

**CLIENT/OWNER**  
 RICHMOND PROPERTY GROUP  
 333 N. ALABAMA STREET  
 INDIANAPOLIS, IN 46204

**CIVIL ENGINEER**  
 EMANUEL ENGINEERING, INC.  
 118 PORTSMOUTH AVENUE, SUITE A202  
 STRATHAM, NH 03885

**LAND SURVEYOR**  
 DOUCET SURVEY, INC.  
 102 KENT PLACE  
 NEWMARKET, NH 03857

**SOIL SCIENTIST**  
 GZA GEOENVIRONMENTAL  
 5 COMMERCE PARK NORTH, SUITE 201  
 BEDFORD, NH 03110

**ARCHITECT**  
 KRITTENBRINK ARCHITECTURE  
 119 W. MAIN STREET  
 NORMAN, OK 73069

**LIGHTING PLAN**  
 KRITTENBRINK ARCHITECTURE  
 119 W. MAIN STREET  
 NORMAN, OK 73069

**GEOTECHNICAL ENGINEER**  
 S.W. COLE ENGINEERING, INC.  
 10 CENTRE ROAD  
 SOMERSWORTH, NH 03878

**LANDSCAPE ARCHITECT**  
 WOODBURN & COMPANY  
 103 KENT PLACE  
 NEWMARKET, NH 03857

# SITE PLAN FOR RICHMOND PROPERTY GROUP

## ALPHA TAU OMEGA FRATERNITY

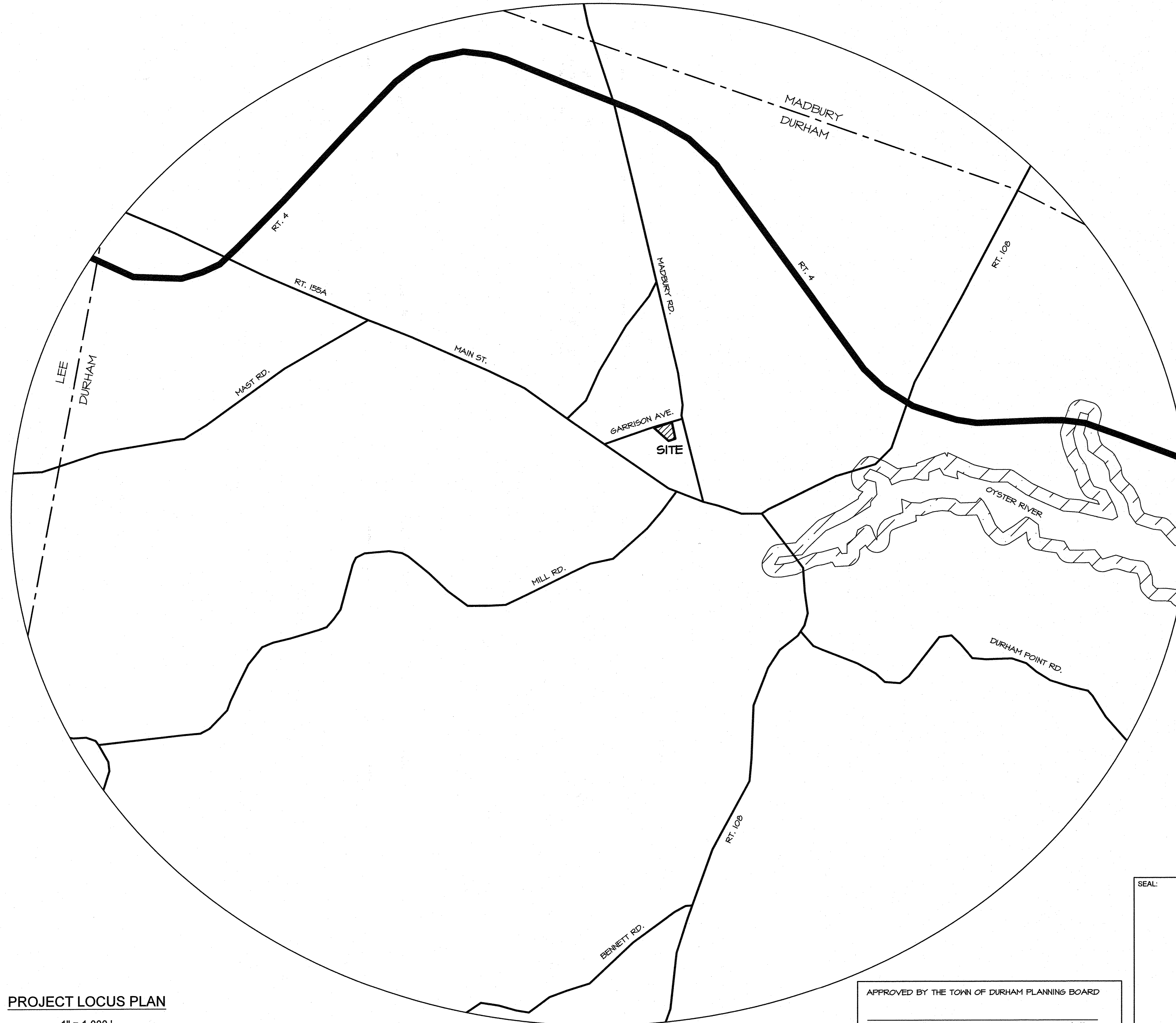
### DURHAM TAX MAP 2 LOT 12-12

### 18 GARRISON AVENUE

### DURHAM, NH 03824

**WAIVERS GRANTED BY THE TOWN OF DURHAM ZONING BOARD ON MARCH 17, 2020:**

- ZONING ORDINANCE 175.62 - PARKING WITHIN WCOD
- ZONING ORDINANCE 175.11 - PARKING WITHIN FRONT COURT OF BUILDING



**PROJECT DRAWING SET:**

- 1 COVER SHEET
- C2 EXISTING CONDITIONS PLAN (BY DOUCET SURVEY, INC.)
- C3 SITE PLAN
- C4 GRADING & DRAINAGE PLAN
- D1 - D2 PAVING & CURBING PLAN
- D3 - D5 NOTES
- SK1 DETAILS
- SK2 SITE PLAN W/ AERIAL OVERLAY
- E001 COLORED SITE PLAN
- L1 ELECTRICAL SITE PLAN
- A201 - A203 PRELIMINARY LANDSCAPE CONCEPT
- A301 - A302 FLOOR PLANS
- A301 - A302 EXTERIOR ELEVATIONS

