 - ABB-3	10-13-2016	----------
DEMOLITION & EROSION CONTROL PLAN	C-1	10-13-2016	----------
LAYOUT & MATERIALS PLAN	C-2	10-13-2016	----------
GRADING & SPOT GRADES PLAN	C-3A - C3B	10-13-2016	----------
DRAINAGE PLAN	C-4A - C4-B	10-13-2016	----------
DRAINAGE PROFILES	C-4C - C-4D	10-13-2016	----------
WATER & GAS UTILITIES PLAN	C-5A	10-13-2016	----------
SITE ELECTRIC PLAN	C-5B	10-13-2016	----------
FIRE TRUCK TURNING PLAN	C-6	10-13-2016	----------
SNOW STORAGE PLAN	C-7	10-13-2016	----------
TEST PITS PLAN	TPP-1	10-13-2016	----------
DETAILS	D-1 - D-9	10-13-2016	----------

LANDSCAPE ARCHITECTS LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.	ISSUED	LAST REVISED
PLANTING AND LIGHTING PLAN	L-1	10-13-2016	----------
PLANT LIST AND SEEDING PLAN	L-2	10-13-2016	----------

SANITARY SEWER LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.	ISSUED	LAST REVISED
SDS PLAN	SDS-1	10-13-2016	----------
SDS PLAN	SDS-1.1	10-13-2016	----------
SDS PLAN	SDS-2.1	10-13-2016	----------
SDS PLAN	SDS-3.1	10-13-2016	----------
SDS PLAN	SDS-4	10-13-2016	----------
SDS PLAN	SDS-5	10-13-2016	----------

ARCHITECTURAL LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.	ISSUED	LAST REVISED
COVER	COVER	10-05-16	----------
UNIT A ELEVATIONS I	A-1	10-05-16	----------
UNIT A ELEVATIONS II	A-2	10-05-16	----------
UNIT A FIRST FLOOR	A-3	10-05-16	----------
UNIT A SECOND FLOOR	A-4	10-05-16	----------
UNIT B ELEVATIONS I	A-5	10-05-16	----------
UNIT B ELEVATIONS II	A-6	10-05-16	----------
UNIT B FIRST FLOOR	A-7	10-05-16	----------
UNIT B SECOND FLOOR	A-8	10-05-16	----------
UNIT C ELEVATIONS I	A-9	10-05-16	----------
UNIT C ELEVATIONS II	A-10	10-05-16	----------
UNIT C FIRST FLOOR	A-11	10-05-16	----------
UNIT C SECOND FLOOR	A-12	10-05-16	----------

PREPARED BY:

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COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No.43119
REGISTERED PROFESSIONAL ENGINEER
10/13/16

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

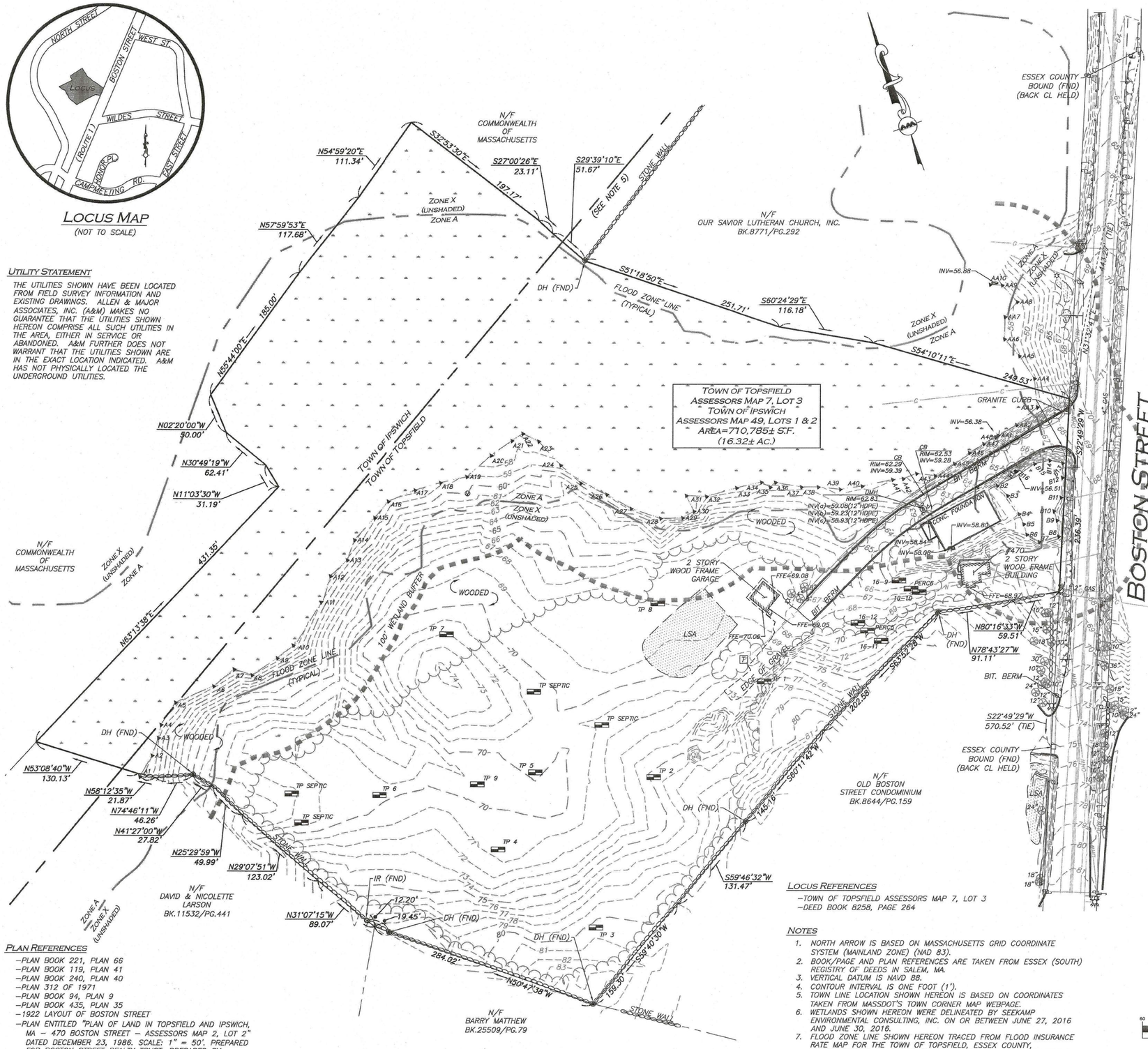
ISSUED FOR SPECIAL PERMIT,
SITE PLAN REVIEW & NOTICE OF INTENT:
OCTOBER 13, 2016

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - COVER.DWG

LOCUS MAP
(NOT TO SCALE)

UTILITY STATEMENT

THE UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. ALLEN & MAJOR ASSOCIATES, INC. (A&M) MAKES NO GUARANTEE THAT THE UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. A&M FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. A&M HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.



PLAN REFERENCES

- –PLAN BOOK 221, PLAN 66
- –PLAN BOOK 119, PLAN 41
- –PLAN BOOK 240, PLAN 40
- –PLAN 312 OF 1971
- –PLAN BOOK 94, PLAN 9
- –PLAN BOOK 435, PLAN 35
- –1922 LAYOUT OF BOSTON STREET
- –PLAN ENTITLED "PLAN OF LAND IN TOPSFIELD AND IPSWICH, MA – 470 BOSTON STREET – ASSESSORS MAP 2, LOT 2" DATED DECEMBER 23, 1986. SCALE: 1" = 50'. PREPARED FOR BOSTON STREET REALTY TRUST. PREPARED BY HANCOCK SURVEY ASSOCIATES, INC.

LOCUS REFERENCES

- –TOWN OF TOPSFIELD ASSESSORS MAP 7, LOT 3
- –DEED BOOK 8258, PAGE 264

NOTES

1. NORTH ARROW IS BASED ON MASSACHUSETTS GRID COORDINATE SYSTEM (MAINLAND ZONE) (NAD 83).
2. BOOK/PAGE AND PLAN REFERENCES ARE TAKEN FROM ESSEX (SOUTH) REGISTRY OF DEEDS IN SALEM, MA.
3. VERTICAL DATUM IS NAVD 88.
4. CONTOUR INTERVAL IS ONE FOOT (1').
5. TOWN LINE LOCATION SHOWN HEREON IS BASED ON COORDINATES TAKEN FROM MASSDOT'S TOWN CORNER MAP WEBPAGE.
6. WETLANDS SHOWN HEREON WERE DELINEATED BY SEEKAMP ENVIRONMENTAL CONSULTING, INC. ON OR BETWEEN JUNE 27, 2016 AND JUNE 30, 2016.
7. FLOOD ZONE LINE SHOWN HEREON TRACED FROM FLOOD INSURANCE RATE MAP FOR THE TOWN OF TOPSFIELD, ESSEX COUNTY, MASSACHUSETTS AS SHOWN ON COMMUNITY PANEL NUMBER 250106 0266F, HAVING AN EFFECTIVE DATE OF JULY 3, 2012.

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

N:\PROJECTS\2165-01A\SURVEY\DRAWINGS\S-2165-01A-EC.DWG
FB# 1707 PG. 104

FOR REGISTRY USE ONLY

LEGEND

DRILL HOLE (DH)	
IRON ROD (IR)	
DRAIN MANHOLE (DMH)	D
CATCH BASIN (CB)	
ROUND CATCH BASIN (RCB)	
UTILITY POLE	
UTILITY POLE W/RISER	
FIRE HYDRANT	
GAS GATE	GG
INVERT (INV)	
FLARED END SECTION	
LIGHT	
TREE	
TEST PIT LOCATION	
SIGN	
MAILBOX	MB
WETLAND FLAG	▸A31
HAND HOLE	H.H.
CABLE BOX	C
TELEPHONE BOX	T
ELECTRIC BOX	E
ELECTRIC METER	E
CONCRETE	
LANDSCAPED AREA (LSA)	
WETLAND AREA	
BUILDING	
WETLAND	
BUFFER ZONE	
1' CONTOUR	53
5' CONTOUR	55
PROPERTY LINE	
ABUTTERS LINE	
TOWN LINE	
STONE WALL	
CONCRETE RETAINING WALL	
TREE LINE	
EDGE OF PAVEMENT	
EDGE OF GRAVEL	
CURB	
STEEL GUARDRAIL	
DRAIN LINE	D
TELEPHONE LINE	T
WATER LINE	W
GAS LINE	G
COMCAST LINE	C
OVERHEAD WIRES	OHW
FINISHED FLOOR ELEVATION	FFE
BITUMINOUS	BIT.
CONCRETE	CONC.
HIGH DENSITY POLYETHYLENE PIPE	HDPE
FOUND	FND
NOW OR FORMERLY	N/F
BOOK	BK.
PAGE	PG.
PLAN	PL.
CERTIFICATE OF TITLE	COT
LAND COURT	L.C.
LAND COURT CASE	L.C.C.

WE HEREBY CERTIFY THAT:

THIS PLAN IS THE RESULT OF AN ACTUAL ON THE GROUND SURVEY PERFORMED ON OR BETWEEN JUNE 30, 2016 AND JULY 12, 2016.

THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS DATED JANUARY 1, 1976 AND REVISED JANUARY 12, 1988.

ACCORDING TO DEEDS AND PLANS OF RECORD, THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIP, AND THE LINES OF THE STREETS OR WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS AND WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

THE ABOVE CERTIFICATION IS INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS FOR THE RECORDING OF PLANS AND IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN OF TOPSFIELD AND TOWN OF IPSWICH ASSESSORS' INFORMATION.

THE ABOVE IS CERTIFIED TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF.

ALLEN & MAJOR ASSOCIATES, INC.

COMMONWEALTH OF MASSACHUSETTS
KEVIN J. KIERNAN No.40038
PROFESSIONAL LAND SURVEYOR

KJK 10/13/16

PROFESSIONAL LAND SURVEYOR FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1.	10/13/16	FLOOD ZONE LINE ADDED

APPLICANT\OWNER:

SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:

470 BOSTON STREET
(ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	08/02/16
SCALE:	1" = 60'	DWG. NAME:	S-2165-01A-EC
DRAFTED BY:	COB\MSM	CHECKED BY:	KJK

PREPARED BY:

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DRAWING TITLE: EXISTING CONDITIONS

SHEET No. 1

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GENERAL NOTES:

1. FOR EXISTING CONDITIONS SURVEY, SEE PLAN ENTITLED "EXISTING CONDITIONS", AS PREPARED BY ALLEN & MAJOR ASSOCIATES, INC. THE ON THE GROUND SURVEY WAS PERFORMED ON OR BETWEEN JUNE 30, 2016 & JULY 12, 2016.

2. ZONING DISTRICT IS BUSINESS PARK DISTRICT (BP), AS WELL AS AN ELDERLY HOUSING DISTRICT (EHD) OVERLAY, TOPSFIELD, AND INDUSTRIAL (I) IN IPSWICH.

3. PER THE TOWN OF TOPSFIELD ENGINEERING DEPARTMENT, IT IS THE CONTRACTOR'S RESPONSIBILITY TO:
   - SCHEDULE A PRECONSTRUCTION MEETING WITH THE TOPSFIELD ENGINEERING DEPARTMENT TO REVIEW THE CONSTRUCTION SCHEDULE, PERMITTED DRAWINGS AND PERMIT CONDITIONS AT LEAST ONE (1) WEEK PRIOR TO THE COMMENCEMENT OF EARTH DISTURBING ACTIVITIES AT NO ADDITIONAL COST TO OWNER.
   - GIVE REASONABLE NOTICE TO THE TOPSFIELD ENGINEERING DEPARTMENT FOR INSPECTION PRIOR TO INSTALLING ANY PROPOSED STORMWATER MANAGEMENT SYSTEMS OR INSTALLATION OF ANY OTHER CRITICAL DESIGN COMPONENTS IDENTIFIED DURING THE ABOVE MENTIONED PRECONSTRUCTION MEETING.
   - PROVIDE AS-BUILT PLANS IN ACCORDANCE WITH THE TOWN OF TOPSFIELD STORMWATER MANAGEMENT REGULATIONS.

4. OVERALL LOT SIZE: 16.32± ACRES. TOWN OF TOPSFIELD ASSESSORS MAP #7 PARCEL #3. TOWN OF IPSWICH ASSESSORS MAP # 49 PARCELS # 1 & #2.

5. DURING CONSTRUCTION, ALL VEHICLES MUST BE PARKED ON SITE.

6. DURING CONSTRUCTION, ALL STAGING AND DELIVERIES WILL OCCUR ON SITE.

7. EXTERIOR CONSTRUCTION ACTIVITIES ON THE SITE SHALL FOLLOW ALL APPLICABLE REGULATIONS PER THE TOWN OF TOPSFIELD, AS IT RELATES TO CONSTRUCTION HOURS, NOISE AND CONSTRUCTION SCREENING AND FENCING.

8. THIS PROJECT WILL BE SERVED BY PUBLIC WATER, NATURAL GAS, TELEPHONE, CABLE AND ELECTRIC. ALL UTILITY LINES WILL BE INSTALLED UNDERGROUND UNLESS OTHERWISE NOTED.

9. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS AT NO ADDITIONAL COST.

10. ALL MAIN BUILDING ENTRANCES AND WALKS SHALL BE HANDICAP ACCESSIBLE PER FEDERAL ADA & MA AAB REGULATIONS AT NO ADDITIONAL COST TO THE OWNER.

11. ALL SITE WORK DONE FOR THIS PROJECT SHALL BE IN STRICT ACCORDANCE WITH THE SITE PLANS AND SITE WORK SPECIFICATIONS FOR CONSTRUCTION.

12. ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTIES DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AND RESTORED BY THE CONTRACTOR AT THEIR OWN EXPENSE.

13. ALL PROPERTY MARKERS AND STREET LINE MONUMENTS SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION. ANY DAMAGE TO THESE ITEMS SHALL BE REPAIRED AND RESTORED BY A SURVEYOR REGISTERED IN THE STATE OF MASSACHUSETTS AT THE CONTRACTOR'S EXPENSE.

14. ALL APPLICABLE PERMITS AND AN APPROVED SET OF PLANS SHALL BE AVAILABLE AT THE CONSTRUCTION SITE.

15. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRECONSTRUCTION MEETING THE WITH THE APPROPRIATE TOWN DEPARTMENTS, THE APPROPRIATE UTILITY COMPANIES, THE OWNER AND OWNER'S REPRESENTATIVE. THE MEETING SHALL TAKE PLACE PRIOR TO THE START OF CONSTRUCTION AND THE CONTRACTOR MUST PROVIDE 48 HOURS NOTICE TO ALL ATTENDEES PRIOR TO THE START OF THE MEETING.

16. APPROPRIATE WARNING SIGNS, MARKERS, BARRICADES AND/OR FLAG MEN SHALL BE PROVIDED TO REGULATE TRAFFIC. CONSTRUCTION TRAFFIC CONTROLS SHALL BE IMPLEMENTED AND OPERATED ACCORDING TO THE MASS DEPARTMENT OF TRANSPORTATION, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE LOCAL AUTHORITY.

17. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ADDITIONAL BENCHMARK INFORMATION IF REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING BENCHMARKS. IF IT IS NECESSARY TO RELOCATE A BENCHMARK, IT SHALL BE RELOCATED BY A MASSACHUSETTS PROFESSIONAL LAND SURVEYOR AND DONE SO AT THE CONTRACTOR'S EXPENSE.

18. ALL BUILDING DIMENSIONS ARE MEASURED TO THE OUTSIDE FACE OF THE BUILDING.

19. ALL RADII ARE 3 FEET UNLESS OTHERWISE NOTED.

20. ALL PARKING LOT AND AISLE DIMENSIONS ARE TAKEN FROM THE FACE OF CURB AND INDICATE EDGE OF PAVEMENT.

21. CONSTRUCTION DURING WET WEATHER OR WINTER CONDITIONS IS TO BE ANTICIPATED AND PROVISIONS TO ADEQUATELY ADDRESS THESE CONDITIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST.

22. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ANY PERMITS AND/OR CONNECTION FEES REQUIRED TO CARRY OUT THE WORK INCLUDING BUT NOT LIMITED TO DEMOLITION.

23. DISPOSAL OF ALL DEMOLISHED MATERIALS INCLUDING EXISTING MISC. CONSTRUCTION DEBRIS FILL IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL MUNICIPAL REQUIREMENTS AT NO ADDITIONAL COST.

24. ALL DISTURBED AREAS NOT NOTED TO RECEIVE OTHER TREATMENT ARE TO RECEIVE SIX INCHES (6") MINIMUM OF TOPSOIL & SEED, AND BE MAINTAINED UNTIL ESTABLISHED & ACCEPTED.

25. EXISTING STRUCTURES WITHIN CONSTRUCTION LIMITS ARE TO BE ABANDONED, REMOVED OR RELOCATED AS NECESSARY.

26. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH THE TOWN OF TOPSFIELD'S GOVERNING AUTHORITY'S SPECIFICATIONS AND SHALL BE APPROVED BY SUCH.

27. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO DETERMINE EXACT POINT OF SERVICE CONNECTION AND DISCONNECTION AT EXISTING UTILITY.

28. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR AT GROUNDBREAKING.

29. EXISTING AND PROPOSED GAS SERVICE LOCATIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL CONFIRM WITH THE GAS COMPANY THAT THE GAS LINE INSTALLATION & DISCONNECTION SHALL BE BY THE LOCAL GAS COMPANY. THE CONTRACTOR SHALL GIVE THE GAS COMPANY ADVANCE NOTICE OF WHEN THE GAS LINE CAN BE INSTALLED.

GENERAL NOTES (CONTINUED):

30. EXISTING & PROPOSED ELECTRIC AND COMMUNICATIONS (TELEPHONE AND CABLE) SYSTEMS LOCATIONS ARE APPROXIMATE ONLY AND SHALL BE COORDINATED AND SCHEDULED WITH THE APPROPRIATE UTILITY COMPANY SERVICING THE PROJECT SITE.

31. CONTRACTOR IS RESPONSIBLE FOR DIGGING TEST HOLES AND VERIFYING ANY EXISTING UTILITY OR STRUCTURE PRIOR TO CONSTRUCTION. CONTRACTOR SHALL VERIFY THAT BASED ON EXACT LOCATION OF EXISTING UTILITIES, THERE ARE NO CONFLICTS BETWEEN THEM AND THE PROPOSED UTILITIES.

32. THE CONTRACTOR SHALL ADHERE TO ALL PERMIT CONDITIONS PROVIDED BY ALL GOVERNING AGENCIES AT NO ADDITIONAL COSTS. THIS INCLUDES BUT IS NOT LIMITED TO BUILDING PERMITS, DEMOLITION PERMITS, PLUMBING, GAS, AND ELECTRICAL PERMITS.

33. THE CONTRACTOR SHALL BE FAMILIAR WITH AND ADHERE TO THE TOPSFIELD CONSERVATION COMMISSION'S ORDER OF CONDITIONS (OOC), TOPSFIELD PLANNING BOARD DECISION, AND TOPSFIELD ZONING BOARD OF APPEALS DECISION, CONDITIONS, AND REQUIREMENTS AT NO ADDITIONAL COST TO OWNER.

34. IT IS THE CONTRACTORS RESPONSIBILITY TO PROPERLY DISPOSE OF AND ABATE ALL BUILDING MATERIALS OR ANY HAZARDOUS MATERIALS ONSITE IN ACCORDANCE WITH ALL STATE, FEDERAL, AND LOCAL LAWS AND REGULATIONS AT NO ADDITIONAL COST TO THE OWNER.

35. DURING EXCAVATION, ANY EXISTING LOAM WHICH DOES NOT MEET THE STANDARD LOAM DETAIL SHALL BE REMOVED OFFSITE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

GRADING & DRAINAGE NOTES:

1. EXISTING PAVEMENT SHALL BE SAW-CUT AND PAVEMENT JOINT SHALL BE INSTALLED WHERE NECESSARY TO ENSURE A SMOOTH CONTINUOUS GRADE.

2. THE ARCHITECTURAL PLANS SHALL BE REFERRED TO IN ORDER TO DETERMINE THE EXACT LOCATIONS OF VESTIBULE, SLOPED PAVING, EXIT PORCHES, HANDICAPPED RAMPS, TRUCK DOCKS, COMPACTOR PAD, ROOF DRAIN LATERALS AND PRECISE BUILDING DIMENSIONS.

3. ALL GRADING OPERATIONS SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANIES.

4. IN LANDSCAPED AREAS THE TOP ELEVATION OF MANHOLES SHALL MATCH THE FINISH GRADE OF THE TOPSOIL. IN PAVED AREAS THE TOP ELEVATIONS OF MANHOLES SHALL MATCH FINISH GRADE.

5. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED AS SOON AS POSSIBLE UPON COMPLETION OF CONSTRUCTION WORK IN THE AREA.

6. TEMPORARY STRAW BALE PROTECTION AND/OR SILT SACK SHALL BE INSTALLED AND MAINTAINED AT EXISTING DRAINAGE STRUCTURES DURING CONSTRUCTION, TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE DRAINAGE SYSTEM. SILT SACKS ARE REQUIRED AT ALL EXISTING DRAINAGE STRUCTURE INLETS DURING CONSTRUCTION.

7. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE.

8. ALL CATCH BASINS, MANHOLES, INFILTRATION SYSTEM, AND WATER QUALITY STRUCTURES ARE TO BE CLEANED OUT PRIOR TO FINAL APPROVAL TO REMOVE ALL CONSTRUCTION SILT AND DEBRIS.

9. IF ANY EXISTING UTILITY STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER AT NO ADDITIONAL COST.

10. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.

11. ALL STORM DRAIN MANHOLES SHALL HAVE TRAFFIC BEARING RING & COVERS & SHALL BE LABELED "DRAIN".

12. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.

13. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.

14. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE SIX INCHES (6") OF TOPSOIL. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH LANDSCAPE & CIVIL SPECIFICATIONS & DRAWINGS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.

15. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER.

16. ALL DRAINAGE SHALL CONFORM TO LOCAL REQUIREMENTS.

UTILITY NOTES:

1. THE LATEST STANDARDS OF THE TOWN OF TOPSFIELD SHALL BE FOLLOWED WHEN INSTALLING ANY SANITARY SEWER AND STORM DRAIN WORK. BOTH SEWER AND STORM DRAIN WORK WILL BE INSPECTED BY TOWN OF TOPSFIELD PERSONNEL AND ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

2. THE LATEST STANDARDS OF THE TOWN OF TOPSFIELD SHALL BE FOLLOWED WHEN INSTALLING ANY WATER LINE WORK. WATER LINE WORK WILL BE INSPECTED BY TOWN OF TOPSFIELD PERSONNEL AND ALL COSTS SHALL INCLUDE PRESSURE TESTING, DISINFECTING, AND FLUSHING OF LINES. INSPECTION COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND REMOVAL OF ALL NECESSARY DISINFECTING AND FLUSHING TAPS AS DIRECTED BY THE TOWN.

3. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL & PLUMBING DRAWINGS AND SPECIFICATIONS FOR ACTUAL LOCATION OF ALL ROOF DRAIN LATERALS AND UTILITY ENTRANCES TO INCLUDE SANITARY SEWER LATERALS, DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRIC, TELEPHONE, AND NATURAL GAS SERVICE. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND COORDINATE WITH THE PROPER AGENCY THE LOCATION AND SCHEDULING OF CONNECTIONS WITH THEIR FACILITIES.

4. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION.

5. ABANDONED EXISTING UTILITIES AND UTILITIES TO BE ABANDONED SHALL EITHER BE ABANDONED IN PLACE AS NOTED OR SHALL BE REMOVED AND DISPOSED OF AS SPECIFIED. ANY UTILITIES 4" OR LARGER ARE TO BE REMOVED. ALL UTILITIES SCHEDULED FOR ABANDONMENT OR REMOVAL AND DISPOSAL MUST BE COORDINATED BY THE CONTRACTOR WITH THE RESPECTIVE UTILITY OWNER. WHEN ABANDONED UTILITIES ARE TO BE LEFT IN PLACE, PLUG OR CAP THE ENDS OF THE CONDUITS AND PIPES. REMOVE ABANDONED UTILITY MANHOLES, JUNCTION BOXES AND SIMILAR STRUCTURES TO A MINIMUM DEPTH OF 4 FEET BELOW FINISHED GRADE AND PUNCTURE OR BREAK THE BOTTOM SLABS OF MANHOLES AND SIMILAR STRUCTURE TO ALLOW DRAINAGE. BACKFILL AND COMPACT EXCAVATIONS RESULTING FROM REMOVAL OF UTILITY FACILITATES, AS REQUIRED TO RESTORE THE ORIGINAL GRADE.

6. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENTS OF NATURAL GAS, ELECTRIC, TELEPHONE AND ANY OTHER UTILITY BY THE UTILITY OWNER.

UTILITY NOTES (CONTINUED):

7. THE CONTRACTOR SHALL USE THE FOLLOWING PIPE MATERIALS (UNLESS OTHERWISE NOTED):
   - SEWER – PVC (POLYVINYL CHLORIDE), SDR 35
   - DRAIN – HDPE (HIGH DENSITY CORRUGATED POLYETHYLENE PIPE WITH SMOOTH INNER WALL), ASTM D2321 (UNLESS OTHERWISE SPECIFIED ON PLAN)
   - DRAIN – RCP CLASS IV (REINFORCED CONCRETE PIPE, WHERE SPECIFIED ON PLAN)
   - WATER – C.L.D.I. (CEMENT LINED DUCTILE IRON)

8. REFER TO DEMOLITION PLAN FOR EXISTING ITEMS TO BE REMOVED AND FOR UTILITY ABANDONMENT.

9. BEFORE UTILITY WORK BEGINS, THE CONTRACTOR WILL COORDINATE WITH THE TOWN OF TOPSFIELD THE APPROPRIATE PERMIT AND INSPECTION FEES.

10. ALL UTILITY CONNECTIONS THROUGH THE BUILDING WALL SHALL BE BY MEANS OF FLEXIBLE JOINTS.

11. ALL WATER GATES TO PROPOSED HYDRANTS ARE 6" DIAMETER UNLESS NOTED.

12. A MINIMUM OF 10 FEET CLEAR HORIZONTALLY SHALL BE MAINTAINED BETWEEN WATER MAINS AND SANITARY SEWER MAINS AND/OR STORM DRAINS. WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET TO A WATER MAIN, THE WATER MAIN SHALL BE LAID IN A SEPARATE TRENCH AND THE DIFFERENCE IN ELEVATION BETWEEN THE WATER MAIN AND THE SEWER MAIN SHALL BE AT LEAST 18 INCHES.

13. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.

14. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITY'S INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.

15. MINIMUM TRENCH WIDTH SHALL BE 2 FEET.

16. ALL WATER JOINTS ARE TO BE MECHANICAL JOINTS WITH THRUST BLOCKING AT BENDS.

17. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 5'-0" COVER ON ALL WATERLINES AND A MAXIMUM OF 8'-0" COVER.

18. IN THE EVENT OF A VERTICAL CONFLICT BETWEEN WATERLINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE SANITARY LINE SHALL BE DUCTILE IRON PIPE WITH MECHANICAL JOINTS AT LEAST 10 FEET ON BOTH SIDES OF CROSSING, THE WATERLINE SHALL HAVE MECHANICAL JOINTS WITH APPROPRIATE THRUST BLOCKING AS REQUIRED TO PROVIDE A MINIMUM OF 18" CLEARANCE BETWEEN THE PIPES. WHERE THE WATERLINE IS LESS THAN THE 18" VERTICAL CLEARANCE AND MEETING 10' HORIZONTAL CLEARANCE CANNOT BE MET, THE WATER MUST BE ENCASED IN CONCRETE TO MEET THE REQUIREMENTS OF ANSI A21.10 OR ANSI 21.11 (AWWA C-151) (CLASS 50).

19. ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 P.S.I.

20. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE SPECIFICATIONS OF THE LOCAL AUTHORITIES WITH REGARDS TO MATERIALS AND INSTALLATION OF THE WATER, SEWER, GAS AND ELECTRICAL AND TELECOMMUNICATIONS LINES.

21. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICE.

22. ALL HYDRANTS SHALL MEET LOCAL MUNICIPAL SPECIFICATION REQUIREMENTS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE TOWN OF TOPSFIELD REQUIREMENTS.

23. DOMESTIC WATER SERVICES SHALL BE INSTALLED WITH APPROPRIATELY SIZED GATE, BOX, AND TEE FITTINGS.

24. ALL WATER MAIN APPURTENANCES, MATERIALS, METHODS OF INSTALLATION AND TESTING REQUIREMENTS SHALL MEET OR EXCEED THE TOWN OF TOPSFIELD REQUIREMENTS.

25. PRESSURE AND LEAKAGE TEST, DISINFECTION AND FLUSHING SHALL BE IN ACCORDANCE WITH ALL LOCAL AND MUNICIPAL STANDARDS AND REQUIREMENTS.

26. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS IN CONNECTION WITH THE UTILITY TESTS, FLUSHING AND INSPECTIONS AS REQUIRED BY THE LOCAL MUNICIPALITY.

27. SEWER PIPE BEDDING MATERIAL SHALL BE AS SPECIFIED ON THE DRAWINGS. IF LOCAL OR STATE AUTHORITIES REQUIRE DIFFERENT BEDDING OR BACKFILL MATERIAL, THEN THE MORE STRINGENT SHALL APPLY.

28. DRAWINGS DO NOT NECESSARILY SHOW ALL EXISTING UTILITIES.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - ABBREVIATIONS & NOTES.DWG

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

10/13/16

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	NONE	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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DRAWING TITLE:	SHEET No.
ABBREVIATIONS & NOTES	ABB-1

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EROSION & SEDIMENTATION CONTROL NOTES:

1. EROSION CONTROL SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE. ANY MODIFICATIONS TO SILT CONTROLS SHOWN ON THE APPROVED PLANS AS A RESULT OF ACTUAL FIELD CONDITIONS OR CONSTRUCTION PRACTICES SHALL BE INSTALLED IN ACCORDANCE WITH B.M.P. (BEST MANAGEMENT PRACTICES) PER THE E.P.A. 2012 "CONSTRUCTION GENERAL PERMIT" MANUAL, AND MASSACHUSETTS 2003 EROSION & SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS, ANY SUCH MODIFICATIONS FROM THE ABOVE MANUALS SHALL BE INSTALLED AS APPROVED BY THE ENGINEER.

2. AREAS OF EXPOSED SOIL UNDERGOING CONSTRUCTION THAT WILL NOT BE COVERED AND OR FINISHED GRADED SHALL BE STABILIZED AS SOON AS PRACTICABLE BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY (UNLESS TOWN HAS STRICTER REQUIREMENTS WHICH SHALL BE FOLLOWED) IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY EROSION CONTROL MEASURES SHALL INCLUDE EROSION CONTROL MESH, NETTING OR MULCH AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND SHOWN ON THE DESIGN PLANS. IF MULCH IS USED, STRAW MULCH SHALL BE APPLIED AT THE RATE OF 4 BALES PER 1,000 SQUARE FEET. APPLICATION AREA SHALL BE SUFFICIENTLY COVERED WITH MULCH TO AVOID ANY VISIBLE SOIL EXPOSURE. MULCH SHALL BE KEPT MOIST TO AVOID LOSS DUE TO WIND. MULCH AND NETTING SHALL BE APPLIED IN THE BASE OF ALL GRASSED WATERWAYS, IN VEGETATIVE SLOPES WHICH EXCEED 15% AND DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS.

3. IF DISTURBED AREAS DO NOT RECEIVE FINAL SEEDING BY OCTOBER 1ST OF THE CONSTRUCTION YEAR, THEN ALL DISTURBED AREAS SHALL BE SEEDED WITH A WINTER COVER CROP AT THE RATE OF 3 LBS PER 1,000 SQUARE FEET. WINTER SEEDING SHALL BE COVERED WITH EROSION CONTROL MESH (MULCH AND NETTING). HEAVY GRADE MATS SHALL BE USED IN THE BASE OF ALL GRASSED WATERWAYS ON VEGETATED SLOPES IN EXCESS OF 15%, AND ANY DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS. MULCH AND NETTING SHALL ALSO BE PROVIDED FOR ADDITIONAL WINTER PROTECTION.

4. ALL TOPSOIL SHALL BE COLLECTED, STOCKPILED, SEEDED WITH RYE AT 3LBS PER 1,000 SQUARE FOOT AND MULCHED, AND REUSED AS REQUIRED. SILTATION FENCING SHALL BE PLACED DOWN GRADIENT FROM STOCKPILED LOAM. LOAM SHALL BE STOCKPILED AT LOCATIONS DESIGNATED BY THE OWNER AND ENGINEER.

5. ALL FILTER BARRIERS, SILT SACKS, AND EROSION CONTROL BERMS SHALL BE INSTALLED ACCORDING TO THE EROSION CONTROL PLAN. THESE SHALL BE MAINTAINED DURING DEVELOPMENT TO REMOVE SEDIMENT FROM RUNOFF WATER. ALL THE FILTER BARRIERS AND EROSION CONTROL BERMS SHALL BE INSPECTED AFTER ANY RAINFALL OR RUNOFF EVENT, MAINTAINED AND CLEANED UNTIL ALL AREAS HAVE AT LEAST 85–90% VIGOROUS PERENNIAL COVER OF GRASSES.

6. ADJACENT ROADS SHALL BE PERIODICALLY SWEPT OR WASHED TO AVOID TRACKING MUD, DUST OR DEBRIS FROM THE CONSTRUCTION AREA AS OFTEN AS NECESSARY (WHICH COULD BE ON A DAILY BASIS) TO REMOVE ANY SOIL OR SEDIMENTS AT NO ADDITIONAL COST TO THE OWNER. A WATERING TRUCK WILL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AT NO ADDITIONAL COST TO THE OWNER.

