

GENERAL NOTES

- LOCATIONS OF EXISTING UNDERGROUND UTILITIES/OBSTRUCTIONS/SYSTEMS SHOWN HEREON ARE APPROXIMATE ONLY. ALL UTILITIES/OBSTRUCTIONS/SYSTEMS MAY NOT BE SHOWN. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UNDERGROUND UTILITIES/OBSTRUCTIONS/SYSTEMS, WHETHER OR NOT SHOWN HEREON.
- UNLESS OTHERWISE SHOWN, ALL NEW UTILITIES SHALL BE UNDERGROUND.
- BURIED UTILITIES SHALL BE INSTALLED IN ACCORDANCE WITH THEIR RESPECTIVE COMPANY SPECIFICATIONS.
- CONSTRUCTION LAYOUT OF BUILDING AND SITE IMPROVEMENTS SHALL BE PERFORMED BY A LICENSED PROFESSIONAL LAND SURVEYOR. LOCATIONS OF EXISTING FEATURES OR PROPOSED IMPROVEMENTS DERIVED BY SCALING DRAWINGS MAY NOT BE ACCURATE. PROPERTY LINES SHOWN HEREON ARE APPROXIMATE. SEE PLAN REFERENCE HEREON.
- SAFETY MEASURES, CONSTRUCTION METHODS, AND CONTROL OF WORK SHALL BE RESPONSIBILITY OF CONTRACTOR.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR AND/OR REPLACEMENT OF ANY EXISTING UTILITY OR STRUCTURE DAMAGED DURING CONSTRUCTION THAT ARE NOT DESIGNATED FOR DEMOLITION AND/OR REMOVAL HEREON. DAMAGED UTILITY OR STRUCTURE SHALL BE REPAIRED TO THE SATISFACTION OF THEIR RESPECTIVE OWNERS.
- ANY INTENDED REVISION OF THE HORIZONTAL AND/OR VERTICAL LOCATION OF IMPROVEMENTS TO BE CONSTRUCTED AS SHOWN HEREON SHALL BE REVIEWED AND APPROVED BY ENGINEER PRIOR TO IMPLEMENTATION.
- CONTRACTOR SHALL NOTIFY ENGINEER UPON COMMENCEMENT OF CONSTRUCTION IN ORDER TO ENSURE THAT REQUIRED INSPECTIONS ARE PERFORMED IN A TIMELY AND EFFICIENT MANNER.
- CONTRACTOR SHALL PROMPTLY NOTIFY ENGINEER UPON DISCOVERY OF ANY UNFORESEEN SURFACE OR SUBSURFACE CONDITIONS THAT MAY IMPACT SITE CONSTRUCTION.
- FINISH RIM ELEVATIONS SHOULD MATCH PAVEMENT, GRADING OR LANDSCAPING, UNLESS SPECIFICALLY INDICATED OTHERWISE.
- WHERE EXISTING UTILITY LINES/STRUCTURES ARE TO BE CUT/BROKEN DOWN/ABANDONED, LINES/STRUCTURES SHALL BE PLUGGED/CAPPED/FILLED IN ACCORDANCE WITH UTILITY OWNER REQUIREMENTS.
- EROSION CONTROL MEASURES, SUCH AS SILT FENCE OR HAY BALES AS MAY BE SHOWN HEREON, SHALL BE INSTALLED BEFORE EARTH DISTURBANCE OCCURS WITHIN BUFFER ZONE, AND SHALL SERVE AS THE LIMIT OF WORK.
- WHERE THE WORD "INSTALL" IS USED HEREIN, IT IS INTENDED TO DIRECT CONTRACTOR TO "FURNISH, INSTALL, AND PLACE IN OPERATION" THE COMPONENT REFERRED TO.
- LIMITS OF WORK SHALL BE STAKED IN THE FIELD PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- ALL STORM DRAIN PIPE TO BE SMOOTH INTERIOR HDPE PIPE, 2.0 PSI GASKETED JOINT, UNLESS OTHERWISE NOTED.
- WHERE SHOWN, CONSTRUCTION NOTES ARE INTENDED TO SUMMARIZE AND CLARIFY MAJOR ITEMS OF WORK. THESE NOTES SHOULD NOT BE CONSTRUED AS AN EXHAUSTIVE LISTING OF ALL WORK REQUIRED. CONTRACTOR SHOULD CONTACT ENGINEER WHEN FURTHER CLARIFICATION OF DEPICTED WORK IS DESIRED.
- CONSTRUCTION OF FIRE AND DOMESTIC WATER SUPPLY IMPROVEMENTS SHALL CONFORM TO TOWN OF LITTLETON REQUIREMENTS.
- WHERE DIMENSIONS INVOLVE CURB, DIMENSIONS ARE TO FACE OF CURB. WHERE SLOPED GRANITE CURB OR CAPE COD BERM SPECIFIED, FACE OF CURB IS EDGE OF FINISH PAVEMENT AT TOE OF CURB.
- NO DEBRIS, JUNK, RUBBISH OR OTHER NON-BIODEGRADABLE MATERIALS, FILL CONTAINING HAZARDOUS MATERIALS OR WASTES, OR STUMPS SHALL BE BURIED ON ANY LAND ON THIS SITE, OR LEFT ON ANY LOT OR ON THE STREET RIGHT OF WAY.

REGULATORY NOTES

- CONTRACTOR SHALL CONTACT DIG-SAFE FOR UNDERGROUND UTILITY MARKING AT 811 AT LEAST 72 HOURS PRIOR TO COMMENCEMENT OF ANY WORK. CONTRACTOR SHALL GIVE TWENTY-FOUR (24)-HOUR NOTICE TO PERTINENT TOWN DEPARTMENTS BEFORE COMMENCING ANY WORK IN THE FIELD.
- CONTRACTOR SHALL COORDINATE AND OBTAIN ALL CONSTRUCTION PERMITS REQUIRED BY REGULATORY AUTHORITIES.
- CONTRACTOR SHALL BE AWARE OF ALL CONSTRUCTION REQUIREMENTS, CONDITIONS, AND LIMITATIONS IMPOSED BY PERMITS AND APPROVALS ISSUED BY REGULATORY AUTHORITIES PRIOR TO COMMENCEMENT OF ANY WORK.
- ALL WORK OUTSIDE OF BUILDING THAT IS LESS THAN 10 FEET FROM THE INSIDE FACE OF BUILDING FOUNDATION SHALL CONFORM WITH THE UNIFORM STATE PLUMBING CODE OF MASSACHUSETTS, 248 CMR 2.00.