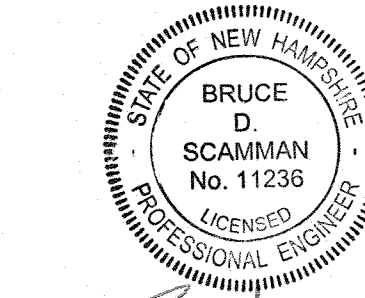
**PROJECT LOCUS PLAN**

1" = 1,000'

APPROVED BY THE TOWN OF DURHAM PLANNING BOARD

CHAIRPERSON \_\_\_\_\_ DATE \_\_\_\_\_

SEAL:



*Bruce D. Scamman* 3/25/20

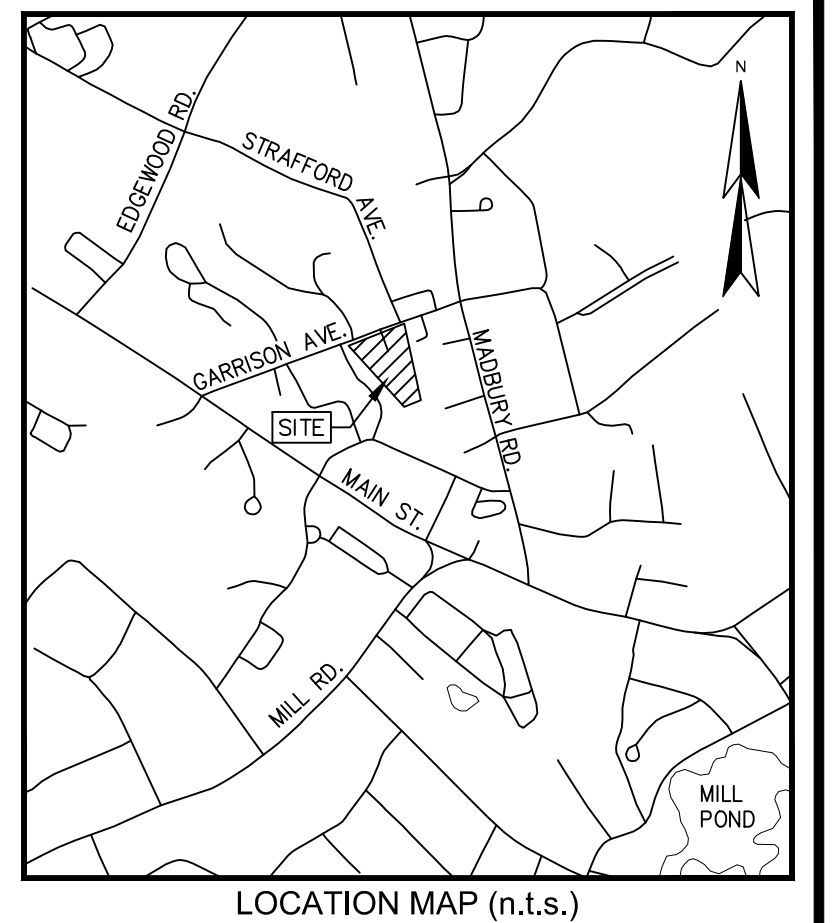
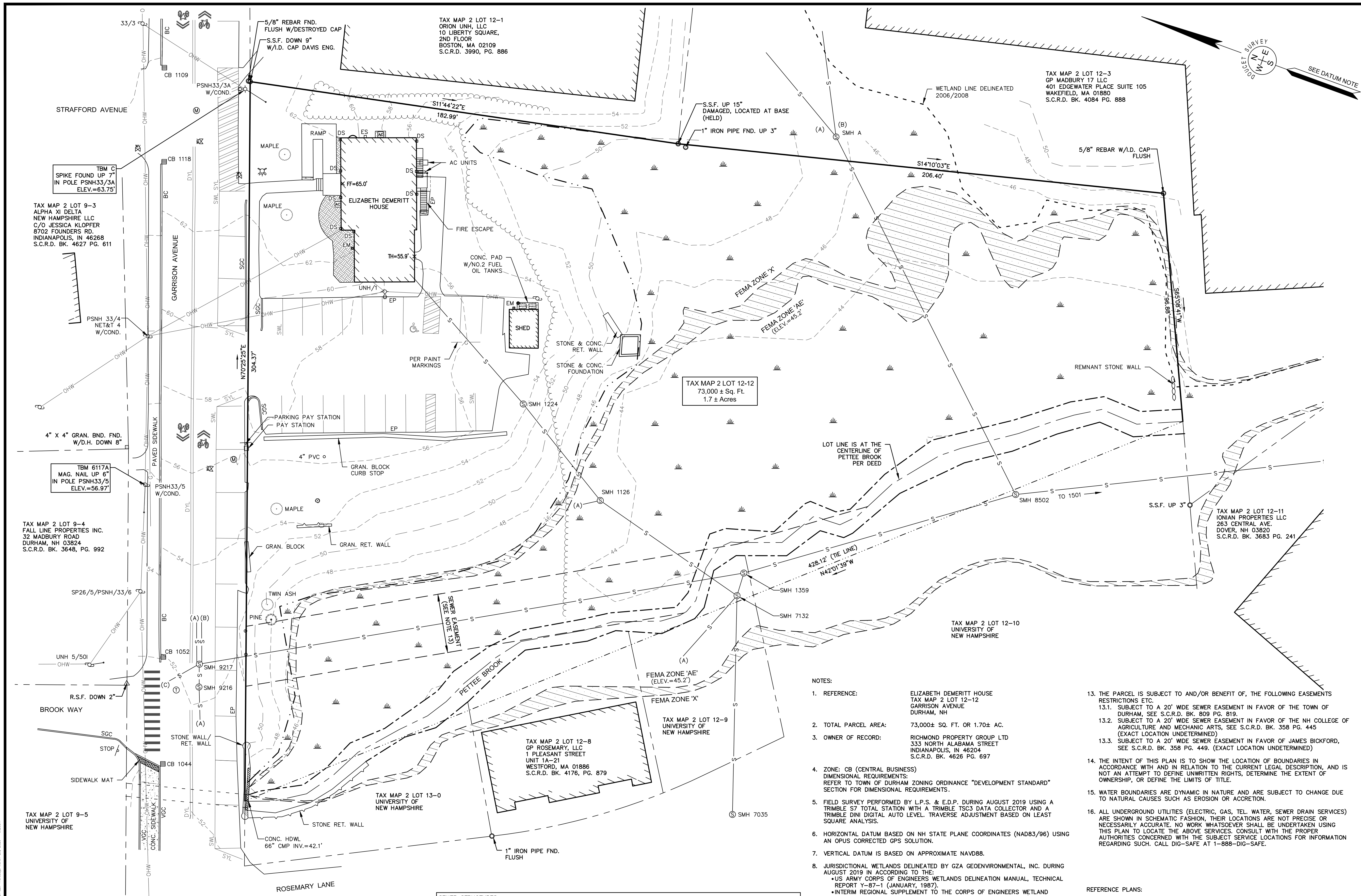
2	MAR 24, 2020	FOR APPROVAL	
1	MAR 11, 2020	FOR APPROVAL	
ISS. DATE:		DESCRIPTION OF ISSUE:	CHK.
DRAWN: JJM		DESIGN: JJM	
CHECKED: BDS		CHECKED: BDS	