7. THE CONTRACTOR SHALL USE EXTREME CAUTION TO AVOID ALLOWING SEDIMENTS TO ENTER THE STORM DRAIN SYSTEM DURING CONSTRUCTION. BOTH EXISTING AND PROPOSED CATCH BASIN INLETS SHALL BE PROTECTED DURING CONSTRUCTION BY THE USE SILT SACKS AND OR STRAW BALE BARRIERS AROUND EACH INLET AS NOTED ON THE PLANS. INLET PROTECTION MAY BE REMOVED ONLY AFTER FINISHED AREAS ARE PAVED AND THE VEGETATED SLOPES ARE ESTABLISHED WITH AT LEAST 85–90% OF VIGOROUS PERENNIAL GROWTH.

8. AS APPLICABLE, EROSION CONTROL MESH SHALL BE APPLIED IN ACCORDANCE WITH THE PLANS OVER ALL FINISHED SEEDED AREAS AS SPECIFIED ON THE DESIGN PLANS.

9. AT A MINIMUM, ALL STRAW BALES, SILT FENCE AND FILTER FABRIC SHALL REMAIN IN PLACE UNTIL SEEDINGS OR PLANTINGS HAVE BECOME 85–90% ESTABLISHED. THE TOWN OF TOPSFIELD CONSERVATION COMMISSION MUST APPROVE THE REMOVAL OR RELOCATION OF ANY OF THE STRAW BALES AND FILTER FABRIC. ONCE THE STRAWBALES AND SILT FENCE IS REMOVED THE AREAS ARE TO BE LOAM AND SEEDED TO ACHIEVE FULL STABILIZATION.

10. AT THE OWNER'S DISCRETION ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED TO MAINTAIN STABILITY OF EARTHWORKS AND FINISHED GRADED AREAS. THE CONTRACTOR, AT HIS EXPENSE, WILL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY ADDITIONAL MEASURES AS SPECIFIED BY THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO REQUESTS BY MA DEP. THE ENGINEER AND THE MUNICIPALITY, AS AUTHORIZED BY THE OWNER. FAILURE TO COMPLY WITH THE OWNER'S DIRECTIONS WILL RESULT IN DISCONTINUATION OF CONSTRUCTION ACTIVITIES.

11. INSPECTIONS AND MONITORING MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. WEEKLY INSPECTIONS SHALL BE HELD THROUGH THE DURATION OF CONSTRUCTION ACTIVITY. WEEKLY INSPECTION REPORTS SHALL BE MAINTAINED BY THE CONTRACTOR AND LOCATED IN THE CONTRACTORS FIELD OFFICE ONSITE. IN ADDITION TO THE NORMAL WEEKLY INSPECTIONS, THE CONTRACTOR SHALL PERFORM AN INSPECTION OF ALL EROSION CONTROL MEASURES AFTER EACH RAINFALL OR RUNOFF EVENT, AND PERFORM THE NECESSARY REPAIRS. THE INSPECTIONS SHALL INCLUDE BUT NOT BE LIMITED TO THE SITE'S DOWN STREAM DISCHARGE POINTS.

12. IF ANY EVIDENCE OF SEDIMENTATION IS OBSERVED AT THE STORMWATER MANAGEMENT AREA INLETS, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROVIDE A PLAN TO THE ENGINEER TO REMOVE ANY ACCUMULATED SEDIMENT IN THESE AREAS. THE CONTRACTOR SHALL ALSO IMMEDIATELY PROVIDE ADDITIONAL ON SITE EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT FURTHER DEGRADATION OF THE AREA.

13. FOLLOWING THE TEMPORARY OR FINAL SEEDINGS, THE CONTRACTOR SHALL INSPECT THE WORK AREA SEMI–MONTHLY TO ENSURE THE AREAS HAVE A MINIMUM OF 85–90% VEGETATED VIGOROUS GROWTH. RE–SEEDING SHALL BE CARRIED OUT BY THE CONTRACTOR WITH FOLLOW UP INSPECTIONS IN THE EVENT OF ANY FAILURES UNTIL VEGETATION IS ADEQUATELY ESTABLISHED.

14. CONTRACTOR & ALL SITE SUBCONTRACTORS SHALL BE FAMILIAR WITH & FOLLOW ALL APPROVED PERMITS AND CONDITIONS. CONTRACTOR SHALL MAINTAIN A COPY OF ALL APPROVED PERMITS ONSITE, INCLUDING THE ORDER OF CONDITIONS FROM THE TOPSFIELD CONSERVATION COMMISSION. ALL CONDITIONS & RECOMMENDATIONS WITHIN THE APPROVED PERMITS SHALL BE COMPLETED.

15. ALL EROSION MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE. ANY MODIFICATIONS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER OR THE TOWN OF TOPSFIELD.

16. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL ALL SITE WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED.

17. TOP OF STOCKPILES SHALL BE COVERED IN SUCH MANNER THAT STORMWATER DOES NOT INFILTRATE THE MATERIALS AND THEREBY RENDER THE SAME UNSUITABLE FOR FILL USE.

EROSION & SEDIMENTATION CONTROL NOTES (CONTINUED):

18. ALL DISTURBED OR EXPOSED AREAS SUBJECT TO EROSION SHALL BE STABILIZED WITH MULCH OR SEEDED FOR TEMPORARY VEGETATIVE COVER. NO AREA, SUBJECT TO EROSION SHALL BE LEFT DISTURBED AND UNSTABILIZED FOR PERIODS LONGER THAN IS ABSOLUTELY NECESSARY TO CARRY OUT THAT PORTION OF THE CONSTRUCTION WORK OR SIX MONTHS AFTER SOIL HAS BEEN DISTURBED WHICHEVER IS LESS.

19. CULVERT/PIPE INLETS AND OUTFALLS SHALL BE PROTECTED BY STRAW BALE FILTERS AND STONE CHECK DAMS UNTIL DISTURBED AREAS ARE PERMANENTLY STABILIZED.

20. STRAW BALE DIKES SHALL BE CONSTRUCTED AT ALL EXISTING & PROPOSED CATCH BASINS. NO SEDIMENTATION SHALL ENTER THE ON–SITE OR OFF–SITE DRAINAGE SYSTEMS AT ANY TIME.

21. ALL EROSION CONTROL MEASURES SHALL BE ROUTINELY INSPECTED, CLEANED AND REPAIRED OR REPLACED AS NECESSARY THROUGHOUT ALL PHASES OF CONSTRUCTION. IN ADDITION, INSPECTION SHALL TAKE PLACE WEEKLY AND BEFORE AND AFTER EACH RAINFALL EVENT.

22. ALL PROPOSED SLOPES EQUAL TO OR GREATER THAN 3:1 SHALL BE STABILIZED WITH JUTE MESH AND PROTECTED FROM EROSION UNTIL WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED.

23. THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES ADDITIONAL STRAW BALES AND EXTRA SILTATION FENCING FOR INSTALLATION AT THE DIRECTION OF THE ENGINEER OR THE TOWN ENGINEER TO MITIGATE ANY EMERGENCY CONDITION.

24. AS CONSTRUCTION DISTURBANCE IS GREATER THAN 1 ACRE, A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUCTION GENERAL PERMIT NOI, AND STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WILL NEED TO BE SUBMITTED TO THE EPA. THE NPDES PERMIT FOR STORM WATER DISCHARGE, & CONSTRUCTION GENERAL PERMIT NOI WILL BE REQUIRED TO BE SUBMITTED AT LEAST 14 DAYS PRIOR TO COMMENCING CONSTRUCTION BY THE CONTRACTOR.

25. OWNER AND CONTRACTOR ARE RESPONSIBLE FOR COMPLIANCE WITH THE CONSTRUCTION GENERAL PERMIT NOI. WEEKLY SWPPP INSPECTION REPORTS TO BE PERFORMED BY CONTRACTOR. COPIES OF ALL SWPPP INSPECTION REPORTS SHALL BE PROVIDED TO THE TOWN OF TOPSFIELD, EPA, DEP, OR ANY OTHER AUTHORITY REQUESTING WITHIN 3 DAYS OF EACH INSPECTION.

26. APPLICABLE WORK AND MATERIALS SHALL COMPLY WITH ALL TOWN OF TOPSFIELD, MA DEP, EPA CONSTRUCTION GENERAL PERMIT STANDARDS. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE SITE PLAN REGULATIONS FROM THE TOWN OF TOPSFIELD AND USDA SOIL CONSERVATION SERVICE VEGETATIVE PRACTICES IN SITE DEVELOPMENT.

27. A WATERING TRUCK SHALL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AND AS REQUIRED.

28. IF DEWATERING IS NECESSARY IT SHALL ONLY BE COMPLETED AS FOLLOWS: THE DISCHARGE SHALL BE STOPPED IMMEDIATELY IF THE RECEIVING AREA SHOWS ANY SIGN OF INSTABILITY OR EROSION. ALL CHANNELS, SWALES, AND DITCHES DUG FOR DISCHARGING WATER FROM THE EXCAVATED AREA SHALL BE STABLE PRIOR TO DIRECTING DISCHARGE TO THEM. IF A CONSTRUCTION EQUIPMENT BUCKET IS USED, IT SHALL EMPTY THE MATERIAL TO A STABLE AREA. NO DEWATERING SHALL OCCUR DURING PERIODS OF INTENSE, HEAVY RAIN. FLOW TO THE SEDIMENT REMOVAL STRUCTURE SHALL NOT EXCEED THE STRUCTURES CAPACITY TO SETTLE AND FILTER FLOW OR IS VOLUME CAPACITY. WHENEVER POSSIBLE, THE DISCHARGE FROM THE SEDIMENT REMOVAL STRUCTURE SHALL DRAIN TO A WELL–VEGETATED BUFFER BY SHEET FLOW WHILE MAXIMIZING THE DISTANCE TO THE NEAREST WATER RESOURCE AND MINIMIZING THE SLOPE OF THE BUFFER AREA. THERE SHALL BE NO DIRECT DISCHARGE TO EXISTING WETLANDS OR STREAMS. ALL DISCHARGE SHALL BE IN COMPLIANCE WITH STATE, LOCAL, AND FEDERAL REQUIREMENTS.

29. INITIATE STABILIZATION IMMEDIATELY IF CONSTRUCTION WORK TEMPORARILY OR PERMANENTLY CEASES.

30. ALL DISCHARGES FROM POLLUTION SOURCES IS PROHIBITED ONSITE SUCH AS FUELS, WASTEWATER FROM WASH OUT OF CONCRETE, WASTEWATER FROM CLEAN OUT OF PAINTS, FORM RELEASE OILS, SOLVENTS, ADHESIVES, CURING COMPOUNDS, POLLUTANTS USED FOR MAINTENANCE OF VEHICLES AND EQUIPMENT, SOAPS & SOLVENTS, TOXIC OR HAZARDOUS SUBSTANCES, CHEMICALS AND OILS. IF A POLLUTANT IS DISCHARGED IT NEEDS TO BE IMMEDIATELY CLEANED UP BY REMOVING THE CHEMICAL AND AFFECTED SOIL OR AREA OF SPILL FROM THE SITE IN ACCORDANCE WITH BOTH THE MANUFACTURER RECOMMENDATIONS, FEDERAL, STATE, AND LOCAL REQUIREMENTS. DO NOT HOSE DOWN AND SPREAD SPILLED ITEM. ALL CHEMICALS USED ON THE SITE SHALL BE IN LEAK–PROOF CONTAINERS STORED AWAY FROM WETLANDS, SURFACE WATERS, STORMWATER INLETS, AND DRAINAGE MEASURES. SPILL KITS SHALL BE AVAILABLE ONSITE FOR EMERGENCY USE. THERE SHALL BE A SECONDARY CONTAINMENT MEASURE OF ALL CHEMICALS IN ADDITION TO SPILL–PROOF CONTAINERS.

31. PRIOR TO COMMENCEMENT OF CONSTRUCTION, APPLICABLE CONTRACTOR PERSONNEL MUST HAVE AN UNDERSTANDING OF THE EPA CONSTRUCTION GENERAL PERMIT REQUIREMENTS AND THEIR SPECIFIC RESPONSIBILITIES UNDER THE PERMIT. AT A MINIMUM, PERSONNEL MUST BE TRAINED AND UNDERSTAND THE FOLLOWING: LOCATION OF ALL STORMWATER CONTROLS AND HOW TO MAINTAIN THEM, PROCEDURES FOR COMPLYING WITH THE POLLUTION PREVENTION REQUIREMENTS. PROCEDURES FOR CONDUCTING INSPECTIONS, RECORDING FINDINGS, AND TAKING CORRECTIVE ACTION.

32. ALL SEDIMENT TRACKED ONTO ROADWAYS MUST BE REMOVED AT END OF EACH WORK DAY.

33. ALL USE OF CATIONIC TREATMENT CHEMICALS (EXAMPLES INCLUDE POLYMERS, CHITOSAN, CATIONIC PAM, FLOCCULANTS OR OTHER CHEMICAL UTILIZED FOR STABILIZATION) ARE PROHIBITED. IF ALL OTHER AVAILABLE STABILIZATION MEASURES ARE NOT POSSIBLE AND USE OF CATIONIC CHEMICALS IS ABSOLUTELY NECESSARY THE CONTRACTOR WILL NEED TO CONTACT THE EPA NEW ENGLAND OFFICE IN WRITING FOR APPROVAL AND SPECIFIC REQUIREMENTS (MAXIMUM DOSAGE RATE, RESIDUAL TESTING, SPECIFIC LIMITATIONS, ETC) PRIOR TO USE.

34. IF USING NON–VEGETATIVE STABILIZATION MEASURES, IT MUST BE COMPLETED NO LATER THAN 14 DAYS AFTER INITIATING STABILIZATION. ALL AREAS OF EXPOSED SOILS MUST BE COVERED.

35. INSPECTIONS OF EROSION CONTROL MEASURES SHALL BE AT LEAST ONCE EVERY 7 DAYS BY THE CONTRACTOR. AT A MINIMUM INSPECTIONS SHALL INCLUDE ALL DISTURBED AREAS, ALL STORMWATER CONTROLS AND POLLUTION PREVENTION MEASURES, ALL LOCATIONS WHERE STABILIZATION MEASURES HAVE BEEN IMPLEMENTED, EQUIPMENT AND MATERIAL STORAGE AREAS, ALL AREAS WHERE STORMWATER FLOWS AND ALL POINTS OF DISCHARGE. WHEN CORRECTIVE ACTIONS ARE REQUIRED, THE CONTRACTOR MUST IMMEDIATELY TAKE ALL STEPS TO PREVENT POLLUTANT DISCHARGES UNTIL A PERMANENT SOLUTION IS IMPLEMENTED. AS NECESSARY NEW OR MODIFIED CONTROLS MUST BE INSTALLED AND OPERATIONAL, THE REPAIR MUST BE COMPLETED WITHIN 7 DAYS FROM THE TIME OF DISCOVERY. WITHIN 24 HOURS OF A TRIGGERING CONDITION OCCURRING THAT REQUIRES A CORRECTIVE ACTION, A CORRECTIVE ACTION REPORT MUST BE COMPLETED.

MAINTENANCE:

ALL MEASURES STATED ON THE STORMWATER POLLUTION PREVENTION PLANS, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION BY CONTRACTOR UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A HEALTHY STAND OF GRASS IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. ALL SEDIMENT CONTROLS SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE TUBULAR SEDIMENT CONTROLS WHEN IT REACHES HALF THE HEIGHT OF THE CONTROL MEASURE OR AS REQUESTED BY THE OWNER OR ENGINEER.
4. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.
6. OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.

ABBREVIATIONS:

ABAN	ABANDON
ADA	AMERICANS WITH DISABILITIES ACTS
ADJ	ADJUST
B	BORING
BC	BOTTOM OF CURB
BIT	BITUMINOUS
BLDG	BUILDING
BM	BENCH MARK
BOS	BOTTOM OF SLOPE
BOW	BOTTOM OF WALL
BV&B	BUTTERFLY VALVE & BOX
BVW	BORDERING VEGETATED WETLAND
CATV	CABLE TELEVISION
CB	CATCH BASIN
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CI	CAST IRON (PIPE)
CL	CENTERLINE
CLDI	CEMENT LINED DUCTILE IRON (PIPE)
CLF	CHAIN LINK FENCE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTRACTOR
CRD	COORDINATE
CUL	CULVERT
CY	CUBIC YARD
DB	DISTRIBUTION BOX
DBL	DOUBLE
DEM	DEMOLISH
DET	DETENTION
DIA	DIAMETER
DI	DUCTILE IRON (PIPE)
DIM	DIMENSION
DMH	DRAIN MANHOLE
DW	DOMESTIC WATER (OR DRY WELL)
DWG	DRAWING
DYCL	DOUBLE YELLOW CENTERLINE
EHH	ELECTRIC HANDHOLE
EL	ELEVATION
ELEC	ELECTRIC
EMH	ELECTRIC MANHOLE
EOP	EDGE OF PAVEMENT
EOR	EDGE OF ROAD
EOW	EDGE OF WETLANDS
ETC	ELECTRIC, TELEPHONE, CABLE
EXIST	EXISTING
EXT	EXTERIOR
FCC	FLUSH CONCRETE CURB
FES	FLARED END SECTION
FFE	FINISH FLOOR ELEVATION
FPS	FEET PER SECOND
FS	FIRE SERVICE
FT	FOOT/FEET
GC	GENERAL CONTRACTOR
GEN	GENERAL
GG	GAS GATE
GR	GUIDE RAIL
GRAN	GRANITE
GV	GATE VALVE
GV&B	GATE VALVE & BOX
GW	GROUND WATER
H	HORIZONTAL
HOR	HORIZONTAL
HT	HEIGHT
HW	HEADWALL
HWY	HIGHWAY
HYD	HYDRANT
ID	INSIDE DIAMETER
IN	INCHES
INCL	INCLUDE
INST	INSTALLED
INV, I.E.	INVERT, INVERT ELEVATION
L	LENGTH
LP	LIGHT POLE
MAT	MATERIAL
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MTD	MOUNTED
MW	MONITORING WELL
N	NORTH
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OHW	OVERHEAD WIRE
OVHD	OVERHEAD
OW	OBSERVATION WELL
PC	POINT OF CURVATURE
PCC	PRECAST CONCRETE CURB
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
POC	POINT ON CURVATURE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROP, P	PROPOSED
PT	POINT (OR POINT OF TANGENT)
PVC	POLYVINYL CHLORIDE (PIPE)
R&R	REMOVE & RESET/REPLACE
R&S	REMOVE & STACK
RCP	REINFORCED CONCRETE PIPE
RD	ROAD (OR ROOF DRAIN)
RELOC	RELOCATE
REM	REMOVE
RET	RETAIN, RETAINING OR RETENTION
ROW	RIGHT OF WAY
RR	RAILROAD
RWY	ROADWAY
SD	SUBDRAIN
SF	SQUARE FEET
SGC	SLOPED GRANITE CURB
SMH	SEWER MANHOLE
SP	STANDPIPE
SPEC	SPECIFICATION
STA	STATION
STD	STANDARD
SWEL	SOLID WHITE EDGE LINE
SW	SIDEWALK
SWLL	SOLID WHITE LANE LINE
SYCL	SOLID YELLOW CENTERLINE
TB	TEST BORING
TC	TOP OF CURB
TD	TRENCH DRAIN
TEL, T	TELEPHONE
TMH	TELEPHONE MANHOLE
TOS	TOP OF SLOPE
TOW	TOP OF WALL
TP	TEST PIT
TYP	TYPICAL
UD	UNDERDRAIN
UP	UTILITY POLE
V	VERTICAL
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VGC	VERTICAL GRANITE CURB
WG	WATER GATE
WM	WATER MAIN
WMH	WATER MANHOLE
WSO	WATER SHUTOFF

CONSTRUCTION GENERAL PERMIT NOTES AND NARRATIVE:

NARRATIVE: THE STORMWATER POLLUTION PREVENTION PLANS CONSIST OF THE EROSION CONTROL PLANS TOGETHER WITH AN EXISTING CONDITIONS PLANS, GRADING PLANS, ABBREVIATIONS AND NOTES SHEETS, AND DETAIL SHEETS.

THE EROSION CONTROL PLAN WILL BE IMPLEMENTED TO:

A. TREAT EROSION AS SOON AS POSSIBLE AFTER DISTURBANCE.

B. PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION AREA AND ENTERING THE RECEIVING WATERS.

C. CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED TO MINIMIZE EROSION.

D. ONLY DISTURB, CLEAR, OR GRADE AREAS NECESSARY FOR CONSTRUCTION.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

N:\PROJECTS\2165–01A\CIVIL\DRAWINGS\CURRENT\C–2165–01A – ABBREVIATIONS & NOTES.DWG

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

10/13/16
COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No.43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	NONE	DWG. NAME:	C2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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DRAWING TITLE: ABBREVIATIONS & NOTES

SHEET No. ABB-2

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STORMWATER POLLUTION PREVENTION PLAN

2.1 GENERAL

FOR GRADING AND DRAINAGE SEE DRAWING SHEETS C-3A & C-3B.

2.1.1. THE FIRST STAGE INVOLVES ACTIVITIES NEEDED TO ADDRESS STORMWATER MANAGEMENT; EXCAVATING MATERIAL DESIGNATED FOR OFF-SITE REMOVAL OR ON-SITE RELOCATION; AND FENCING SELECTED AREAS. STAGE ONE WILL PREPARE SITE FOR CONVENTIONAL CONSTRUCTION.

2.1.2. THE SECOND STAGE WILL CONSIST OF ROUTINE CONSTRUCTION INVOLVING DEMOLITION, PAVING, LANDSCAPING AND UTILITIES.

2.1.3. THERE ARE GENERAL PHASES OF CONSTRUCTION AS IDENTIFIED BELOW. IN EACH PHASE OF CONSTRUCTION, IMPLEMENT STANDARD EROSION AND SEDIMENT CONTROL PRACTICES PRIOR TO INITIATING EARTH DISTURBING ACTIVITIES, AND MAINTAIN THESE PRACTICES THROUGHOUT THE COURSE OF CONSTRUCTION.

TYPICAL PRACTICES TO BE APPLIED TO THE SITE INCLUDE THE FOLLOWING:

PRIOR TO DEMOLITION AND EARTH DISTURBANCE IN ANY WORK AREA, INSTALL SILTATION BARRIERS (BALES OR SILT FENCE WITH BALES) BETWEEN THE WORK AREA AND THE AREA(S) TO WHICH IT DRAINS.

DISCHARGE WATER FROM DEWATERING OPERATIONS TO A TEMPORARY SILTATION TRAP OR SEDIMENTATION BASIN.

PROVIDE TEMPORARY BERMS AND SWALES TO DIVERT SURFACE WATER AWAY FROM THE AREAS THAT WILL BE EXPOSED BY CONSTRUCTION ACTIVITY TO MINIMIZE THE AMOUNT OF SURFACE WATER COMING INTO CONTACT WITH EXPOSED SOILS. PROVIDE STABLE OUTLETS FOR THESE DEVICES, AND LINE OR VEGETATE THESE DIVERSIONS TO PROVIDE FOR DEVICES, AND LINE OR VEGETATE THESE DIVERSIONS TO PROVIDE FOR THEIR STABILITY DURING CONSTRUCTION.

LIMIT THE EXTENT OF EXPOSED SOILS TO AREAS THAT CAN BE WORKED AND RESTABILIZED WITHIN THE CONSTRUCTION SEASON AND DURING THE SPECIFIC CONSTRUCTION PHASE. WHEN EARTHWORK CONSTRUCTION ACTIVITY IN AN AREA IS COMPLETE, STABILIZE THE AREA WITH A SUITABLE SURFACE AS DESCRIBED BELOW.

IN ADDITION TO THESE PRACTICES, FOLLOW THE SPECIAL PRACTICES DESCRIBED BELOW. COMPLY WITH THE DIRECTIONS OF THE OWNER'S REPRESENTATIVE TO ADDRESS EROSION AND SEDIMENTATION CONDITIONS THAT MAY ARISE ON A CASE BY CASE BASIS DURING CONSTRUCTION.

THE FOLLOWING IS A DESCRIPTION OF MINIMUM CONSTRUCTION REQUIREMENTS AND DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES WITH REGARD TO DETERMINING THE ADEQUACY OF MEANS AND METHODS OF CONSTRUCTION.

2.2 ESTIMATED CONSTRUCTION SEQUENCING.

THE FOLLOWING IS AN ESTIMATED CONSTRUCTION SEQUENCING. SOME ACTIVITIES MAY OCCUR AT THE SAME TIME RATHER THAN AT SEPARATE TIMES OR OUT OF SEQUENCE DUE TO ACTUAL FIELD CONDITIONS OR OTHER FACTORS. ACTUAL SCHEDULING WILL BE COMPLETED BY THE SITE CONTRACTOR.
(CONTRACTOR TO FOLLOW ANY ADDITIONAL PERMIT REQUIREMENTS OR STEPS AT NO ADDITIONAL COST TO THE OWNERS FROM EITHER STATE OR LOCAL PERMITS, THIS INCLUDES BUT IS NOT LIMITED TO THE ORDER OF CONDITIONS FROM THE TOPSFIELD CONSERVATION COMMISSION)

- INSTALL ALL EROSION CONTROL MEASURES INCLUDING BUT NOT LIMITED TO TEMPORARY STRAW BALE FILTERS, SILT SACKS, CONSTRUCTION ENTRANCES, AND STRAWBALES AND SILT FENCE.
- SETUP STAGING AND MATERIAL STORAGE / STOCKPILE AREAS.
- IF REQUIRED, CONSTRUCT TEMPORARY SILT / DEWATERING BASINS.
- PROTECT AND MARK ALL EXISTING ITEMS NOTED TO REMAIN.
- PERFORM DEMOLITION WORK. SURVEY AND IDENTIFY LIMITS OF SITE CLEARING. CONDUCT SITE CLEARING.
- PULVERIZE EXISTING PAVEMENT TO BE REMOVED AND DEMO EXISTING BUILDING SECTIONS AND MATERIALS AS NOTED.
- REMOVE EXISTING LOAM AND SUBSOIL AND STOCKPILE FOR REUSE.
- PERFORM ROUGH GRADING.
- INSTALL UNDERGROUND UTILITIES.
- PERFORM FINE GRADING; PLACE BINDER PAVEMENT COURSE.
- PLACE PAVEMENT TOP COURSE; CONSTRUCT SIDEWALKS AND ALL OTHER SITE IMPROVEMENTS.
- ERADICATE EXISTING PAVEMENT MARKINGS ON REMAINING PAVEMENT.
- INSTALL NEW PAVEMENT MARKINGS, SITE SIGNAGE & COMPLETE LANDSCAPING.
- REMOVE TEMPORARY SILT CONTROLS AFTER ONCE GIVEN APPROVAL BY TOPSFIELD CONSERVATION COMMISSION AND SITE IS STABILIZED.

OPERATION AND MAINTENANCE CONSTRUCTION ACTIVITIES:

1. CONTACT THE TOPSFIELD CONSERVATION COMMISSION AGENT AT LEAST THREE (3) DAYS PRIOR TO START OF CONSTRUCTION.
2. INSTALL STRAWBALES AND SILT FENCE AS SHOWN ON THE EROSION CONTROL PLAN. INSTALL CONSTRUCTION FENCING IF DETERMINED TO BE NECESSARY AT THE COMMENCEMENT OF CONSTRUCTION.
3. INSTALL THE CONSTRUCTION ENTRANCES AT THE LOCATIONS SHOWN ON THE EROSION AND CONTROL PLAN.
4. SITE ACCESS SHALL BE ACHIEVED ONLY FROM THE DESIGNATED CONSTRUCTION ENTRANCES.
5. STOCKPILES SHALL BE STABILIZED WITH EROSION CONTROL MATTING OR TEMPORARY SEEDING WHENEVER PRACTICABLE, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
6. INSTALL SILT SACKS AND STRAWBALES AROUND EACH DRAIN INLET AS SOON AS PRACTICABLE.
7. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL EVENT.
8. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED, REPAIRED OR REPLACED AS REQUIRED OR AT THE DIRECTION OF THE OWNER'S ENGINEER, THE TOWN ENGINEER, OR THE TOWN CONSERVATION AGENT.
9. SEDIMENT ACCUMULATION UP-GRADIENT OF THE STRAWBALES AND SILT FENCE GREATER THAN 6" IN DEPTH SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
10. IF IT APPEARS THAT SEDIMENT IS EXITING THE SITE, SILT SACKS SHALL BE INSTALLED IN ALL CATCH BASINS ADJACENT TO THE SITE. SEDIMENT ACCUMULATION ON ALL ADJACENT CATCH BASIN INLETS SHALL BE REMOVED AND THE SILT SACK REPLACED IF TORN OR DAMAGED.
11. INSTALL STONE OR DIVERSION SWALE STRAW BALE CHECK DAMS ON SITE AS REQUIRED DURING CONSTRUCTION. REFER TO THE EROSION CONTROL DRAWING, DETAIL SHEETS D-1 THRU D-8.
12. THE CONTRACTOR SHALL COMPLY WITH THE GENERAL AND EROSION NOTES AS SHOWN ON THE SITE DEVELOPMENT PLANS AND SPECIFICATIONS.
13. THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSPECTED WEEKLY. THE ENTRANCES SHALL BE MAINTAINED BY ADDING ADDITIONAL CLEAN, ANGULAR, DURABLE STONE TO REMOVE THE SOIL FROM THE CONSTRUCTION VEHICLE TIRES WHEN EXITING THE SITE. IF SOIL IS STILL LEAVING THE SITE VIA THE CONSTRUCTION VEHICLE TIRES, ADJACENT ROADWAYS SHALL BE KEPT CLEAN BY STREET SWEEPING.
14. DUST POLLUTION SHALL BE CONTROLLED USING ON-SITE WATER TRUCKS AND OR AN APPROVED SOIL STABILIZATION PRODUCT.
15. CARE SHOULD BE TAKEN TO PREVENT DISCHARGE OF SEDIMENT TO ABUTTERS.

2.3 MAINTENANCE

2.3.1 DURING THE PERIOD OF CONSTRUCTION AND/OR UNTIL LONG TERM VEGETATION IS ESTABLISHED: SEEDED AREAS WILL BE FERTILIZED AND RESEEDED AS NECESSARY TO INSURE VEGETATION ESTABLISHMENT.

2.3.2 TEMPORARY SEDIMENTATION BASINS WILL BE CHECKED AFTER EACH SIGNIFICANT RAINFALL AND NO LESS THAN WEEKLY, AND CLEANED AS NEEDED TO RETAIN STORAGE CAPACITY.

2.3.3 TEMPORARY DRAINAGE SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY.

2.3.4 THE HAYBALE AND SILTATION FENCING BARRIERS AND OTHER EROSION AND SEDIMENT CONTROL MEASURES/DEVICES SHALL BE INSPECTED, CLEANED, REPLACED AND/OR REPAIRED AS NECESSARY, AND NO LESS THAN WEEKLY, AND AFTER EACH SIGNIFICANT RAINFALL. ACCUMULATED SEDIMENTS SHALL BE REMOVED WHEN THEY REACH HALF THE HEIGHT OF THE BARRIER.

2.4. GENERAL

2.4.1. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH (USDA) NATURAL RESOURCES CONSERVATION SERVICE (NRCS, FORMERLY SCS) GUIDELINES AND ALL LOCAL MUNICIPAL REGULATIONS.

2.4.2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCH MARKS NECESSARY FOR THE WORK.

2.4.3. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY SITEWORK OR EARTHWORK OPERATIONS, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL ALL SITEWORK IS COMPLETE AND GROUNDCOVER IS ESTABLISHED.

2.4.4. ALL WORK SHALL BE IN ACCORDANCE WITH THE PERMITS AND APPROVALS ISSUED BY THE LOCAL PLANNING BOARD, THEIR AGENTS, AND THE CONSTRUCTION SPECIFICATIONS.

2.4.5. STOCKPILES SHALL BE SURROUNDED ON THEIR PERIMETERS WITH STAKED BALES AND/OR SILTATION FENCES TO PREVENT AND/OR CONTROL SILTATION AND EROSION.

2.4.6. TOPS OF STOCKPILES SHALL BE COVERED IN SUCH A MANNER THAT STORMWATER DOES NOT INFILTRATE THE MATERIALS AND THEREBY RENDER THE SAME UNSUITABLE FOR FILL USE.

IF APPLICABLE, EFFORTS SHALL BE MADE TO AVOID STOCKPILING CUT GLACIAL TILL SOILS SINCE STOCKPILING INCREASES EXPOSURE TO PRECIPITATION AND PROVIDES GREATER OPPORTUNITY FOR FROST PENETRATION. SOME OF THE STEPS IN SEQUENCING MAY OCCUR SIMULTANEOUSLY, PARTICULARLY CUT AND FILL OPERATIONS, IN AN EFFORT TO AVOID STOCKPILING.

2.4.7. ALL DISTURBED OR EXPOSED AREAS SUBJECT TO EROSION SHALL BE STABILIZED WITH MULCH OR SEEDED FOR TEMPORARY VEGETATIVE COVER. NO AREA, SUBJECT TO EROSION SHALL BE LEFT DISTURBED AND UNSTABILIZED FOR PERIODS LONGER THAN IS ABSOLUTELY NECESSARY TO CARRY OUT THAT PORTION OF THE CONSTRUCTION WORK.

2.4.8. THE LOCATION OF TEMPORARY DRAINAGE SWALES AND SEDIMENTATION TRAPS ARE APPROXIMATE ONLY AND SHALL BE RELOCATED AS REQUIRED AS CONSTRUCTION PROGRESSES.

2.4.9. BALE DIKES SHALL BE CONSTRUCTED AT ALL EXISTING & PROPOSED CATCH BASINS LOCATED IN AREAS SUBJECT TO STORMWATER RUN-OFF FROM PROPOSED CONSTRUCTION, OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE. NO SEDIMENTS SHALL ENTER THE OFF-SITE DRAINAGE SYSTEMS AT ANY TIME. SEDIMENT DISCHARGE TO OFF-SITE PROPERTY IS PROHIBITED.

2.4.10. CULVERT/PIPE INLETS AND OUTFALLS SHALL BE PROTECTED FROM INCOMING SILT UNTIL ALL DISTURBED AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED.

2.4.11. ANY DEWATERING REQUIRED DURING CONSTRUCTING ON THE SITE SHALL DISCHARGE INTO A DEWATERING FILTER OR THE TEMPORARY SILT BASIN PRIOR TO DISCHARGE TO THE EXISTING DETENTION BASIN OR TO OFF-SITE .

2.4.12. BALES AND SILTATION FENCING AND TEMPORARY SILT BASIN SHALL BE INSPECTED NO LESS THAN WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL AND REPLACED AS REQUIRED.

2.4.13. ALL PROPOSED NON-RIPRAP SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH EROSION CONTROL FABRIC AND PROTECTED FROM EROSION.

2.4.14. THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES ADDITIONAL BALES AND EXTRA SILTATION FENCING FOR INSTALLATION AT THE DIRECTION OF THE OWNER'S REPRESENTATIVE OR THE MUNICIPAL AGENTS TO MITIGATE ANY EMERGENCY CONDITION.

2.4.15. BORINGS WERE TAKEN FOR THE PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY. THEY DO NOT NECESSARILY SHOW THE NATURE OF ALL MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.

2.4.16. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ANY PERMITS AND/OR CONNECTION FEES REQUIRED TO CARRY OUT THE WORK INCLUDING BUT NOT LIMITED TO DEMOLITION.

2.4.17. DISPOSAL OF ALL DEMOLISHED MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL MUNICIPAL REQUIREMENTS.

2.4.18. THE CONTRACTOR SHALL PROTECT AND/OR CAP OFF ALL EXISTING ON- SITE UTILITY SERVICES DESIGNATED ON THESE DRAWINGS. SERVICES SHALL BE CAPPED OFF WHERE SAME ENTER THE PERIMETER PROPERTY LINE.