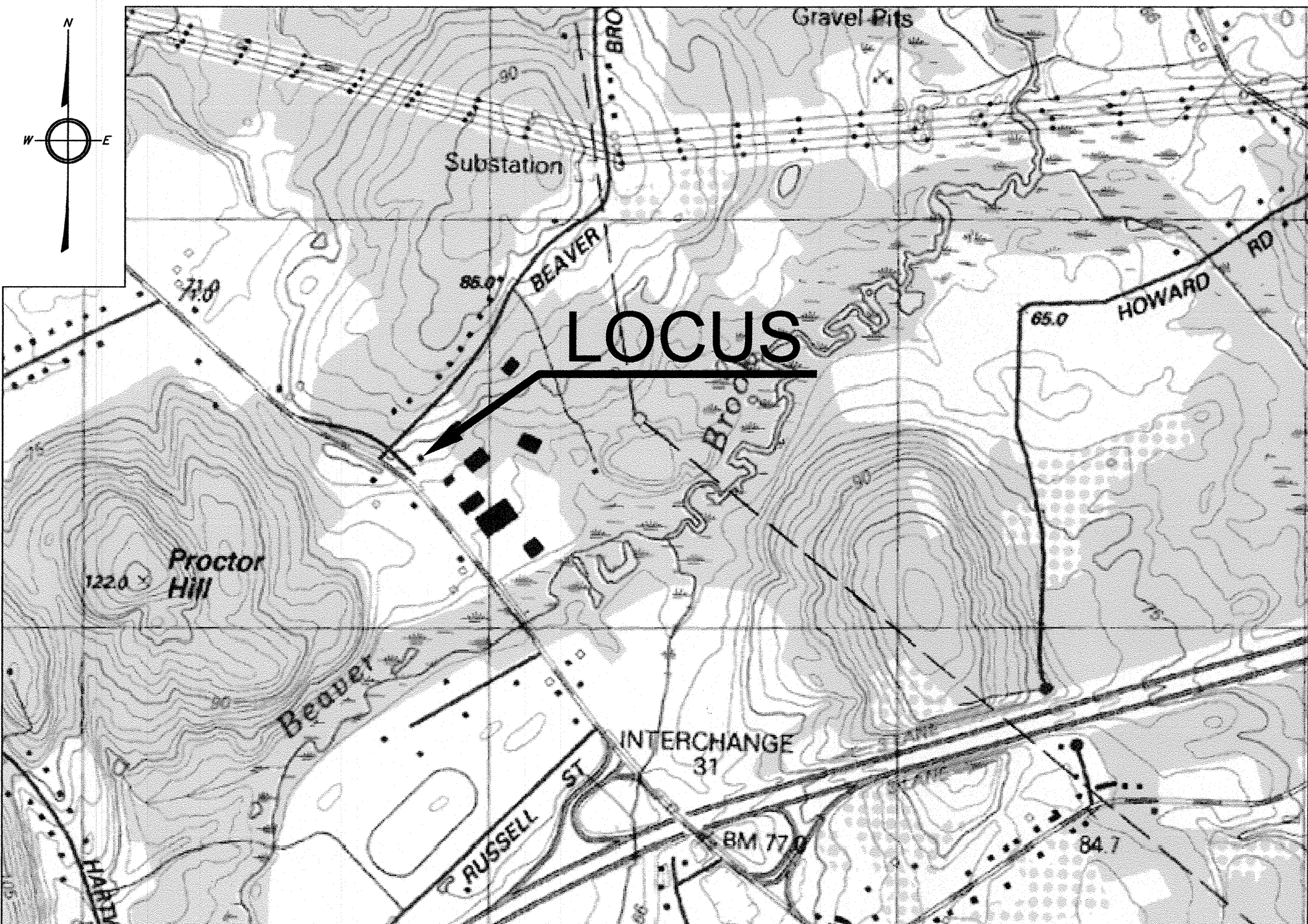
SITE NOTES

- SPECIAL PERMIT FOR USE REQUESTED : SECTIONS 173-7, 25 & 26a FOR "OTHER PRINCIPAL USES WITH EXTERNALLY OBSERVABLE ATTRIBUTES SIMILAR TO USES PERMITTED ABOVE."
- SPECIAL PERMIT REQUESTED: SECTION 173-31 INTENSITY OF USE SCHEDULE REQUIRES 150 FOOT STRUCTURE SETBACK TO A MAIN PUBLIC WAY IF ABUTTING A RESIDENTIAL DISTRICT. THE EXISTING STRUCTURE IS 78 FEET FROM GREAT ROAD PUBLIC WAY. A SPECIAL PERMIT IS REQUESTED TO ALLOW ADDITIONS AS INDICATED ON THE SITE PLAN.
- SPECIAL PERMIT UNDER ARTICLE XIV AQUIFER AND WATER RESOURCE REQUESTED : SECTIONS 173-61 TO 63 TO RENDER IMPERVIOUS MORE THAN 15% OF ANY LOT OR PARCEL BUT LESS THAN 30% AND A USE HAVING ESTIMATED SEWAGE FLOW EXCEEDING 6 GALLONS PER DAY COMBINED FLOW PER 1,000 SQUARE FEET OF LOT AREA.
- ALL SITE TRASH WILL BE CONTAINED WITHIN TOTES / BARRELS KEPT WITHIN THE EXISTING STRUCTURE. NO ADDITIONAL TRASH STORAGE AREAS ARE PROPOSED.
- CONTRACTOR SHALL MARK THE LIMITS OF WORK ON-SITE PRIOR TO THE START OF CONSTRUCTION OR SITE CLEARING.
- PROPOSED SITE LIGHTING TO BE SIMILAR OR EQUAL TO:  
SITE LIGHT: QUORUM INTERNATIONAL ORLEANS OUTDOOR POST LAMP, 18"x11" DARK SKY COMPLIANT UNIT (100 WATTS). OWNER TO VERIFY AND PROVIDE FINAL SPECS PRIOR TO CONSTRUCTION.
- PROPOSED WALKWAYS AND HANDICAPPED PARKING AREA SHALL COMPLY WITH 521-CMR 29.00. AND ADA SECTION 403.
- PAVEMENT SHALL BE A MINIMUM COMPACTED DEPTH OF 6 INCHES AND COMPLY WITH MASSDOT STANDARD SPECIFICATION FOR HIGHWAYS AND BRIDGES, DIVISION III, SUBSECTION M11.0.

EXISTING CONDITION NOTES

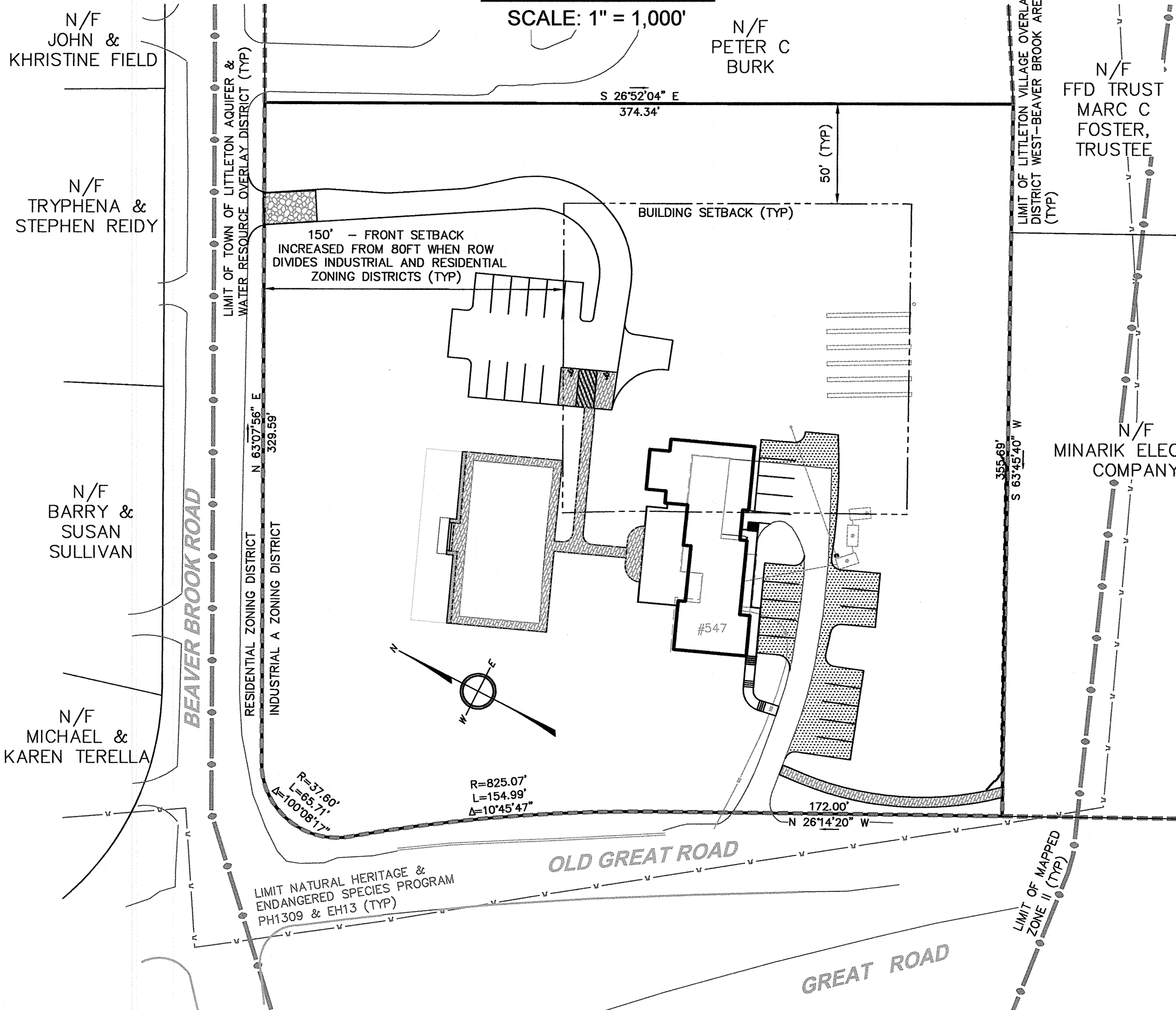
- EXISTING CONDITION INFORMATION BASED ON AN ON-THE-GROUND TOPOGRAPHIC SURVEY PERFORMED BY GOLDSMITH, PREST & RINGWALL, INC. DATED MAY 2014 AND OCTOBER 2014.
- AN LIMITED BOUNDARY SURVEY WAS PERFORMED TO ESTABLISH CONTROL TO EXISTING PLAN(S) OF RECORD, SEE PLAN REFERENCES.
- THERE ARE NO KNOWN WETLAND RESOURCE AREAS WITHIN 150 FEET OF THE SUBJECT PROPERTIES BOUNDARIES.

COMMERCIAL DEVELOPMENT  
547 GREAT ROAD  
LITTLETON, MA



VICINITY MAP

SCALE: 1" = 1,000'



PLOT PLAN

SCALE: 1" = 50'

ELEVATION DATUM

DATUM: NGVD 1929

B.M. NO.1

ASSESSORS REFERENCE:

ASSESSORS MAP R18, LOT 14.0  
OWNER OF RECORD: GEORGIANA GAGNON  
39 WALDEN TERRACE  
CONCORD, MA 01742  
MIDDLESEX SOUTH REGISTRY OF DEEDS BOOK 52568 PAGE 384

SITE DATA

WATER SUPPLY: MUNICIPAL  
APPROXIMATE EXISTING WATER USE: 440 GPD (APPROVED SEPTIC FLOW)  
APPROXIMATE PROPOSED WATER USE: 323± GPD (SEE PROPOSED SYSTEM FLOW)  
SEWAGE DISPOSAL: ONSITE SEWAGE DISPOSAL SYSTEM  
EXISTING SYSTEM FLOW: 4 BEDROOMS X 110 GPD/BEDROOM = 440 GPD AND 5,900 S.F. DRY STORAGE AT 50 GPD/1,000 S.F. = 295 GPD.  
735 GPD TOTAL EXISTING DESIGN  
PROPOSED SYSTEM FLOW: MAXIMUM CAPACITY 180 SEAT FUNCTION USE AT 15 GPD/SEAT = 2,700 GPD. USE OF COMPOST TOILETS FOR 50% REDUCTION OF EFFLUENT LOADING 2,700 GPD X 0.50 = 1,350 GPD  
INDUSTRIAL A  
ZONING DISTRICT: AQUIFER & WATER RESOURCE DISTRICT  
OVERLAY DISTRICT: AVAILABLE TOTAL SEWAGE FLOW: 735 GPD  
TOTAL LOT AREA: 132,811± SF  
1,350 GPD / (132,811/1,000) SF = 10 GPD/1,000 SF LOT AREA  
(GREATER THAN LIMIT OF 6 GPD/1,000 SF LOT AREA PER ZONING SEC. 173-61 SPECIAL PERMIT REQUIRED)