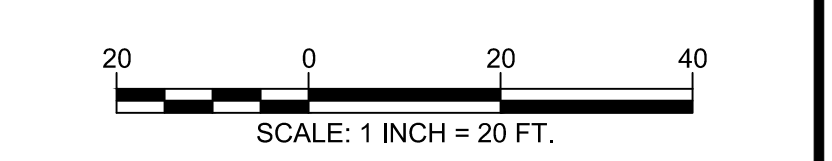
CLIENT:  
 RICHMOND PROPERTY GROUP  
 333 N. ALABAMA ST.  
 INDIANAPOLIS, IN 46204

TITLE:  
 COVER  
 FOR  
 RICHMOND PROPERTY GROUP  
 ELIZABETH DEMERITT HOUSE  
 18 GARRISON AVENUE (SITE)  
 DURHAM, NH 03824

PROJECT:	SCALE:	SHEET:
19-083	AS SHOWN	COVER



- LEGEND**
- LOT LINE
  - - - APPROXIMATE ABUTTERS LOT LINE
  - - - EXISTING EASEMENT LINE
  - - - APPROXIMATE CENTERLINE OF BROOK
  - - - EDGE OF BROOK
  - RETAINING WALL
  - STONE WALL
  - OVERHEAD WIRE
  - SEWER LINE
  - DRAIN LINE
  - GAS LINE
  - MAJOR CONTOUR LINE
  - MINOR CONTOUR LINE
  - TREE LINE
  - - - EDGE OF DELINEATED WETLAND (2019)
  - - - EDGE OF DELINEATED WETLAND (2006/2008)
  - WETLAND AREA
  - CONCRETE
  - LANDSCAPED AREA
  - FEMA ZONE 'X' 0.2% ANNUAL CHANCE FLOOD HAZARD
  - UTILITY POLE & GUY WIRE
  - UTILITY POLE W/LIGHT
  - SIGN
  - IRON PIPE/ROD FOUND
  - FIRE HYDRANT
  - WATER GATE VALVE
  - CATCH BASIN
  - MANHOLE
  - TELEPHONE MANHOLE
  - SEWER MANHOLE
  - WOODED POST
  - BOLLARD
  - CONIFEROUS TREE
  - DECIDUOUS TREE
  - TYPICAL
  - STEEL STAKE FOUND
  - CONCRETE
  - GRANITE
  - HDWL
  - FINISHED FLOOR ELEVATION
  - THRESHOLD ELEVATION
  - EP
  - VGC
  - SGC
  - EM
  - ES
  - BC
  - SWL
  - SYL
  - DYL
  - DS
  - CC
  - CENTERLINE CHANNEL
  - BUILDING



**EXISTING CONDITIONS PLAN**  
FOR  
**EMANUEL ENGINEERING**  
OF THE  
**ELIZABETH DEMERITT HOUSE**  
TAX MAP 2 LOT 12-12  
18 GARRISON AVENUE  
DURHAM, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY:	M.T.L.	DATE:	AUGUST 2019
CHECKED BY:	S.V.M.	DRAWING NO.:	6117A
JOB NO.:	6117	SHEET	1 OF 1

Serving Your Professional Surveying & Mapping Needs  
102 Kent Place, Newmarket, NH 03857 (603) 659-6560  
2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-0660  
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005  
http://www.doucetsurvey.com