2.4.19. THE LIMIT OF WORK LINE FOR THE AREA TO BE CLEARED AND GRUBBED SHALL BE THE SAME AS THE LIMIT OF WORK LINE NECESSARY FOR GRADING PURPOSES, (I.E., THE GRADING LIMITS AROUND THE PERIMETER OF THE PROJECT AREA).

2.4.20. THE AREA OR AREAS OF ENTRANCE AND EXIT TO AND FROM THE SITE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.

2.4.21. FOLLOWING THE ADDITION OF A BINDER COURSE, THE CONTRACTOR SHALL SWEEP ALL ON-SITE PAVEMENT, IF NECESSARY, UNTIL ALL SITE CONSTRUCTION IS COMPLETED.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - ABBREVIATIONS & NOTES.DWG

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No.45119
REGISTERED PROFESSIONAL ENGINEER
10/13/16

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	NONE	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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DRAWING TITLE:
ABBREVIATIONS & NOTES

SHEET No.
ABB-3

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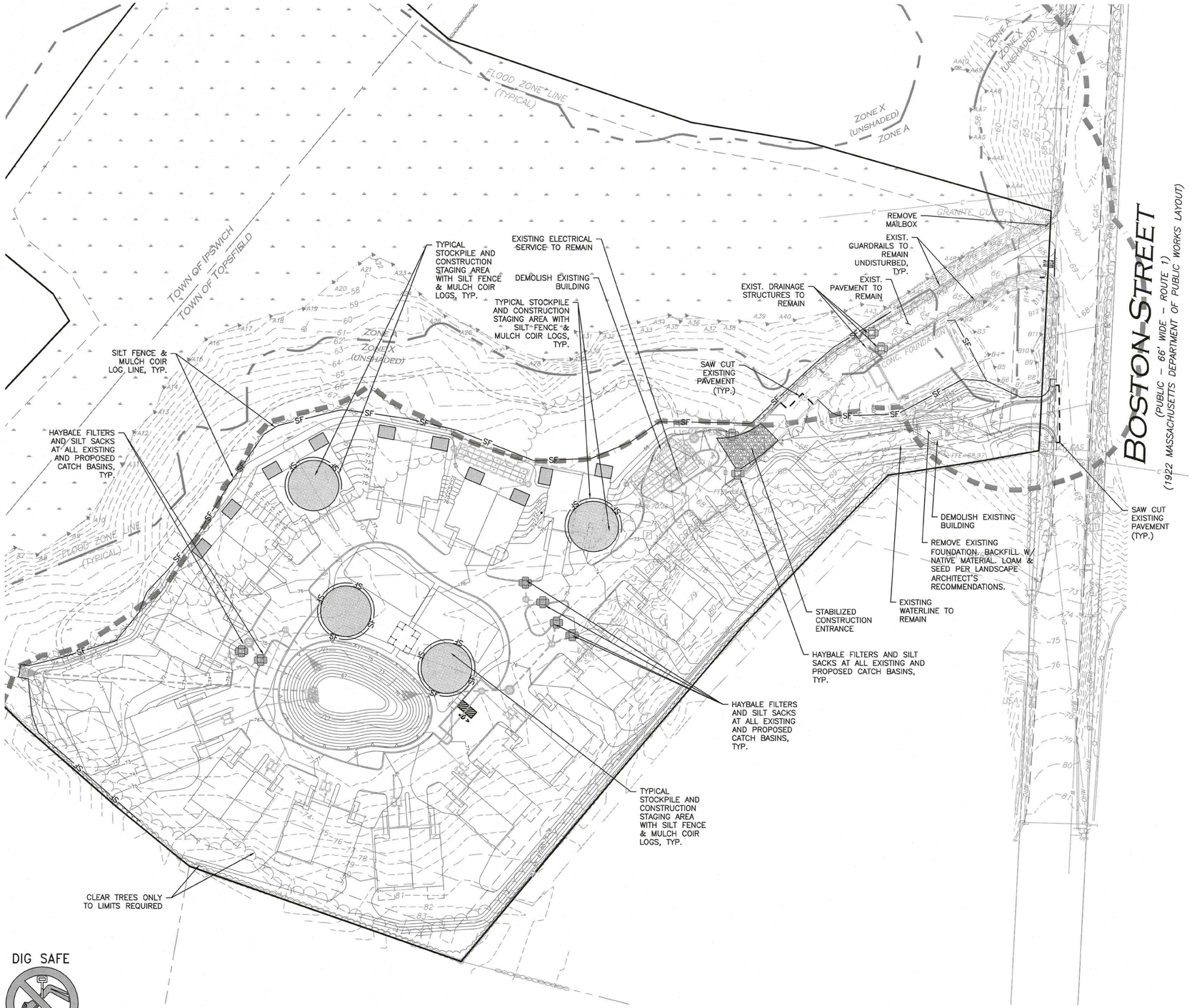

LEGEND:

- SILT FENCE & MULCH COIR LOG —SF—
- HAYBALE FILTER W/ SILT SACK
- STABILIZED CONST. ENTRANCE
- PROPOSED GRADING —125—
- STOCKPILE/CONSTRUCTION STAGING AREA
- SAW CUT ———

NOTES:

1. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. IT'S 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.
2. THIS PLAN WAS PREPARED USING AVAILABLE SITE INFORMATION FROM SEVERAL SOURCES, SOME OF WHICH IS UNCONFIRMED. AS THE SITE PLAN IS FURTHER REFINED, THERE MAY BE CHANGES BASED ON ADDITIONAL INFORMATION.
3. 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.
4. ALL ELEVATIONS REFER TO NAVD 88.
5. ALTHOUGH CERTAIN ITEMS HAVE BEEN NOTED ON THIS DRAWING FOR DEMOLITION, NO ATTEMPT HAS BEEN MADE TO DELINEATE EACH AND EVERY ITEM THAT REQUIRES DEMOLITION FOR THE COMPLETION OF THE PROJECT. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL NECESSARY DEMOLITION WORK TO COMPLETE THE PROJECT. ALLEN & MAJOR ASSOCIATES, INC. IS NOT RESPONSIBLE FOR SITE DEMOLITION ITEMS NOT SHOWN ON THE SURVEY, OR SPECIFICALLY NOTED. THE DEMOLITION NOTES AND ARROWS ON THIS PLAN ARE TYPICAL AND DO NOT REFLECT QUANTITY.
6. PORTIONS OF THE SITE ARE LOCATED WITHIN FEMA FLOODPLAIN ZONE A – AREAS SUBJECT TO INUNDATION BY THE 1-PERCENT-ANNUAL-CHANCE FLOOD EVENT AS SHOWN ON FEMA MAP 25009C0266F, EFFECTIVE DATE JULY 3, 2012.
7. THE CONTRACTOR SHALL CONTACT "DIGSAFE" AND THE TOWN OF TOPSFIELD DEPARTMENT OF PUBLIC WORKS AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST THE LOCATION OF THE EXISTING UTILITIES.

   DIGSAFE: 1-800-344-7233
   TOPSFIELD DEPT. OF PUBLIC WORKS:
   978-887-1517 (WATER DEPT.)
   978-887-1542 (HIGHWAY DEPT.
8. SEE THE ABBREVIATIONS AND NOTES PLAN, SHEETS ABB-1, ABB-2, & ABB-3 FOR GENERAL NOTES, AND EROSION CONTROL NOTES.
9. TYPICALLY, THE LIMIT OF WORK COINCIDES WITH COIR LOG AND SILT FENCE LINE UNLESS INDICATED OTHERWISE. IN THE INSTANCE A STABILIZED CONSTRUCTION ENTRANCE, CURB REMOVAL OR SILT SACK IS LOCATED BEYOND THE STRAW BALE AND SILT FENCE LINE IN WHICH CASE THAT IS THE LIMIT OF WORK LINE.
10. FOR OPERATIONS AND MAINTENANCE (O&M) INFORMATION BOTH DURING CONSTRUCTION AND POST CONSTRUCTION SEE SECTION 2 (O&M PLAN) IN THE REPORT ENTITLED "SITE DEVELOPMENT DRAINAGE REPORT" PREPARED BY A&M.
11. PRIOR TO AND DURING CONSTRUCTION, CONTRACTOR RESPONSIBLE FOR FOLLOWING THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). SEE SWPPP FOR ADDITIONAL SITE RESPONSIBILITIES.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

DIG SAFE

BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - EROSION CONTROL PLAN.DWG

10/13/16

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
No.43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
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PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	1"=50'	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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DRAWING TITLE:
DEMOLITION & EROSION CONTROL PLAN

SHEET No.
C-1

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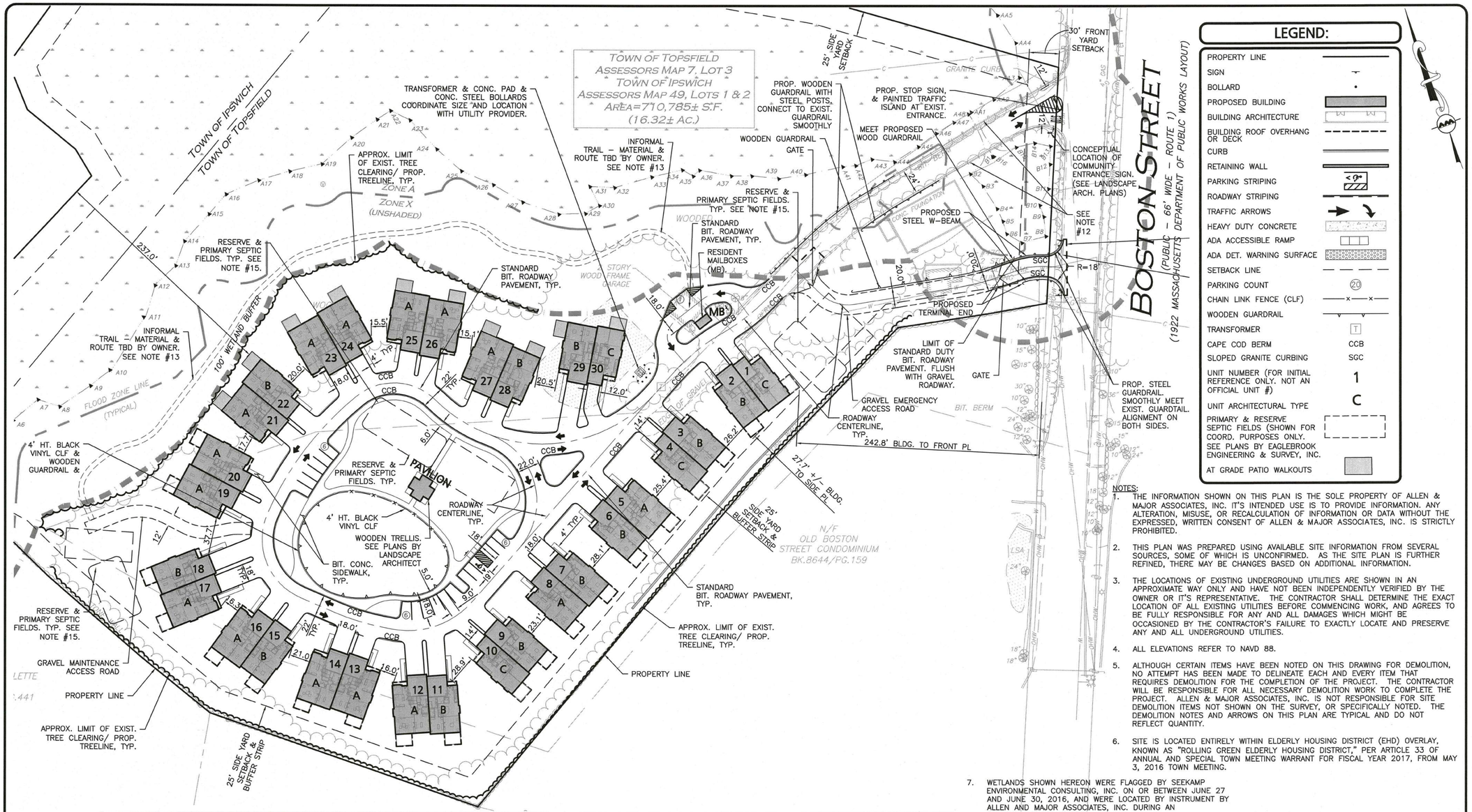

LEGEND:

- PROPERTY LINE
- SIGN
- BOLLARD
- PROPOSED BUILDING
- BUILDING ARCHITECTURE
- BUILDING ROOF OVERHANG OR DECK
- CURB
- RETAINING WALL
- PARKING STRIPING
- ROADWAY STRIPING
- TRAFFIC ARROWS
- HEAVY DUTY CONCRETE
- ADA ACCESSIBLE RAMP
- ADA DET. WARNING SURFACE
- SETBACK LINE
- PARKING COUNT (20)
- CHAIN LINK FENCE (CLF)
- WOODEN GUARDRAIL
- TRANSFORMER (T)
- CAPE COD BERM (CCB)
- SLOPED GRANITE CURBING (SGC)
- UNIT NUMBER (FOR INITIAL REFERENCE ONLY. NOT AN OFFICIAL UNIT #) (1)
- UNIT ARCHITECTURAL TYPE (C)
- PRIMARY & RESERVE SEPTIC FIELDS (SHOWN FOR COORD. PURPOSES ONLY. SEE PLANS BY EAGLEBROOK ENGINEERING & SURVEY, INC.
- AT GRADE PATIO WALKOUTS

NOTES:

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3. 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.
4. ALL ELEVATIONS REFER TO NAVD 88.
5. ALTHOUGH CERTAIN ITEMS HAVE BEEN NOTED ON THIS DRAWING FOR DEMOLITION, NO ATTEMPT HAS BEEN MADE TO DELINEATE EACH AND EVERY ITEM THAT REQUIRES DEMOLITION FOR THE COMPLETION OF THE PROJECT. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL NECESSARY DEMOLITION WORK TO COMPLETE THE PROJECT. ALLEN & MAJOR ASSOCIATES, INC. IS NOT RESPONSIBLE FOR SITE DEMOLITION ITEMS NOT SHOWN ON THE SURVEY, OR SPECIFICALLY NOTED. THE DEMOLITION NOTES AND ARROWS ON THIS PLAN ARE TYPICAL AND DO NOT REFLECT QUANTITY.
6. SITE IS LOCATED ENTIRELY WITHIN ELDERLY HOUSING DISTRICT (EHD) OVERLAY, KNOWN AS "ROLLING GREEN ELDERLY HOUSING DISTRICT," PER ARTICLE 33 OF ANNUAL AND SPECIAL TOWN MEETING WARRANT FOR FISCAL YEAR 2017, FROM MAY 3, 2016 TOWN MEETING.
7. WETLANDS SHOWN HEREON WERE FLAGGED BY SEEKAMP ENVIRONMENTAL CONSULTING, INC. ON OR BETWEEN JUNE 27 AND JUNE 30, 2016, AND WERE LOCATED BY INSTRUMENT BY ALLEN AND MAJOR ASSOCIATES, INC. DURING AN ON-THE-GROUND SURVEY.
8. ALL CURB RADII ARE TO BE 3 FEET UNLESS OTHERWISE SPECIFIED.
9. A PORTION OF THE SITE IS LOCATED WITHIN FEMA FLOODPLAIN ZONE A – AREAS SUBJECT TO INUNDATION BY THE 1-PERCENT-ANNUAL-CHANCE FLOOD EVENT AS SHOWN ON FEMA MAP 25009C0266F, EFFECTIVE DATE JULY 3, 2012. AS IT IS A ZONE A, NO BASE FLOOD ELEVATION IS DETERMINED. LOCATION OF ZONE A IS SHOWN ON THE A&M EXISTING CONDITIONS PLAN.
10. BUILDING FOOTPRINTS FROM CAD FILES PROVIDED TO A&M ON 8/3/16 BY THE ARCHITECT "THE MZO GROUP".
11. SEE ARCHITECT'S PLANS FOR ALL BUILDING INFORMATION. (DOORS, GUTTERS, LOCATIONS OF UTILITY CONNECTIONS TO BUILDING, DRAINAGE DOWNSPOUTS, STEPS, FOUNDATIONS, ETC.)
12. REMOVE & REPLACE STEEL GUARDRAIL FACE WITH WOODEN GUARDRAIL FACE. EXIST. STEEL POSTS TO REMAIN. (ON SUBJECT PARCEL ONLY; EXIST. STEEL GUARDRAIL IN ROUTE 1 ROW TO REMAIN UNDISTURBED).
13. PER APPLICANT, INFORMAL TRAIL IN WOODS TO AVOID TREE REMOVAL. PATH LAYOUT, MATERIALS, GRADES, & LOCATION TO BE DETERMINED BY APPLICANT. PATH LOCATION SHOWN ON PLANS IS CONCEPTUAL ONLY.
14. PER TOWN OF TOPSFIELD & APPLICANT THE PROPERTY IN TOPSFIELD SUBJECT TO THE SPECIAL PERMIT SHALL NOT BE FURTHER SUBDIVIDED.
15. SEE EAGLEBROOK ENGINEERING & SURVEY, INC. , PLANS FOR SUBSURFACE SEWER DISPOSAL SYSTEM DESIGN.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - LAYOUT & MATERIALS PLAN.DWG

470 BOSTON STREET
LAND USAGE TABLE - ELDERLY HOUSING DISTRICT (EHD)

ITEM	REQUIRED/ALLOWED	EXISTING	PROPOSED
LOT SIZE	435,600 S.F. 10.0 ACRES MIN.	TOTAL= 710,785± S.F. 16.32± ACRES	TOTAL = 710,785± S.F. 16.32± ACRES TOPSFIELD= 576,508± S.F. 13.24± ACRES
LOT WIDTH (MIN.)	125 FEET	198.9± FEET	198.9± FEET
STREET FRONTAGE	50 FEET	236.39± FEET	236.39± FEET
FRONT YARD SETBACK	30 FEET	85.3± FEET	242.8± FEET
SIDE YARD SETBACK	25 FEET	22.5± FEET	27.7± FEET
REAR YARD SETBACK	25 FEET	524.2± FEET	237.0± FEET
BUILDING HEIGHT (MAX.)	35 FEET	<35 FEET	<35 FEET
BUILDING STORIES	2-½ STORIES	<2-½ STORIES	2-½ STORIES
BUILDING COVERAGE (MAX.)	30%	0.26%	10.0%±
ABUTTING LOT BUFFER ZONE	25' MIN.	0'	25.0±'
UNITS PER BUILDABLE ACRE* (MAX.)	5 UNITS/ACRE	0.2 UNITS/ACRE	3.2 UNITS/ACRE ±*

*9.45+/- BUILDABLE ACRES (UPLAND) CALCULATED (MAX. 47 UNITS)

OFF-STREET PARKING SUMMARY

REQUIRED PARKING FOR ELDERLY HOUSING DEVELOPMENT:
NOT LESS THAN SIX (6) NOR MORE THAN EIGHT (8) PARKING SPACES FOR EACH THREE (3) ELDERLY DWELLING UNITS CONTAINED IN THE DEVELOPMENT. (*SEE NOTES)

30 UNITS / 3 = 10

10*6 = 60 (MINIMUM)

10*8 = 80 (MAXIMUM)

PROPOSED 2 GARAGE SPACES PER UNIT FOR A & B UNITS, 1 SPACE FOR C UNITS
TOTAL 30 UNITS, (15) A UNITS, (11) B UNITS, (4) C UNITS

THEREFORE, 56 PROPOSED PARKING SPACES AT UNITS

PROVIDED PARKING:
COMMON PUBLIC SURFACE PARKING SPACES
= (18) 9' X 18' & (1) PARALLEL 9' X 20' = 19 TOTAL COMMON SURFACE SPACES
GARAGE PARKING SPACES = 56
TOTAL PROPOSED PARKING SPACES = 19+56=75

EXISTING PARKING	PROPOSED PARKING	
	TOTAL PROVIDED	TOTAL REQUIRED
2	75	60 (MIN) – 80 (MAX)

PARKING NOTES:
*PARKING SPACES WITHIN A GARAGE SHALL BE COUNTED TOWARD THE REQUIRED NUMBER OF PARKING SPACES

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

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10/13/16

TIMOTHY J. WILLIAMS CIVIL No.43119 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	1"=50'	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
10 MAIN STREET
LAKEVILLE, MA 02347-1674
TEL: (508) 923-1010
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DRAWING TITLE: LAYOUT & MATERIALS PLAN

SHEET No. C-2

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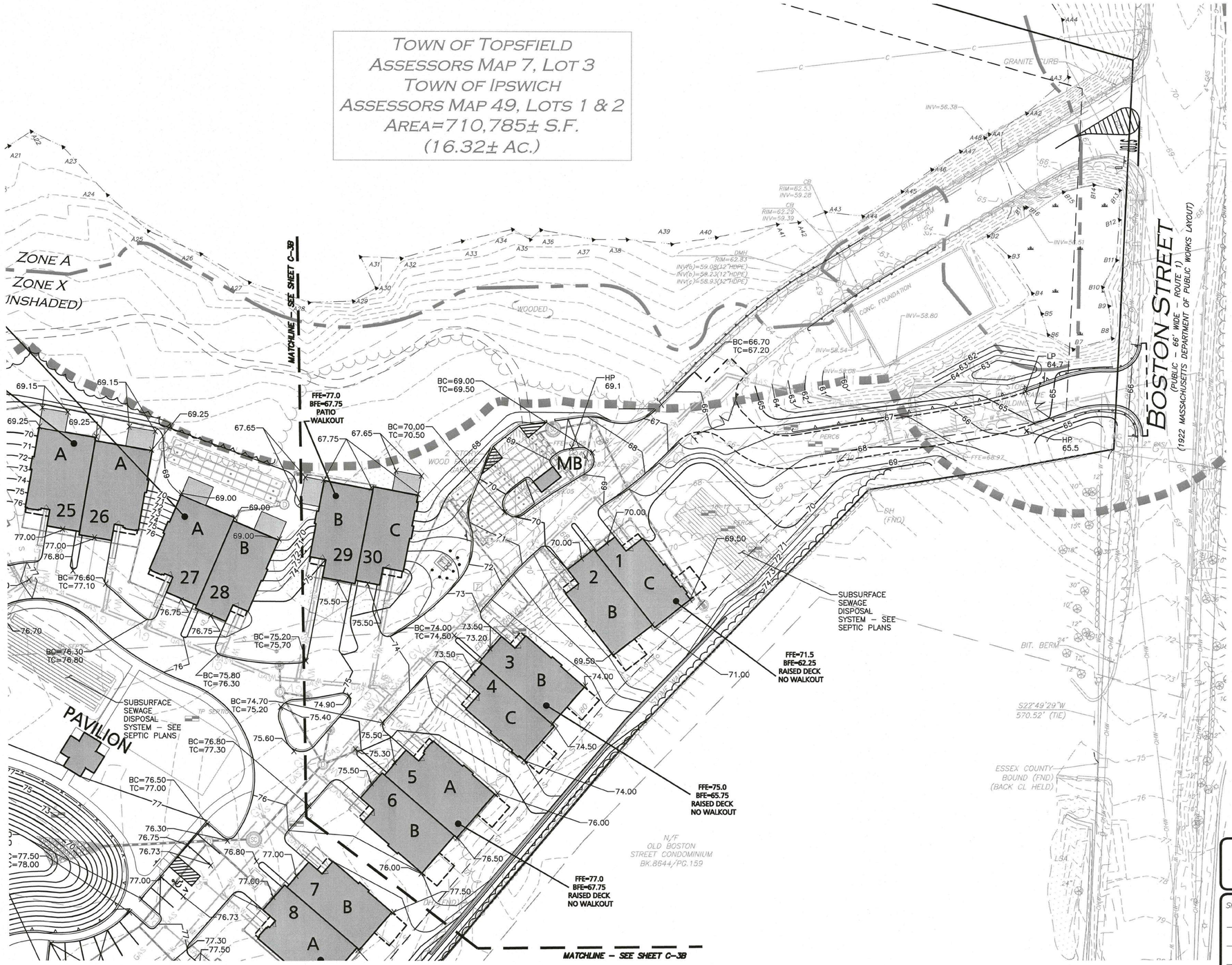
TOWN OF TOPSFIELD
ASSESSORS MAP 7, LOT 3
TOWN OF IPSWICH
ASSESSORS MAP 49, LOTS 1 & 2
AREA=710,785± S.F.
(16.32± AC.)



LEGEND:

10' CONTOUR	70
2' CONTOUR	72
SPOT GRADE	× 68.50
TOP OF BERM	
DETENTION BASIN	
SAW-CUT LINE	

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TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

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10/13/16

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No.45119
REGISTERED
PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	1"=30'	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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civil & structural engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
10 MAIN STREET
LAKEVILLE, MA 02347-1674
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DRAWING TITLE:
GRADING AND SPOT GRADES PLAN

SHEET No.
C-3A

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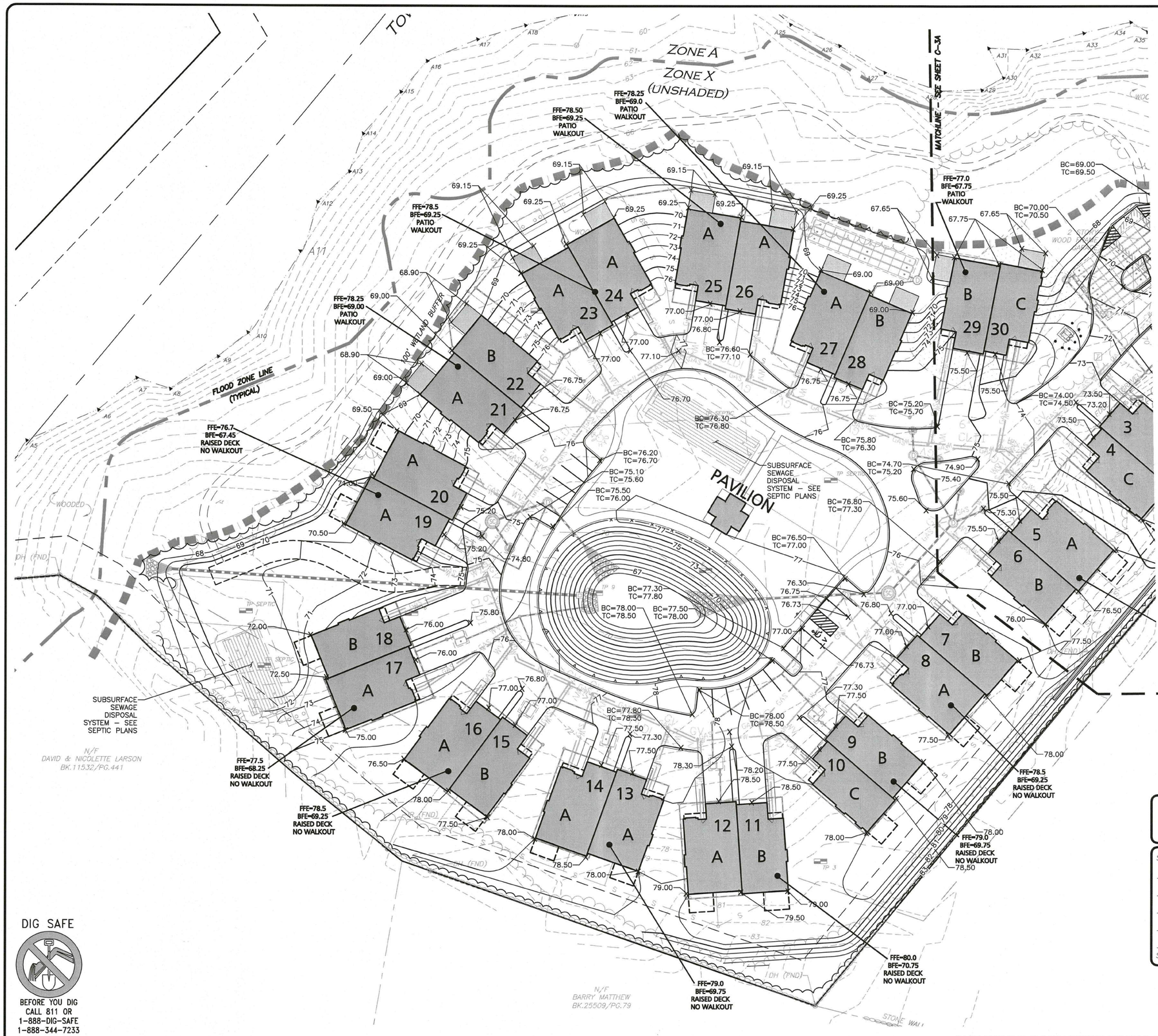

LEGEND:

10' CONTOUR	70
2' CONTOUR	72
SPOT GRADE	× 68.50
TOP OF BERM	
DETENTION BASIN	
SAW-CUT LINE	

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TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

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10/15/16

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED
PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:

RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	1"=30'	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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DRAWING TITLE:

GRADING AND SPOT GRADES PLAN

SHEET No.

C-3B

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TOWN OF TOPSFIELD
ASSESSORS MAP 7, LOT 3
TOWN OF IPSWICH
ASSESSORS MAP 49, LOTS 1 & 2
AREA=710,785± S.F.
(16.32± AC.)

UNDERGROUND INFILTRATION SYSTEM #1
(72) CULTEC R-330XLHD CHAMBERS
2,671 S.F. FOOTPRINT
MIN. FINISH GRADE=68.50
TOP OF STONE=66.04
TOP OF CHAMBER=65.04
INVERTS=63.65(IN)
BOTTOM OF CHAMBER=62.50
BOTTOM OF STONE=61.50
SHGWE=59.50

WQU-1
STORMCEPTOR STC-450i
WITH CATCH BASIN GRATE
R=68.40
I=64.05(DMH-1)
I=63.80(UIS-1)

ZONE A
ZONE X
(UNSHADED)

MATCHLINE SEE SHEET C-3B
MATCHLINE SEE SHEET C-3A

DMH-5
RIM=75.30
I=72.33(CB3)
I=72.23(CB4)
I=72.13(DMH4)

DMH-2
RIM=70.00
I=64.00(CO-7)
I=64.00(CO-9)
I=63.70(UIS-1)

FFE=77.0
BFE=67.75
PATIO
WALKOUT

CO-8
R=75.00
I=67.46(IN/OUT)

12" HDPE
L=7.5'
S=2.0%

INV=
63.65(IN)

6" PVC
INSPECTION
PORT (TYP.)

12" HDPE
L=19'
S=1.0%

DMH-1
R=68.00
I=64.34(CB-1)
I=64.34(CB-2)
I=64.24(WQU-1)

10" HDPE
L=32'
S=1.0%

10" HDPE
L=40'
S=0.7%

CB-1
R=69.10
I=64.66(DMH-1)

CB-2
R=68.50
I=64.72(DCB-9)
I=64.62(DMH-1)

10" HDPE
L=77'
S=3.1%

10" HDPE
L=82'
S=0.5%

SEPTIC SYSTEM SOIL
ABSORPTION FIELD -
SEE SEPTIC PLANS

CO-1
R=69.50
I=67.57(IN/OUT)

DCB-9
R=70.70
I=65.13(CB-2)

6" HDPE
L=96'
S=1.0%

SEGMENTAL RETAINING WALL
TW=74.0
BW=73.0

FFE=71.5
BFE=62.25
RAISED DECK
NO WALKOUT

8" HDPE
L=57'
S=1.0%

8" HDPE
L=14'
S=4.3%

6" HDPE
L=58'
S=5.0%

6" HDPE
L=56'
S=1.0%

CB-3
RIM=75.30
I=72.45(DMH5)

6" HDPE
L=96'
S=1.0%

10" HDPE
L=17'
S=3.0%

CO-9
R=75.00
I=65.90(IN/OUT)

10" HDPE
L=12'
S=1.0%

SEPTIC SYSTEM SOIL
ABSORPTION FIELD
SEE SEPTIC PLANS

PAVILION

10" HDPE
L=12'
S=1.0%

10" HDPE
L=46'
S=1.0%

CB-4
RIM=75.20
I=72.35(DMH5)

CO-2
R=72.25
I=66.40(IN/OUT)

8" HDPE
L=20'
S=3.0%

8" HDPE
L=57'
S=1.7%

SEGMENTAL RETAINING WALL
TW=81.0
BW=73.0

INV=68.96

CO-3
R=74.00
I=68.00(IN/OUT)

FFE=75.0
BFE=65.75
RAISED DECK
NO WALKOUT

6" HDPE
L=22'
S=2.3%

6" HDPE
L=96'
S=1.0%

CO-4
R=75.00
I=68.50(IN/OUT)

N/F
OLD BOSTON
CONDOMINIUM
BK:8644/PG.159

8" HDPE
L=65'
S=1.0%

8" HDPE
L=65'
S=1.0%

FFE=77.0
BFE=67.75
RAISED DECK
NO WALKOUT

CB-5
RIM=75.05
I=71.84

INV=69.50

CB-6
RIM=75.10
I=71.84

MATCHLINE - SEE SHEET C-3A
MATCHLINE - SEE SHEET C-3B

DMH-4
RIM=75.40
I=71.67(DMH5)
I=71.67(CB5)
I=71.67(CB6)
I=71.57(WQU2)

CO-6
R=76.00
I=70.15(IN/OUT)

SEGMENTAL
RETAINING
WALL
TW=81.0
BW=80.0

INV=68.50

BOSTON STREET
(PUBLIC - 66' WIDE - ROUTE 1)
(1922 MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS LAYOUT)

GRANITE CURB

INV=56.38

CB
RIM=62.53
INV=59.28

CB
RIM=62.29
INV=59.39

DMH
RIM=62.83
INV(D)=59.08(12"HDPE)
INV(D)=58.23(12"HDPE)
INV(E)=58.93(12"HDPE)

BIT. BERM

WOODED

CONC. FOUNDATION

INV=58.80

INV=58.54

INV=58.08

W GAS

STONE WALL

BUILDING

FFE=68.97

PERC6

DH
(FND)

BIT. BERM

S22°49'29"W
570.52' (TIE)

ESSEX COUNTY
BOUND (FND)
(BACK CL HELD)

LSA

INV=58.51

DIG SAFE

BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233

LEGEND:

- DRAIN MANHOLE
- CATCH BASIN
- CATCH BASIN – DOUBLE GRATE
- FLARED END SECTION
- DRAIN LINE
- RIPRAP OUTFALL
- OUTLET CONTROL STRUCT.
- 5' CONTOUR
- 1' CONTOUR
- SPOT GRADE x 68.50
- TOP OF BERM
- DETENTION BASIN
- SAW-CUT LINE
- INFILTRATION SYSTEM

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TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - DRAINAGE PLAN.DWG

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER
10/13/16

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	1"=30'	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
10 MAIN STREET
LAKEVILLE, MA 02347-1674
TEL: (508) 923-1010
FAX: (508) 923-6309
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE: DRAINAGE PLAN
SHEET No. C-4A