PLAN REFERENCES

- "THE COMMONWEALTH OF MASSACHUSETTS - PLAN OF ROAD IN THE TOWN OF LITTLETON, MIDDLESEX COUNTY" ALTERED AND LAID OUT AS A STATE HIGHWAY BY THE DEPARTMENT OF PUBLIC WORKS. DATED NOVEMBER 23, 1966. LAYOUT 5835.
- "PLAN OF LAND IN LITTLETON, MASS." OWNED BY THEODORE & BARBARA C. ELIADES AND PREPARED BY ACTON SURVEY & ENGINEERING, INC. DATED APRIL 27, 1970. FILE NO. 226. MIDDLESEX SOUTH REGISTRY OF DEEDS PLAN NO. 442 OF 1970.
- "PLAN OF LAND IN LITTLETON, MASS." MADE FOR K&F REALTY TRUST BY CHARLES A. PERKINS CO. INC. DATED OCTOBER 1971, PLAN NO. 3572. MIDDLESEX REGISTRY OF DEEDS PLAN NO. 1474 OF 1971.
- "PLAN OF LAND IN LITTLETON, MASS." OWNED BY THEODORE & BARBARA C. ELIADES AND PREPARED BY ACTON SURVEY & ENGINEERING, INC. DATED OCTOBER 14, 1975. FILE NO. 302. MIDDLESEX SOUTH REGISTRY OF DEEDS PLAN NO. 1142 OF 1975.
- "SITE PLAN IN LITTLETON, MASS. - 547 GREAT ROAD, EXISTING CONDITIONS" PREPARED FOR KEVIN MCPHERSON BY DAVID E. ROSS ASSOCIATES, INC. DATED DECEMBER 2006. JOB NO. 21318, PLAN NO. L-XX.
- "TITLE 5 OFFICIAL INSPECTION FORM - 547 GREAT ROAD, LITTLETON, MA" OWNED BY KEVIN MCPHERSON BY ABC CESSPOOL CO. INC. DATED MAY 5, 2014.
- "SITE PLAN IN LITTLETON, MASS - 547 GREAT ROAD, LITTLETON, MA" PREPARED FOR GEORGIANA GAGNON BY GOLDSMITH, PREST AND RINGWALL INC., DATED MAY 2014.
- "SOARING HAWK MEDITATION CENTER - 547 GREAT ROAD, LITTLETON, MASSACHUSETTS 01460" PREPARED BY GEORGIANA B. GAGNON, RA DATED MAY 26, 2015.
- "SEWAGE DISPOSAL SYSTEM" PREPARED FOR KEVIN MCPHERSON BY DAVID E. ROSS ASSOCIATES, INC. AS REVISED "4-12-06 AS-BUILT ADDED"

COVERAGE COMPUTATIONS

PARAMETER	AREA (ACRES)	AREA (SQUARE FEET)	FRACTION OF TOTAL LOT AREA (%)
EXISTING CONDITIONS			
Lot Area	3.05	132,811	100%
Building Footprint	0.07	2,852	2.1%
Other Impervious Areas	0.08	3,604	2.7%
Gravel Surfaces	0.22	9,387	7.1%
Total Impervious Coverage	0.36	15,843	11.9%
DEVELOPED CONDITIONS			
Lot Area	3.05	132,811	100%
Building Footprint	0.09	3,764	2.8%
Other Impervious Areas	0.24	10,644	8.0%
Gravel Surfaces (w/ RAP)	0.18	7,966	6.0%
Total Impervious Coverage	0.51	22,390	16.9%
ABBREVIATIONS: SF=Square Feet, GFA=Gross Floor Area, App.= Approximate, >=Greater than, RAP = Recycled Asphalt Product			

PARKING COMPUTATIONS

USE	FORMULA	VARIABLE	SPACES REQUIRED	SPACES PROVIDED
Office	1/250 S.F. GFA	3,764 S.F. GFA	16	30
Assembly	1 space per 4 seats	120 seats	30	30
			30 [1]	30 [1]
Total Handicap Spaces Required = 1; Provided = 2 (1-Regular, 1-Van Accessible)				
Notes: [1] Office and Assembly uses do not occur at the same time. [2] Additional overflow parking is proposed on abutting commercial properties on Great Road.				

SHEET INDEX

- TITLE SHEET
- EXISTING CONDITIONS
- SITE PLAN
- CONSTRUCTION DETAILS
- EROSION CONTROL & CONSTRUCTION DETAILS

APPROVED BY THE  
LITTLETON PLANNING BOARD

CHAIR  
APPLICATION FILED  
HEARING DATE  
PLAN APPROVED

DRAWING ISSUED FOR:

- ☐ CONCEPT ☐ CONSTRUCTION  
☒ PERMIT ☐ CONSTRUCTION RECORD

THIS DRAWING MAY NOT SHOW CONSTRUCTION DETAILS AND SPECIFICATIONS FOR ALL PROPOSED IMPROVEMENTS, AND MAY NOT IDENTIFY ALL CONSTRUCTION WORK ITEMS/AREAS OF CONTRACTOR JURISDICTION.

PER 250 CMR 5.03(13), THE FOLLOWING ARE EXCLUDED FROM THE PROFESSIONAL ENGINEER'S RESPONSIBILITY: ALL BOUNDARY INFORMATION; LOCATION OF EXISTING STRUCTURES, TREES, UTILITIES, TOPOGRAPHY OR SIMILAR FEATURES; DESIGN OF RETAINING WALLS, PROPRIETARY EQUIPMENT. SEE EXISTING CONDITION NOTES.

NO.	DATE	BY	APP.	REVISION DESCRIPTION

**GPR** Engineering Solutions for Land & Structures

**GOLDSMITH, PREST & RINGWALL, INC.**  
39 MAIN STREET, SUITE 301, AVER, MA 01432  
CIVIL ENGINEERING • LAND SURVEYING • LAND PLANNING  
VOICE: 978.772.1590 FAX: 978.772.1591  
www.gpr-inc.com