- NOTES:**
- REFERENCE: ELIZABETH DEMERITT HOUSE TAX MAP 2 LOT 12-12 GARRISON AVENUE DURHAM, NH
  - TOTAL PARCEL AREA: 73,000± SQ. FT. OR 1.70± AC.
  - OWNER OF RECORD: RICHMOND PROPERTY GROUP LTD 333 NORTH ALABAMA STREET INDIANAPOLIS, IN 46204 S.C.R.D. BK. 4626 PG. 697
  - ZONE: CB (CENTRAL BUSINESS) DIMENSIONAL REQUIREMENTS: REFER TO TOWN OF DURHAM ZONING ORDINANCE "DEVELOPMENT STANDARD" SECTION FOR DIMENSIONAL REQUIREMENTS.
  - FIELD SURVEY PERFORMED BY L.P.S. & E.D.P. DURING AUGUST 2019 USING A TRIMBLE S7 TOTAL STATION WITH A TRIMBLE TSC3 DATA COLLECTOR AND A TRIMBLE DINI DIGITAL AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.
  - HORIZONTAL DATUM BASED ON NH STATE PLANE COORDINATES (NAD83/96) USING AN OPUS CORRECTED GPS SOLUTION.
  - VERTICAL DATUM IS BASED ON APPROXIMATE NAVD88.
  - JURISDICTIONAL WETLANDS DELINEATED BY GZA GEOENVIRONMENTAL, INC. DURING AUGUST 2019 IN ACCORDANCE TO THE:
    - US ARMY CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1 (JANUARY, 1987)
    - INTERIM REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION (OCTOBER 2009)
    - NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS: NORTHEAST (REGION 1), U.S. FISH AND WILDLIFE SERVICE (MAY 1986)
    - CODE OF ADMINISTRATIVE RULES, WETLANDS BOARD, STATE OF NEW HAMPSHIRE (CURRENT)
  - FLOOD HAZARD ZONES: "X" & "AE", PER FIRM MAP #3301700318E, DATED 9/15/15.
  - PROPER FIELD PROCEDURES WERE FOLLOWED IN ORDER TO GENERATE CONTOURS AT 2' INTERVALS. ANY MODIFICATION OF THIS INTERVAL WILL DIMINISH THE INTEGRITY OF THE DATA, AND DOUCET SURVEY WILL NOT BE RESPONSIBLE FOR ANY SUCH ALTERATION PERFORMED BY THE USER.
  - UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON OBSERVED PHYSICAL EVIDENCE AND PAINT MARKS FOUND ON-SITE.
  - THE ACCURACY OF MEASURED UTILITY INVERTS AND PIPE SIZES/TYPES IS SUBJECT TO NUMEROUS FIELD CONDITIONS, INCLUDING: THE ABILITY TO MAKE VISUAL OBSERVATIONS, DIRECT ACCESS TO THE VARIOUS ELEMENTS, MANHOLE CONFIGURATION, ETC.
  - THE PARCEL IS SUBJECT TO AND/OR BENEFIT OF, THE FOLLOWING EASEMENTS RESTRICTIONS ETC.
    - SUBJECT TO A 20' WIDE SEWER EASEMENT IN FAVOR OF THE TOWN OF DURHAM, SEE S.C.R.D. BK. 809 PG. 819.
    - SUBJECT TO A 20' WIDE SEWER EASEMENT IN FAVOR OF THE NH COLLEGE OF AGRICULTURE AND MECHANIC ARTS, SEE S.C.R.D. BK. 358 PG. 445 (EXACT LOCATION UNDETERMINED)
    - SUBJECT TO A 20' WIDE SEWER EASEMENT IN FAVOR OF JAMES BICKFORD, SEE S.C.R.D. BK. 358 PG. 449. (EXACT LOCATION UNDETERMINED)
  - THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.
  - WATER BOUNDARIES ARE DYNAMIC IN NATURE AND ARE SUBJECT TO CHANGE DUE TO NATURAL CAUSES SUCH AS EROSION OR ACCRETION.
  - ALL UNDERGROUND UTILITIES (ELECTRIC, GAS, TEL, WATER, SEWER DRAIN SERVICES) ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.

- REFERENCE PLANS:**
- "PLAN OF LAND, LAND OF THE UNIVERSITY OF NEW HAMPSHIRE FOR GAMMA THETA CORPORATION, GARRISON AVENUE, (NO TAX MAP/LOT NUMBER ASSIGNED) DURHAM, NEW HAMPSHIRE" DATED JULY 11, 2014 BY DOUCET SURVEY, INC. S.C.R.D. PLAN 108-020.
  - "EXISTING CONDITIONS PLAN OF 17 & 21 MADBURY ROAD FOR AG ARCHITECTS, PC" DATED MAY 11, 2008 BY DOUCET SURVEY, INC.
  - "TOWN OF DURHAM SEWER EASEMENTS, PETTEE BROOK INTERCEPTOR" DATED NOVEMBER 1964 BY G.L. DAVIS & ASSOCIATES S.C.R.D. POCKET 4 FOLDER 4 PLAN 26.
  - "RE-SUBDIVISION OF LAND IN DURHAM, NH PREPARED FOR THETA GAMMA OF DELTA ZETA HOUSE CORP." DATED AUGUST 4, 1980 BY JOHN W. DURGIN ASSOCIATES, INC. S.C.R.D. DRAWER 21, PLAN 86.
  - "PLAN OF LAND FOR ERNEST CUTLER" DATED OCTOBER 1977 BY JOHN W. DURGIN ASSOCIATES, INC.
  - "UNIVERSITY OF NEW HAMPSHIRE GARRISON AVENUE AREA" DATED SEPTEMBER 16, 1957 BY G.L. DAVIS & ASSOCIATES.

**SEWER STRUCTURES**

SMH A	SMH 1224	SMH 7132	SMH 9216
RIM ELEV.=46.3'	RIM ELEV.=54.6'	RIM ELEV.=45.3'	RIM ELEV.=52.3'
(A) 8" CIP INV.=42.2'	(BLDG) 6" PVC INV.=47.8'	(A) 8" PVC INV.=38.5'	(A) 8" UNK. INV.=39.6'
(B) 6" CIP INV.=42.5'	(1226) 6" PVC INV.=47.8'	(7035) 8" PVC INV.=38.5'	(9217) 8" UNK. INV.=39.6'
(8502) 8" CIP=42.2'		(1126) 8" PVC INV.=38.5'	
	SMH 1359	(1359) 10" UNK. INV.=38.5'	SMH 9217
	RIM ELEV.=44.6'		RIM ELEV.=52.5'
	(7132) 10" PVC INV.=36.4'	SMH 8502	(A) 8" CLAY INV.=45.7'
	(9217) 18" PVC INV.=35.6'	RIM ELEV.=42.9'	(B) 8" UNK. INV.=37.3'
	(8502) 18" PVC INV.=35.6'	(SMH A) CC ELEV.=36.1'	(9216) 8" UNK. INV.=37.2'
		(1359) CC ELEV.=35.1'	(C) 18" UNK. CC ELEV.=36.6'
		(1501) CC ELEV.=35.1'	(1359) 18" UNK. CC ELEV.=36.6'

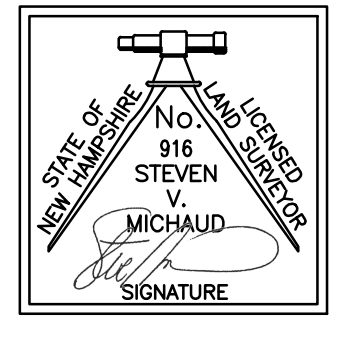
PURSUANT TO RSA 676:18, III:

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION AND FALLS UNDER THE URBAN SURVEY CLASSIFICATION OF THE NH CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. RANDOM TRAVERSE SURVEY BY TOTAL STATION, WITH A PRECISION GREATER THAN ±15,000.

LL.S. #916  
DATE: 3/26/2020

THE CERTIFICATIONS SHOWN HEREON ARE INTENDED TO MEET REGISTRY OF DEED REQUIREMENTS AND ARE NOT A CERTIFICATION TO TITLE OR OWNERSHIP OF PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT TOWN ASSESSORS RECORDS.