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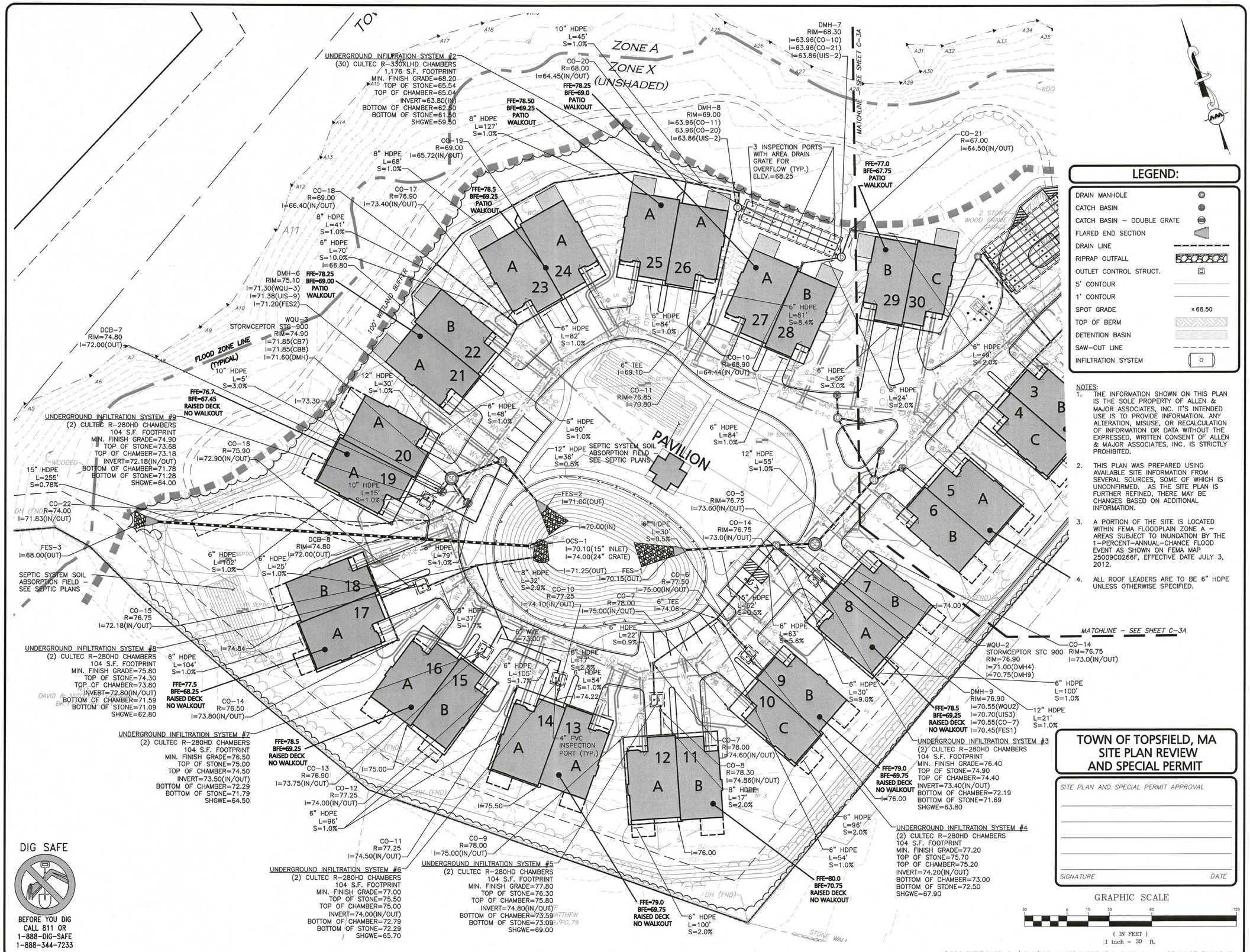

LEGEND:

- DRAIN MANHOLE
- CATCH BASIN
- CATCH BASIN – DOUBLE GRATE
- FLARED END SECTION
- DRAIN LINE
- RIPRAP OUTFALL
- OUTLET CONTROL STRUCT.
- 5' CONTOUR
- 1' CONTOUR
- SPOT GRADE ×68.50
- TOP OF BERM
- DETENTION BASIN
- SAW-CUT LINE
- INFILTRATION SYSTEM

NOTES:

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4. ALL ROOF LEADERS ARE TO BE 6" HDPE UNLESS OTHERWISE SPECIFIED.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

DIG SAFE

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10/13/16

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No.43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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2 ELM SQUARE
ANDOVER, MA 01810

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DRAWING TITLE: DRAINAGE PLAN

SHEET No. C-4B

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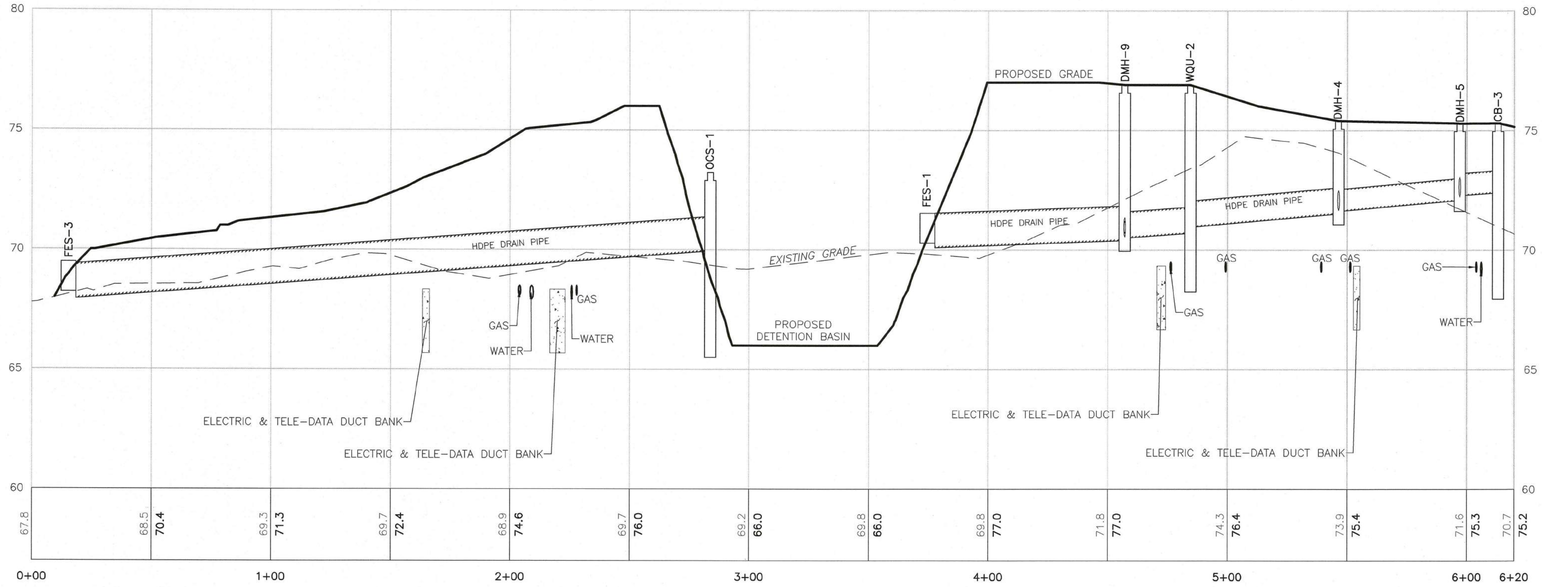
DRAINAGE 01 PROFILE



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TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE

30 0 15 30 60
3 0 1.5 3 6

Horizontal: 1 inch = 30 ft.
Vertical: 1 inch = 3 ft.

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10/13/16

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
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DRAINAGE PROFILE

SHEET No.

C-4C

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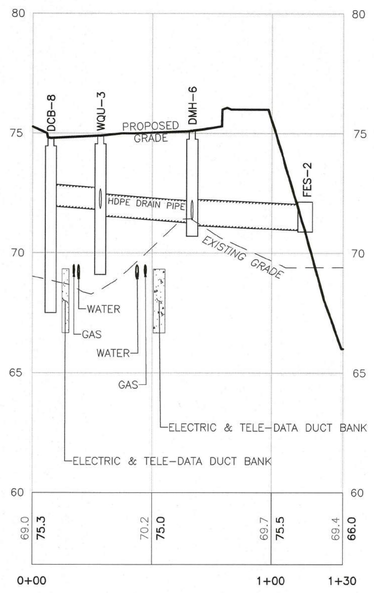
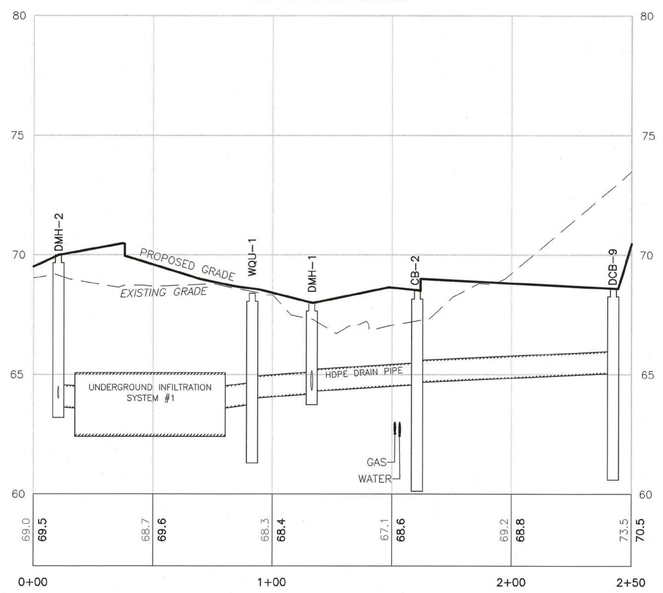
DRAINAGE 02 PROFILE



DRAINAGE 03 PROFILE



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TOWN OF TOPSFIELD, MA
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AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE

30 0 15 30 60
3 0 1.5 3 6

Horizontal: 1 inch = 30 ft.
Vertical: 1 inch = 3 ft.

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10/13/16

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
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SCALE:	1"=30'	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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DRAWING TITLE:
DRAINAGE PROFILE

SHEET No.
C-4D

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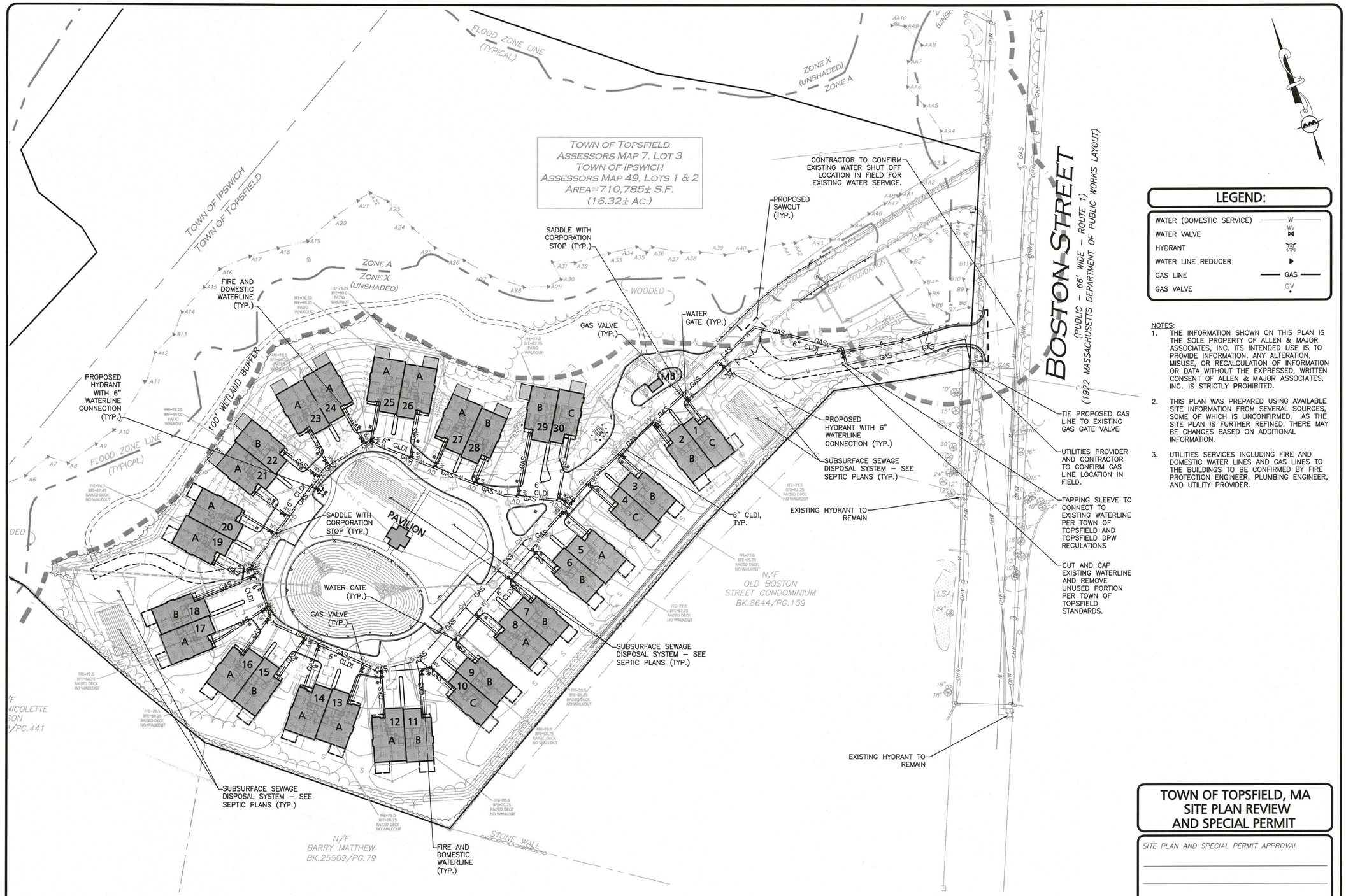

10/13/16

COMMONWEALTH OF MASSACHUSETTS
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DRAWING TITLE:
WATER & GAS
UTILITIES PLAN

SHEET No.
C-5A

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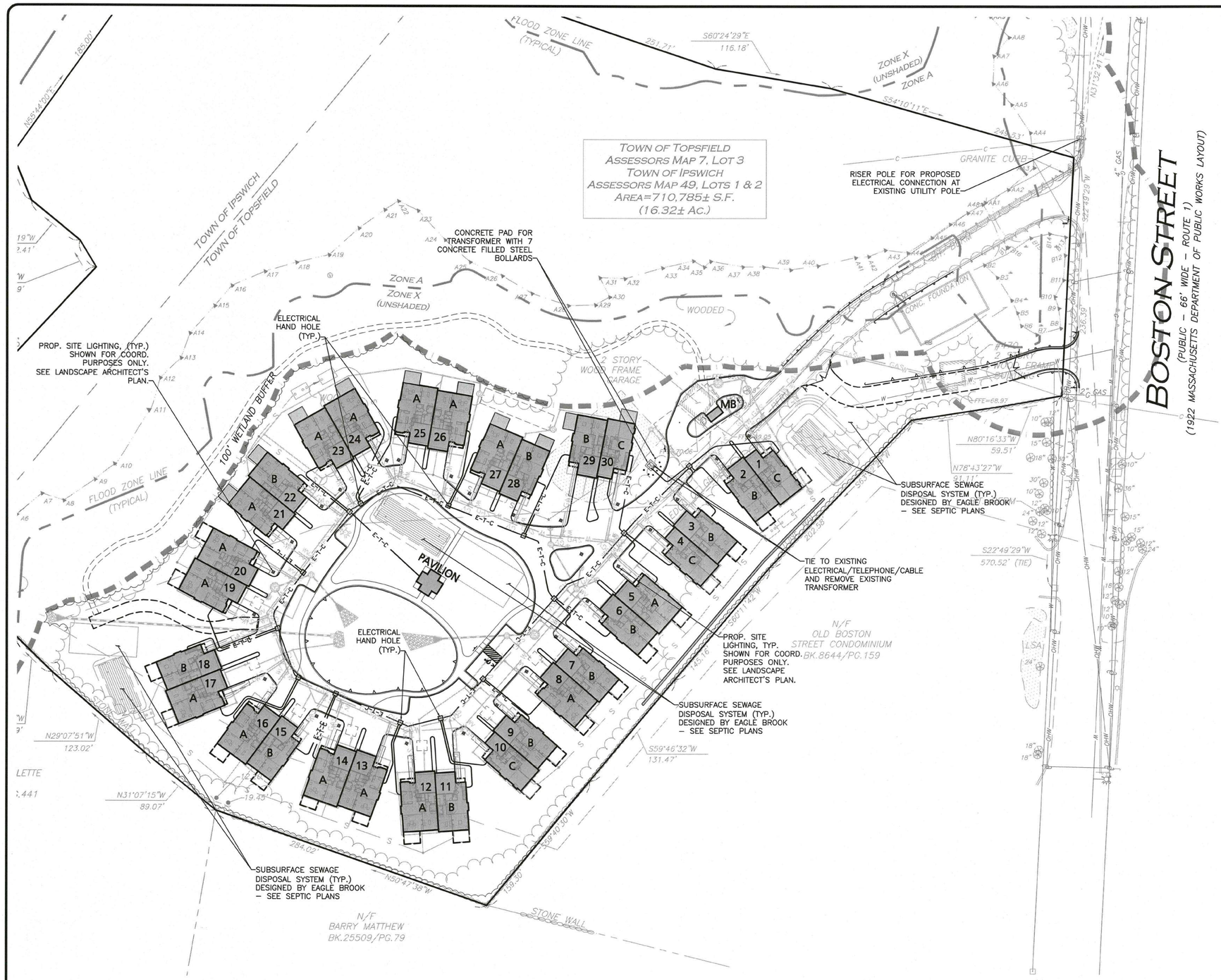

LEGEND:

TRANSFORMER	T
LIGHT FIXTURE	
OVER HEAD WIRE	OHW
UTILITY POLE	
ELECTRIC MANHOLE/SPLICE BOX	E
SWITCHING STATION	S
HAND HOLE	HH
ELEC/TELE/CABLE CONDUIT	E-T-C

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3. TRANSFORMER FINAL LOCATION AND SIZE TO BE DETERMINED BY ELECTRICAL SERVICE PROVIDER. FINAL CONDUIT LOCATIONS AND SIZES TO BE DETERMINED BY ELECTRICAL SERVICE PROVIDER.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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10/13/16
TIMOTHY J. WILLIAMS CIVIL No.43119 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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2 ELM SQUARE
ANDOVER, MA 01810

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DRAWING TITLE:
SITE ELECTRICAL PLAN

SHEET No.
C-5B

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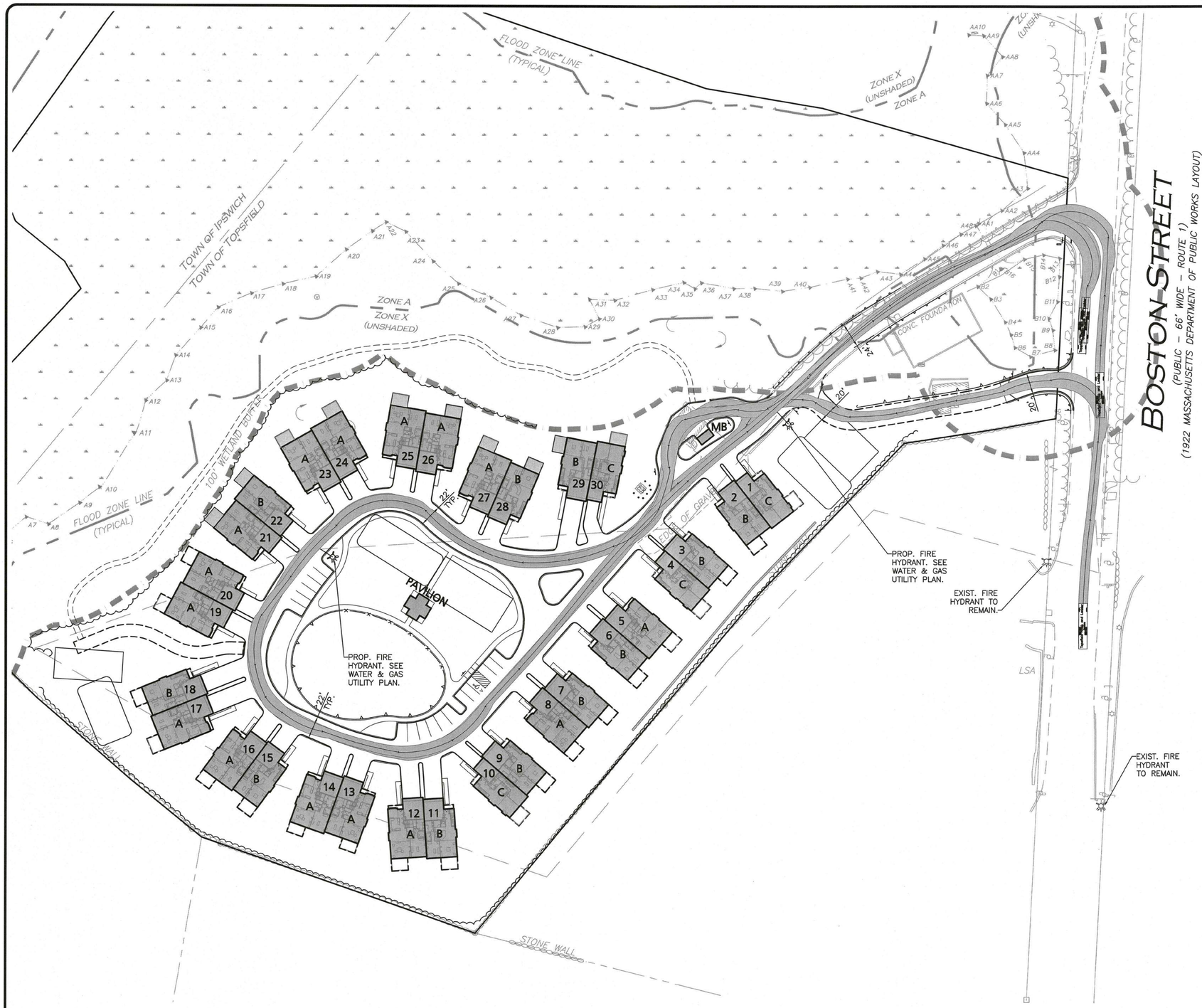

LEGEND:

EXIST. PROPERTY LINE	
SIGN	
BOLLARD	
BUILDING	
BUILDING ARCHITECTURE	
CURB	
RETAINING WALL	
PARKING STRIPING	
TRAFFIC ARROWS	
HEAVY DUTY CONCRETE	
ADA ACCESSIBLE RAMP	
ADA DET. WARNING SURFACE	
CHAIN LINK FENCE (CLF)	
TRANSFORMER	T

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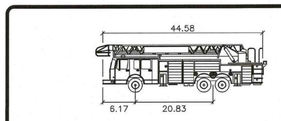
3. ALL PROPOSED FIRE HYDRANT LOCATIONS TO BE REVIEWED BY CONTRACTOR WITH FIRE DEPARTMENT PRIOR TO INSTALLATION.



Topsfield Hook and Ladder

	feet
Width	: 8.33
Track	: 8.33
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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10/13/16

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
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REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
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DRAWING TITLE:

FIRE TRUCK TURNING PLAN

SHEET No.

C-6

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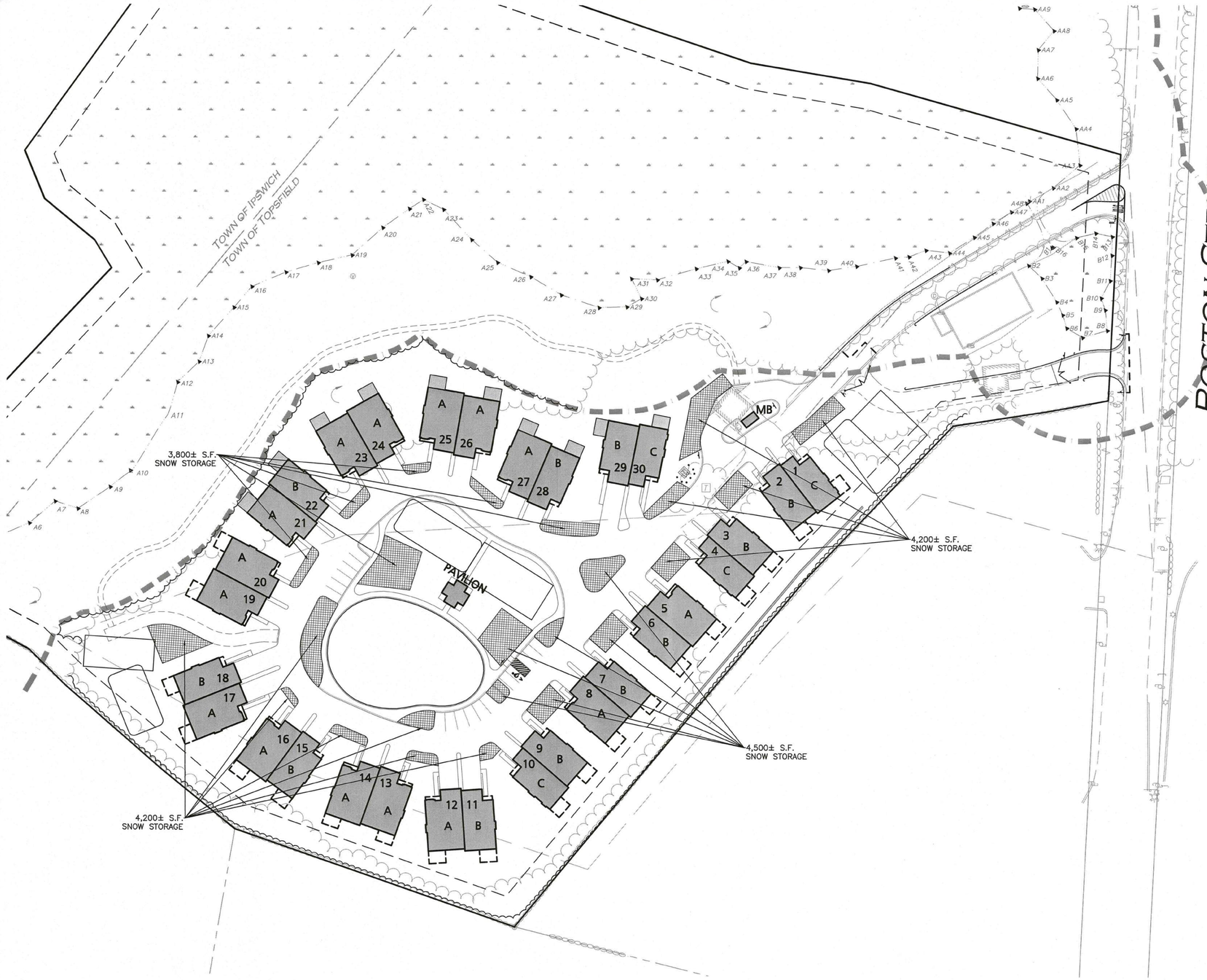

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SNOW STORAGE AREA

NOTES:

1. SNOW WILL BE STOCKPILED ON SITE UNTIL THERE IS NOT ENOUGH SPACE. AS NECESSARY, THE SNOW WILL BE REMOVED AND DISPOSED OF OFF-SITE. IT WILL BE THE RESPONSIBILITY OF THE SNOW REMOVAL CONTRACTOR TO PROPERLY DISPOSE OF TRANSPORTED SNOW ACCORDING TO MASSACHUSETTS DEP, BUREAU OF RESOURCE PROTECTION - SNOW DISPOSAL GUIDELINE #BRPG01-01, GOVERNING THE PROPER DISPOSAL OF SNOW. IT WILL BE THE RESPONSIBILITY OF THE SNOW REMOVAL CONTRACTOR TO FOLLOW THESE GUIDELINES AND ALL APPLICABLE LAWS AND REGULATIONS.
2. APPROXIMATE TOTAL SNOW STORAGE AREA ON SITE: 16,700± S.F.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

GRAPHIC SCALE

50 0 25 50 100 200

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SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:

RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	1"=50'	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com

10 MAIN STREET
LAKEVILLE, MA 02347-1674
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WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:	SHEET No.
SNOW STORAGE PLAN	C-7

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TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - TEST PIT LOCATIONS PLAN.DWG

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

10/13/16

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED
PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

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DRAWING TITLE: TEST PITS PLAN

SHEET No. TPP-1

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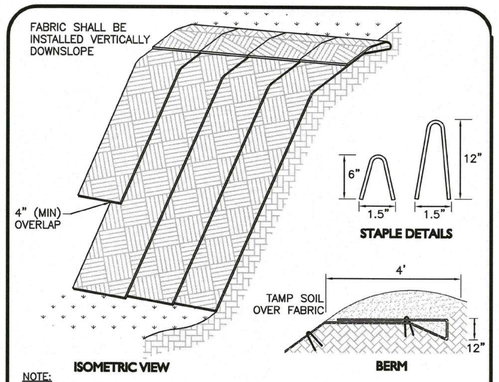
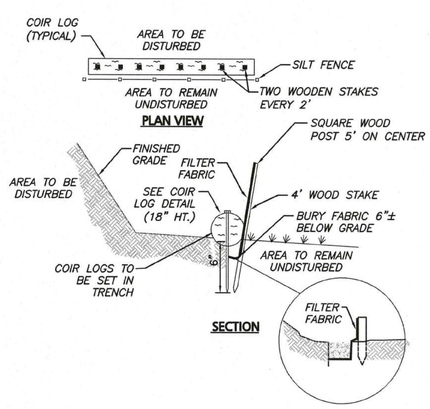
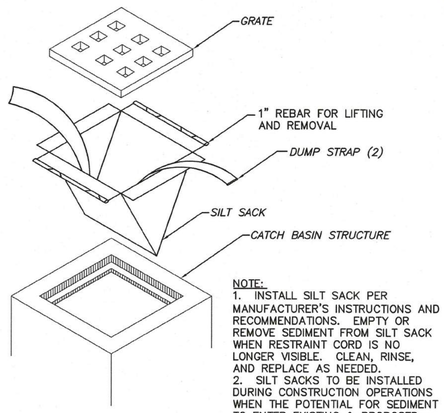


NOTE:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. FABRIC SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING FABRIC.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
4. CHOOSE MATERIAL BASED ON SLOPE, SOILS, AND APPLICATION.

EROSION CONTROL FABRIC (1)
NOT TO SCALE

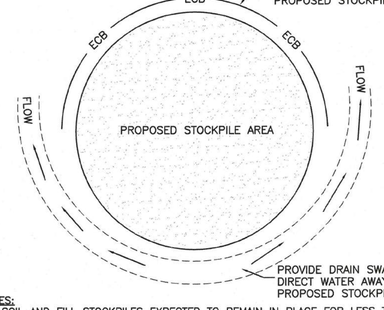


SILT FENCE AND COIR LOG (2)
NOT TO SCALE



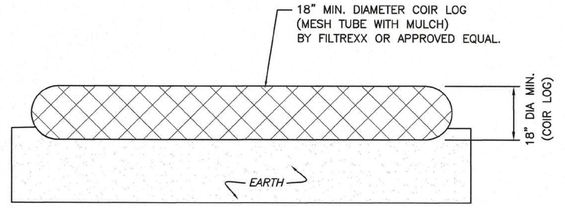
NOTE:
1. INSTALL SILT SACK PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. EMPTY OR REMOVE SEDIMENT FROM SILT SACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.
2. SILT SACKS TO BE INSTALLED DURING CONSTRUCTION OPERATIONS WHEN THE POTENTIAL FOR SEDIMENT TO ENTER EXISTING & PROPOSED BASINS EXISTS.

SILT SACK INLET DETAIL (3)
NOT TO SCALE



NOTES:
1. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR LESS THAN 90 DAYS SHALL BE COVERED WITH STRAW AND MULCH (AT 100LBS/1,000 SF), OR WITH AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.
2. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR 90 DAYS OR MORE SHALL BE SEEDED WITH WINTER RYE (FOR FALL SEEDING AT 1LB/1,000 SF) OR OATS (FOR SUMMER SEEDING AT 2LB/1,000 SF) AND THEN COVERED WITH HAY MULCH (AT 100LB/1,000 SF) OR AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.

STOCKPILE PROTECTION (4)
NOT TO SCALE



SECTION

NOTES:
1. ALL MATERIALS TO MEET MANUFACTURERS SPECIFICATIONS.
2. DIG TRENCH AND PLACE TUBULAR SEDIMENT CONTROLS. INSTALL WOODEN STAKES THROUGH COIR LOG MESH AND INTO EARTH EVERY 5' O.C. TIE ADJACENT LOGS TOGETHER WITH BIODEGRADABLE TWINE AND OVERLAP LOGS A MINIMUM OF 12".
3. THE CONTRACTOR SHALL MAINTAIN THE COIR LOGS IN A FUNCTIONAL CONDITION AT ALL TIMES. THE COIR LOGS SHALL BE ROUTINELY INSPECTED BY THE CONTRACTOR.
4. WHERE THE COIR LOGS REQUIRE REPAIR OR SEDIMENT, IT WILL BE ROUTINELY COMPLETED BY THE CONTRACTOR AT NO ADDITIONAL COST.
5. AT A MINIMUM, THE CONTRACTOR SHALL REMOVE SEDIMENTS COLLECTED AT THE BASE WHEN THEY REACH 1/3 THE EXPOSED HEIGHT OF THE COIR LOG OR IF MORE FREQUENTLY AS DIRECTED BY THE ENGINEER.

TYPICAL MULCH COIR LOG DETAIL (5)
NOT TO SCALE

DEWATERING

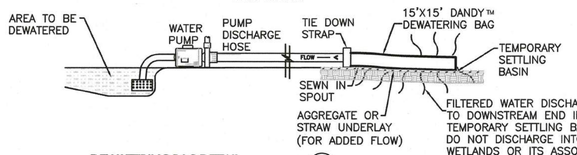
IF DEWATERING IS NECESSARY IT SHALL ONLY BE COMPLETED AS FOLLOWS:

THE DISCHARGE SHALL BE STOPPED IMMEDIATELY IF THE RECEIVING AREA SHOWS ANY SIGN OF INSTABILITY OR EROSION. ALL CHANNELS, SWALES, AND DITCHES DUG FOR DISCHARGING WATER FROM THE EXCAVATED AREA SHALL BE STABLE PRIOR TO DIRECTING DISCHARGE TO THEM. IF A CONSTRUCTION EQUIPMENT BUCKET IS USED, IT SHALL EMPTY THE MATERIAL TO A STABLE AREA. NO DEWATERING SHALL OCCUR DURING PERIODS OF INTENSE, HEAVY RAIN. FLOW TO THE SEDIMENT REMOVAL STRUCTURE SHALL NOT EXCEED THE STRUCTURES CAPACITY TO SETTLE AND FILTER FLOW OR IS VOLUME CAPACITY. WHENEVER POSSIBLE, THE DISCHARGE FROM THE SEDIMENT REMOVAL STRUCTURE SHALL DRAIN TO A WELL-VEGETATED BUFFER BY SHEET FLOW WHILE MAXIMIZING THE DISTANCE TO THE NEAREST WATER RESOURCE AND MINIMIZING THE SLOPE OF THE BUFFER AREA. THERE SHALL BE NO DIRECT DISCHARGE TO EXISTING WETLANDS. ALL DISCHARGE SHALL BE IN COMPLIANCE WITH STATE, LOCAL, AND FEDERAL REQUIREMENTS.

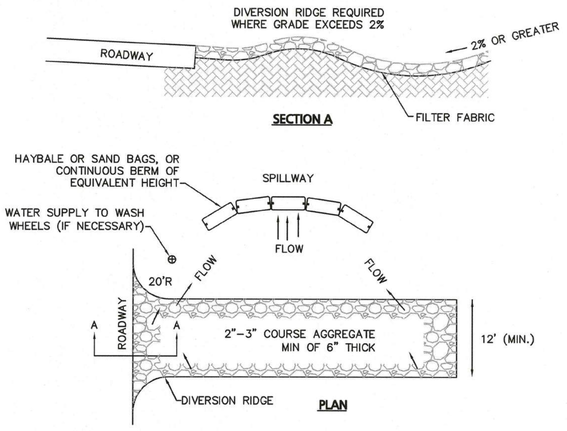
THE EROSION CONTROL PLAN WILL BE IMPLEMENTED TO:
A. TREAT EROSION AS SOON AS POSSIBLE AFTER DISTURBANCE.
B. PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION AREA AND ENTERING THE WETLANDS.
C. CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED TO MINIMIZE EROSION.
D. ONLY DISTURB, CLEAR, OR GRADE AREAS NECESSARY FOR CONSTRUCTION.
E. IF NECESSARY, CONSTRUCT TEMPORARY SEDIMENTATION BASINS

NOTES:
1. INSPECTION AND MAINTENANCE: AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN OUT OR REPAIR PROMPTLY, INSPECT CHANNELS AT REGULAR INTERVALS AND AFTER SIGNIFICANT STORM EVENTS. REMOVE DEBRIS IF NECESSARY AND MAKE NEEDED REPAIRS WHERE STONES HAVE BEEN DISPLACED. REPAIR ERODED AREAS PROMPTLY.