COMMERCIAL DEVELOPMENT  
SOARING HAWK MEDITATION CENTER

TITLE SHEET

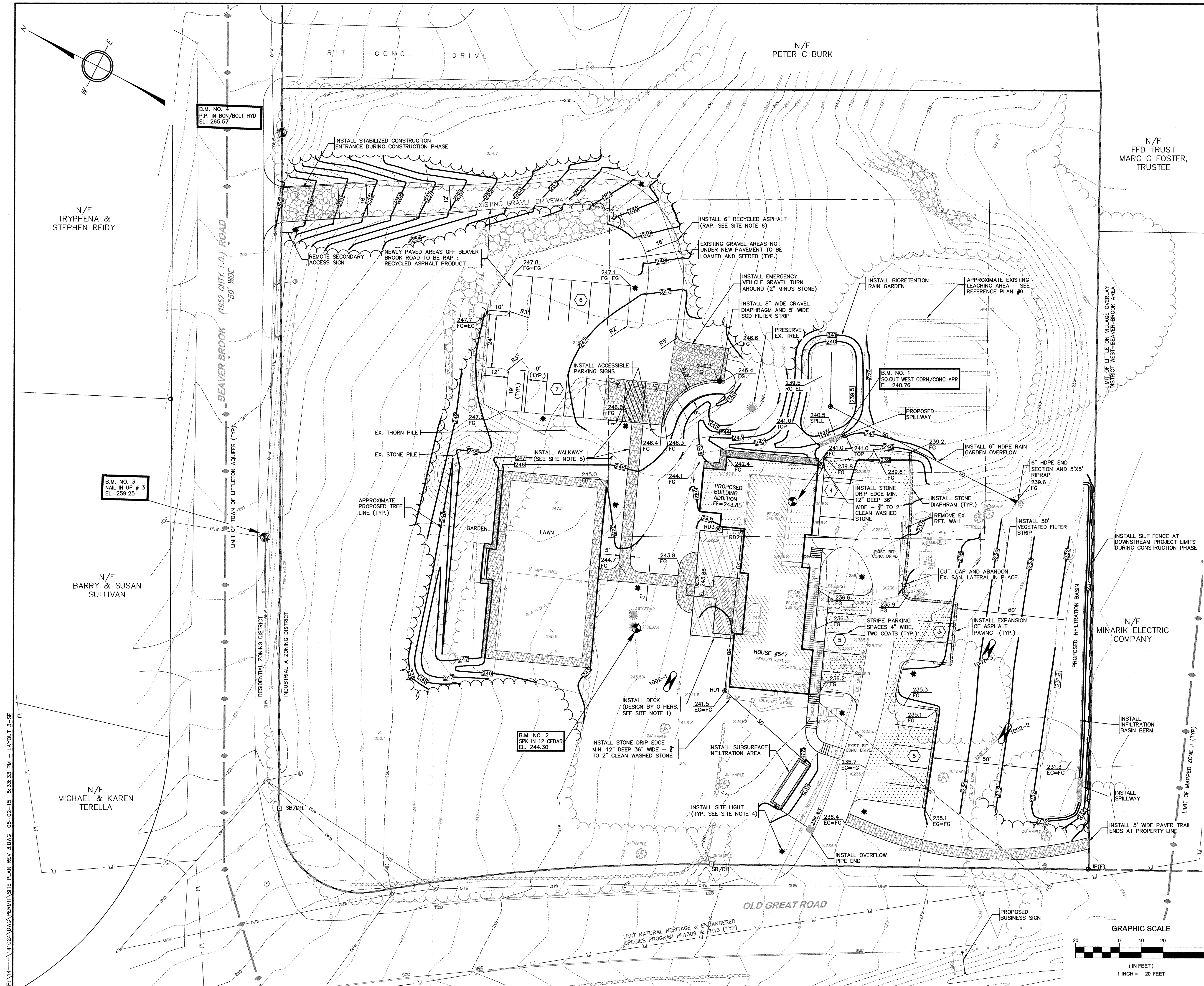
547 GREAT ROAD  
LITTLETON, MA

OWNER:  
GEORGIANA GAGNON  
39 WALDEN TERRACE  
CONCORD, MA 01742









**LEGEND**

EXISTING	PROPOSED
100	100.0
100.0	FG
---	ELEVATION CONTOUR
---	SPOT GRADE
---	PROPERTY LINE
---	BUILDING ENVELOPE
---	10-YR FLOODPLAIN LIMIT
---	100-YR FLOODPLAIN LIMIT
---	WETLAND EDGE WITH FLAG NO.
---	25' NO-DISTURBANCE ZONE LIMIT
---	100' WETLAND BUFFER ZONE LIMIT
---	SHORELINE
---	INTERMITTENT STREAM/DITCH
---	200' RIVERFRONT ZONE LIMIT
---	EDGE OF PAVEMENT
---	GRAVEL/DIRT ROAD
---	FENCE
---	STONE WALL
---	WATER MAIN
---	WATER SERVICE
---	FOUNDATION DRAIN
---	FORCE MAIN
---	GRAVITY SEWER LINE
---	GAS LINE
---	BURIED POWER LINE
---	STORM DRAIN
---	CATCH BASIN
---	DRAIN MANHOLE
---	HAYBALE BARRIER
---	SILT FENCE BARRIER
---	RETAINING WALL
---	DEEP SOIL OBSERVATION HOLE
---	PERCOLATION TEST
---	SOIL BORING
---	GROUNDWATER MONITORING WELL
---	WELL
---	ELEVATION BENCHMARK
---	SURFACE RUNOFF DIRECTION
---	TRAFFIC FLOW DIRECTION
---	WATER SHUT-OFF VALVE

**ABBREVIATIONS**

TP	TOP OF PAVEMENT
TW	TOP OF WALL
FG	FINISH GRADE
FF	FIRST FLOOR
LL	LOWER LEVEL
BF	BOTTOM OF FOOTING
CLF	CHAIN LINK FENCE
CC	CONCRETE CURB
STCK	STOCKADE FENCE

**DRAWING ISSUED FOR:**

<input type="checkbox"/> CONCEPT	<input type="checkbox"/> CONSTRUCTION
<input checked="" type="checkbox"/> PERMIT	<input type="checkbox"/> CONSTRUCTION RECORD

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**COMMERCIAL DEVELOPMENT**  
**SOARING HAWK MEDITATION CENTER**

**SITE PLAN**

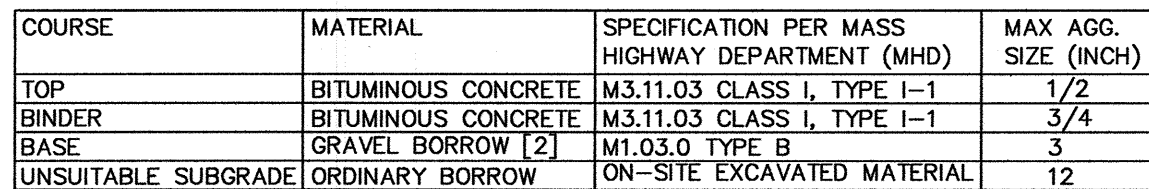
**547 GREAT ROAD**  
**LITTLETON, MA 01460**

**OWNER:**  
GEORGIANA GAGNON  
39 WALDEN TERRACE  
CONCORD, MA 01742

DES. BY: KFB	DATE: MAY 2015	JOB 141024	3 OF 5
CHK. BY: DEM			

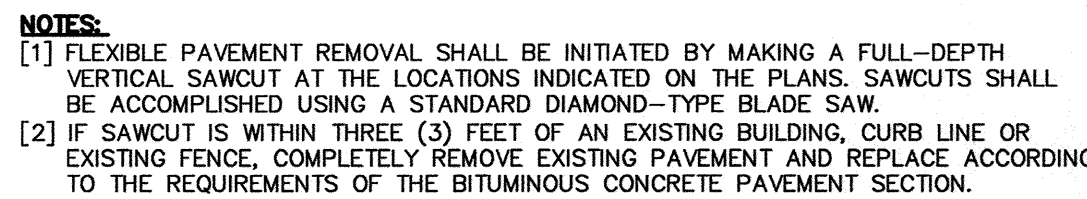


1. PLACE LIMIT OF WORK BARRIERS, SILT FENCES, SILT SACKS, SAFETY FENCES, CONSTRUCTION ENTRANCES AND PROTECTIVE DEVICES.
2. CONSTRUCT TEMPORARY SEDIMENT TRAPS & BARRIERS. PLACE OTHER CONTROLS SUCH AS TEMPORARY SEDIMENT BASINS, PERIMETER TRENCHES, CHECK DAMS & OUTLET PROTECTION.
3. ESTABLISH STOCKPILE AND STAGING AREAS.
4. DEMOLISH BUILDING AS DEFINED ON ARCHITECTURAL DRAWINGS.
5. CUT TREES AND SHRUBS AND REMOVE FROM SITE OR STOCKPILE AND PROTECT STOCKPILE(S) BY APPROVED METHODS.
6. EXCAVATE STUMPS AND REMOVE FROM SITE OR STOCKPILE AND PROTECT STOCKPILE(S) BY APPROVED METHODS.
7. INSTALL DRAINAGE SYSTEM BEGINNING WITH INFILTRATION AREA AND SUBSURFACE INFILTRATION SYSTEM.
8. INSTALL, STABILIZE AND PROTECT INFILTRATION AREAS AND OTHER AREAS DISTURBED FOR COMPONENTS OF DRAINAGE SYSTEM. INSTALL CONTROLS TO BLOCK SILTS AND SURFACE WATER RUNOFF FROM ENTERING THESE AREAS.
9. BEGIN EARTHWORKS, ESTABLISH, STABILIZE AND PROTECT CUT AND FILL SLOPES.
10. BEGIN INSTALLATION OF OTHER UTILITIES. ESTABLISH COVER, STABILIZE AND PROTECT AREAS DISTURBED FOR UTILITY INSTALLATION.
11. BEGIN EXCAVATION FOR INSTALLATION OF SUB-GRADE DRAINAGE FACILITIES ASSOCIATED WITH PROPOSED DWELLING/STRUCTURES. STOCKPILE AND PROTECT EXCAVATED MATERIALS.
12. INSTALL PERIMETER FOUNDATION UNDERDRAINS AS SHOWN ON ARCHITECTURAL DRAWINGS. BACKFILL FOUNDATION AS REQUIRED, STABILIZE ALL DISTURBED AREAS AND REMOVE EXCESS SOIL FROM SITE.
13. PERFORM SITE WORK IN ACCORDANCE WITH "EROSION AND SEDIMENT CONTROL REQUIREMENTS, PART 3 - EXECUTION".
14. LOAM AND SEED ALL DISTURBED AREAS WITH NATIVE VEGETATION SEED. VERIFY ALL AREAS HAVE BEEN STABILIZED, RE-SEED EXPOSED OR ERODED SLOPES/SOILS. CALL FOR INSPECTION OF DISTURBED AREAS FOR APPROVAL.
15. CLEAN AND REMOVE ALL SILT, BRUSH AND DEBRIS FROM STORMWATER FACILITIES, FLUSH AND CLEAN INFILTRATION TRENCH AND REPLACE TOP 6" OF CLEAN STONE AS NEEDED. CHECK AND REMOVE ANY OBSTRUCTIONS OR DEBRIS FROM STORMDRAIN DISCHARGE PIPES.
16. REMOVE ALL EROSION CONTROLS, LIMIT OF WORK BARRIERS, FENCES, CONSTRUCTION ENTRANCES, SIGNS AND SWEEP PAVED AREAS. CONTRACTOR SHALL CALL FOR FINAL INSPECTION OF CONTROLS.

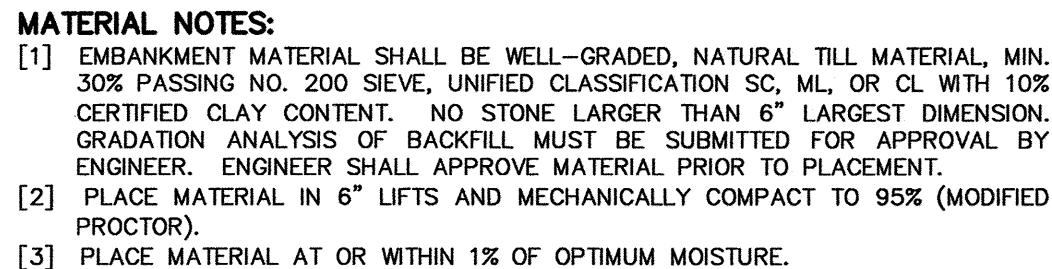
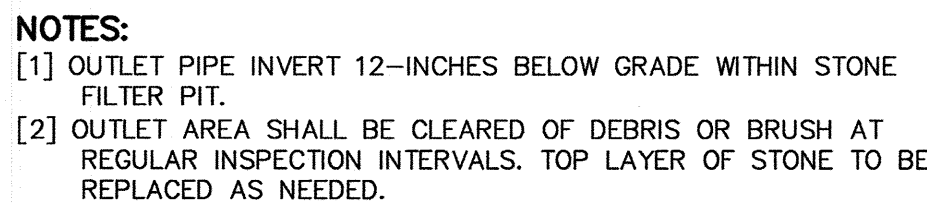
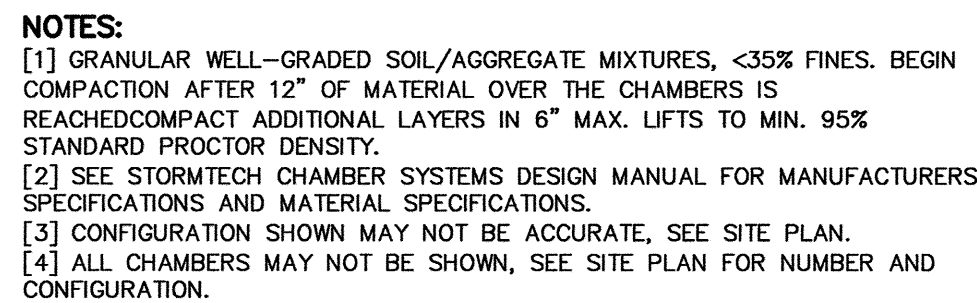


**NOTES:**

- [1] COMPACT TO TEST AVERAGE OF 95% NO TEST LOWER THAN 93%.
- [2] ACCEPTABLE SUBSTITUTE MATERIAL: 3/4" MINUS DENSE GRADED CRUSHED STONE.
- [3] EXISTING PAVEMENT SHALL BE SAW CUT VERTICALLY AT FINAL JOINT LOCATIONS.