**LEGEND**

□	BOUND FOUND
○	IRON PIPE FOUND
○ (TYP)	TYPICAL
PPP	PROPOSED POROUS PAVEMENT
PTP	PROPOSED TRAD. PAVEMENT
VGC	VERTICAL GRANITE CURB
SSC	SLOPED GRANITE CURB
BC	BITUMINOUS CURB
---	PROPERTY LINE
---	EDGE OF PAVEMENT (EOP)
---	EOP WITH CURB
---	UNDERGROUND UTILITIES
---	WATER LINE
---	SEWER LINE
---	GAS LINE
---	IRON FENCE
---	GUARD RAIL
---	EDGE OF WETLANDS
---	UTILITY POLE
---	LIGHT POLE
---	WETLANDS
---	BOLLARD
---	ELECTRICAL METER
---	SEWER MANHOLE
---	CATCH BASIN
---	SEWER CLEANOUT
---	WATER VALVE
---	TREE
---	PARKING SPACES IN ROW
---	COMPACT PARKING SPOT
---	LANDSCAPING
---	FEMA FLOOD ZONE X

2 0-14  
N/F ORION UNH LLC  
10 LIBERTY SQUARE  
SUITE 2A  
BOSTON, MA 02104  
S.C.R.D. 3490/886

2 12-1  
N/F ORION UNH LLC  
10 LIBERTY SQUARE 2ND FLOOR  
BOSTON, MA 02104  
S.C.R.D. 3490/886

2 12-3  
N/F GP MADBURY IT LLC  
401 EDGEWATER PLACE SUITE 105  
WAKEFIELD, MA 01880  
S.C.R.D. 4084/888

2 12-12  
N/F RICHMOND PROPERTY GROUP  
333 N. ALABAMA ST.  
INDIANAPOLIS, IN 46204  
S.C.R.D. 4624/891  
± 13,000 SF  
± 1.7 ACRES

2 12-10  
N/F UNIVERSITY OF  
NEW HAMPSHIRE

2 12-8  
N/F GP ROSEMARY, LLC  
1 PLEASANT ST. UNIT 1A-21  
WESTFORD, MA 01886  
S.C.R.D. 4116/874

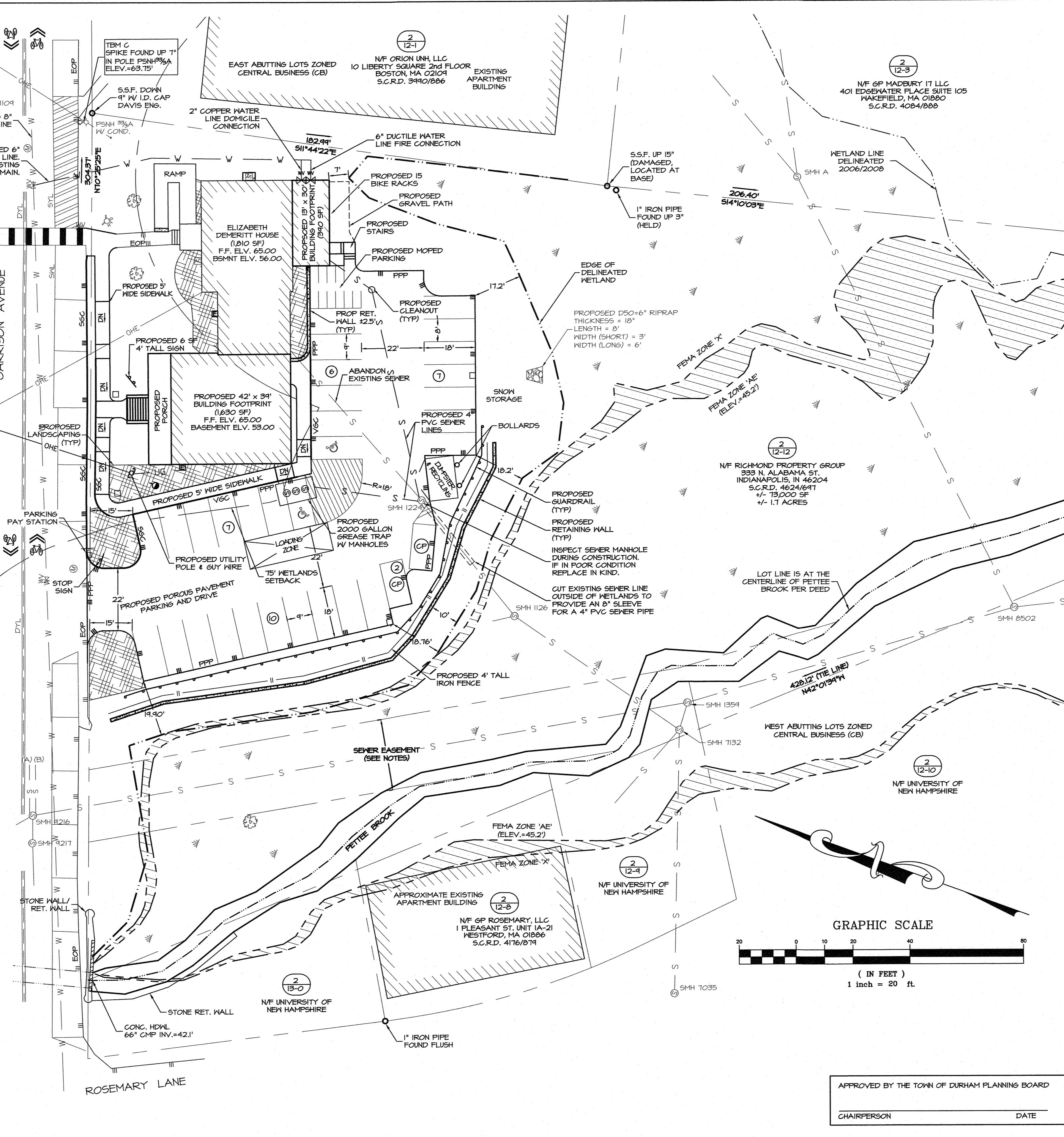
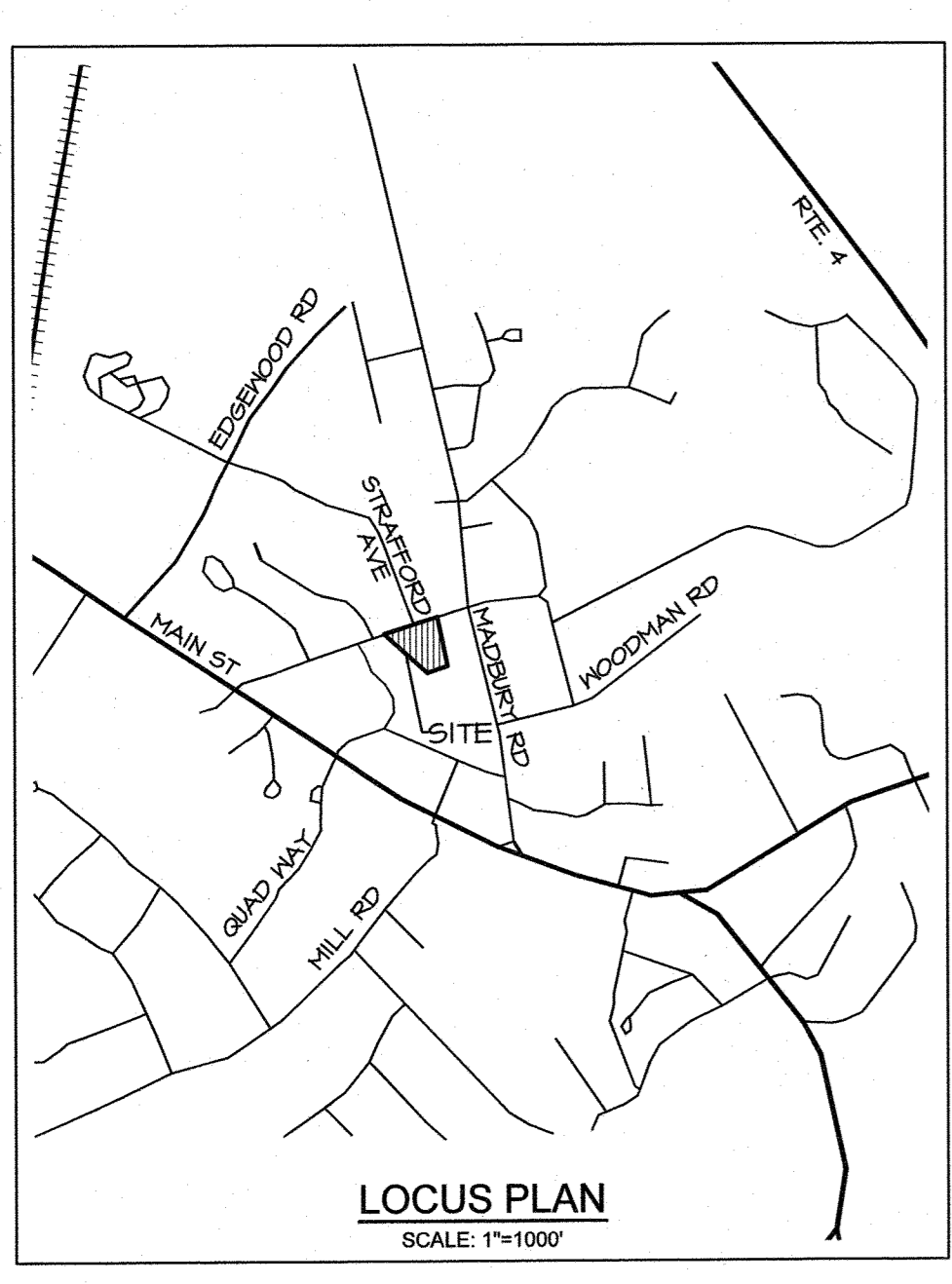
2 13-0  
N/F UNIVERSITY OF  
NEW HAMPSHIRE