2. TEMPORARY SEDIMENT TRAPS AND OTHER TEMPORARY SEDIMENT AND EROSION CONTROLS DURING CONSTRUCTION WILL BE DETERMINED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. DURING CONSTRUCTION THE SITE SHALL BE TEMPORARILY GRADED TO PREVENT RUNOFF INTO ADJACENT PROPERTIES.



DEWATERING BAG DETAIL (6)
NOT TO SCALE



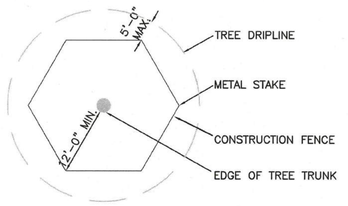
NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTERING THE PUBLIC RIGHT-OF-WAY.

3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

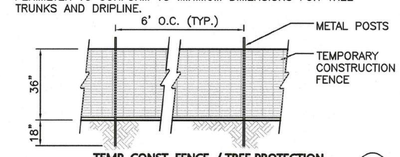
4. USE SANDBAGS, HAYBALES, OR OTHER APPROVED METHODS TO CHANNELIZE RUNOFF TO BASIN AS REQUIRED.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT (7)
NOT TO SCALE



NOTE:
1. CONSTRUCTION FENCE TO BE "VISUAL BARRIER FENCE" AS MANUFACTURED BY EXXON CHEMICAL COMPANY ATLANTA, GA; "KONTROL SAFETY FENCE" AS MANUFACTURED BY MIRAFI, CHARLOTTE, N.C. OR APPROVED EQUAL.

2. IF GROUPS OF TREES ARE TO BE PROTECTED, EXTEND FENCE AROUND PERIMETER TO CONFORM TO MINIMUM DIMENSIONS FOR TREE TRUNKS AND DRIPLINE.



TEMP. CONST. FENCE / TREE PROTECTION (8)
NOT TO SCALE

TOWN OF TOPSFIELD, MA
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SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

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DRAWING TITLE: DETAILS

SHEET No. D-1

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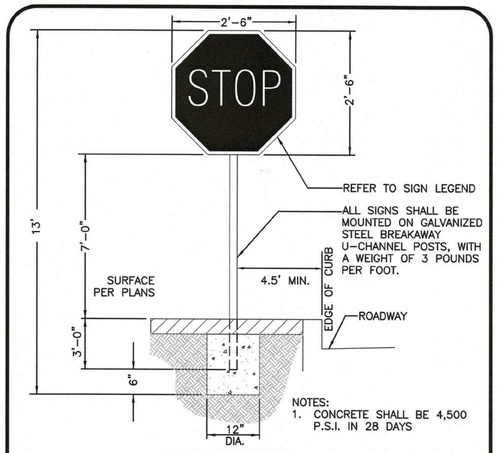
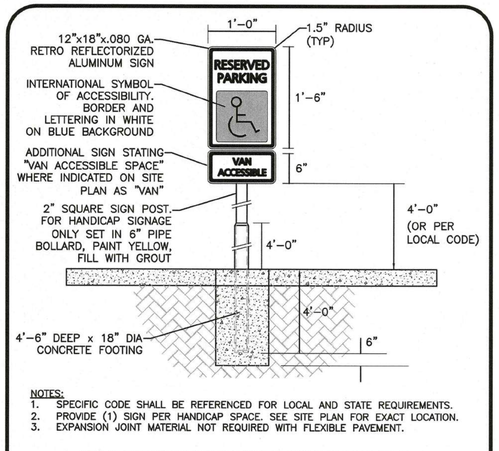
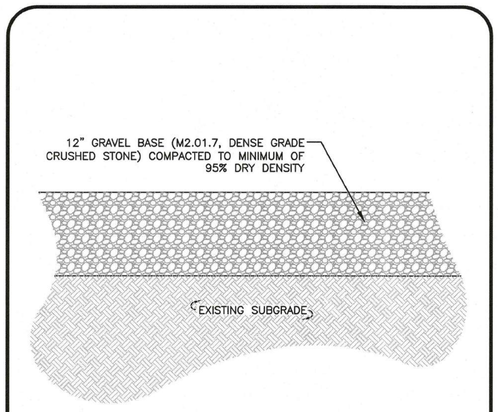


TYPICAL SIGN AND POST DETAIL (1)
NOT TO SCALE

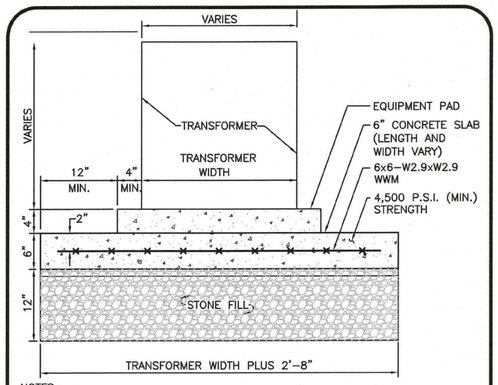


NOTES:
1. SPECIFIC CODE SHALL BE REFERENCED FOR LOCAL AND STATE REQUIREMENTS.
2. PROVIDE (1) SIGN PER HANDICAP SPACE. SEE SITE PLAN FOR EXACT LOCATION.
3. EXPANSION JOINT MATERIAL NOT REQUIRED WITH FLEXIBLE PAVEMENT.

ADA ACCESSIBLE PARKING / TRAFFIC CONTROL SIGNAGE (2)
NOT TO SCALE

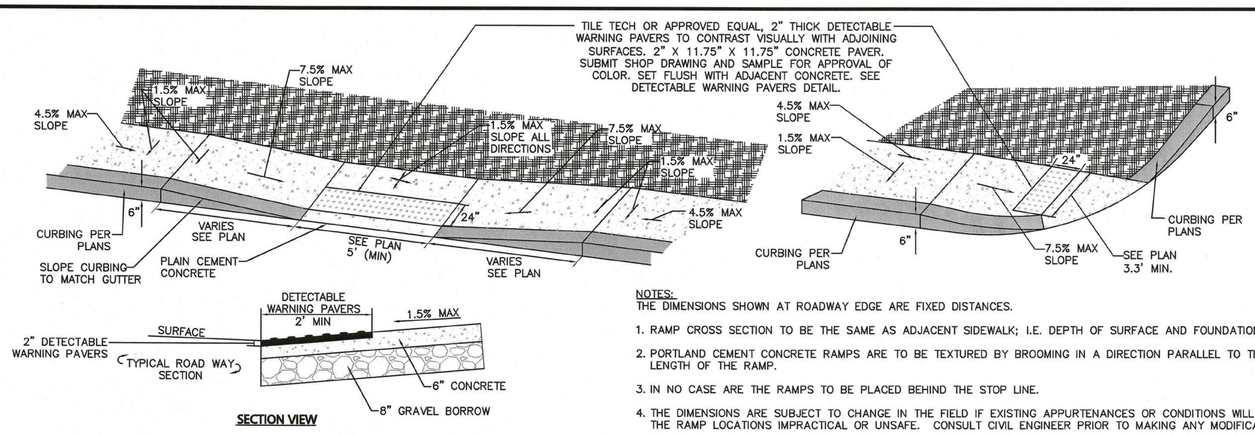


GRAVEL ACCESS DRIVE
(BOTH MAINTENANCE DRIVE & EMERGENCY ACCESS DRIVE) (3)
NOT TO SCALE



NOTES:
1. REFERENCE MECHANICAL/ELECTRICAL/ PLUMBING ENGINEER'S PLANS FOR ANY PIPE, GAS, CONDUIT AND GROUND WIRE LOCATIONS.
2. CONCRETE PAD, EQUIPMENT, AND BOLLARDS SHALL BE INSTALLED PER UTILITY PROVIDER REQUIREMENTS AT NO ADDITIONAL COST TO OWNER.

TRANSFORMER PAD DETAIL (4)
NOT TO SCALE



SECTION VIEW

NOTES:
THE DIMENSIONS SHOWN AT ROADWAY EDGE ARE FIXED DISTANCES.

1. RAMP CROSS SECTION TO BE THE SAME AS ADJACENT SIDEWALK; I.E. DEPTH OF SURFACE AND FOUNDATION.
2. PORTLAND CEMENT CONCRETE RAMPS ARE TO BE TEXTURED BY BROOMING IN A DIRECTION PARALLEL TO THE LENGTH OF THE RAMP.
3. IN NO CASE ARE THE RAMPS TO BE PLACED BEHIND THE STOP LINE.
4. THE DIMENSIONS ARE SUBJECT TO CHANGE IN THE FIELD IF EXISTING APPURTENANCES OR CONDITIONS WILL MAKE THE RAMP LOCATIONS IMPRACTICAL OR UNSAFE. CONSULT CIVIL ENGINEER PRIOR TO MAKING ANY MODIFICATIONS.

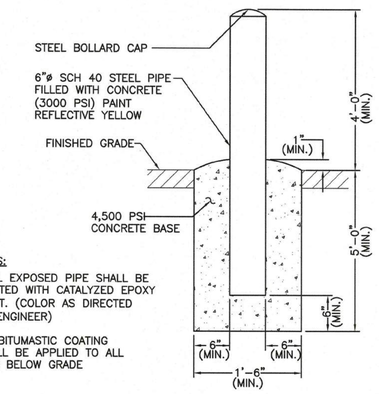
HANDICAP CURB CUT & CURB TRANSITION (5)
NOT TO SCALE

DESC.	SIGN	SIZE	MOUNTING HEIGHT	DESCRIPTION	REFLEC-TORIZED
R1-1	STOP	30"x30"	7' - 0"	WHITE ON RED	YES
R7-8	VAN ACCESSIBLE PENALTY $250 MINIMUM FINE	12"x20"	7' - 0"	WHITE ON BLUE	YES
R7-8 (MODIFIED)	VAN ACCESSIBLE PENALTY $250 MINIMUM FINE MASS. GEN. LAWS CH. 90 SEC. 2A	12"x20"	7' - 0"	WHITE ON BLUE	YES
R5-1	DO NOT ENTER	30"x30"	7' - 0"	RED ON WHITE	YES
R6-1	ONE WAY	36" x 12"	7' - 0"	BLACK ON WHITE	YES
E	EMERGENCY VEHICLES ONLY	24" x 36"	7' - 0"	BLACK ON WHITE	YES

NOTE:
ALL TRAFFIC AND SAFETY SIGNAGE SHALL COMPLY WITH LATEST MUTCD STANDARDS.

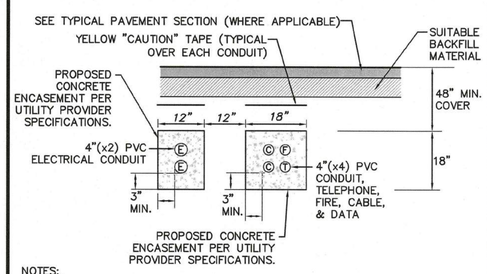
*COORDINATE DIRECTION OF ARROWS WITH TRAFFIC DIRECTIONAL FLOW.

SIGN TABLE (6)
NOT TO SCALE



NOTES:
-ALL EXPOSED PIPE SHALL BE PAINTED WITH CATALYZED EPOXY PAINT. (COLOR AS DIRECTED BY ENGINEER)
-A BITUMASTIC COATING SHALL BE APPLIED TO ALL PIPE BELOW GRADE

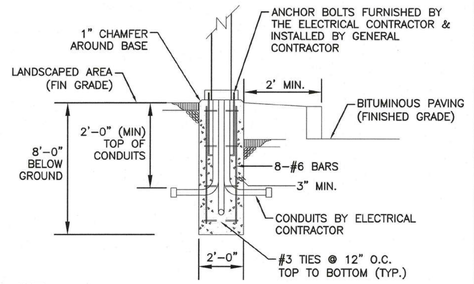
FIXED PIPE BOLLARD AT TRANSFORMER (7)
NOT TO SCALE



NOTES:

1. CONDUITS SHALL BE SCHEDULE 80 PVC
2. ALL UTILITY INSTALLATION REQUIREMENTS, SEPARATIONS, AND CONDUIT SIZES TO BE VERIFIED WITH EACH UTILITY COMPANY PRIOR TO INSTALLATION OF ANY UNDERGROUND UTILITY CONDUIT.

CONDUIT TRENCH SECTION A-A (8)
NOT TO SCALE



NOTE:
SIZE AND FOOTING FOR BASES TO BE VERIFIED BY STRUCTURAL ENGINEER.

LIGHT POLE BASE DETAIL (9)
NOT TO SCALE

TOWN OF TOPSFIELD, MA
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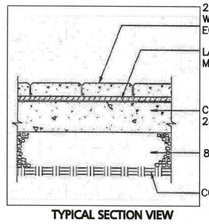
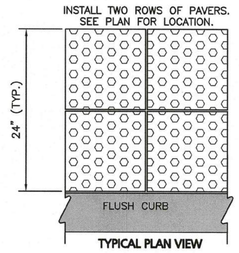


TYPICAL SECTION VIEW

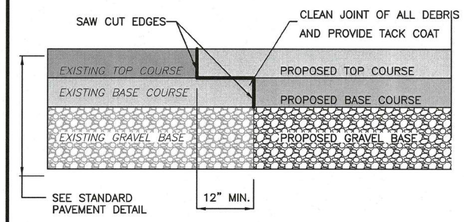


TYPICAL PLAN VIEW

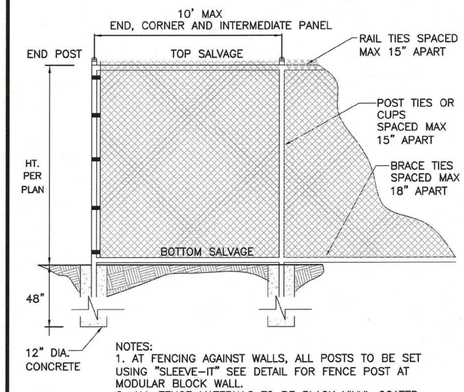
NOTES:
1. CONCRETE SLAB SHALL BE SLOPED 1.5% CROSS PITCH MAX TO PROVIDE COMPLETE SURFACE DRAINAGE. SEE GRADING PLAN & HANDICAP CURB CUT / CURB TRANSITION DETAIL.
2. SLAB TO HAVE STEEL TROWEL AND FINE BROOM FINISH. DO NOT USE CURING COMPOUNDS. CONTRACTOR TO ADD EXPANSION JOINTS AND PREMOLDED FILLER AT EDGE OF TILES AND ADJACENT MATERIAL.
3. SET TILES FLUSH WITH ADJACENT MATERIALS.
4. SUBMIT SHOP DRAWINGS OF TILES AND SAMPLE FOR APPROVAL OF COLOR TO OWNER / ARCH.
5. INSTALL DETECTABLE WARNING PAVERS PER MANUFACTURER'S RECOMMENDATIONS.

DETECTABLE WARNING PAVERS (1)
NOT TO SCALE

NOTE:
TACK COAT – PROVIDE EMULSIFIED ASPHALT WHICH CONFORMS TO THE REQUIREMENTS OF THE STATE SPECIFICATIONS, DILUTED WITH ONE PART WATER TO ONE ONE PART ASPHALT FOLLOWING AASHTO M140/ASTM D997, OR AASHTO M208/ASTM D2397, SS-1H, CSS-1, OR CSS-1H.

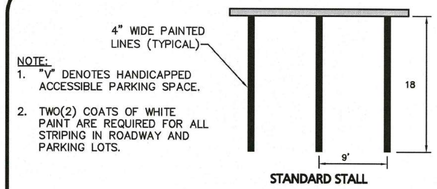


TYPICAL PAVEMENT KEY CUT DETAIL (2)
NOT TO SCALE



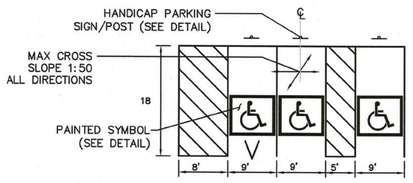
NOTES:
1. AT FENCING AGAINST WALLS, ALL POSTS TO BE SET USING "SLEEVE-IT" SEE DETAIL FOR FENCE POST AT MODULAR BLOCK WALL.
2. ALL FENCE MATERIALS TO BE BLACK VINYL COATED.

BLACK VINYL COATED CHAIN LINK FENCE (3)
NOT TO SCALE



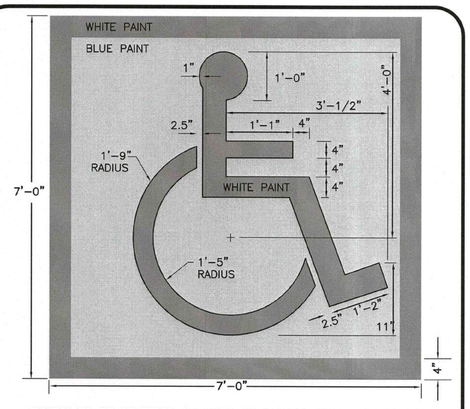
NOTE:
1. "V" DENOTES HANDICAPPED ACCESSIBLE PARKING SPACE.
2. TWO(2) COATS OF WHITE PAINT ARE REQUIRED FOR ALL STRIPING IN ROADWAY AND PARKING LOTS.

STANDARD STALL



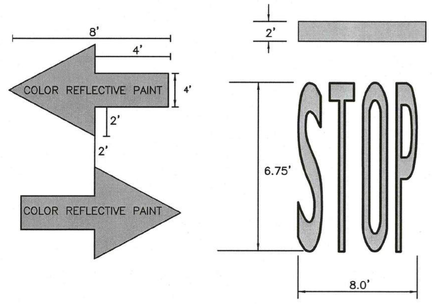
STANDARD AND VAN ACCESSIBLE HANDICAPPED PARKING SPACE

HANDICAPPED AND STANDARD STALL DETAIL (4)
NOT TO SCALE



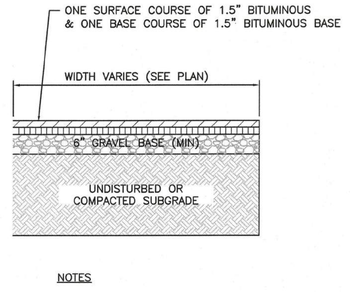
SYMBOL TO BE CENTERED ON WIDTH OF PARKING STALL. SYMBOL IS REQUIRED TO CONTRAST WITH BACKGROUND. USE WHITE ON BLUE (COLOR #105090 IN FEDERAL STANDARD 5952) DOUBLE COAT.

ACCESSIBLE PARKING STALL PAVEMENT MARKING (5)
NOT TO SCALE



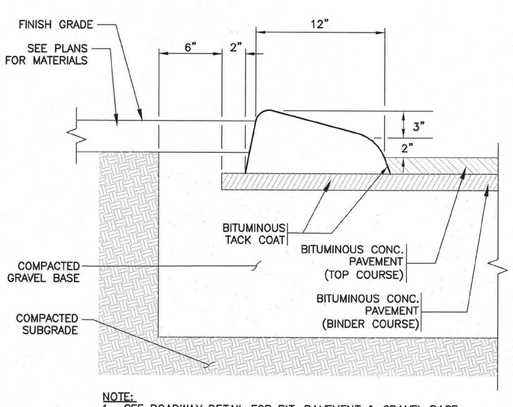
NOTE:
1. TWO(2) COATS OF THERMOPLASTIC ARE REQUIRED FOR ALL STRIPING IN ROADWAY AND PARKING LOTS.

WHITE THERMOPLASTIC LETTERING/ARROWS (6)
NOT TO SCALE



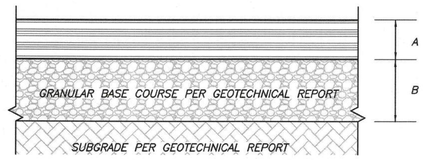
NOTES
1. SEE PLAN FOR ELEVATIONS.

BITUMUNOUS WALKWAY (7)
NOT TO SCALE



NOTE:
1. SEE ROADWAY DETAIL FOR BIT. PAVEMENT & GRAVEL BASE.

CAPE COD BERM (8)
NOT TO SCALE



NOTES:
1. SURFACE COURSE, BASE, AND SUBGRADE SHALL BE PER GEO-TECHNICAL ENGINEER'S RECOMMENDATIONS FOR LOCAL SOILS OR DRAINAGE CONDITIONS AND/OR METHODS.
2. SUBGRADE SHALL BE COMPACTED TO 95% OF PROCTOR.
3. COORDINATE PAVEMENT DETAIL WITH GEO-TECH & ENGINEER.
4. FOR ANY PAVING IN ROUTE 1, CONTRACTOR TO MA DOT STANDARDS AT NO ADDITIONAL COST TO THE OWNERS. COORD. WITH MA DOT & NEERING DEPT.

STANDARD DUTY PAVING
A = 1.5" ASPHALT CONCRETE – SURFACE COURSE (M3.11.03, TABLE A, TOP COURSE)
1.5" ASPHALT CONCRETE – BINDER COURSE (M3.11.03, TABLE A, BINDER COURSE)
B = 12" BASE COURSE SAND AND GRAVEL FILL

HEAVY DUTY PAVING
A = 1.5" ASPHALT CONCRETE – SURFACE COURSE (M3.11.03, TABLE A, TOP COURSE)
2.5" ASPHALT CONCRETE – BINDER COURSE (M3.11.03, TABLE A, BINDER COURSE)
B = 12" BASE COURSE SAND AND GRAVEL FILL

STANDARD & HEAVY DUTY BITUMINOUS ROADWAY (9)
NOT TO SCALE

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

10/13/16
COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No.43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	N.T.S.	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:
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DRAWING TITLE:
DETAILS

SHEET No.
D-3

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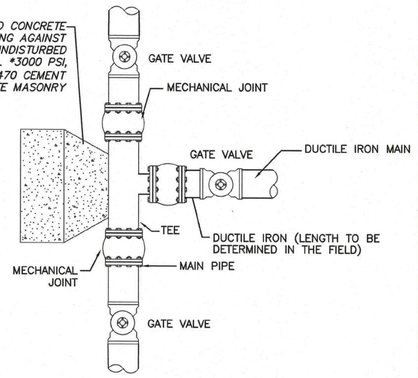
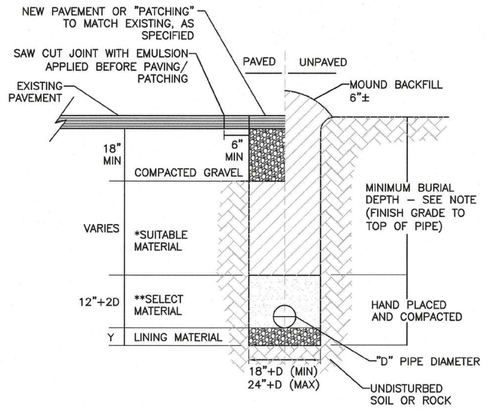


TYPICAL 3-WAY GATE WATER CONNECTION WITH MECHANICAL JOINTS
NOT TO SCALE — 1

NOTES:

1. MINIMUM BURIAL DEPTH (FINISH GRADE TO TOP OF PIPE)
   GRAVITY PIPE – SEE PLAN OR PROFILE
   PRESSURE PIPE UNDER PAVING – 4'
   PRESSURE PIPE BENEATH UNPAVED – 3'
2. WHERE BACKFILL IS DESIGNATED AS COMPACTED, THIS MEANS 90 TO 95% STANDARD PROCTOR. AASHTO T-99. ALL FILL PLACED BELOW PIPES AND STRUCTURES MUST MEET THIS REQUIREMENT.
3. FOR ALL TRENCHES WITH A GRADE GREATER THAN 4% AND/OR WHERE GROUNDWATER IS APPARENT, INSTALL CLAY DAMS AROUND THE PIPE AT 100' INTERVALS.
4. BACKFILL AS PER DCED-R100 AND REFERENCED AS STANDARD DRAWING.
5. TRENCHES WITHIN MILL STREET MAY REQUIRE FLOWABLE FILL. VERIFY WITH TOWN ENGINEER.



TRENCH DETAIL
NOT TO SCALE — 2

CONDITION & PIPE	**SELECT MATERIAL	LINING MATERIAL	Y–DIMENSION
DUCTILE IRON "ORDINARY SOIL"	TYPE I, II, OR III	SAND OR TYPE III	3"
RCP "ORDINARY SOIL"	TYPE II OR III	SAND OR TYPE III	3"
ALL PIPE OVER BEDROCK OR LEDGE	TYPE II OR III	SAND OR TYPE III	8"
DUCTILE IRON IN CLAY OR MUCK	TYPE II OR III	SAND	4"
RCP IN CLAY	TYPE II OR III	SAND	8"
ALL PLASTICS	TYPE III	SAND OR TYPE III	6"

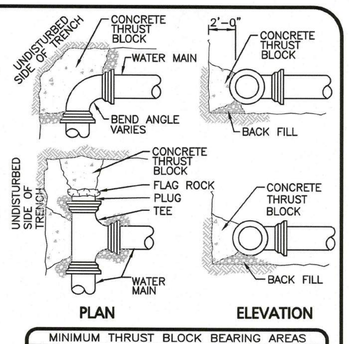
* SUITABLE MATERIAL SHALL CONTAIN NO STONE GREATER THAN 4" IN DIAMETER, NO FROZEN LUMPS, AND ONLY MINOR AMOUNTS OF CLAY OR ORGANIC MATERIAL. ALL MATERIAL TO BE PLACED IN MAX 12" LIFTS AND COMPACTED BEFORE PLACING NEXT LIFT.

**TYPE I MATERIAL SHALL BE EITHER GRAVEL OR EXCAVATED MATERIAL CONTAINING NO STONES GREATER THAN 1.5" DIAMETER, NO FROZEN LUMPS, CLAY OR ORGANIC MATERIAL.

**TYPE II MATERIAL SHALL BE CLEAN, HARD, CRUSHED OR NATURAL STONE WITH A GRADATION BY WEIGHT OF 100% PASSING A 1.5" SQUARE OPENING, NOT MORE THAN 25% PASSING A ¾" OPENING, AND NOT MORE THAN 5% PASSING A ¼" SQUARE OPENING.

**TYPE III MATERIAL SHALL BE CLEAN, HARD, CRUSHED STONE FREE FROM COATINGS AND THOROUGHLY WASHED WITH A GRADATION BY WEIGHT OF 100% PASSING A 1" SQUARE OPENING, AND 0 TO 5% PASSING A ¼" SQUARE OPENING.

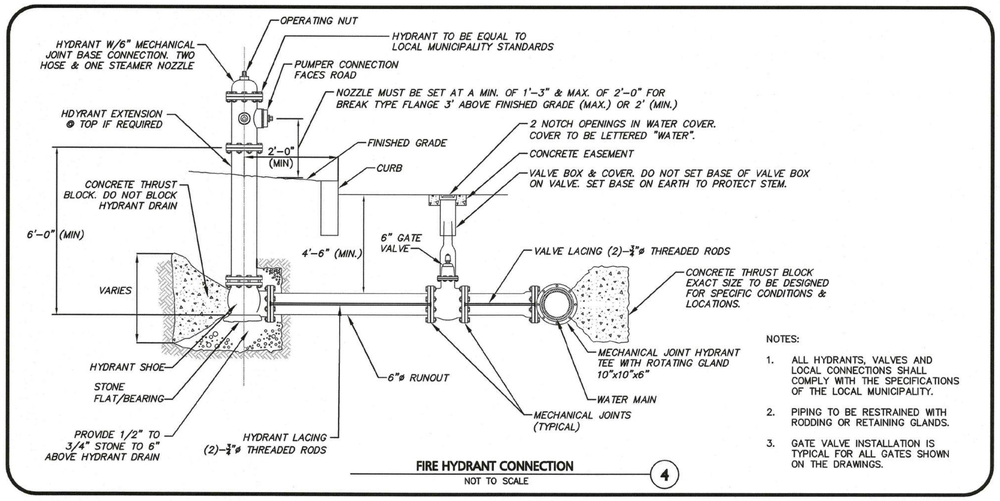
NOTES:
1. ALL WATER MAIN FITTINGS, BENDS, TEES, PLUGS ETC. SHALL BE RESTRAINED W/ THRUST BLOCKS EXCEPT WHERE NOTED.
2. ALL THRUST BLOCKS & COLLARS SHALL BE INSTALLED SO THAT THEY BEAR AGAINST UNDISTURBED EARTH.
3. SIZE OF CONCRETE THRUST BLOCKS SHALL BE AS NOTED BELOW.
4. MINIMUM COMPRESSIVE STRENGTH OF THRUST BLOCK CONCRETE SHALL BE 3,000 P.S.I.
5. KEEP CONCRETE CLEAR OF MECHANICAL JOINTS.
6. THE BELOW PREDICATED ON A WATER PRESSURE OF 225 PSI AND A SOIL RESISTANCE OF 2000 PSF (TILL). FOR OTHER SOILS THE VALUES IN THE ABOVE TABLE SHALL BE MULTIPLIED BY:



PLAN **ELEVATION**

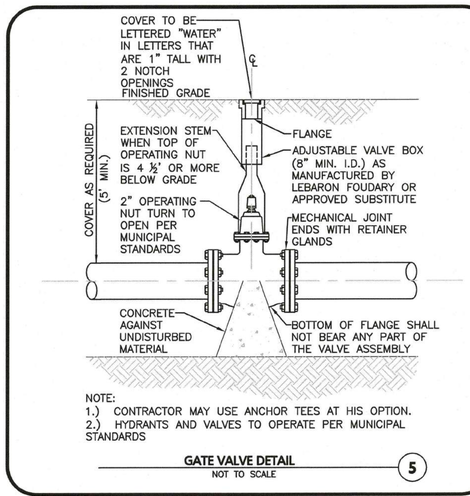
MINIMUM THRUST BLOCK BEARING AREAS				
PIPE ø	90° BEND (SQ. FT.)	45° BEND (SQ. FT.)	22.5° BEND (SQ. FT.)	TEES, PLUGS, CAPS & HYD. (SQ.FT.)
6"	5	3	3	4
8"	9	6	3	9
10"	13	7	4	12
12"	20	10	5	16

THRUST BLOCK DETAILS
NOT TO SCALE — 3



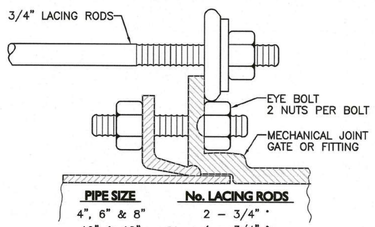
FIRE HYDRANT CONNECTION
NOT TO SCALE — 4

NOTES:
1. ALL HYDRANTS, VALVES AND LOCAL CONNECTIONS SHALL COMPLY WITH THE SPECIFICATIONS OF THE LOCAL MUNICIPALITY.
2. PIPING TO BE RESTRAINED WITH RODDING OR RETAINING GLANDS.
3. GATE VALVE INSTALLATION IS TYPICAL FOR ALL GATES SHOWN ON THE DRAWINGS.



NOTE:
1.) CONTRACTOR MAY USE ANCHOR TEES AT HIS OPTION.
2.) HYDRANTS AND VALVES TO OPERATE PER MUNICIPAL STANDARDS

GATE VALVE DETAIL
NOT TO SCALE — 5

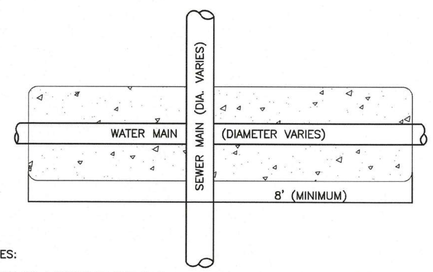


PIPE SIZE	No. LACING RODS
4", 6" & 8"	2 – 3/4" *
10" & 12"	4 – 3/4" *
16"	4 – 3/4" *
20"	6 – 3/4" *

* STANDARD LENGTHS ARE 6' & 10'. COUPLINGS MAY BE USED FOR LONGER LENGTHS.

NOTES:
1. NUMBER OF LACING RODS IS BASED ON MAXIMUM PRESSURE OF 125 P.S.I. IN MAIN.
2. EYE-BOLTS AND LACING RODS ARE TO BE FABRICATED FROM A-36 STEEL.
3. STEEL LACING RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 36,000 P.S.I.
4. EYE-BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 7,000 LBS. EACH.

MECHANICAL JOINT LACING DETAIL
NOT TO SCALE — 6

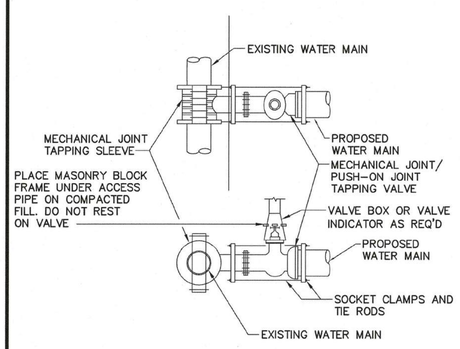


NOTES:

WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET BETWEEN A SEWER MAIN AND A WATER MAIN:

1. THE WATER MAIN SHALL BE LAID IN A SEPARATE TRENCH AND THE DIFFERENCE IN ELEVATION BETWEEN THE WATER MAIN AND THE SEWER MAIN SHALL BE AT LEAST 18 INCHES.
2. THE PIPE CROSSING SHALL OCCUR AS CLOSE TO 90° AS PRACTICABLE.
3. THE PIPE JOINTS SHALL BE STAGGERED TO PROVIDE THE MAXIMUM SEPARATION FROM THE POINT OF CROSSING.
4. THE CROSSING SHALL BE ENCASED IN CONCRETE FOR THE ENTIRE WIDTH OF THE TRENCH AND FOR A DISTANCE OF 8 LINEAR FEET CENTERED ON THE CROSSING.