PLAN VIEW





EROSION AND SEDIMENT CONTROL REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. FURNISH, INSTALL, AND MAINTAIN TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES, SUCH AS, BUT NOT NECESSARILY LIMITED TO, STRAW BALE AND SILT FENCE BARRIERS, RIPRAP, VEHICLE TRACKING PADS, DIVERSION CHANNELS AND BERMS, CHECK DAMS, STRATEGICALLY LOCATED STOCKPILES, SEDIMENT BASINS, MULCH, AND SEED MIX (HEREINAFTER "CONTROL MEASURES") ADEQUATE TO PREVENT THE CONVEYANCE OF EROSION PRODUCTS (E.G. SOIL, MULCH, SOD) OFF SITE, OR INTO ENVIRONMENTALLY SENSITIVE AREAS, OR INTO AREAS WHERE WORK WILL BE ADVERSELY IMPACTED. ENVIRONMENTALLY SENSITIVE AREAS INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, WETLANDS, TRIBUTARIES TO WETLANDS, WETLAND BUFFER ZONES, INTERMITTENT AND PERENNIAL STREAMS / RIVERS, AND THEIR ATTENDANT BUFFER ZONES.

ALL METHODS AND MATERIALS USED FOR EROSION CONTROL SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN "EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS A GUIDE FOR PLANNERS, DESIGNERS, AND MUNICIPAL OFFICIALS" AS PUBLISHED BY THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF RESOURCE PROTECTION, UNLESS OTHERWISE APPROVED IN WRITING.

- REFER TO DRAWINGS FOR LOCATION AND DETAILS OF DISTURBANCE AND CONTROL MEASURES REQUIRED TO COMMENCE WORK. LIMITS OF DISTURBANCE SHALL BE MARKED WITH TAPE, SIGNS, OR ORANGE CONSTRUCTION FENCE PRIOR TO COMMENCING ANY LAND DISTURBANCE ACTIVITIES. CONTROL MEASURES WILL BE ADEQUATE ONLY FOR VEGETATION CLEARING. THE DRAWINGS ARE NOT INTENDED TO GRAPHICALLY DEPICT ALL CONTROL MEASURES THAT WILL BE REQUIRED TO MEET THE REQUIREMENTS DESCRIBED IN 1.01.A.
- DEVISE AND EMPLOY CONTROL MEASURES THROUGHOUT THE DURATION OF PROJECT, OVER ALL AREAS DISTURBED OR UNDISTURBED BY CONSTRUCTION, AS NECESSARY TO MEET THE REQUIREMENTS DESCRIBED IN 1.01.A.
- DEVISE AND EMPLOY TEMPORARY CONTROL MEASURES AS NECESSARY TO MEET THE REQUIREMENTS DESCRIBED IN 1.01.A, WHILE ALLOWING WORK TO PROCEED IN AN EFFICIENT, COST EFFECTIVE MANNER.
- DEVISE, EMPLOY AND MAINTAIN CONTROL MEASURES UNTIL SUCH TIME AS THE ENTIRE SITE IS PERMANENTLY STABILIZED BY ESTABLISHED VEGETATION, FINISH LANDSCAPE MATERIALS, PAVED SURFACES, AND/OR ROOF AREA.
- ONCE THE SITE IS PERMANENTLY STABILIZED AND CERTIFIED AS SUCH BY ENGINEER, REMOVE TEMPORARY CONTROL MEASURES WHILE PROTECTING STABILIZED SURFACES.

1.02 SUBMITTALS

- SUBMIT PRODUCT DATA, WARRANTY, AND TEST REPORTS AS INDICATED ON THE DRAWINGS.
- SUBMIT SKETCH SHOWING LOCATIONS OF PROPOSED STOCKPILE AREAS, CONSTRUCTION ENTRANCES AND EROSION CONTROLS IF NOT SHOWN ON THE SITE PLAN OR DIFFERENT FROM THOSE LOCATIONS SHOWN ON THE SITE PLAN.
- A SITE SPECIFIC SEQUENCE OF CONSTRUCTION FOR EACH PORTION OF THE SITE. NO PORTION OF THE SITE SHALL EXCEED FIVE (5) ACRES.

1.03 QUALITY ASSURANCE

- COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS FROM ACCEPTABLE MANUFACTURERS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- CONFORM TO CONDITIONS OF APPROVAL ISSUED BY REGULATORY AGENCIES INCLUDING, BUT NOT NECESSARILY LIMITED TO, LOCAL PLANNING BOARD, CONSERVATION COMMISSION, CITY COUNCIL, BOARD OF HEALTH, PUBLIC WORKS / HIGHWAY DEPARTMENT, STATE ENVIRONMENTAL PROTECTION DEPARTMENT, AND U.S. GOVERNMENT, ENVIRONMENTAL PROTECTION AGENCY. WHERE CONDITIONS OF REGULATORY APPROVAL DIFFER FROM REQUIREMENTS CONTAINED HEREIN OR ON THE DRAWINGS, COMPLY WITH THE MORE STRINGENT REQUIREMENT.

PART 2 - PRODUCTS

2.01 MATERIALS

- STRAW WATTLES: NORTH AMERICAN GREEN MODEL WS1210 OR APPROVED EQUAL.
- SILT FENCE: NON-WOVEN, UV-RESISTANT, POLYPROPYLENE FABRIC, FLOW RATED AT 10 GPM/SF MINIMUM, GRAB TENSILE RATED AT 124 POUNDS MINIMUM, WITH INTEGRAL STAKE LOOPS, AND HARDWOOD STAKES. USE NO. 2130 BY AMOCO FABRICS & FIBERS, OR APPROVED EQUAL.
- MULCH: ORGANICS INCLUDING STRAW, PROCESSED PINE / HEMLOCK TWIGS AND NEEDLES.
- SEED MIXES: SHALL MEET THE REQUIREMENTS OF MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION SECTION 6.03.0 OR 6.03.1 AS APPROPRIATE.
- EXCELSOR BLANKET: CURLED WOOD FIBER ON PHOTODEGRADABLE EXTRUDED PLASTIC MATRIX, 80% OF FIBERS 6-INCHES LONG OR LONGER, WEIGHT 0.975 POUNDS / SY, CONTAINING NO CHEMICAL ADDITIVES. USE CURLEX I BLANKET BY AMERICAN EXCELSOR COMPANY, OR APPROVED EQUAL.
- ROCK RIPRAP: SOUND, ANGULAR, 6-INCH MINUS PROCESSED ROCK, BLAST ROCK, OR TALINGS.
- CRUSHED STONE: SOUND, ANGULAR, 2-INCH MINUS PROCESSED CRUSHED STONE.

PART 3 - EXECUTION

3.01 THROUGHOUT CONSTRUCTION

- DEVISE WORK SEQUENCE SO AS TO LIMIT DRAINAGE AREA THAT IS TRIBUTARY TO DISTURBED AREAS. DEVISE, EMPLOY, AND MAINTAIN CONTROL MEASURES SUCH AS DIVERSION CHANNELS AND BERMS, STRATEGICALLY LOCATED STOCKPILES, AND SEDIMENT BASINS TO SUBDIVIDE DRAINAGE AREAS INTO SMALL, MANAGEABLE SUBAREAS, THEREBY MINIMIZING RUNOFF AND THE POTENTIAL FOR EROSION.
- MAINTAIN BARRIER AT LIMIT OF WORK AND PROTECT EXISTING VEGETATION / FACILITIES OUTSIDE OF LIMIT OF WORK.
- MAINTAIN SPARE MATERIAL STOCKPILES FOR IMMEDIATE EMPLOYMENT / REPAIR / EXPANSION OF CONTROL MEASURES. AT A MINIMUM, SUCH MATERIALS SHALL INCLUDE HAY BALES, SILT FENCE AND STAKES, AND CRUSHED STONE.
- INSPECT AND MAINTAIN EFFECTIVENESS OF CONTROL MEASURES BY REPAIRING AS NECESSARY TO ENSURE INTENDED FUNCTION; BY SUPPLEMENTING AS NECESSARY FOR ADEQUATE EXTENT; BY REMOVING TRAPPED PRODUCTS OF EROSION AS NECESSARY TO MAINTAIN EFFECTIVE TRAP VOLUME.
- LIMIT EXTENT OF WORK AREA SO THAT ALL DISTURBED AREAS CAN BE STABILIZED WITH CONTROL MEASURES WITHIN A 24-HOUR PERIOD.
- INSTALL CONTROL MEASURES AS SOON AS PRACTICABLE AFTER EACH MANAGEABLE PORTION OF EARTHWORK IS COMPLETE. EMPLOY TEMPORARY MEASURES AS NECESSARY TO STABILIZE DISTURBED AREAS, EVEN WHERE SUBSEQUENT CONSTRUCTION OPERATIONS MAY REQUIRE RE-DISTURBANCE.
- WHEN INTENSE RAINFALL IS EXPECTED, CONSIDER, DEVISE, AND EMPLOY REINFORCING CONTROL MEASURES PRIOR TO THE RAINFALL EVENT TO MEET THE REQUIREMENTS DESCRIBED IN 1.01.A. IF NECESSARY, EMPLOY TEMPORARY CONTROL MEASURES ON MATERIAL STOCKPILES TO COUNTERACT POTENTIAL SEDIMENT TRANSPORT DURING INTENSE RAINFALL.
- WHEN VEHICLE REFUELING IS REQUIRED ON SITE, CONDUCT REFUELING OPERATIONS OUTSIDE OF ENVIRONMENTALLY SENSITIVE AREAS.
- PROPERLY DISPOSE OF DEBRIS, SOLID WASTE, TRASH, AND CONSTRUCTION WASTE / BYPRODUCTS OFF SITE.
- SWEEP ON-SITE PAVED AREAS AND OFF-SITE STREETS AS NECESSARY TO PREVENT SILT AND DEBRIS FROM ENTERING DRAINAGE SYSTEMS AND / OR ENVIRONMENTALLY SENSITIVE AREAS. WHEN NECESSARY UTILIZE WATER SPRAYING, SURFACE ROUGHENING AND/OR APPLY POLYMERS, SPRAY-ON TACKIFIERS, CHLORIDES AND BARRIERS FOR DUST CONTROL.
- INSPECT EROSION CONTROLS DAILY THROUGHOUT CONSTRUCTION REPAIR DAMAGED CONTROLS IMMEDIATELY.