SEWER / WATER CROSSING DETAIL
NOT TO SCALE — 7



TAPPING SLEEVE
NOT TO SCALE — 8

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

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10/13/16
COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	N.T.S.	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:
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DRAWING TITLE: DETAILS
SHEET No. D-4

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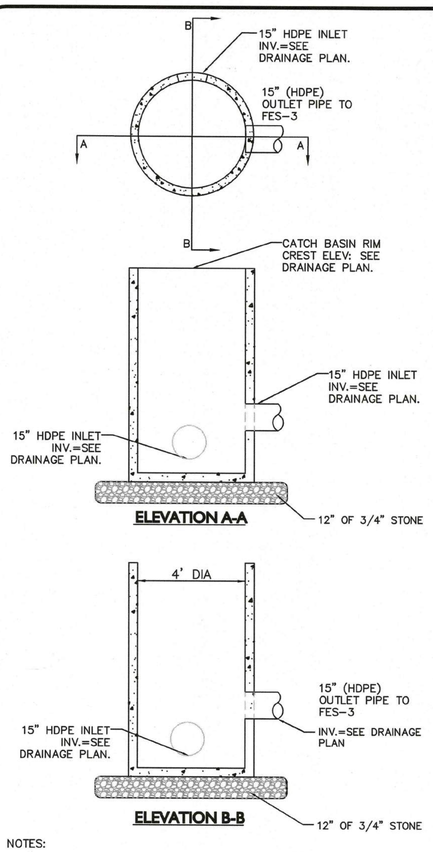


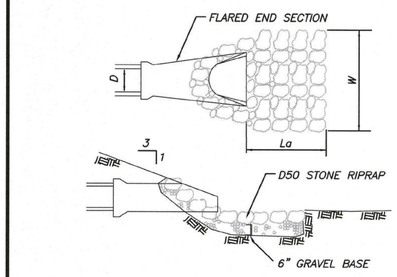
ELEVATION A-A

ELEVATION B-B

NOTES:

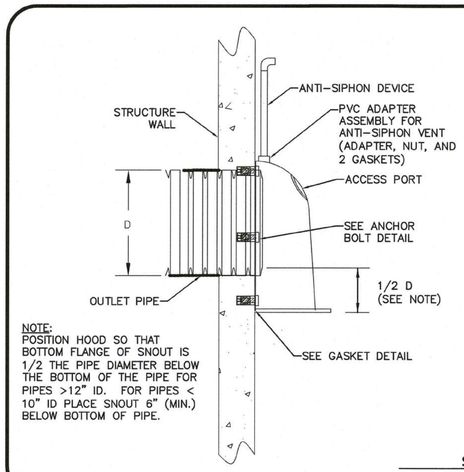
1. CONCRETE: 4,500 PSI MINIMUM AFTER 28 DAYS.
2. ALL REINFORCEMENT PER ASTM C1227-93.
3. TONGUE & GROOVE JOINT SEALED WITH BUTYLE RESIN OR MASTIC.
4. WALLS ARE TO BE 6" THICK & BOTTOM TO BE 8" THICK.
5. PROVIDE 4' SUMP

OUTLET CONTROL STRUCTURE #1 (1)
NOT TO SCALE

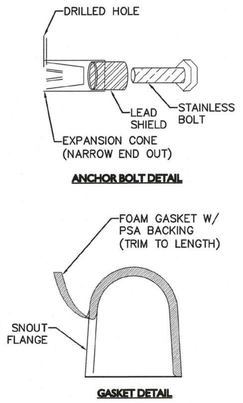


RIP RAP SHALL EXTEND FROM THE FES TO THE AREAS SHOWN ON THE GRADING & DRAINAGE PLANS.

FLARED END SECTION WITH RIP RAP (2)
NOT TO SCALE



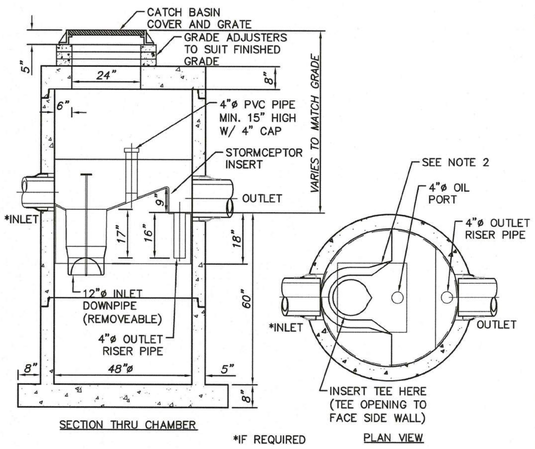
NOTE:
POSITION HOOD SO THAT BOTTOM FLANGE OF SNOUT IS 1/2 THE PIPE DIAMETER BELOW THE BOTTOM OF THE PIPE FOR PIPES >12" ID. FOR PIPES < 10" ID PLACE SNOUT 6" (MIN.) BELOW BOTTOM OF PIPE.



ANCHOR BOLT DETAIL

GASKET DETAIL

SNOUT OIL & DEBRIS STOP (3)
NOT TO SCALE



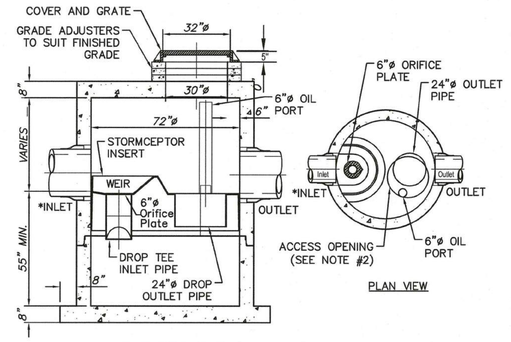
SECTION THRU CHAMBER

*IF REQUIRED

PLAN VIEW

NOTE :
1. THE USE OF FLEXIBLE CONNECTIONS IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.
2. THE COVER SHOULD BE POSITIONED OVER THE 24"ø OUTLET RISER PIPE AND THE 6"ø OIL PORT.
3. THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: #4985148, #5498331, #5725760, #5753115, #5849181.
4. CONTACT A CONCRETE PIPE DIVISION REPRESENTATIVE FOR FURTHER DETAILS NOT LISTED ON THIS DRAWING.

STC 4501 PRECAST CONCRETE STORMCEPTOR (450 US GALLON CAPACITY) (4)
NOT TO SCALE

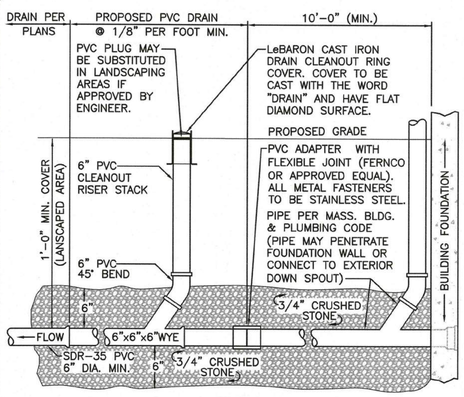


SECTION THRU CHAMBER

PLAN VIEW

NOTE :
1. THE USE OF FLEXIBLE CONNECTIONS IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.
2. THE COVER SHOULD BE POSITIONED OVER THE 24"ø OUTLET RISER PIPE AND THE 6"ø OIL PORT.
3. THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: #4985148, #5498331, #5725760, #5753115, #5849181.
4. CONTACT A CONCRETE PIPE DIVISION REPRESENTATIVE FOR FURTHER DETAILS NOT LISTED ON THIS DRAWING.

STC 900 PRECAST CONCRETE STORMCEPTOR (900 US GALLON CAPACITY) (5)
NOT TO SCALE



ROOF LEADER (6)
NOT TO SCALE

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER
10/13/16

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	AS NOTED	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:
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environmental consulting ◆ landscape architecture
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DRAWING TITLE: DETAILS

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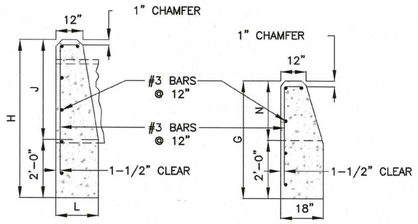
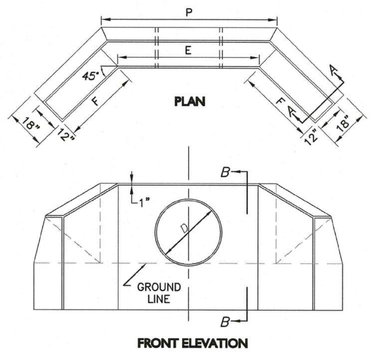
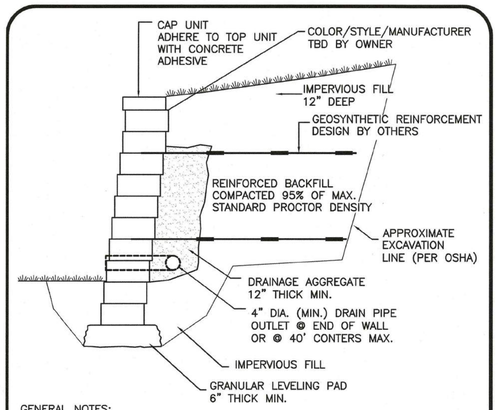




1–1/2:1 AND 2:1 SLOPE								1–1/2:1 SLOPE			2:1 SLOPE		
D	E	G	H	J	L	N	P	F	CU YDS	LBS.	F	CU YDS	LBS.
30"	4'-0"	4'-0"	5'-6"	3'-6"	1'-6"	2'-0"	5'-3"	3'-0"	2.60	45	4'-3"	3.16	54
36"	4'-6"	4'-3"	6'-0"	4'-0"	1'-8"	2'-3"	5'-11"	3'-6"	3.35	54	5'-0"	4.15	64
42"	5'-0"	4'-6"	6'-6"	4'-6"	1'-10"	2'-6"	6'-6"	4'-0"	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

NOTE: ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM.

CONCRETE HEADWALL
NOT TO SCALE — 1

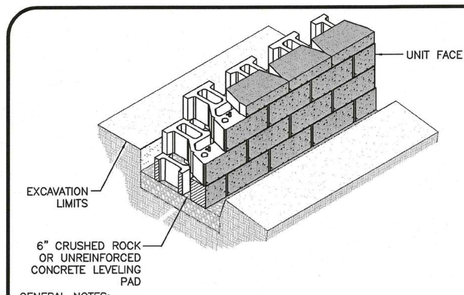


GENERAL NOTES:
1. STRUCTURAL ENGINEER LICENSED IN THE STATE OF MASSACHUSETTS TO REVIEW & APPROVE FINAL WALL DESIGN FOR STRUCTURAL INTEGRITY AT CONTRACTOR COST. CONTRACTOR TO INCORPORATE ANY NECESSARY REVISIONS AT NO ADDITIONAL COST.

2. PROVIDE SHOP DRAWING FOR MANUFACTURERS WALL DESIGN, GEOREINFORCEMENT BLOCK STYLE & COLOR, DRAIN PIPE, LEVELING PAD, (DETAILS & SECTIONS & ELEVATIONS) FOR APPROVAL PRIOR TO PURCHASE.

3. INSTALL PER MANUFACTURERS, GEOTECHNICAL ENGINEERS & STRUCTURAL ENGINEERS RECOMMENDATIONS AT CONTRACTOR COST.

TYPICAL PRECAST CONC. SEGMENTAL RETAINING WALL
NOT TO SCALE — 2



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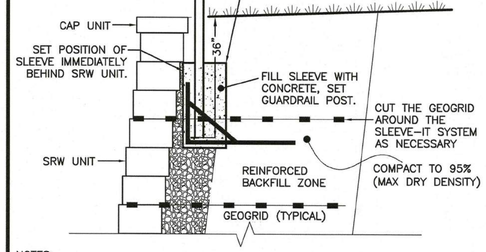
3. INSTALL PER MANUFACTURERS, GEOTECHNICAL ENGINEERS & STRUCTURAL ENGINEERS RECOMMENDATIONS AT CONTRACTOR COST.

BASE LEVELING PAD NOTES:
1. THE LEVELING PAD IS TO BE CONSTRUCTED OF CRUSHED STONE OR 4000 PSI UNREINFORCED CONCRETE

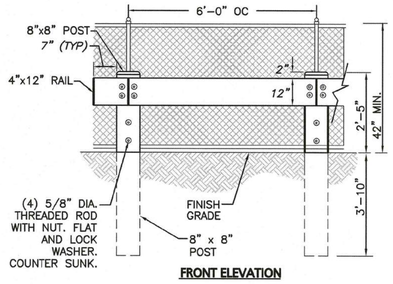
2. THE BASE FOUNDATION IS TO BE APPROVED BY THE SITE GEOTECHNICAL ENGINEER AT CONTRACTOR COST PRIOR TO PLACEMENT OF THE LEVELING PAD.

STANDARD PRECAST CONC. UNIT/BASE PAD ISOMETRIC SECTION VIEW
NOT TO SCALE — 3



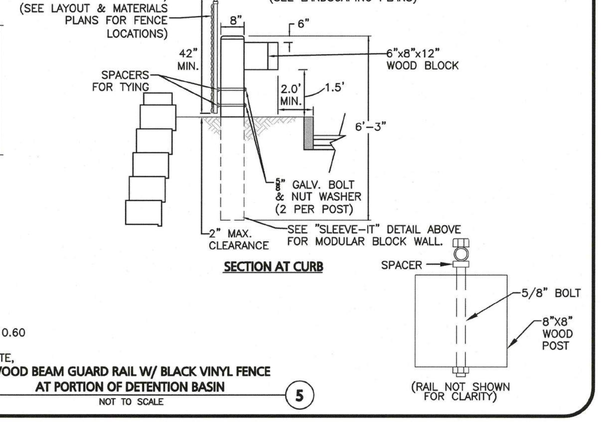
NOTES:
1. FENCING SYSTEMS APPROVED FOR USE WITH SLEEVE-IT 1224R ARE LIMITED TO THE FOLLOWING HEIGHTS:
   A. CHAIN LINK – UP TO 8-FT,
   B. PRIVACY – UP TO 6-FT (WOODEN, PVC, METAL).

FENCE POST AT TOP OF MODULAR BLOCK RETAINING WALL
NOT TO SCALE — 4



NOTES:

1. ALL PRESSURE TREATED TIMBERS SHALL BE SOUTHERN YELLOW PINE TREATED WITH CAA AND HAVE A MINIMUM 0.60 RETENTION. PRESSURE TREATED TIMBERS SHALL BE "SUPATIMBER" BY CHEMICAL SPECIALTIES, INC., CHARLOTTE, NC OR EQUAL.
2. ALL HARDWARE TO BE GALVANIZED STEEL.



WOOD BEAM GUARD RAIL W/ BLACK VINYL FENCE AT PORTION OF DETENTION BASIN
NOT TO SCALE — 5

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

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10/13/16
COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS CIVIL No.43119 REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
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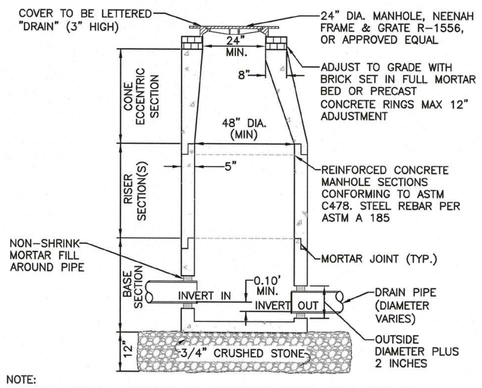
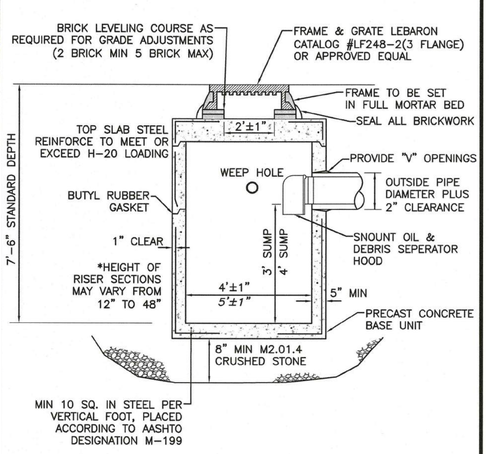
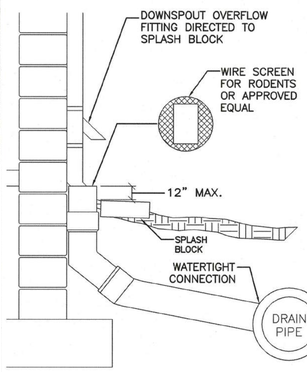


NOTE:
1. THE MANHOLE, INCLUDING ALL COMPONENT PARTS, SHALL HAVE ADEQUATE SPACE AND STRENGTH QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE. SPACE REQUIREMENT AND CONFIGURATIONS SHALL BE AS SHOWN ON THE DRAWING. THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND (HS20-44 LOADING) WITHOUT FAILURE. VERTICAL FOOT OF MANHOLE.

PRECAST DRAIN MANHOLE — 1
NOT TO SCALE



CATCH BASIN — 2
NOT TO SCALE



NOTES:

1) A WATERTIGHT CONNECTION SHALL BE MAINTAINED FROM ANY TRANSITION FROM SCH. 40 PVC PIPE TO ANY OTHER PIPE TYPE.

2) SITEWORK CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK TO AND INCLUDING THE RODENT SCREEN. BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION AT THE POINT OF THE RODENT SCREEN.

3) DOWNSPOUTS SHALL BE CONNECTED IN THE MANNER SHOWN AND CONVEYED TO THE NEAREST STORM DRAIN.

4) SUBMIT SHOP DRAWINGS FOR DOWNSPOUT OVERFLOW, SPLASH BACK, RODENT SCREEN, FITTINGS AND PIPE.

TYPICAL ROOF DRAIN (RD) DOWNSPOUT COLLECTOR — 3
NOT TO SCALE

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

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CULTEC RECHARGER® 330XLHD PRODUCT SPECIFICATIONS

GENERAL
CULTEC RECHARGER 330XLHD 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 WILL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT (203-775-4416 OR 1-800-428-5832).
2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK POLYETHYLENE.
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
5. THE CHAMBER WILL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS
6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER 330XLHD SHALL BE 30.5 INCHES (775 mm) TALL, 52 INCHES (1321 mm) WIDE AND 8.5 FEET (2.59 m) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 330XLHD SHALL BE 7 FEET (2.13 m).
7. MAXIMUM INLET OPENING ON THE CHAMBER END WALL IS 24 INCHES (600 mm).
8. THE CHAMBER WILL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL DIMENSIONS OF EACH SIDE PORTAL WILL BE 10.5 INCHES (267 mm) HIGH BY 11.5 INCHES (292 mm) WIDE. MAXIMUM ALLOWABLE OUTER DIAMETER (O.D.) PIPE SIZE IN THE SIDE PORTAL IS 11.75 INCHES (298 mm).
9. 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.
10. THE NOMINAL STORAGE VOLUME OF THE RECHARGER 330XLHD CHAMBER WILL BE 7.459 FT³ / FT (0.693 m³ / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 330XLHD SHALL BE 52.213 FT³ / UNIT (1.478 m³ / UNIT) - WITHOUT STONE.
11. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR WILL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
12. THE RECHARGER 330XLHD CHAMBER WILL HAVE FIFTY-SIX DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
13. THE RECHARGER 330XLHD CHAMBER SHALL HAVE 16 CORRUGATIONS.
14. THE END WALL OF THE CHAMBER, WHEN PRESENT, WILL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
15. THE RECHARGER 330XLRHD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS.
16. THE RECHARGER 330XLSHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL END WALL AND ONE PARTIALLY FORMED INTEGRAL END WALL WITH A LOWER TRANSFER OPENING OF 14 INCHES (356 mm) HIGH X 34.5 INCHES (876 mm) WIDE.
17. THE RECHARGER 330XLIHD INTERMEDIATE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY OPEN ENDWALL AND ONE PARTIALLY FORMED INTEGRAL END WALL WITH A LOWER TRANSFER OPENING OF 14 INCHES (356 mm) HIGH X 34.5 INCHES (876 mm) WIDE.
18. THE RECHARGER 330XLEHD END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL END WALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
19. 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 WILL FIT INTO THE SIDE PORTALS OF THE RECHARGER 330XLHD AND ACT AS CROSS FEED CONNECTIONS.
20. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
21. HEAVY DUTY UNITS ARE DESIGNATED BY A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
22. THE CHAMBER WILL HAVE A 6 INCH (152 mm) DIAMETER RAISED INTEGRAL CAP LOCATED ON TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
23. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
24. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.
25. MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12 FEET (3.66 m)
26. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.

CULTEC HVLV FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS

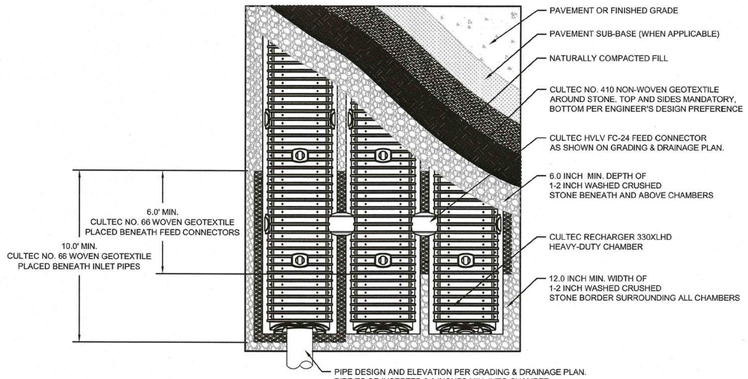
GENERAL
CULTEC HVLV FC-24 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER MODEL 330XLHD STORMWATER CHAMBERS.

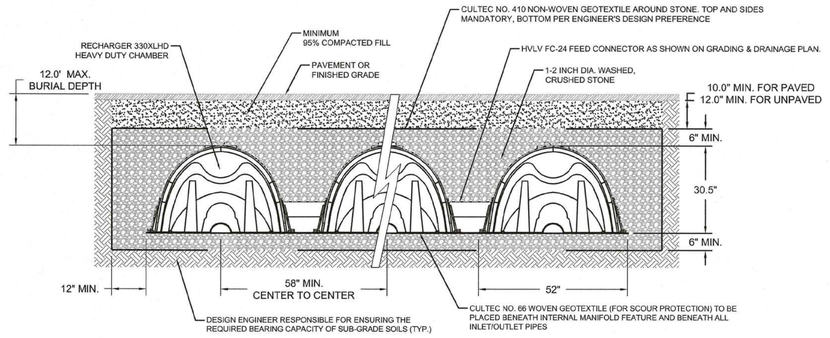
CHAMBER PARAMETERS
1. THE CHAMBERS WILL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
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 WILL 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 WILL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

CULTEC NO. 66™ WOVEN GEOTEXTILE

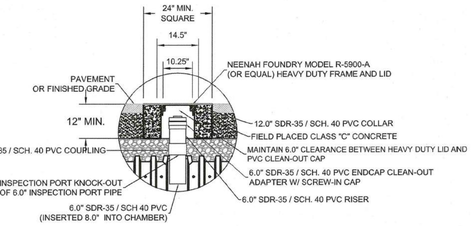
GENERAL
CULTEC NO. 66™ WOVEN GEOTEXTILE IS UTILIZED AS AN UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE.

GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. 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 TENSILE STRENGTH OF 315 LBS (1.40KN) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A TENSILE ELONGATION RESISTANCE OF 15% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A MULLEN BURST RESISTANCE OF 600PSI (4138 KPA) PER ASTM D3786 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A TEAR RESISTANCE OF 115 LBS (0.51 KN) PER ASTM D4533 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE RESISTANCE OF 150 LBS (0.66 KN) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 900 LBS (4.00 KN) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 70% @ 500 HRS. PER ASTM D4355 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.05 SEC-1 PER ASTM D4491 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 4 GPM/FT2 (160 LPM/M2) PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A PERCENT OPEN AREA OF <1% PER CW-02215 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
14. THE GEOTEXTILE SHALL CONSIST OF A 100% HIGH-TENACITY, SILT-FILM POLYPROPYLENE YARNS.





END SECTION



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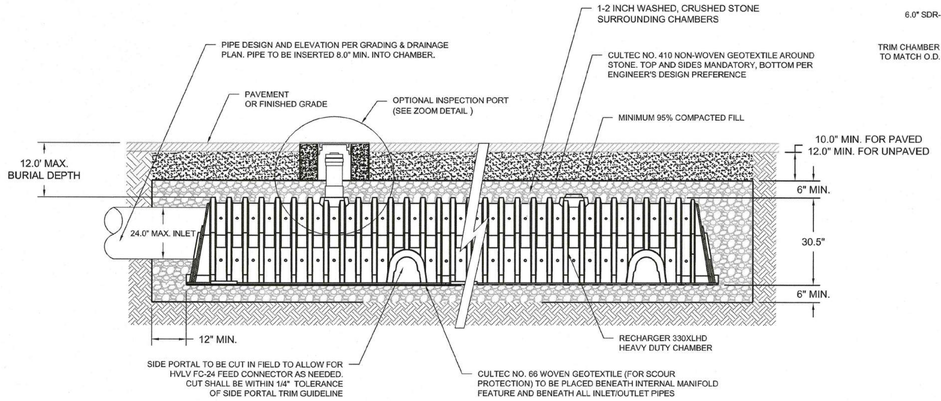

CROSS SECTION

NOTES:

1) SEE A&M GRADING & DRAINAGE PLANS FOR ALL INVERTS & ELEVATIONS.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - DETAILS.DWG

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

10/13/16

TIMOTHY J. WILLIAMS CIVIL No.43119 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	N.T.S.	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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civil & structural engineering ◆ land surveying
environmental consulting ◆ landscape architecture
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DRAWING TITLE: DETAILS

SHEET No. D-8

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CULTEC RECHARGER® 280HD SPECIFICATIONS

GENERAL
CULTEC RECHARGER 280HD 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 WILL BE MANUFACTURED IN THE U.S.A. BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
5. THE CHAMBER WILL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS.
6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER 280HD SHALL BE 26.5 INCHES (673 mm) TALL, 47 INCHES (1194 mm) WIDE AND 8 FEET (2.44 m) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 280HD SHALL BE 7 FEET (2.13 m).
7. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 18 INCHES (450 mm).
8. THE CHAMBER WILL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. NOMINAL INSIDE DIMENSIONS OF THE SIDE PORTAL SHALL HAVE A WIDTH OF 11.25" [286 mm] AND HEIGHT OF 11.5" [292 mm]. THE SIDE PORTAL CAN ACCEPT A MAXIMUM OUTER DIAMETER (O.D.) PIPE SIZE OF 12.25 INCHES [311 mm].
9. 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.
10. THE NOMINAL STORAGE VOLUME OF THE RECHARGER 280HD CHAMBER WILL BE 6.079 FT3 / FT (0.565 m³ / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 280HD SHALL BE 42.553 FT³ / UNIT (1.205 m³ / UNIT) - WITHOUT STONE.
11. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR WILL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
12. THE RECHARGER 280HD CHAMBER WILL HAVE EIGHTY-TWO DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
13. THE RECHARGER 280HD CHAMBER SHALL HAVE 15 CORRUGATIONS.
14. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, WILL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
15. THE RECHARGER 280RHD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS.
16. THE RECHARGER 280SHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 9 INCHES (229 mm) HIGH X 35 INCHES (889 mm) WIDE.
17. THE RECHARGER 280IHD INTERMEDIATE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY OPEN ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 9 INCHES (229 mm) HIGH X 35 INCHES (889 mm) WIDE.
18. THE RECHARGER 280EHD END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
19. 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 WILL FIT INTO THE SIDE PORTALS OF THE RECHARGER 280HD AND ACT AS CROSS FEED CONNECTIONS.
20. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
21. HEAVY DUTY UNITS ARE DESIGNATED BY A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
22. THE CHAMBER WILL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
23. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
24. THE CHAMBER SHALL BE MANUFACTURED IN AN IN AN ISO 9001:2008 CERTIFIED FACILITY
25. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S INSTALLATION INSTRUCTIONS.
26. MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12 FEET (3.65 m).

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 280HD STORMWATER CHAMBERS.

CHAMBER PARAMETERS

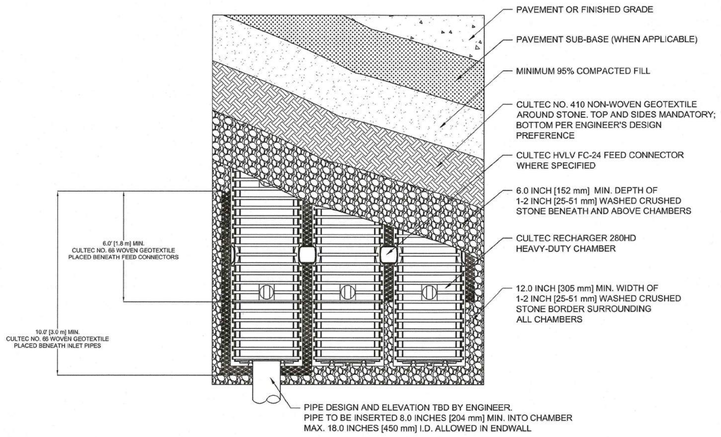
1. THE CHAMBERS WILL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
5. THE 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 WILL 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 WILL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

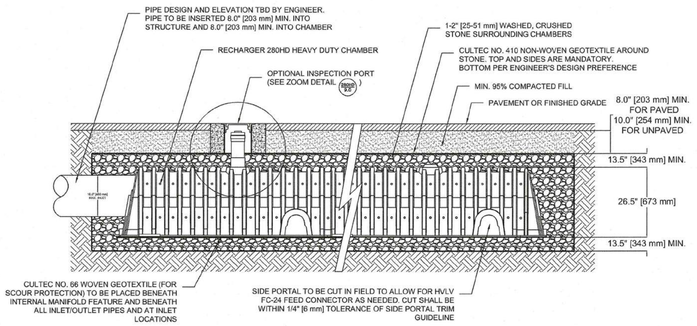
CULTEC NO. 66™ WOVEN GEOTEXTILE

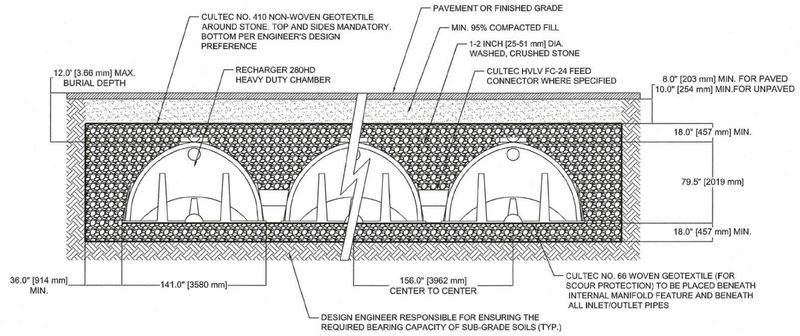
GENERAL
CULTEC NO. 66™ WOVEN GEOTEXTILE IS UTILIZED AS AN UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE.

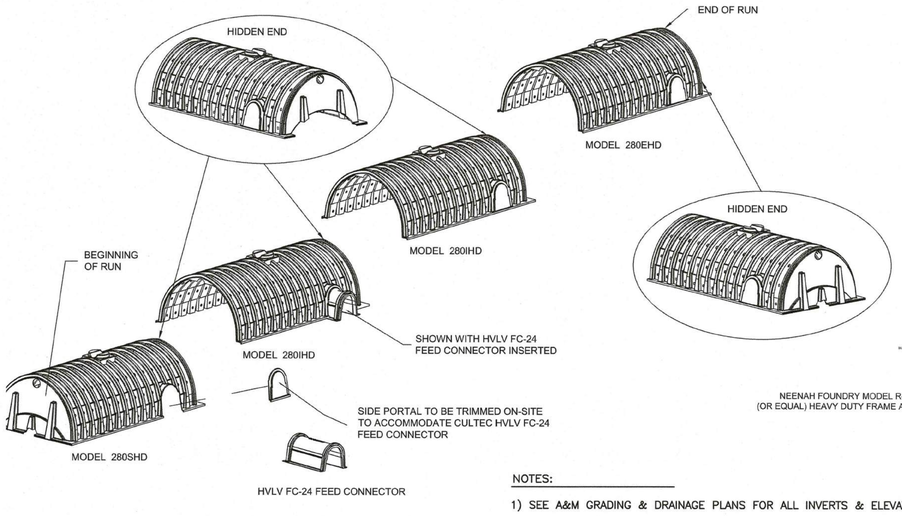
GEOTEXTILE PARAMETERS

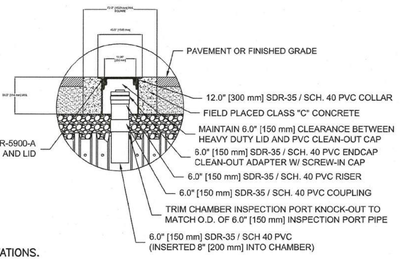
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 315 LBS (1.40KN) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A TENSILE ELONGATION RESISTANCE OF 15% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A MULLEN BURST RESISTANCE OF 600PSI (4138 KPA) PER ASTM D3786 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A TEAR RESISTANCE OF 115 LBS (0.51 KN) PER ASTM D4533 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE RESISTANCE OF 150 LBS (0.66 KN) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 900 LBS (4.00 KN) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 70% @ 500 HRS. PER ASTM D4355 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.05 SEC-1 PER ASTM D4491 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 4 GPM/FT2 (160 LPM/M2) PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A PERCENT OPEN AREA OF <1% PER CW-02215 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
14. THE GEOTEXTILE SHALL CONSIST OF A 100% HIGH-TENACITY, SILT-FILM POLYPROPYLENE YARNS.

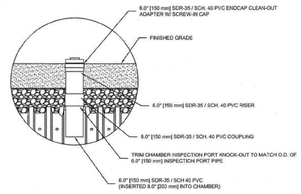












GENERAL NOTES
RECHARGER 280HD BY CULTEC, INC. OF BROOKFIELD, CT.
STORAGE PROVIDED = 9.21 CF/FT [1.83 m³/m] PER DESIGN UNIT.
REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.
MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12' (3.65 m)
THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.