3.02 SITE PREPARATION AND ACCESS

- WALK SITE AND IDENTIFY LOCATIONS OF LIMIT OF WORK AND ENVIRONMENTALLY SENSITIVE AREAS. ESTABLISH CONSTRUCTION STAGING AREA, LOCATED BEYOND ENVIRONMENTALLY SENSITIVE AREAS.
- INSTALL CONTROL MEASURES AS SHOWN ON THE DRAWINGS, INCLUDING THOSE DEFINING THE LIMIT OF WORK.
- LIMIT VEHICULAR TRAFFIC TO AND FROM SITE TO MINIMIZE TRANSPORT OF SEDIMENT.

3.03 CLEARING, GRUBBING, AND STRIPPING

- SCHEDULE GRUBBING AND STRIPPING TO OCCUR IMMEDIATELY PRIOR TO EARTH DISTURBANCE. DEPENDING ON SITE AREA, CONSIDER MULTIPLE GRUBBING PHASES, SEQUENCED TO TAKE ADVANTAGE OF THE EROSION PREVENTION POTENTIAL OF EXISTING VEGETATIVE COVER.
- MINIMIZE THE AREA OF EXISTING VEGETATION REMOVED WHEREVER POSSIBLE. NO GREATER THAN FIVE (5) ACRES SHALL BE UNSTABLE AT ANY TIME.
- LOCATE AND SIZE STOCKPILES TO MINIMIZE EROSION POTENTIAL, TAKING ADVANTAGE OF TERRAIN SLOPE AND ASPECT, WHERE APPROPRIATE.
- PROTECT VEGETATION, INCLUDING ROOT SYSTEMS, BEYOND LIMIT OF CLEARING.

3.03 CLEARING, GRUBBING, AND STRIPPING

- PROCESS TIMBER, STUMPS, SLASH, AND BRUSH SO AS TO PROTECT ENVIRONMENTALLY SENSITIVE AREAS AND INSTALLED CONTROL MEASURES. PROPERLY DISPOSE OF EXCESS OFF SITE. BURIAL OF STUMPS ON SITE IS PROHIBITED.

PART 3 - CONTD

3.04 EXCAVATION FOR BUILDING FOUNDATIONS AND UTILITIES

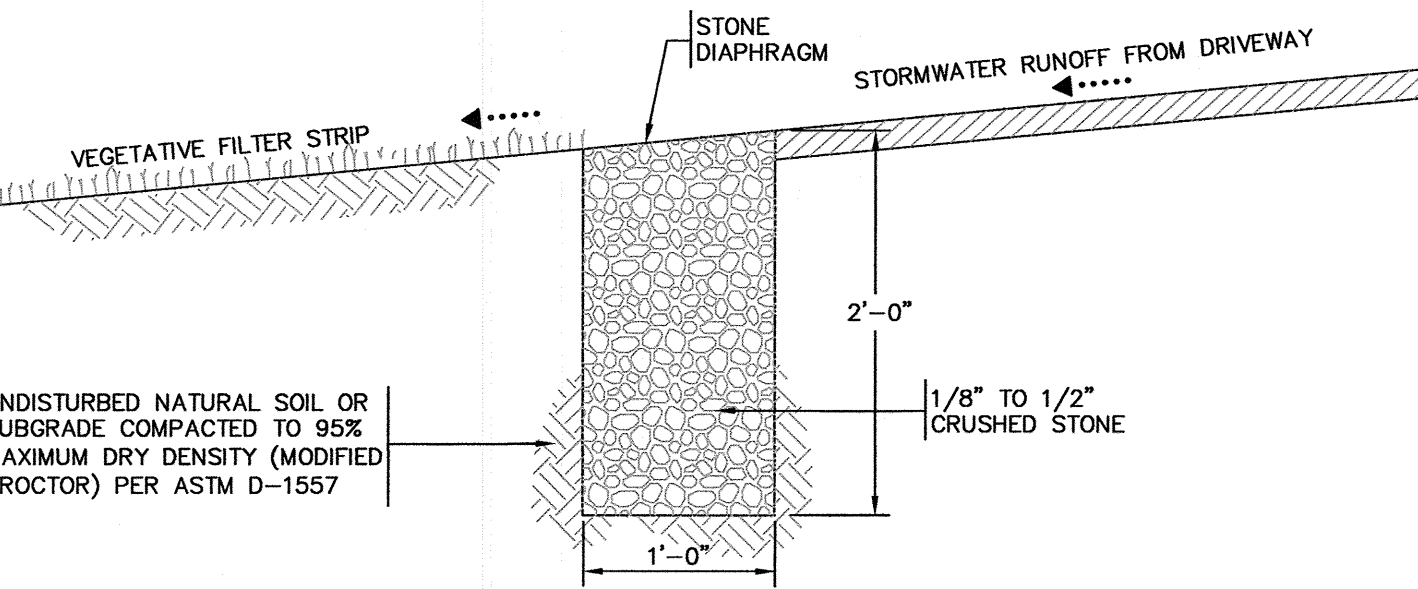
- DEVISE AND INSTALL CONTROL MEASURES ADEQUATE TO HANDLE DISCHARGES AND TRAP SEDIMENT FROM FOOTING SUMP AND WELL POINT PUMPS PRIOR TO EXCAVATION.
- ARMOR SUMP PUMP DISCHARGE LOCATIONS TO PREVENT EROSION AT POINT OF DISCHARGE AND AREAS DOWNSTREAM.
- IF FOUNDATION EXCAVATIONS GRADE TO DAYLIGHT ON THE LOW SIDE, DEVISE AND INSTALL CONTROL MEASURES TO HANDLE SURFACE AND GROUNDWATER FLOW FROM EXCAVATION LOW POINT.
- STOCKPILE EXCAVATED MATERIALS TO BAFFLE OVERLAND RUNOFF, AVOIDING THE CREATION OF LENGTHY PATHS OF CONCENTRATED RUNOFF. STOCKPILE SLOPES SHALL NOT EXCEED 2:1.
- BACKFILL UTILITY TRENCHES AS SOON AS PRACTICABLE TO PREVENT FLOODING, SLOUGHING, POTENTIAL OVERFLOW, AND REPETITIVE EARTH DISTURBANCE.

3.05 SITE GRADING

- WHERE APPLICABLE, FOLLOW EXCAVATION AND FILL PRACTICES SHOWN ON DRAWINGS TO LOCALIZE AND MINIMIZE EROSION.
- MONITOR SEDIMENT VOLUME IN TEMPORARY SEDIMENT BASINS AND AT DIVERSION BERMS AND CHECK DAMS. IN ALL AREAS EXCEPT THOSE THAT DO NOT PRESENT POTENTIAL PROBLEMS WITH REGARD TO FUTURE SOIL STABILITY, DRAINAGE, OR BEARING CAPACITY, REMOVE AND PROPERLY DISPOSE OF TRAPPED SEDIMENT BEFORE BRINGING SITE TO FINAL SUBGRADE.
- EXPOSED SOILS SHALL BE PERMANENTLY STABILIZED WITHIN FIVE (5) BUSINESS DAYS OF COMPLETION OF CONSTRUCTION OF A GIVEN AREA. EXPOSED AREAS WHERE NO WORK HAS OCCURRED FOR FOURTEEN (14) DAYS SHALL BE TEMPORARILY STABILIZED WITH HYDROSEED OR OTHER APPROVED METHOD.
- SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED IMMEDIATELY AFTER COMPLETION.
- SLOPE STABILIZATION IS REQUIRED ON SLOPES GREATER THAN OR EQUAL TO 2:1.