ALL RECHARGER 280HD HEAVY DUTY UNITS ARE MARKED WITH A COLOR STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
ALL RECHARGER 280HD CHAMBERS MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

NOTES:
1) SEE A&M GRADING & DRAINAGE PLANS FOR ALL INVERTS & ELEVATIONS.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - DETAILS.DWG

10/13/16
COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No.43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	N.T.S.	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
10 MAIN STREET
LAKEVILLE, MA 02347-1674
TEL: (508) 923-1010
FAX: (508) 923-6309
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE: DETAILS

SHEET No. D-9

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1 / L-1 PLANTING AND LIGHTING PLAN
SCALE: 1" = 30'-0"

COMMUNITY ENTRANCE SIGN
- SINGLE BLACK POLE TO MATCH LIGHT POLE.
- DOUBLE BANNER ARM.
- 25 SQ FT MAX SOLID SIGN.
- ILLUMINATED WITH WHITE STATIONARY LIGHT.
- 8' MAX HEIGHT ABOVE CURB ELEVATION

2 / L-1 COMMUNITY ENTRANCE SIGN
SCALE: 1" = 30'-0"

\\BSI-NAS\DATA\ACTIVE FILES\SDC - SARKIS\1501 TOPSFIELD\DWGS\L-1.DWG

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

MASSACHUSETTS WILLIAM BROWN No. 1073 REGISTERED LANDSCAPE ARCHITECT

REGISTERED LANDSCAPE ARCHITECT FOR BROWN SARDINA, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:

RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	1" = 30'-0"	DWG. NAME:	L-1.dwg
DESIGNED BY:	BDB	CHECKED BY:	WB

PREPARED BY:

Brown | Sardina

Brown Sardina, Inc.
Landscape Architecture, Planning, Urban Design
24 Roland Street Boston, MA 02129
Tel: 617.482.4703
www.brownsardina.com

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DRAWING TITLE:

PLANTING AND LIGHTING PLAN

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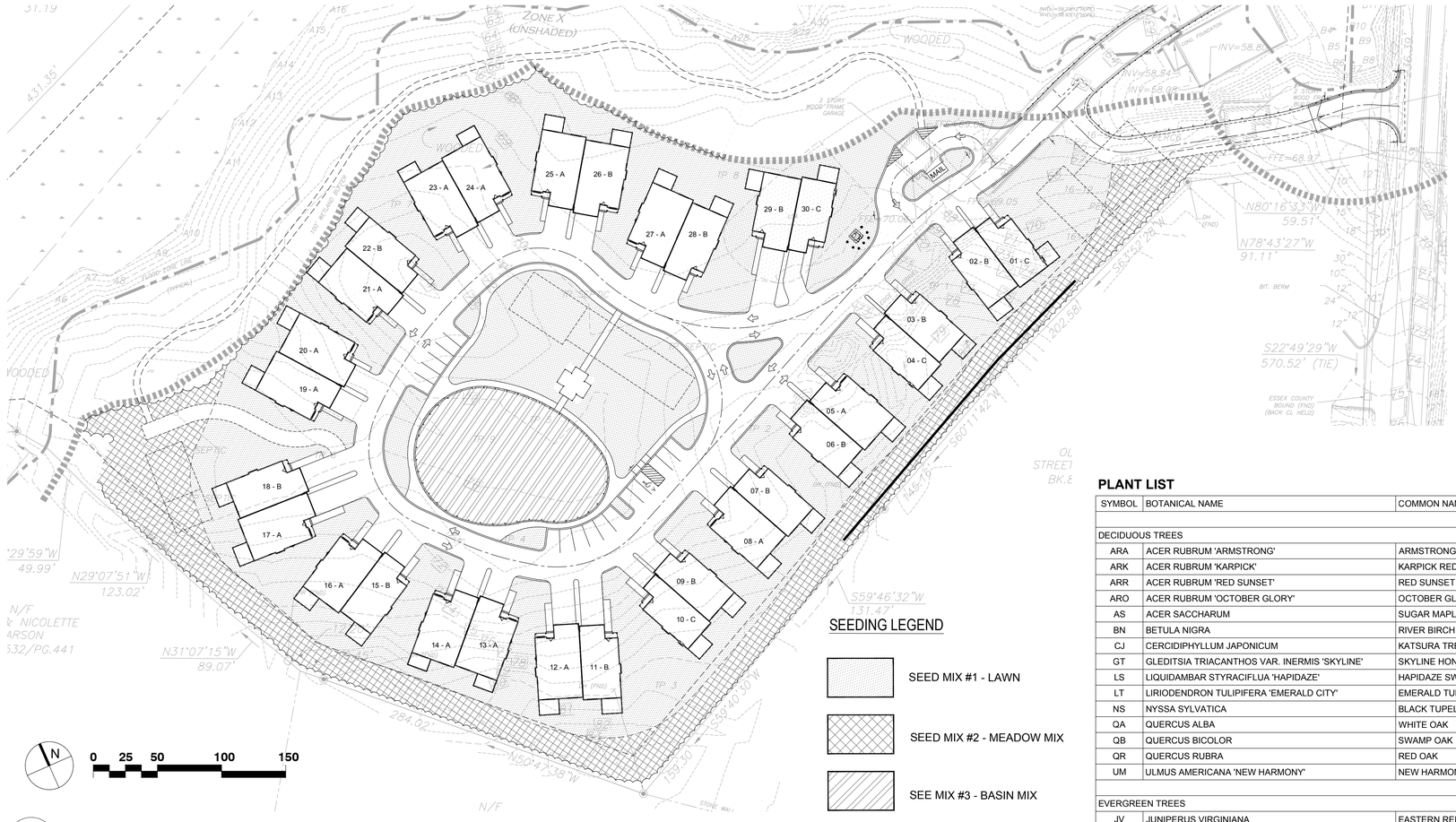
SHEET No. L-1



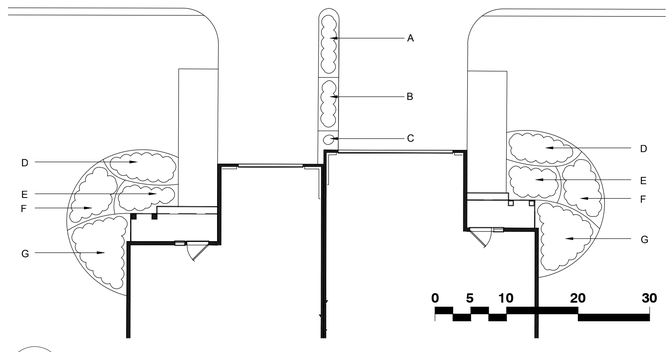
1 L-2 SEEDING PLAN
SCALE: 1" = 50'-0"

SEEDING LEGEND

- SEED MIX #1 - LAWN
- SEED MIX #2 - MEADOW MIX
- SEE MIX #3 - BASIN MIX

THREE FOUNDATION PLANTING PALETTES
CONTRACTOR CAN CHOOSE FOR EACH UNIT

	A	B	C	D	E	F	G
PALETTE 01	(11) AQ	(5) PA	(1) IG	(12) EP	(4) SAW	(7) PA	(6) GM
PALETTE 02	(11) RF	(5) MS	(1) IG	(12) AQ	(4) RK	(7) MS	(6) KL
PALETTE 03	(11) NF	(5) CSS	(1) IG	(12) SN	(4) RK	(7) CSS	(6) IGS



2 L-2 FOUNDATION PLANTING PALETTES
SCALE: 1" = 10'-0"

3 L-2 TYPICAL LIGHT POLE
SCALE: NTS

PLANTING LEGEND

CAL	CALIPER
B&B	BALLED IN BURLAP
TRIA. SP.	TRIANGULAR SPACING
O.C.	ON CENTER
#3 CONT	#3 SIZED CONTAINER
HT	HEIGHT
SPR	SPREAD
	PROPOSED TREES
	PROPOSED SHRUBS

PLANTING NOTES

1. REFER TO LAWNS AND GRASSES SPECIFICATIONS FOR FURTHER INFORMATION ON SEED MIXES.
2. ANY AREAS OF THE SITE, NOT OTHERWISE DESIGNATED, WHICH ARE DISTURBED DURING CONSTRUCTION SHALL BE HYDROSEEDED SEED MIXES, UNLESS OTHERWISE DIRECTED.
3. PLACE A 2" LAYER OF SHREDDED PINE BARK MULCH OVER ALL BEDS AND OVER ALL TREE PITS.
4. CONTRACTOR SHALL VERIFY PLANT COUNTS BY CONFIRMING PLANTING PLAN AND PLANT LIST FOR ACCURACY DURING THE BIDDING PROCESS. REPORT ANY DISCREPANCIES IMMEDIATELY FOR CLARIFICATION BY THE LANDSCAPE ARCHITECT DURING THE ADDENDUM PHASE OF THE PROJECT.

PLANT LIST

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
DECIDUOUS TREES				
ARA	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
ARK	ACER RUBRUM 'KARPICK'	KARPICK RED MAPLE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
ARR	ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
ARO	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
AS	ACER SACCHARUM	SUGAR MAPLE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
BN	BETULA NIGRA	RIVER BIRCH	6' - 8' HT.	B&B, MULTI-STEM.
CJ	CERCIDIPHYLLUM JAPONICUM	KATSURA TREE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
GT	GLEDITSIA TRIACANTHOS VAR. INERMIS 'SKYLINE'	SKYLINE HONEYLOCUST	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
LS	LIQUIDAMBAR STYRACIFLUA 'HAPIDAZE'	HAPIDAZE SWEETGUM	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
LT	LIRIODENDRON TULIPIFERA 'EMERALD CITY'	EMERALD TULIP TREE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
NS	NYSSA SYLVATICA	BLACK TUPELO	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
QA	QUERCUS ALBA	WHITE OAK	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
QB	QUERCUS BICOLOR	SWAMP OAK	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
QR	QUERCUS RUBRA	RED OAK	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
UM	ULMUS AMERICANA 'NEW HARMONY'	NEW HARMONY ELM	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
EVERGREEN TREES				
JV	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	7' - 8' HT.	B&B, BRANCHED TO GROUND
PS	PINUS STROBUS	EASTERN WHITE PINE	8' - 10" HT.	B&B, BRANCHED TO GROUND
FLOWERING TREES				
AC	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE APPLE SERVICEBERRY	6' - 8' HT.	B&B, MULTI-STEM
CF	CORNUS FLORIDA	FLOWERING DOGWOOD	6' - 8' HT.	B&B, HEAVY
HJ	HAMAMELIS X INTERMEDIA 'JELENA'	JELENA WITCHHAZEL	6' - 7' HT.	B&B, HEAVY
MDW	MAGNOLIA 'DONALD WYMAN'	DONALD WYMAN CRABAPPLE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 4'
ML	MAGNOLIA X LOEBNERI 'LEONARD MESSEL'	LEONARD MESSEL MAGNOLIA	6' - 8' HT.	B&B, HEAVY
PSC	PRUNUS SARGENTI 'COLUMNARIS'	COLUMNAR SARGENT CHERRY	2 - 2 1/2" CAL.	B&B, HEAVY
PY	PYRUS CALLERYANA 'CAPITOL'	CAPITOL PEAR	2 - 2 1/2" CAL.	B&B, HEAVY
PYO	PRUNUS YEDOENSIS	YOSHINO CHERRY	2 - 2 1/2" CAL.	B&B, HEAVY
DECIDUOUS SHRUBS				
CAE	CLETHRA ALNIFOLIA	SUMMERSWEET	18"-24"" HT.	
CS	CORNUS SERICEA	RED TWIG DOGWOOD	36"-48" HT.	
MP	MYRICA PENSYLVANICA	NORTHERN BAYBERRY	24"- 30" HT.	
RK	ROSA KNOCK OUT BLUSHING PINK	BLUSHING PINK KNOCK OUT ROSE	18"- 24" HT.	30" O.C., TRIA. SP.
SAW	SPIREA JAPONICA 'ANTHONY WATERER'	ANTHONY WATERER SPIREA	24"- 30" HT.	42" O.C., TRIA. SP.
VT	VIBURNUM TRILOBUM	CRANBERRY VIBURNUM	24" HT./SPR.	
EVERGREEN SHRUBS				
IG	ILEX GLABRA	INKBERRY	30" HT./SPR.	
IGS	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY - COMPACT	30" HT./SPR.	
JC	JUNIPERUS CHINENSIS SARGENTII	SARGENTII JUNIPER	18" HT./SPR.	42" O.C., TRIA. SP.
JHB	JUNIPERUS HORIZONTALIS	JUNIPER	18" - 24" HT.	42" O.C., TRIA. SP.
KL	KALMIA LATIFOLIA 'ELF'	ELF MOUNTAIN LAUREL	18"- 24" HT.	36" O.C., TRIA. SP.
RM	RHODODENDRON CATAWBIENSE 'LODER'S WHITE'	LODER'S WHITE RHODODENDRON	24"-30" HT.	48" O.C., TRIA. SP.
GRASSES / PERENNIALS				
AQ	HEMEROCALLIS	DAYLILLIES	#1 CONT	18" O.C., TRIA. SP.
CSS	CAREX STRICTA	TUSSOCK SEDGE	# 3 CONT	18" O.C., TRIA. SP.
EP	ECHINACEA PURPUREA	PURPLE CONEFLOWER	#1 CONT	18" O.C., TRIA. SP.
MS	MISCANTHUS SINENSIS 'LITTLE KITTEN'	LITTLE KITTEN MAIDEN GRASS	#2 CONT	18" O.C., TRIA. SP.
NF	NEPETA X FAASSENII 'BLUE WHISPER'	BLUE WHISPER CATMINT	#2 CONT	18" O.C., TRIA. SP.
PA	PENNISETUM ALOPECUROIDES 'HAMELN'	HAMELN DWARF FOUNTAIN GRASS	#2 CONT	24" O.C., TRIA. SP.
RF	RUDBECKIA FULGIDA 'GOLDSTRUM'	BLACK EYED SUSAN	#1 CONT	18" O.C., TRIA. SP.
SN	SYMPHYOTRICHUM NOVAE-ANGLIAE	NEW ENGLAND ASTER	# 3 CONT	24" O.C., TRIA. SP.

\\BSI-NAS\DATA\ACTIVE FILES\SDC - SARKIS\1501 TOPSFIELD\DWGS\L-1.DWG

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

MASSACHUSETTS WILLIAM BROWN No. 1073 REGISTERED LANDSCAPE ARCHITECT

REGISTERED LANDSCAPE ARCHITECT FOR BROWN SARDINA, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:

RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	AS SHOWN	DWG. NAME:	L-1.dwg
DESIGNED BY:	BDB	CHECKED BY:	WB

PREPARED BY:

Brown | Sardina
Brown Sardina, Inc.
Landscape Architecture, Planning, Urban Design
24 Roland Street Boston, MA 02129
Tel: 617.482.4703
www.brownsardina.com

THIS DRAWING HAS BEEN PREPARED IN ELECTRONIC FORMAT. CLIENT/CLIENT'S REPRESENTATIVE OR CONSULTANT MAY BE PROVIDED COPIES OF DRAWINGS AND SPECIFICATIONS ON MAGNETIC MEDIA FOR HIS/HER INFORMATION AND USE FOR SPECIFIC APPLICATION TO THIS PROJECT. DUE TO THE POTENTIAL THAT THE MAGNETIC INFORMATION MAY BE MODIFIED UNINTENTIONALLY OR OTHERWISE, ALLEN & MAJOR ASSOCIATES, INC. MAY REMOVE ALL INDICATION OF THE DOCUMENT'S AUTHORSHIP ON THE MAGNETIC MEDIA. PRINTED REPRESENTATIONS OF THE DRAWINGS AND SPECIFICATIONS ISSUED SHALL BE THE ONLY RECORD COPIES OF ALLEN & MAJOR ASSOCIATES, INC.'S WORK PRODUCT.

DRAWING TITLE:

PLANT LIST AND SEEDING PLAN

SHEET No.

L-2

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3. THE EXISTING CONDTIONS, AND ALL PROPOSED IMPROVEMENTS, EXCEPT THE SUSBSURFACE SEWAGE DISPOSAL SYSTEMS AND COMPONENTS, ARE BASED ON PLANS PREPARED BY ALLEN & MAJOR ASSOCIATES, INC.

TOWN OF IPSWICH
TOWN OF TOPSFIELD

SUBSURFACE SEWAGE DISPOSAL SYSTEM #1 TO SERVE DWELLINGS 11–18 SEE SHEET SDS–1.1

SUBSURFACE SEWAGE DISPOSAL SYSTEM #3 TO SERVE DWELLINGS 19–30 SEE SHEET SDS–3.1

SUBSURFACE SEWAGE DISPOSAL SYSTEM #2 TO SERVE DWELLINGS 1–10 SEE SHEET SDS–2.1

BOSTON STREET
(PUBLIC – 66' WIDE – ROUTE 1) WORK
(1922 MASSACHUSETTS DEPARTMENT OF PUBLIC

S22°49'29"W
570.52' (TIE)

GRAPHIC SCALE
0 20 40 80 160
SCALE 1"=40'

ISSUED FOR PERMITTING: OCTOBER 13,2016
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EAGLEBROOK

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DANVERS, MASS. 01923
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STAMP:

COMMONWEALTH OF MASSACHUSETTS
KENNETH C. KNOWLES
CIVIL
No. 45679
REGISTERED PROFESSIONAL ENGINEER
10/13/16

DATE:
OCTOBER 13, 2016

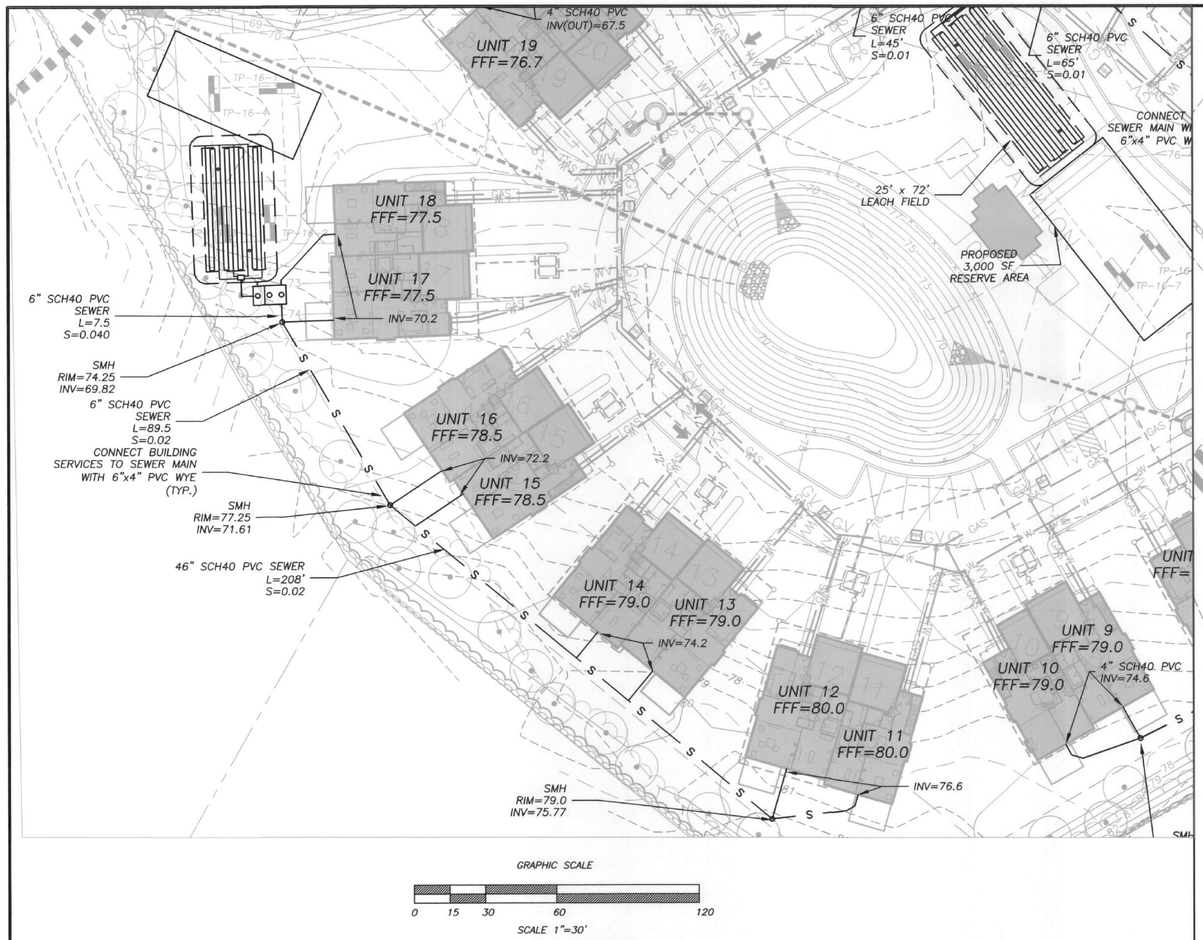
REVISIONS:

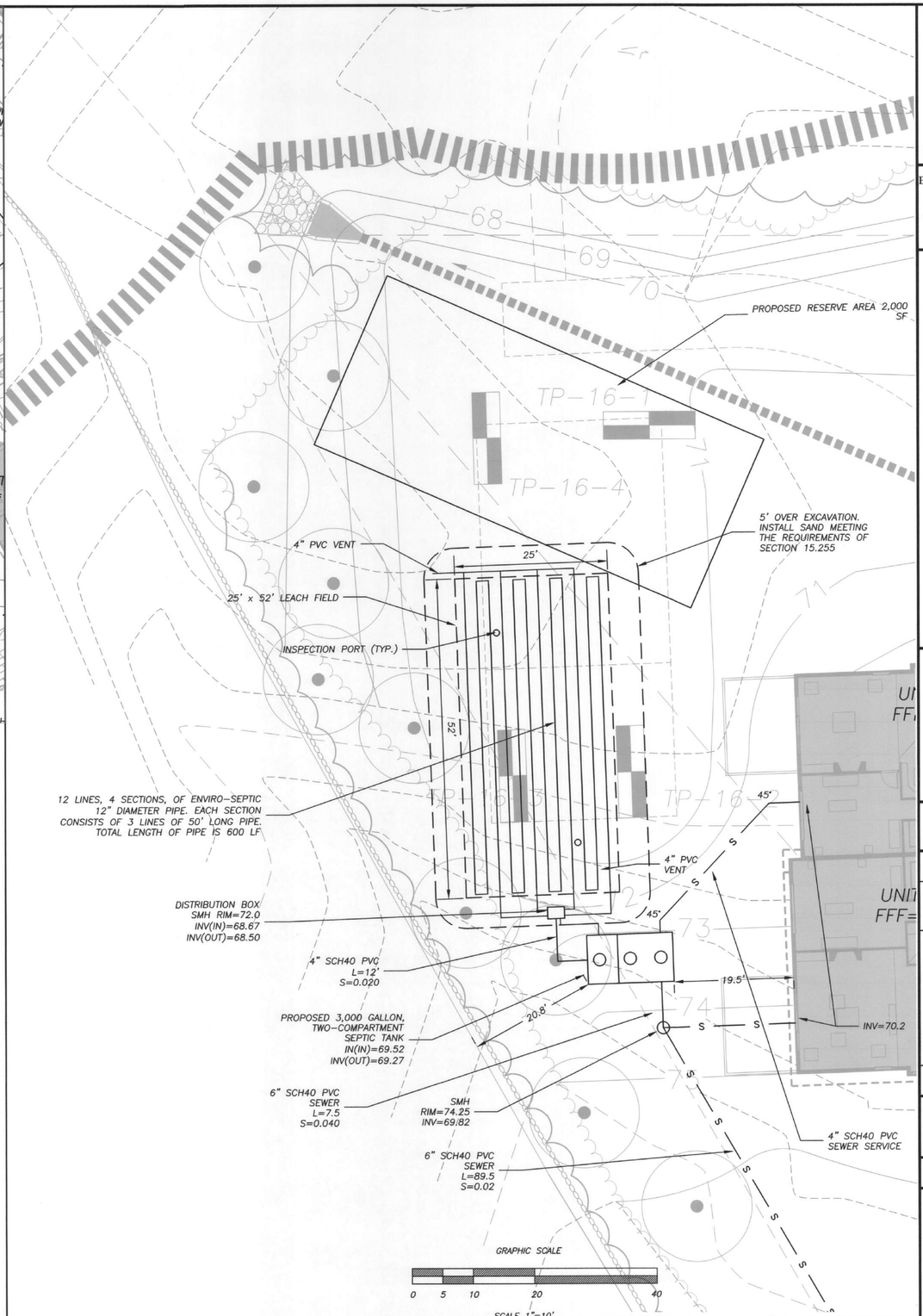
NO.:	DESCRIPTION:	DATE:

DRAWN BY: BSM
CHECKED BY: KCK
SCALE: AS NOTED

PROJECT NO. 15-023

TITLE:
SDS PLAN
SDS-1





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470 BOSTON STREET
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STAMP:

COMMONWEALTH OF MASSACHUSETTS
KENNETH C. KNOWLES
CIVIL
No. 45679
REGISTERED PROFESSIONAL ENGINEER
10/13/16

DATE:
OCTOBER 13, 2016

REVISIONS:

NO.:	DESCRIPTION:	DATE:

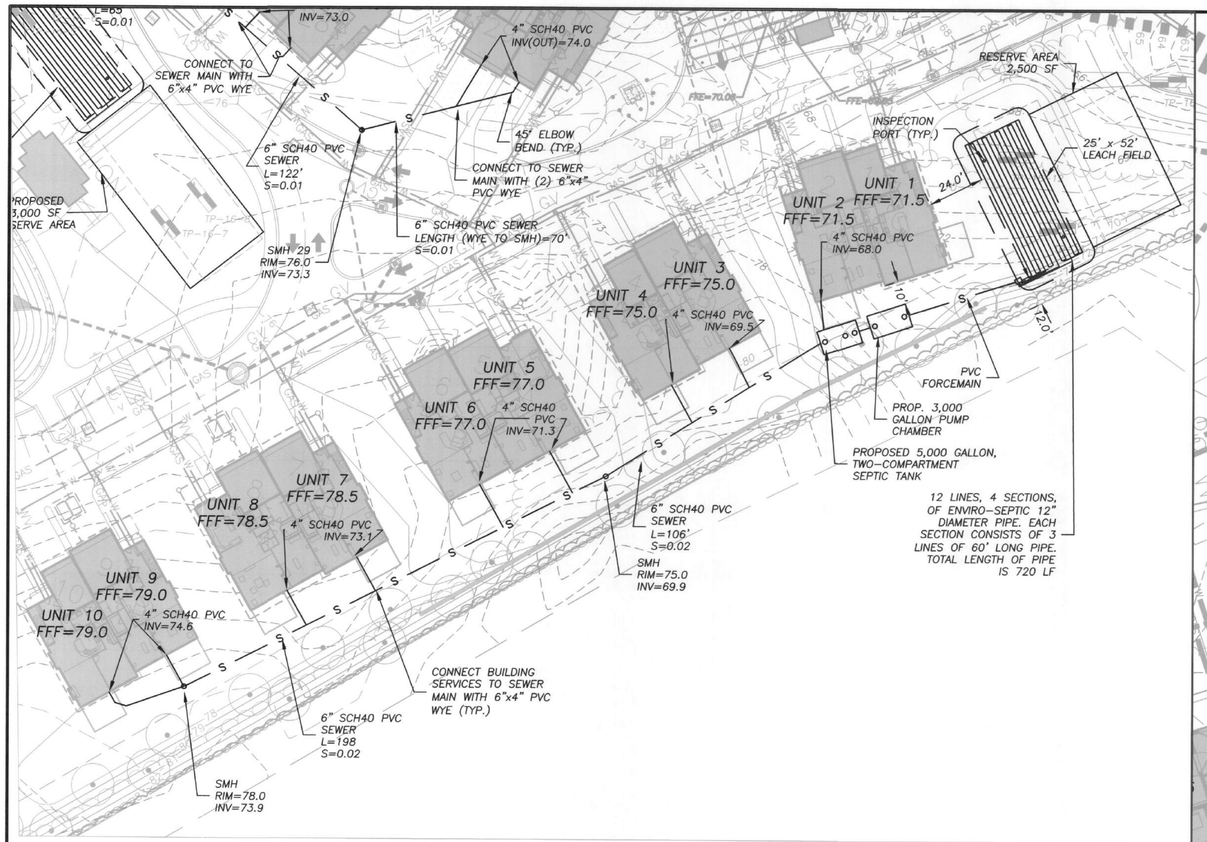
DRAWN BY: BSM
CHECKED BY: KCK
SCALE: AS NOTED

PROJECT NO. 15-023

TITLE:

SDS PLAN

SDS 1.1



GRAPHIC SCALE

0 15 30 60 120

SCALE 1"=30'

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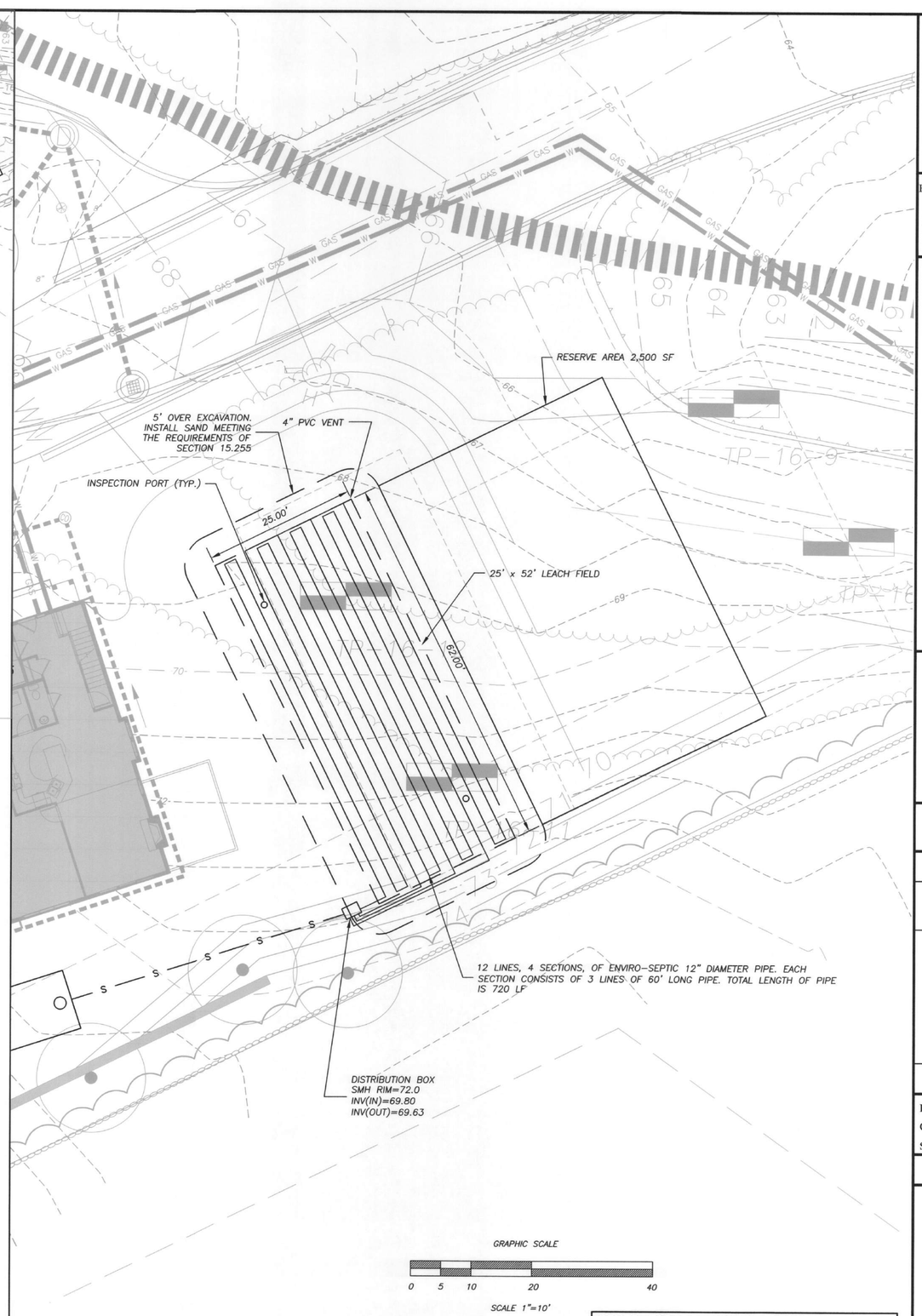

GRAPHIC SCALE

0 5 10 20 40

SCALE 1"=10'

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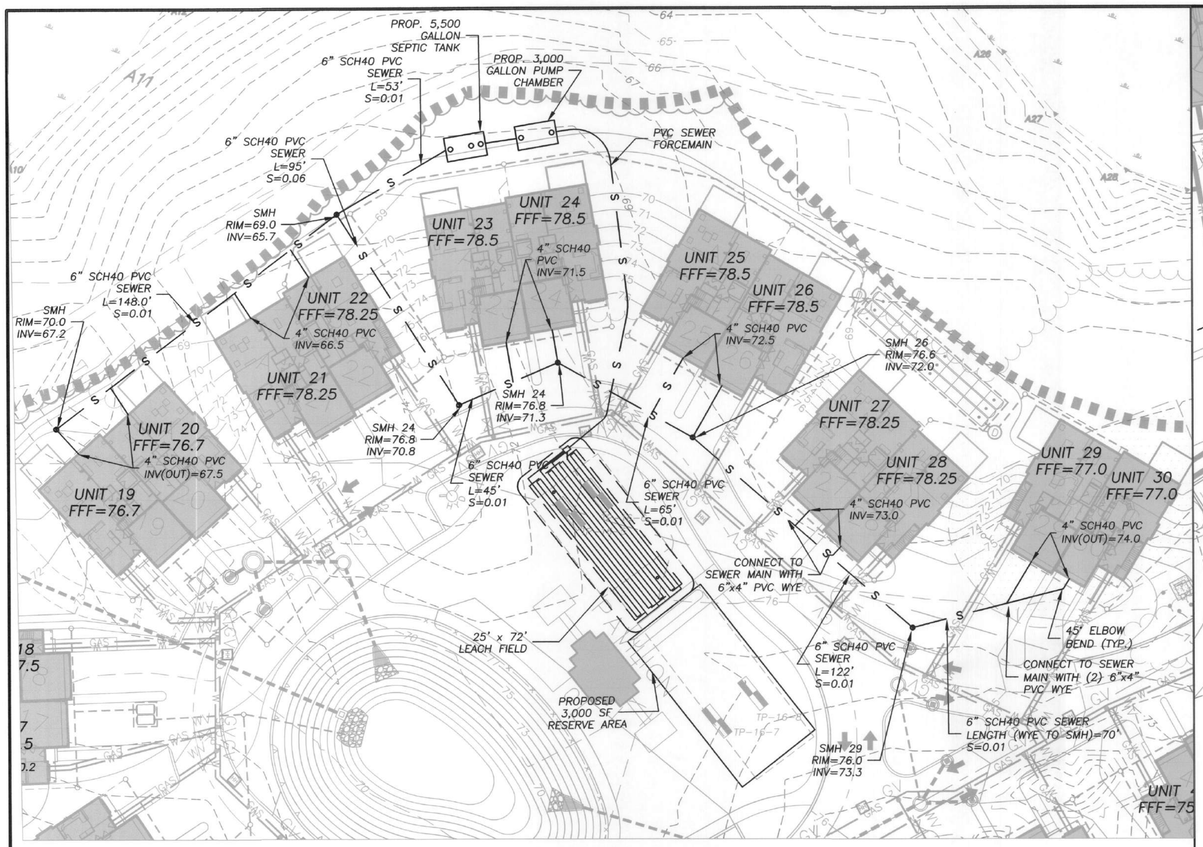
CHECKED BY: KCK
SCALE: AS NOTED

PROJECT NO. 15-023

TITLE:

SDS PLAN

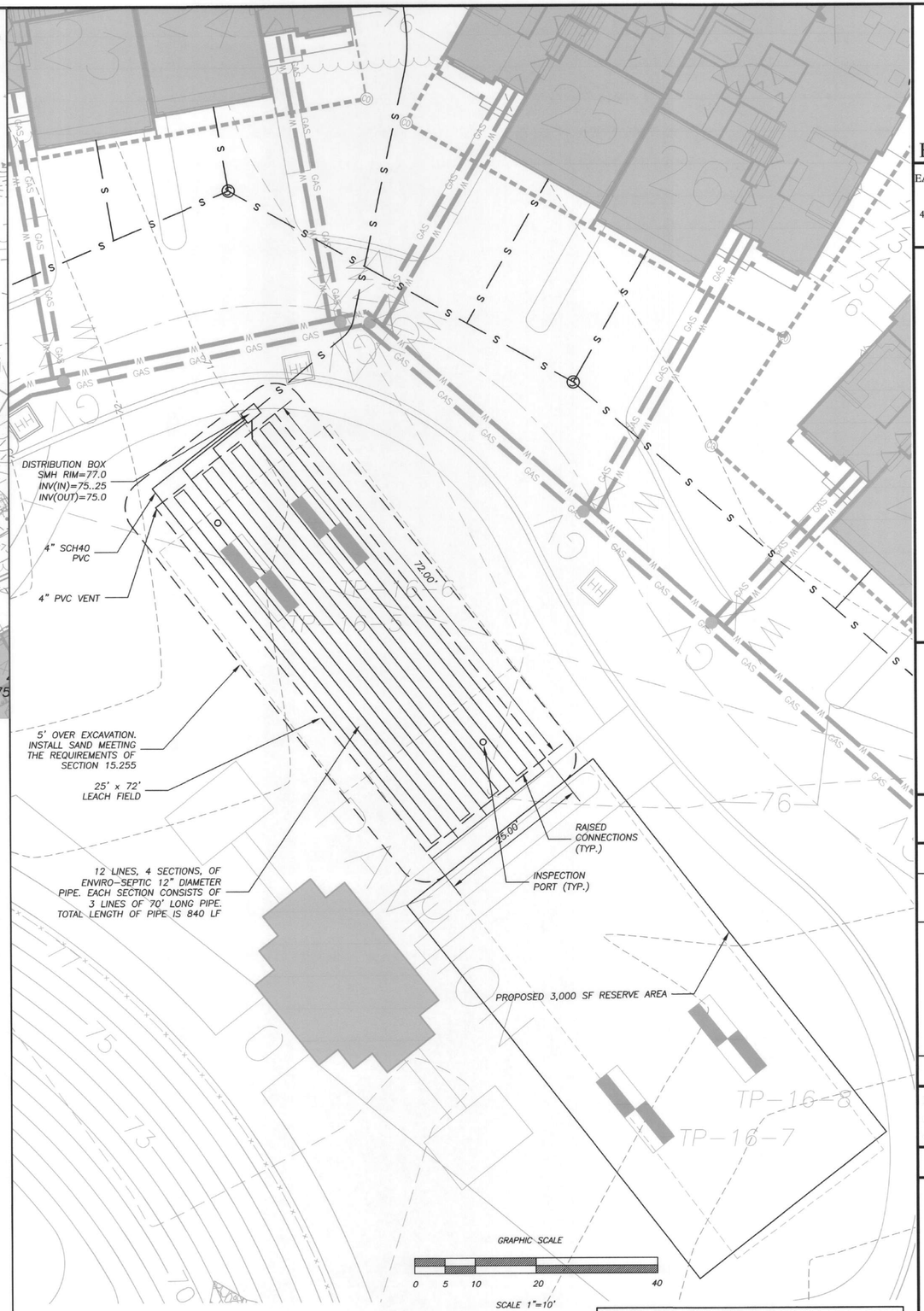
SDS 2.1



GRAPHIC SCALE

0 15 30 60 120

SCALE 1"=30'



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DANVERS, MASS. 01923
TEL: (978) 777-0494

470 BOSTON STREET

LOCATED IN
TOPSFIELD, MASSACHUSETTS
PREPARED FOR
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MASSACHUSETTS

STAMP:

COMMONWEALTH OF MASSACHUSETTS
KENNETH C. KNOWLES
CIVIL
No. 45679
REGISTERED PROFESSIONAL ENGINEER
10/28/16

DATE:
OCTOBER 13, 2016

REVISIONS:

NO.:	DESCRIPTION:	DATE:

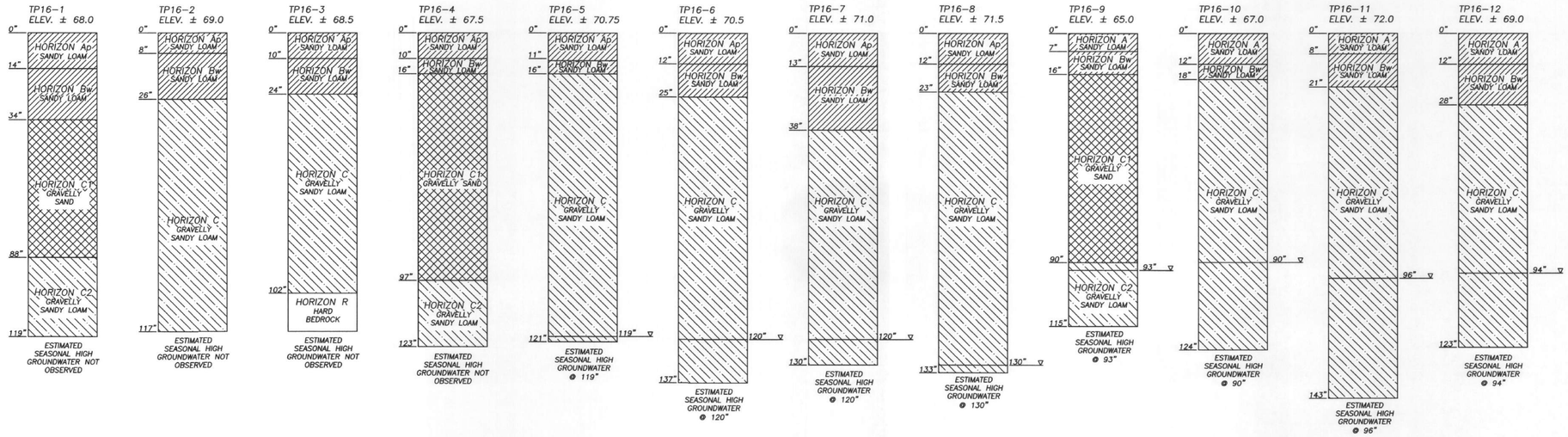
DRAWN BY: BSM
CHECKED BY: KCK
SCALE: AS NOTED

PROJECT NO. 15-023

TITLE:

SDS PLAN

SDS 3.1



PERCOLATION TEST #1
LOCATION: TP16-2
DEPTH OF PERC: 66"
PERC RATE: 1.66 MPI

PERCOLATION TEST #2
LOCATION: TP16-4
DEPTH OF PERC: 42"
PERC RATE: 1.00 MPI

PERCOLATION TEST #4
LOCATION: TP16-5
DEPTH OF PERC: 54"
PERC RATE: 1.00 MPI

PERCOLATION TEST #3
LOCATION: TP16-8
DEPTH OF PERC: 63"
PERC RATE: 4.66 MPI

PERCOLATION TEST #6
LOCATION: TP16-10
DEPTH OF PERC: 54"
PERC RATE: 7.33 MPI

PERCOLATION TEST #5
LOCATION: TP16-12
DEPTH OF PERC: 54"
PERC RATE: 2.33 MPI

TEST PIT NOTES:

1. SOIL SUITABILITY ASSESSMENT WAS PERFORMED BY ALEXANDER F. PARKER ON JULY 6, 2016. THE ASSESSMENT WAS WITNESSED BY THE TOPSFIELD DIRECTOR OF PUBLIC HEALTH, MR. JOHN COULON.