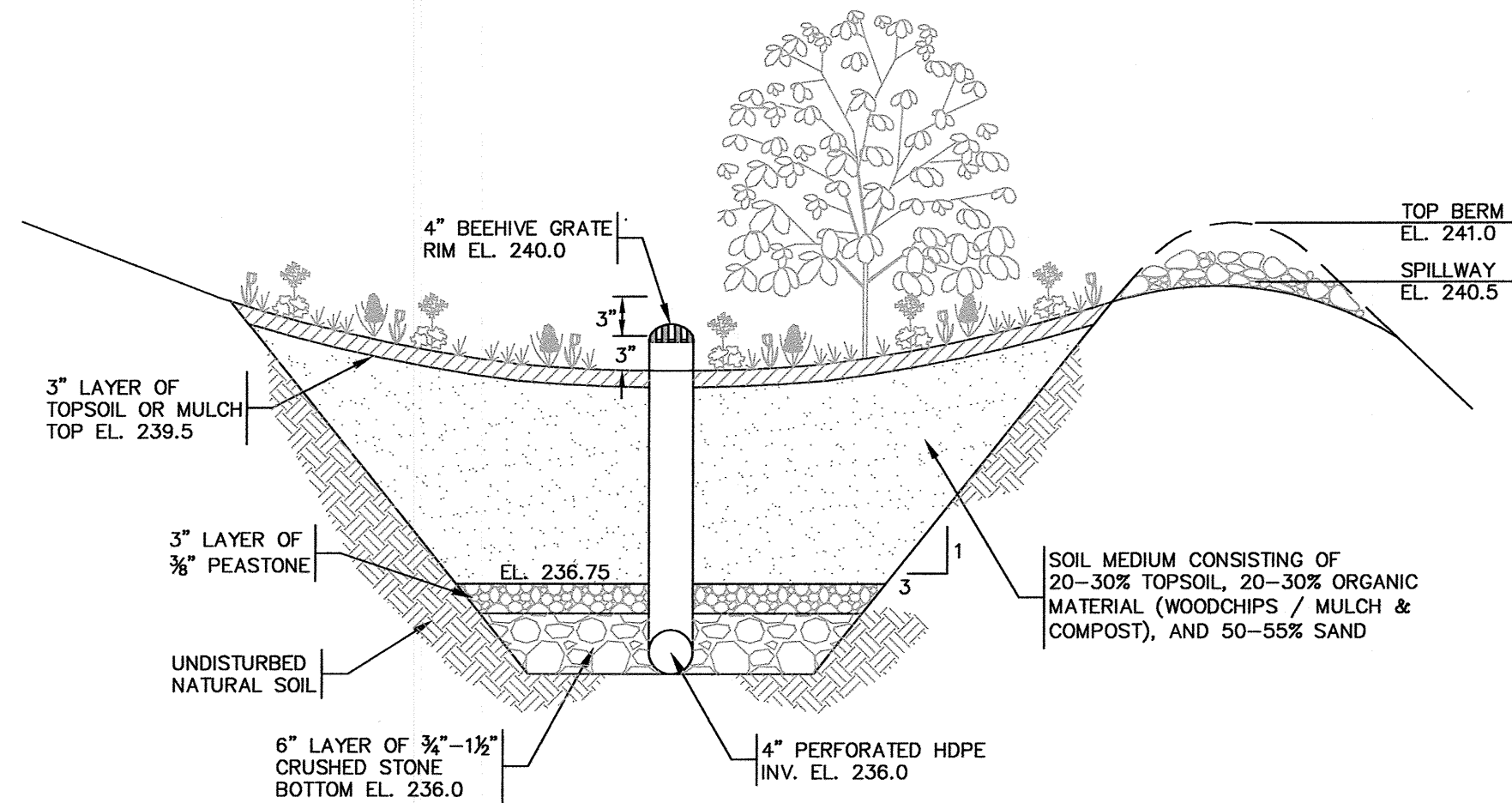
3.06 LANDSCAPING

- COMPLETE LANDSCAPING AS SOON AS POSSIBLE AFTER COMPLETION OF FINAL SUBGRADE.
- IMMEDIATELY AFTER PLACEMENT OF TOPSOIL, STABILIZE WITH CONTROL MEASURES INCLUDING, BUT NOT NECESSARILY LIMITED TO, SEED MIX, MULCH, AND / OR BLANKET.
- PERMANENT SEEDING MAY BE PERFORMED IN THE SPRING PRIOR TO JULY 1 AND IN BETWEEN AUGUST 1 AND OCTOBER 15. PERMANENT SEEDING AT OTHER TIMES SHALL BE APPROVED AND SHALL ONLY BE ALLOWED WITH AN APPROVED MULCHING AND IRRIGATION PROGRAM.



STONE DIAPHRAGM

TYPICAL CROSS SECTION  
NOT TO SCALE

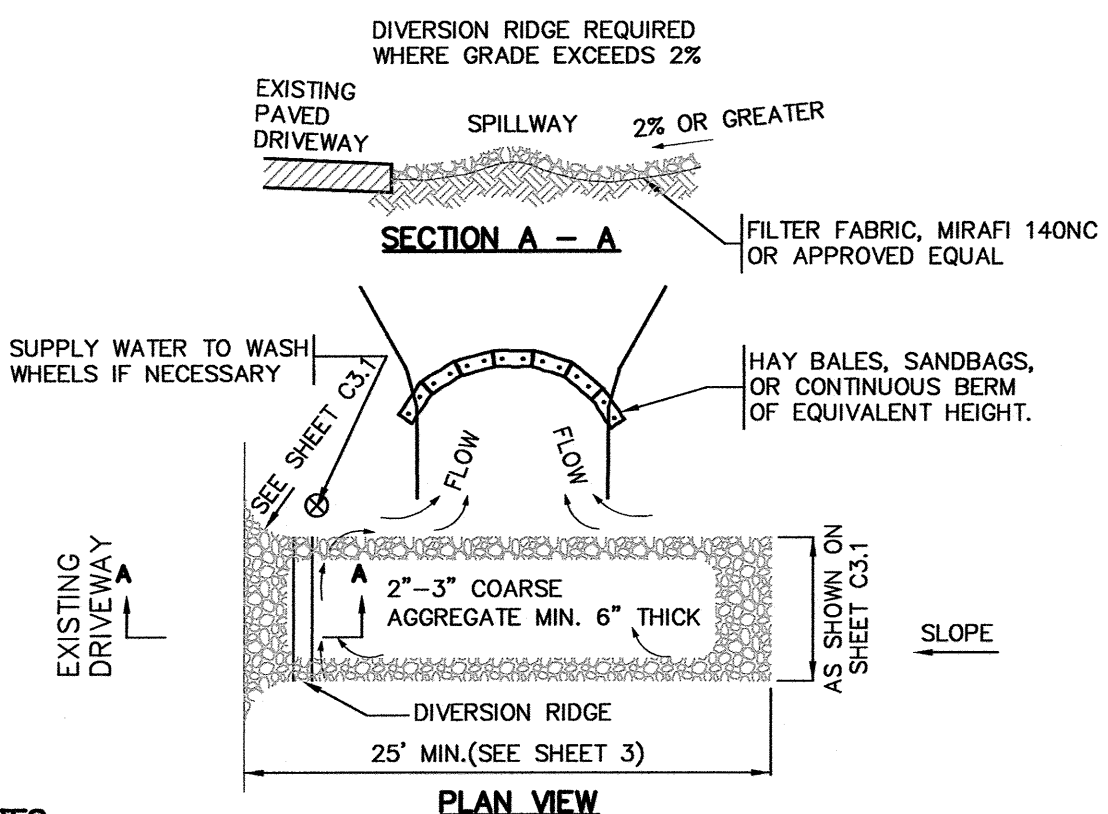


MATERIAL NOTES:

- SOIL MIX MUST BE UNIFORM, FREE OF STONES, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN 2 INCHES. CLAY CONTENT SHOULD NOT EXCEED 5%.
- SOIL PH SHOULD GENERALLY BE BETWEEN 5.5-6.5.
- USE SOILS WITH 1.5%-3% ORGANIC CONTENT AND MAXIMUM 500-PPM SOLUBLE SALTS.
- SAND COMPONENT SHOULD BE GRAVELLY SAND THAT MEETS ASTM D 422.
- TOPSOIL COMPONENT SHALL BE LOAMY SAND.
- COMPOST COMPONENT MUST BE PROCESSED FROM YARD WASTE IN ACCORDANCE WITH MASS DEP GUIDELINES. COMPOST SHALL NOT CONTAIN BIOSOLIDS.
- ON-SITE SOIL MIXING OR PLACEMENT IS NOT ALLOWED IF SOIL IS SATURATED OR SUBJECT TO WATER WITHIN 48 HOURS. COVER AND STORE SOIL TO PREVENT WETTING OR SATURATION.
- TEST SOIL FOR FERTILITY AND MICRO-NUTRIENTS AND, ONLY IF NECESSARY, AMEND MIXTURE TO CREATE OPTIMUM CONDITIONS FOR PLANT ESTABLISHMENT AND EARLY GROWTH.
- GRADE THE AREA TO ALLOW A PONDING DEPTH OF 6-8 INCHES; DEPENDING ON SITE CONDITIONS, MORE OR LESS PONDING MAY BE APPROPRIATE.
- MULCH SHALL BE FINE-SHREDDED HARDWOOD.