ISSUED FOR PERMITTING: OCTOBER 13,2016
NOT TO BE USED FOR CONSTRUCTION

EAGLEBROOK

EAGLEBROOK ENGINEERING & SURVEY, LLC

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DATE:
OCTOBER 13, 2016

REVISIONS:

NO.:	DESCRIPTION:	DATE:

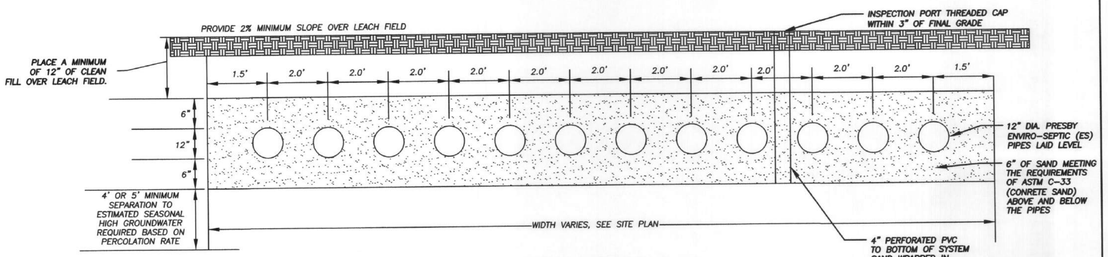
DRAWN BY: BSM
CHECKED BY: KCK
SCALE: AS NOTED

PROJECT NO. 15-023

TITLE:

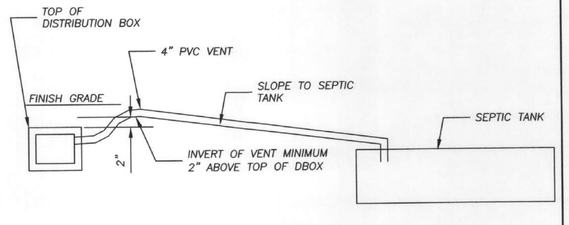
SDS PLAN

SDS-4



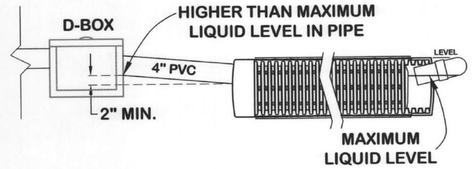
SCHEMATIC PRESBY LEACH FIELD DETAIL

(NOT TO SCALE)



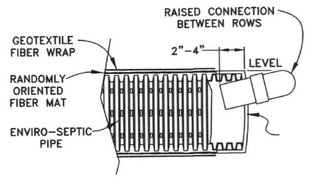
BYPASS VENT DETAIL

(NOT TO SCALE)

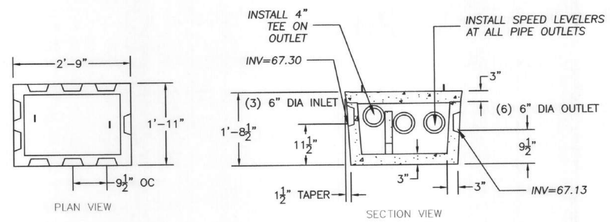


2" DBOX DROP DETAIL

NOT TO SCALE

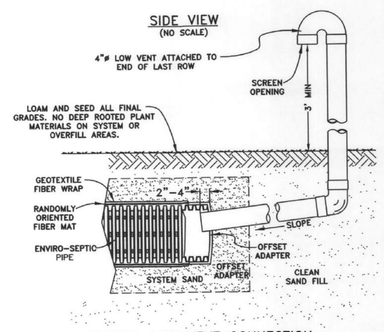


RAISED CONNECTION LEVEL BED

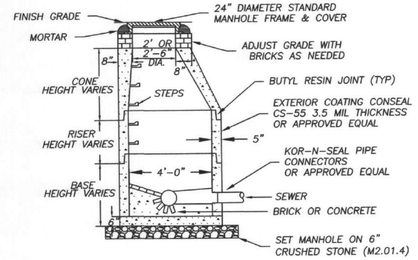


6 OUTLET BAFFLE BOX

NOT TO SCALE



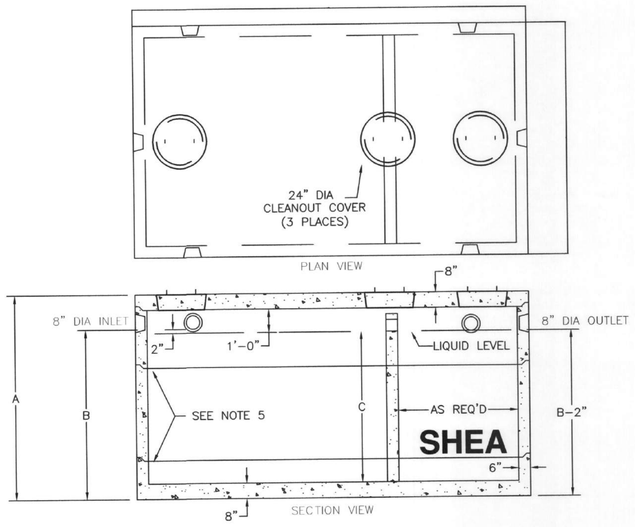
TYPICAL LOW VENT CONNECTION FOR SERIAL DISTRIBUTION



NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS
2. REINFORCED STEEL CONFORMS TO LATEST ASTM A185 SPEC. 0.12 SQ. IN/LINEAL FEET AND 0.12 SQ IN. (BOTH WAYS) BASE BOTTOM.
3. H-20 DESIGN LOADING PER AASHTO HS-20-44; ASTM C478 SPEC FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS.
4. BUTYL RESIN SECTION JOINT CONFORMS TO LATEST ASTM C443 SPEC.
5. STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP CONFORMS TO LATEST ASTM C478 SPEC.

SEWER MANHOLE DETAIL

(NOT TO SCALE)



GALLONS	A (HEIGHT)	B (INLET)	C (LIQUID)	WEIGHT (LBS)	ITEM NO.
5,500	92"	74"	64"	62,230	TK-5500C2C

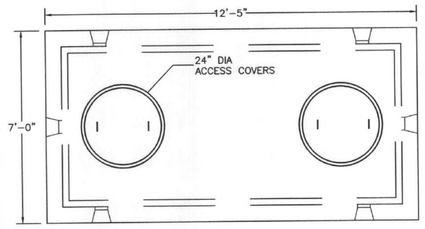
NOTES:

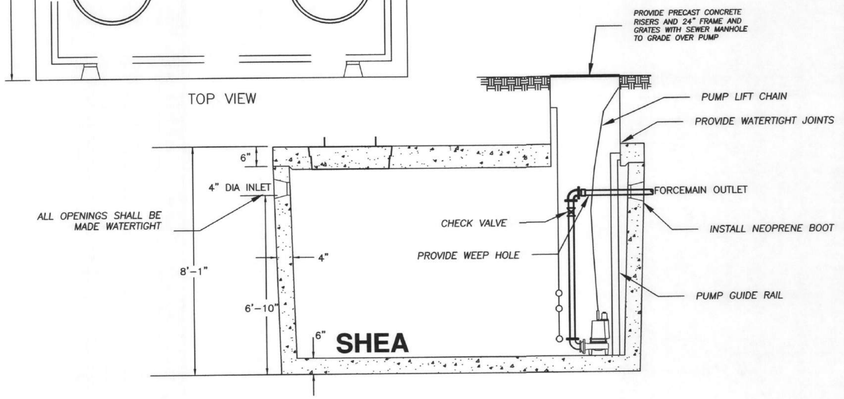
1. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGN CONFORMS WITH 310 CMR 15.00, DEP TITLE 5 REGS, FOR SEPTIC TANKS.
3. ALL REINFORCEMENT PER ASTM C1227-93.
4. DESIGNED FOR H-20 LOADING, COVER 1-5FT.
5. TONGUE AND GROOVE JOINT SEALED WITH BUTYL RESIN. INLET HEIGHT MAY INCREASE SLIGHTLY DUE TO THE BUTYL RESIN USED.
6. TEES AND BAFFLES SOLD SEPARATELY.

COMMERCIAL 2-COMPART TANK
5,500 GALLON

SEPTIC TANK DETAIL

(NOT TO SCALE)





SECTION VIEW

NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS
2. ALL REINFORCEMENT PER ASTM C1227-93
3. JOINT SEALED WITH BUTYL RESIN
4. SET PUMP CHAMBER ON 6" OF CRUSHED STONE FOR A STABLE BASE.
5. EMERGENCY STORAGE PROVIDED ABOVE ALARAM "ON" IS EQUAL TO 24 HOUR DESIGN FLOW.
6. DOSING VOLUME FROM THE PUMP "ON" TO THE PUMP "OFF" IS APPROXIMATELY 4 CYCLES PER DAY.
7. THE PUMP MUST BE EQUIPPED WITH A HIGH LEVEL ALARM LOCATED IN THE DWELLING WHICH IS POWERED BY A CIRCUIT SEPARATE FROM THE CIRCUIT TO THE PUMPS.

SCHEMATIC PUMP CHAMBER DETAIL

(NOT TO SCALE)

PRELIMINARY DESIGN CALCULATIONS:

SYSTEM #1

BUILDING/FACILITY: EIGHT (8) ELDERY DWELLING UNITS
NUMBER OF BEDROOOMS: TWO (2) BEDROOMS PER UNIT, 16 TOTAL
DESIGN FLOW RATE: 150 GPD PER TWO BEDROOM ELDERLY UNIT
PERCOLATION RATE: 1.66 MPI (PERC-1 AT TP-2)
TOTAL DESIGN FLOW: 1,200 GPD
LEACHING AREA REQUIREMENTS (GPD/SF): 0.60 GPD PER SF
(1,200 GPD)/(0.6 GPD/SF)=2,000 SF PER TITLE 5 REQUIREMENT
(2,000 SF) x (40% REDUCTION FOR PRESBY SYSTEM) = 1,200 SF
MINIMUM SAND BED AREA:
(8 UNITS)x(150 GPD)/(1 GPD/SF FOR PRESBY SYSTEM) = 1,200 SF
LEACHING PROVIDED IN THE DESIGN:
PRESBY SYSTEM USE 12 ROWS, 50' LONG PIPES, WITH 2' SPACING
3 ROWS OF PIPES ARE CONNECTED AT END TO MAKE 4 TREATMENT SECTIONS
LEACH FIELD 25' x 52' = 1,300 SF (BOTTOM AREA ONLY)
REQUIRED PIPE LENGTH IS 546 L.F.; DESIGN 600 LF

SYSTEM #2

BUILDING/FACILITY: TEN (10) ELDERY DWELLING UNITS
NUMBER OF BEDROOOMS: TWO (2) BEDROOMS PER UNIT, 20 TOTAL
DESIGN FLOW RATE: 150 GPD PER TWO BEDROOM ELDERLY UNIT
PERCOLATION RATE: 7.33 MPI (PERC-6 AT TP-10)
TOTAL DESIGN FLOW: 1,500 GPD
LEACHING AREA REQUIREMENTS (GPD/SF):
(1,500 GPD)/(0.6 GPD/SF)=2,500 SF PER TITLE 5 REQUIREMENT
(2,500 SF) x (40% REDUCTION FOR PRESBY SYSTEM) = 1,500 SF
MINIMUM SAND BED AREA:
(10 UNITS)x(150 GPD)/(1 GPD/SF FOR PRESBY SYSTEM) = 1,500 SF
LEACHING PROVIDED IN THE DESIGN:
PRESBY SYSTEM USE 12 ROWS, 60' LONG PIPES, WITH 2' SPACING
3 ROWS OF PIPES ARE CONNECTED AT END TO MAKE 4 TREATMENT SECTIONS
LEACH FIELD 25' x 62' = 1,550 SF (BOTTOM AREA ONLY)
REQUIRED PIPE LENGTH IS 682 L.F.; DESIGN 720 LF

SYSTEM #3

BUILDING/FACILITY: TWELVE (12) ELDERY DWELLING UNITS
NUMBER OF BEDROOOMS: TWO (2) BEDROOMS PER UNIT, 24 TOTAL
DESIGN FLOW RATE: 150 GPD PER TWO BEDROOM ELDERLY UNIT
PERCOLATION RATE: 1.00 MPI (PERC-4 AT TP-5)
TOTAL DESIGN FLOW: 1,800 GPD
LEACHING AREA REQUIREMENTS (GPD/SF):
(1,800 GPD)/(0.6 GPD/SF)=3,000 SF PER TITLE 5 REQUIREMENT
(3,000 SF) x (40% REDUCTION FOR PRESBY SYSTEM) = 1,800 SF
MINIMUM SAND BED AREA:
(12 UNITS)x(150 GPD)/(1 GPD/SF FOR PRESBY SYSTEM) = 1,800 SF
LEACHING PROVIDED IN THE DESIGN:
PRESBY SYSTEM USE 12 ROWS, 70' LONG PIPES, WITH 2' SPACING
3 ROWS OF PIPES ARE CONNECTED AT END TO MAKE 4 TREATMENT SECTIONS
LEACH FIELD 25' x 72' = 1,800 SF (BOTTOM AREA ONLY)
REQUIRED PIPE LENGTH IS 818 L.F.; DESIGN 840 LF

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CHECKED BY: KCK
SCALE: AS NOTED

PROJECT NO. 15-023

TITLE:

SDS DETAIL

SDS-5

Rolling Green

Topsfield, Massachusetts

October 5, 2016

Project Team: Andrew T. Zalewski, AIA

The MZO Group
Stoneham, MA

List of Drawings

A-1 Unit A Elevations I
A-2 Unit A Elevations II
A-3 Unit A First Floor
A-4 Unit A Second Floor
A-5 Unit B Elevations I
A-6 Unit B Elevations II
A-7 Unit B First Floor
A-8 Unit B Second Floor
A-9 Unit C Elevations I
A-10 Unit C Elevations II
A11 Unit C First Floor
A-12 Unit C Second Floor

FRONT ELEVATION

1/4" = 1'-0"

LEFT SIDE ELEVATION

1/4" = 1'-0"

Unit A

Rolling Green

470 Boston Street, Topsfield, MA

The MZO GROUP
DESIGNERS ■ ARCHITECTS ■ PLANNERS
IN THE *MIQUELLE* TRADITION

92 Montvale Avenue, Suite 4350 ■ Stoneham, Massachusetts 02180
Voice 781-279-4446 ■ Fax 781-279-4448 ■ E-Mail: mzo@mzogroup.com ■ www.mzogroup.com

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5856

BACK ELEVATION

1/4" = 1'-0"

RIGHT SIDE ELEVATION

1/4" = 1'-0"

Unit A

Rolling Green

470 Boston Street, Topsfield, MA

October 5, 2016

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FIRST FLOOR

1/4" = 1'-0"

Unit A

Rolling Green

Hemmingway St., Winchester, MA

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SECOND FLOOR

1/4" = 1'-0"

Unit A

Rolling Green

Hemmingway St., Winchester, MA

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FRONT ELEVATION

1/4" = 1'-0"

LEFT SIDE ELEVATION

1/4" = 1'-0"

Unit B

Rolling Green

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BACK ELEVATION

1/4" = 1'-0"

RIGHT SIDE ELEVATION

1/4" = 1'-0"

Unit B

Rolling Green

470 Boston Street, Topsfield, MA

October 5, 2016

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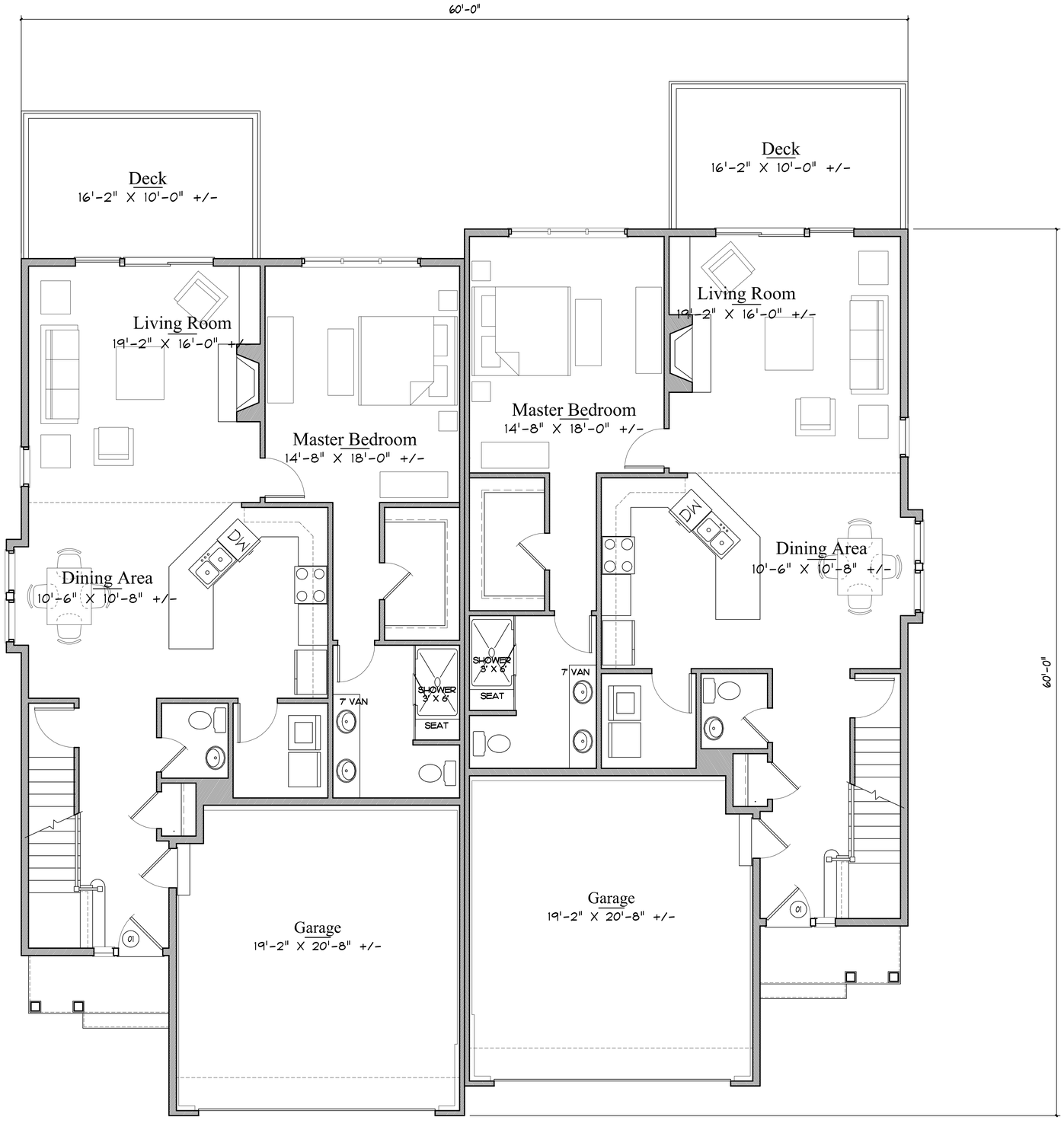

FIRST FLOOR

1/4" = 1'-0"

Unit B

Rolling Green

Hemmingway St., Winchester, MA

The MZO GROUP
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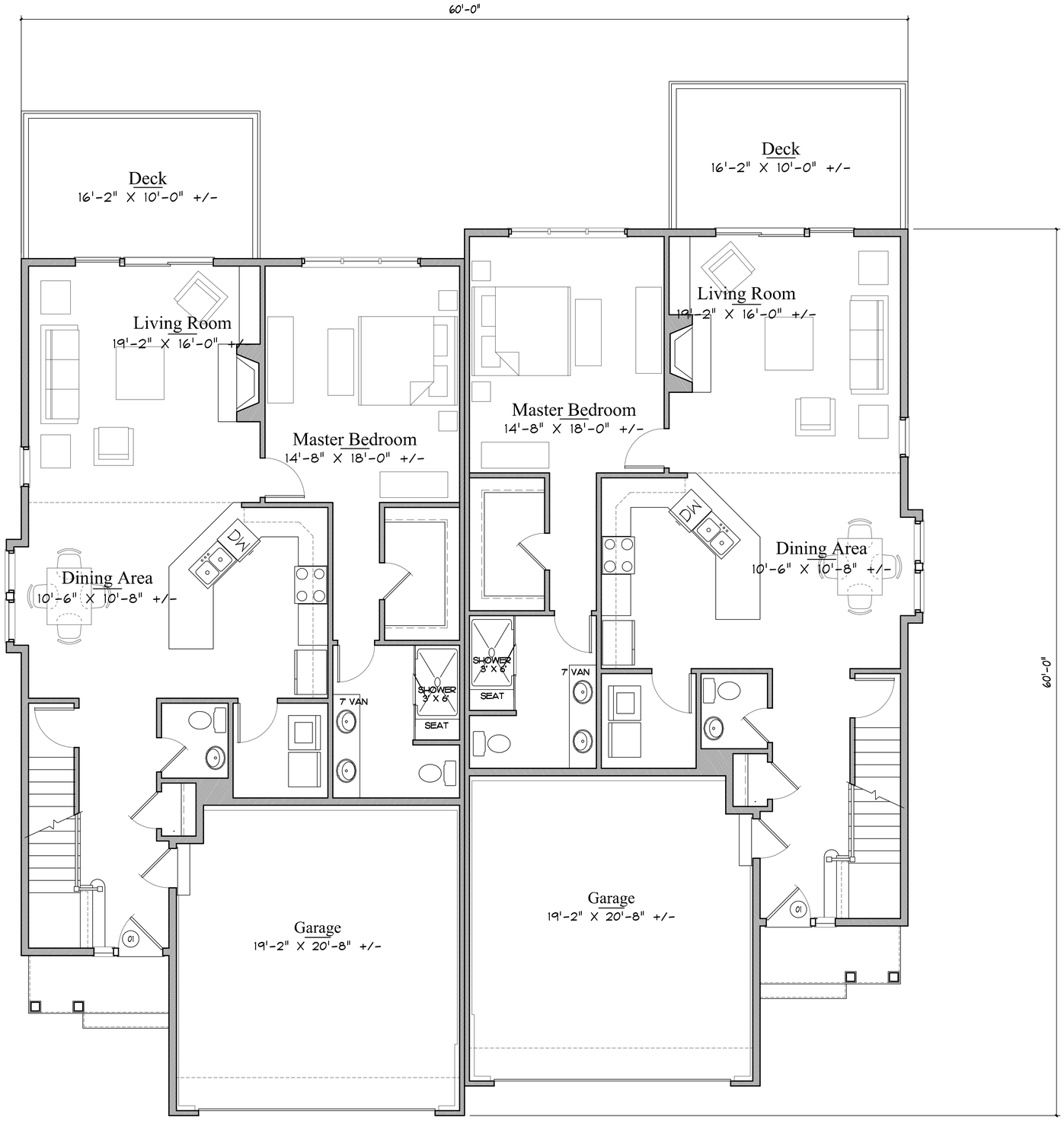

SECOND FLOOR

1/4" = 1'-0"

Unit B

Rolling Green

Hemmingway St., Winchester, MA

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FRONT ELEVATION

1/4" = 1'-0"

LEFT SIDE ELEVATION

1/4" = 1'-0"

Unit C

Rolling Green

470 Boston Street, Topsfield, MA

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BACK ELEVATION

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RIGHT SIDE ELEVATION

1/4" = 1'-0"

Unit C

Rolling Green

470 Boston Street, Topsfield, MA

October 5, 2016

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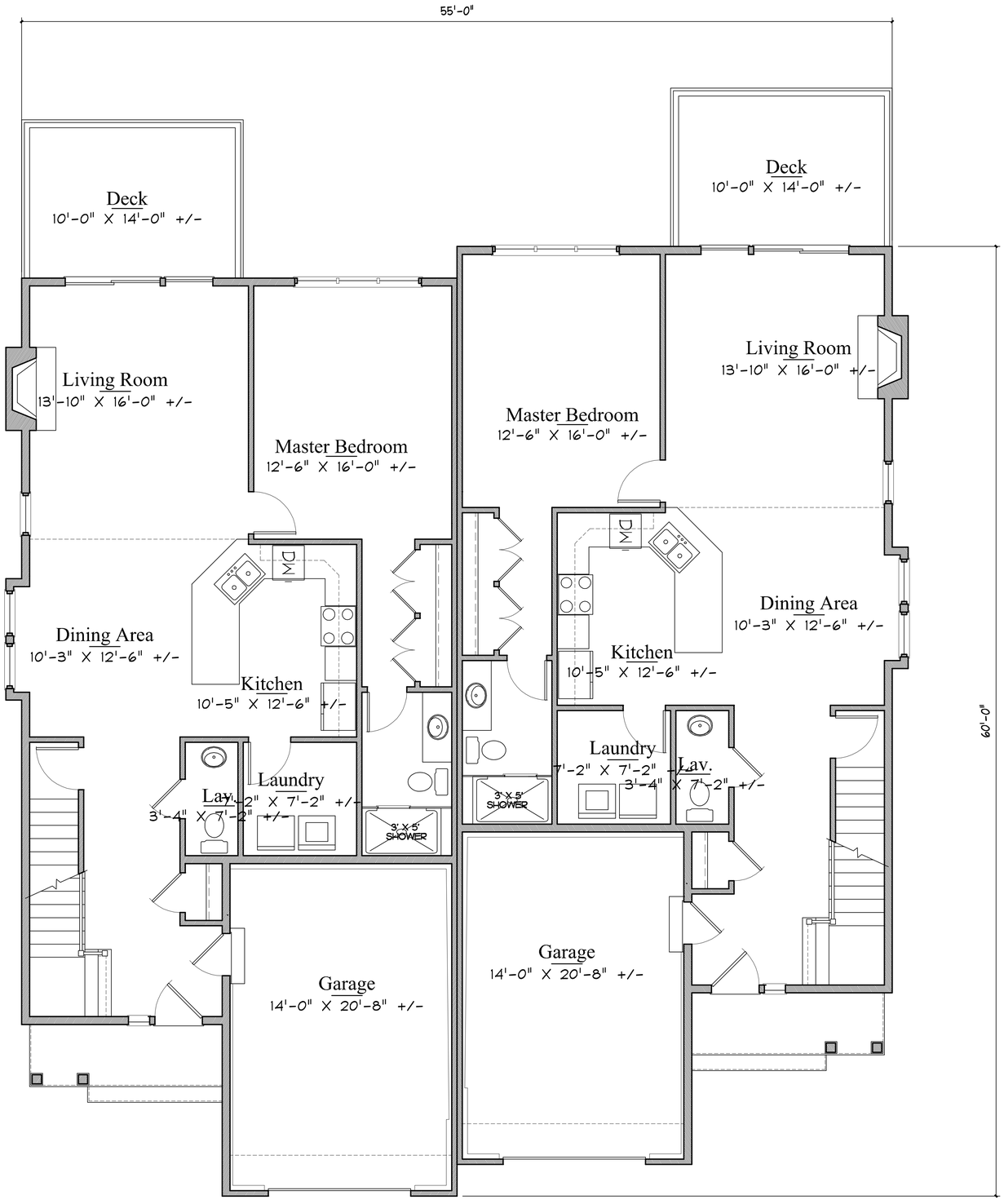

FIRST FLOOR

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Unit C

Rolling Green

Hemmingway St., Winchester, MA

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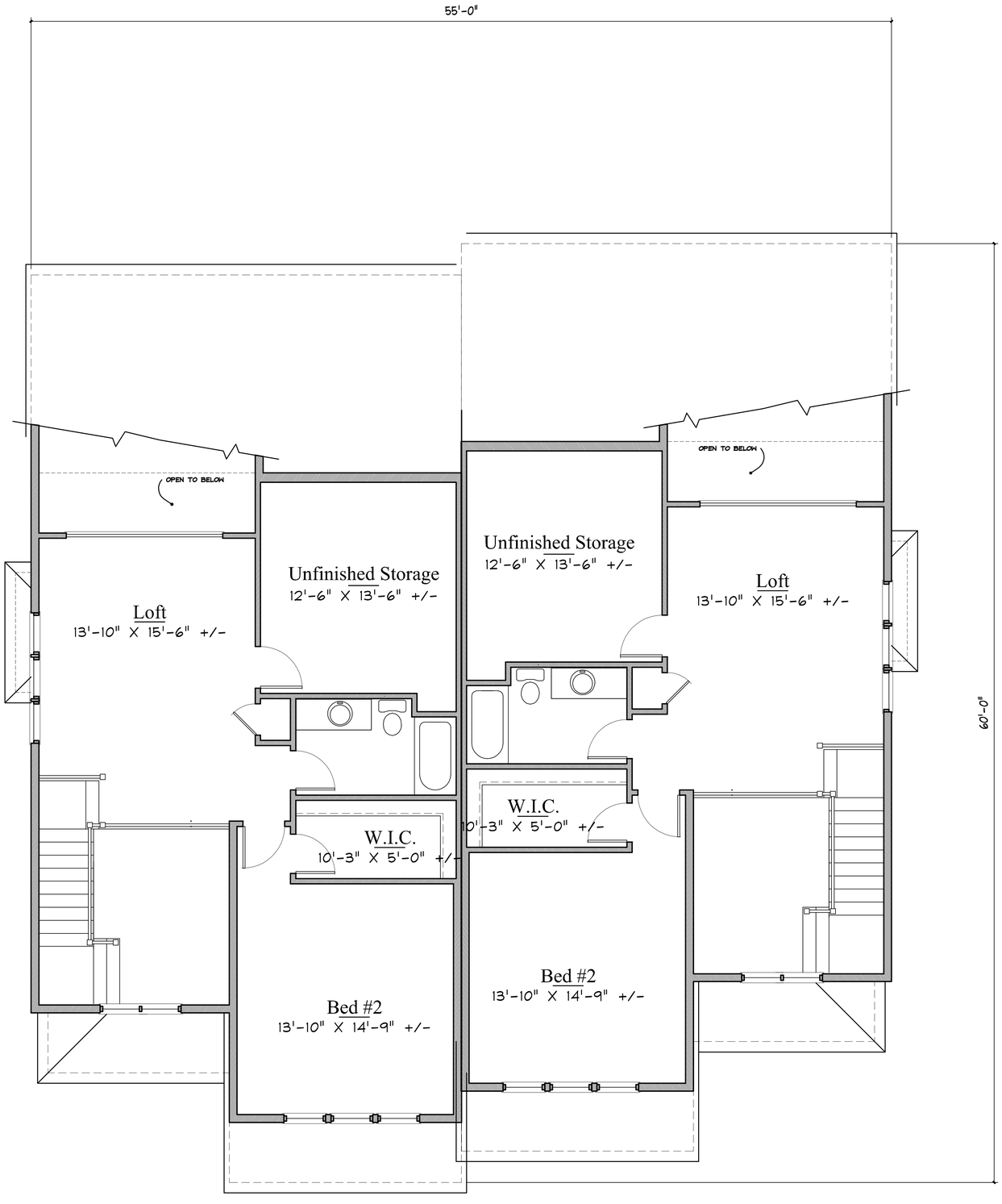

SECOND FLOOR

1/4" = 1'-0"

Unit C

Rolling Green

Hemmingway St., Winchester, MA

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