BIORETENTION AREA

CROSS SECTION  
NOT TO SCALE

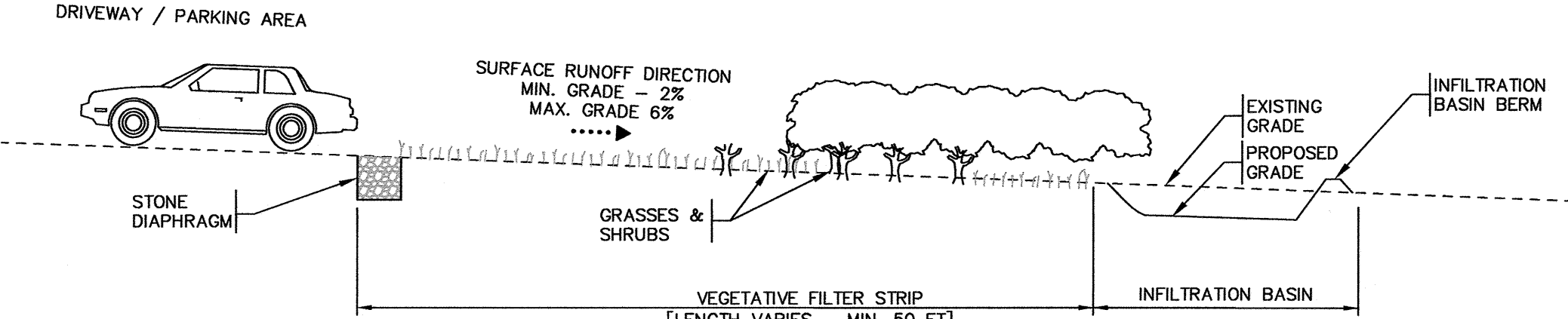


NOTES:

- 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.
- WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
- WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
- USE SANDBAGS, HAY BALES OR OTHER APPROVED METHODS TO CHANNELIZE RUNOFF TO BASIN AS REQUIRED.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



VEGETATED FILTER STRIP

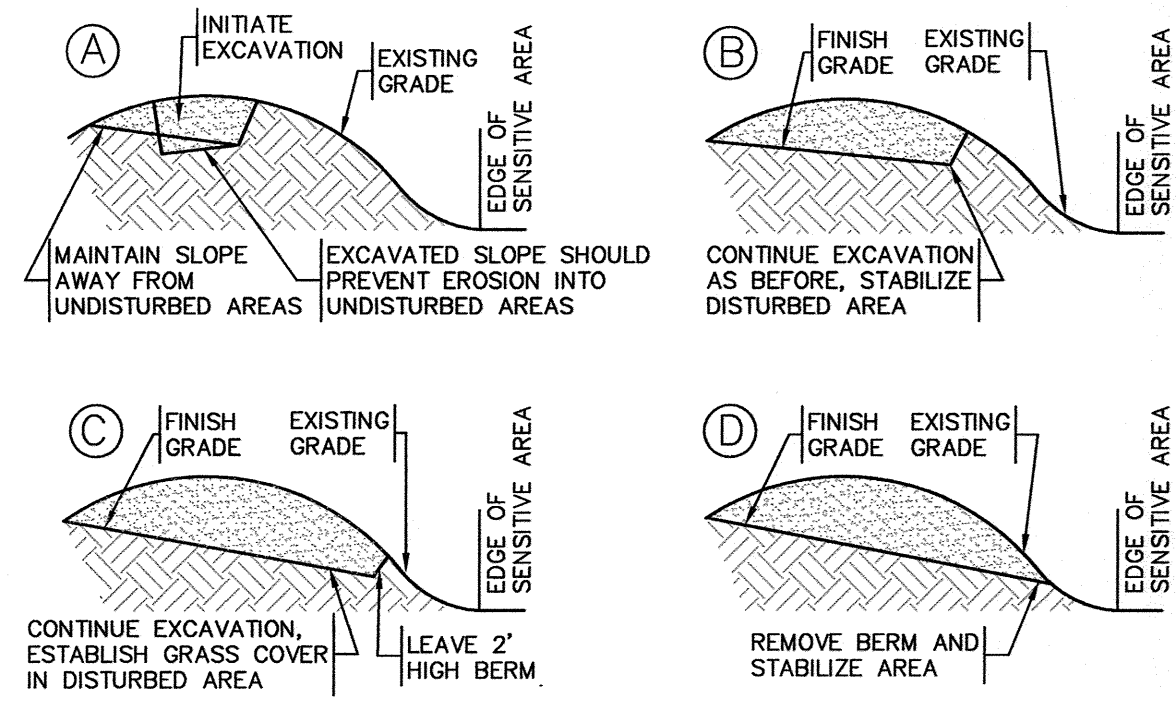
TYPICAL CROSS SECTION  
NOT TO SCALE

PLANTING NOTES FOR BIO-RETENTION BASIN

- THE CONTRACTOR SHALL COVER THE BOTTOM OF THE EXCAVATION WITH COARSE GRAVEL, OVER PEA GRAVEL, OVER SAND.
- THE SOIL MIX FOR BIO-RETENTION AREAS SHOULD BE A MIXTURE OF 40% SAND, 20% TO 30% TOPSOIL, AND 30% TO 40% COMPOST. SOIL PH SHOULD GENERALLY BE 5.5 TO 6.5. USE SOILS WITH 1.5% TO 3% ORGANIC CONTENT AND MAX. 500 PPM SOLUBLE SALTS. THE TOPSOIL COMPONENT SHALL BE A SANDY LOAM, LOAMY SAND OR LOAM TEXTURE.
- THE COMPOST COMPONENT MUST BE PROCESSED FROM YARD WASTE IN ACCORDANCE WITH MASSDEP GUIDELINES. THE COMPOST SHALL NOT CONTAIN BIO-SOLIDS.
- ON-SITE SOIL MIXING OR PLACEMENT IS NOT ALLOWED IF SOIL IS SATURATED OR SUBJECT TO WATER WITHIN 48 HOURS. COVER AND STORE SOIL TO PREVENT WETTING OR SATURATION.
- COVER THE SOIL WITH 2 TO 3 INCHES OF FINE-SHREDDED HARDWOOD MULCH. SUBMIT SAMPLE OF MULCH FOR APPROVAL.
- DURING CONSTRUCTION, AVOID EXCESSIVELY COMPACTING SOILS AROUND THE BIO-RETENTION AREAS AND ACCUMULATING SILT AROUND THE DRAIN FIELD. PLACE PLANTING SOILS IN 1-FOOT TO 2-FOOT LIFTS AND COMPACT THEM WITH MINIMAL PRESSURE UNTIL THE DESIRED ELEVATION IS REACHED.
- INSPECT EACH MONTH, AND WEED OUT INVASIVE PLANT MATERIAL AND REMOVE TRASH.
- MULCH ONE TIME PER YEAR IN THE SPRING. INSPECT AND RE-MULCH VOID AREAS AS NEEDED. REPLACE MULCH EVERY TWO YEARS IN THE EARLY SPRING.
- FERTILIZE ONE TIME INITIALLY IN THE SPRING.
- REMOVE DEAD VEGETATION IN THE FALL AND SPRING, TWICE PER YEAR. REPLACE DEAD VEGETATION ANNUALLY IN THE SPRING.
- PRUNE 1-2 TIMES PER YEAR.

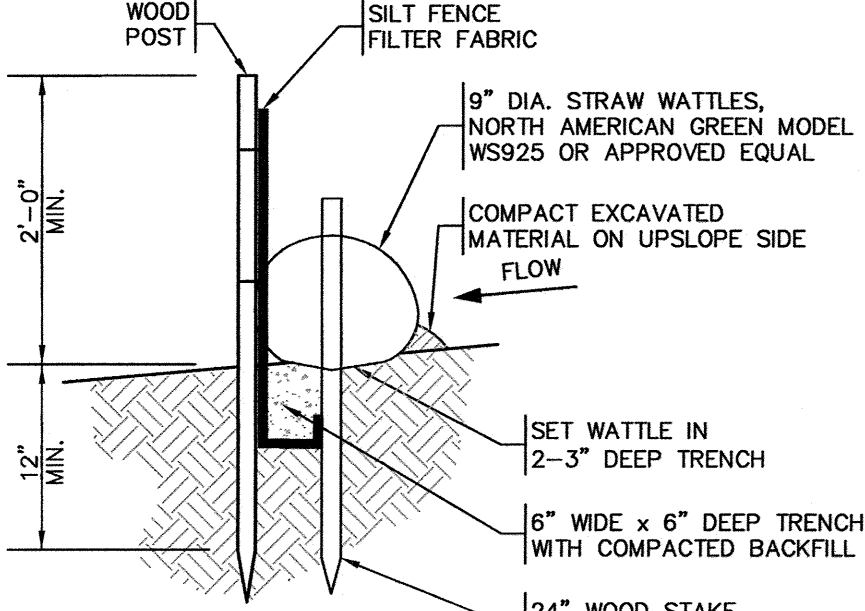
BIORETENTION AREA PLANT LIST

NO.	KEY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
3	VD	VIBURNUM DENDATUM	ARROWWOOD VIBURNUM	2'-3'	6'-8' O.C.
3	CS	CORNUS SERICEA	RED OSIER DOGWOOD	2'-3'	6'-8' O.C.
3	CA	CORNUS AMUMUM	SILKY DOGWOOD	2'-3'	6'-8' O.C.
9	PV	PANICUM VIRGATUM	SWITCHGRASS	2" PLUG	2'-3' O.C.
25	AV	ANDROPOGON VIRGINICUS	BROOM SEDGE BLUESTEM	1'-2" O.C.	2'-3' O.C.
9	AN	ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	2" PLUG	2'-3' O.C.



EXCAVATION PROCEDURE

TYPICAL CROSS SECTION  
NOT TO SCALE



NOTES:

- INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
- TRAPPED SEDIMENT SHALL BE REMOVED TO A NON-SENSITIVE UPLAND AREA.

STRAW WATTLE / SILT FENCE BARRIER

TYPICAL CROSS SECTION  
NOT TO SCALE

DRAWING ISSUED FOR:

- ☐ CONCEPT ☐ CONSTRUCTION  
☒ PERMIT ☐ CONSTRUCTION RECORD

THIS DRAWING MAY NOT SHOW CONSTRUCTION DETAILS AND SPECIFICATIONS FOR ALL PROPOSED IMPROVEMENTS, AND MAY NOT IDENTIFY ALL CONSTRUCTION WORK ITEMS/AREAS OF CONTRACTOR JURISDICTION.

PER 250 CMR 5.03(13), THE FOLLOWING ARE EXCLUDED FROM THE PROFESSIONAL ENGINEER'S RESPONSIBILITY: ALL BOUNDARY INFORMATION; LOCATION OF EXISTING STRUCTURES, TREES, UTILITIES, TOPOGRAPHY OR SIMILAR FEATURES; DESIGN OF RETAINING WALLS, PROPRIETARY EQUIPMENT. SEE EXISTING CONDITION NOTES.

NO.	DATE	BY	APP.	REVISION DESCRIPTION

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