2 4-3  
N/F ALPHA XI DELTA  
NEW HAMPSHIRE LLC  
C/O JESSICA KLOPPER  
8702 FOUNDERS RD.  
INDIANAPOLIS, IN 46226  
S.C.R.D. 4621/811

LOT ZONED  
PROFESSIONAL OFFICE (PO)

2 4-4  
N/F FALL LINE PROPERTIES INC.  
32 MADBURY RD.  
DURHAM, NH 03824  
S.C.R.D. 3648/942

LOT ZONED  
RESIDENTIAL A (RA)



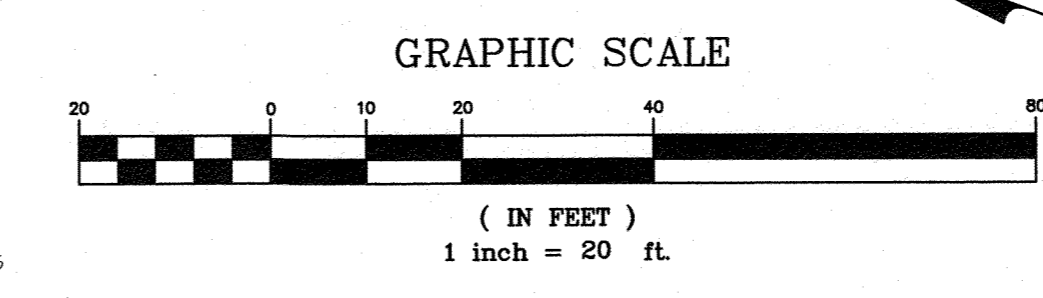
- NOTES:**
- OWNER OF RECORD, TAX MAP 2, LOT 12-12 RICHMOND PROPERTY GROUP 333 N. ALABAMA ST. INDIANAPOLIS, IN 46204 S.C.R.D. 4626 PG 647
  - THE INTENT OF THIS PLAN IS TO SHOW A PRELIMINARY PROPOSED SITE PLAN FOR A FRATERNITY, DEFECTING BUILDING, DRIVEWAY, DRAINAGE, AND SITE IMPROVEMENTS.
  - PARCEL IS ZONED CENTRAL BUSINESS (CB) PER THE 2006 DURHAM ZONING DISTRICT MAP.
  - A PORTION OF THE PARCEL IS IN A FLOOD HAZARD ZONE, REFERENCE FLOOD INSURANCE RATE MAP 3301TC03BIE, DATED SEPTEMBER 30, 2015.
  - SURVEY FIELDWORK CONDUCTED BY DOUCET SURVEY, LLC IN AUGUST, 2019.
  - SOILS AND WETLANDS WERE DELINEATED BY GZA GEOENVIRONMENTAL, INC. DURING AUGUST, 2019.
  - PROPERTY TO BE SERVICED BY TOWN WATER AND SEWER.
  - ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
  - THIS PLAN WAS PREPARED WITH ON-SITE FIELD SURVEY AND EXISTING PLANS. THE CONTRACTOR SHOULD NOTIFY EMANUEL ENGINEERING, INC. DURING CONSTRUCTION IF ANY DISCREPANCY TO THE PLAN IS FOUND ON SITE.
  - BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
  - ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
  - THIS PARCEL IS SUBJECT TO AND/OR BENEFIT OF EASEMENTS, RESTRICTIONS, ETC. FOR MORE INFORMATION, SEE EXISTING CONDITIONS PLAN BY DOUCET SURVEY, AS PART OF THIS PLAN SET.
- NOTES (CONT.):**
- THE FOLLOWING CB DISTRICT REQUIREMENTS ARE PER THE TOWN OF DURHAM'S SITE PLAN REGULATIONS AND ZONING ORDINANCE, DATED 2019:
    - TOTAL NUMBER OF RESIDENTS AND ON-SITE EMPLOYEES FOR THE PROPOSED FRATERNITY IS 44.
    - MINIMUM ONE PARKING SPACE PER RESIDENT (CB DISTRICT EXCEPT W/ FEES)
      - REQUIRED = 44 SPACES
      - PROPOSED = 32 SPACES
    - MAXIMUM 30% OF PARKING ARE COMPACT SPACES
      - MAX = 4 SPACES
      - PROPOSED = 4 SPACES
    - ONE HANDICAP PARKING SPACE PER 25 SPACES
      - REQUIRED = 2 SPACES
      - PROPOSED = 2 SPACES
    - MINIMUM PARKING SPACE DIMENSIONS:
      - PERPENDICULAR = 9'x18'
      - PARALLEL = 8'x21'
      - COMPACT = 8'x12'
      - HANDICAP = 8'x18'
    - PARKING LOTS AT THE SIDE OF PRINCIPLE BUILDINGS SHALL BE SET BACK AS FAR AS THE FRONT OF THE BUILDING OR 15 FT, WHICHEVER IS GREATER
      - REQUIREMENT NOT MET
      - VARIANCE GRANTED MARCH 17, 2020
    - MINIMUM AMOUNT OF BIKE RACKS IS 1/3 OF REQUIRED PARKING SPACES
      - REQUIRED = 15 BIKE RACKS
      - PROPOSED = 15 BIKE RACKS
    - MAXIMUM BUILDING HEIGHT IS 35 FT
      - HEIGHT = 34.5'
    - MINIMUM LOT FRONTAGE = 50 FT
      - PROVIDED = 304 FT
    - MINIMUM LOT SIZE = 5,000 SF
      - PROVIDED = 13,000 SF
    - WETLAND SETBACK (BUFFER) = 75 FT
      - PROVIDED < 75 FT
      - VARIANCE GRANTED MARCH 17, 2020, & CONDITIONAL USE APPLICATION IN PROCESS.

**AREA CALCULATIONS**

TOTAL AREA OF LOT*	EXISTING IMPERVIOUS AREA**	PROPOSED IMPERVIOUS AREA**	PROPOSED POROUS PAVEMENT AREA
11,900 SF	3,507 SF	6,410 SF	10,070 SF

\* - TOTAL AREA OF LOT IS MEASURED BY THE LINE, NOT PETTIE BROOK.  
\*\* - PROPOSED IMPERVIOUS AREA EXCLUDES POROUS PAVEMENT, PARKING LOT & DRIVEWAY.

- REFERENCE PLANS:**
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  - "PLAN OF LAND FOR ERNEST CUTLER" DATED OCTOBER 1977 BY JOHN W. DURGIN ASSOCIATES, INC.
  - "UNIVERSITY OF NEW HAMPSHIRE GARRISON AVENUE AREA" DATED SEPTEMBER 16, 1957 BY G.L. DAVIS & ASSOCIATES.



APPROVED BY THE TOWN OF DURHAM PLANNING BOARD

CHAIRPERSON \_\_\_\_\_ DATE \_\_\_\_\_

SEAL:

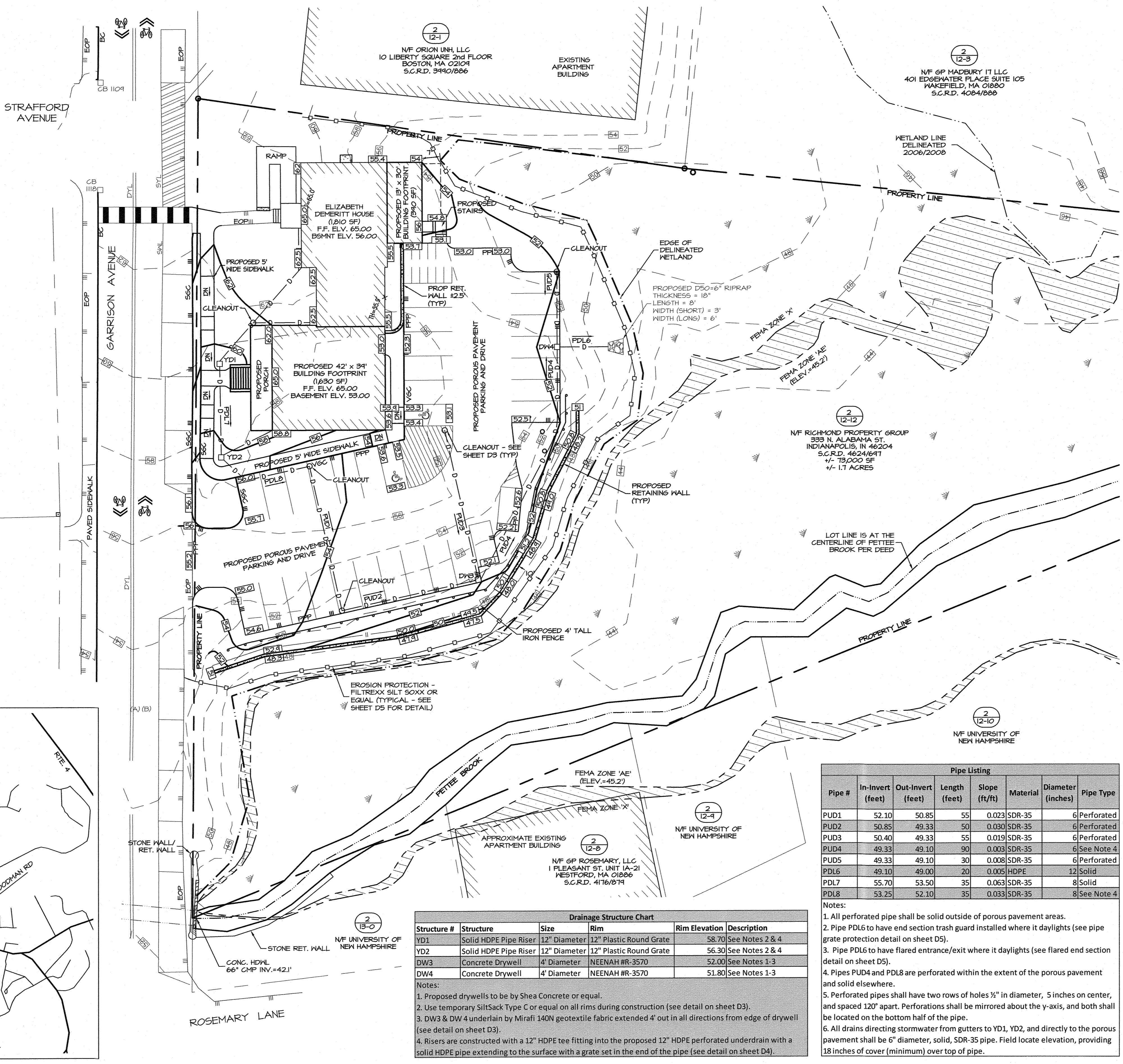
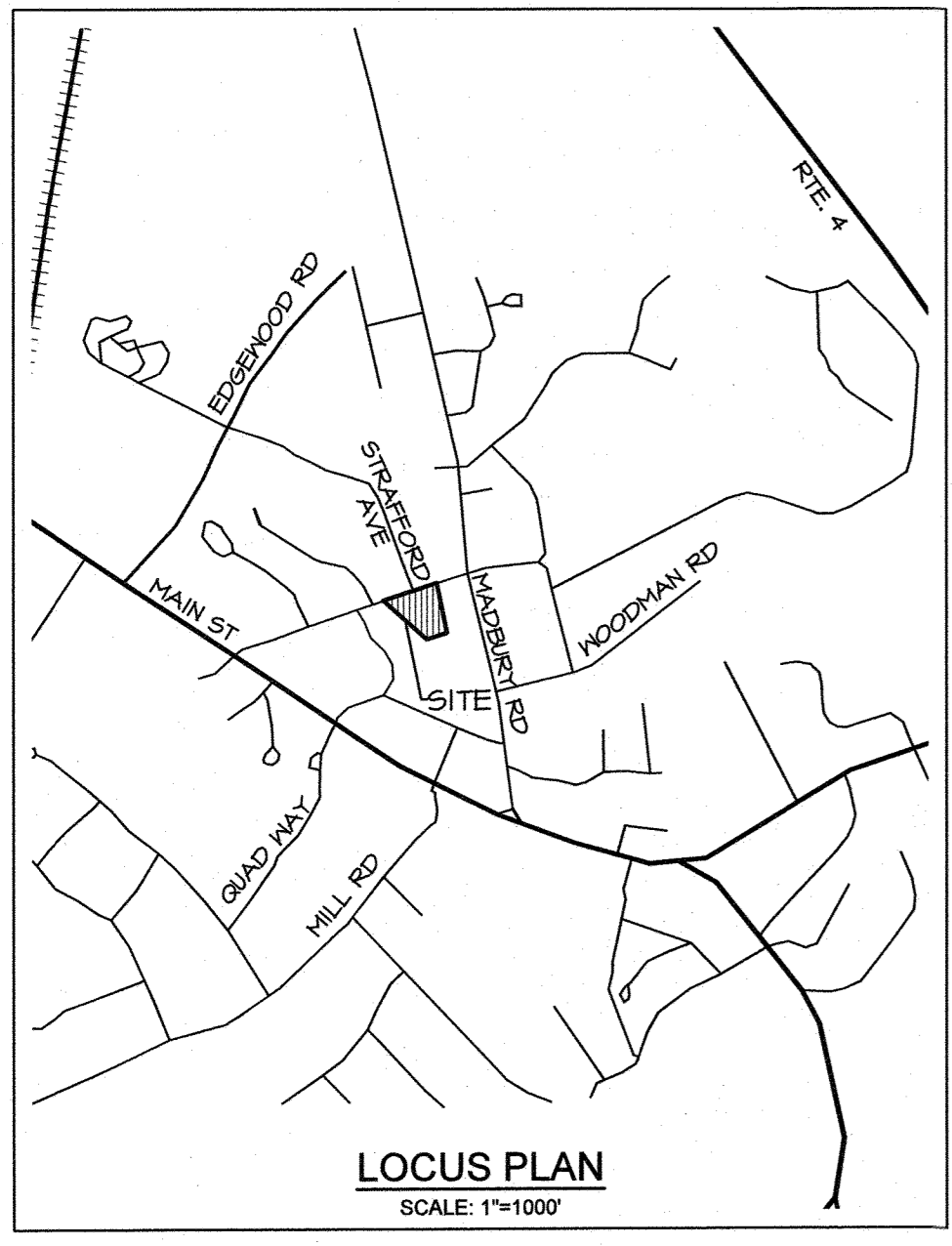
1	MAR 24, 2020	FOR APPROVAL	
ISS. DATE:		DESCRIPTION OF ISSUE:	CHK.
DRAWN:	MCV	DESIGN:	MCV
CHECKED:	BDS	CHECKED:	BDS
 <small>civil &amp; structural consultants, land planners</small> 118 PORTSMOUTH AVENUE, A202 STRATHAM, NH 03885 P: 603-772-4480 E: 603-772-4487 WWW.EMANUELENGINEERING.COM			
CLIENT:			
<b>RICHMOND PROPERTY GROUP</b> 333 N. ALABAMA ST. INDIANAPOLIS, IN 46204			
TITLE:			
<b>SITE PLAN</b> FOR <b>RICHMOND PROPERTY GROUP</b> ELIZABETH DEMERRIT HOUSE 18 GARRISON AVENUE (SITE) DURHAM, NH 03824			
PROJECT:	SCALE:	SHEET:	
19-083	1"=20'	C2	

**LEGEND**

□	BOUND FOUND
○	IRON PIPE FOUND
(TYP)	TYPICAL
PPP	PROPOSED POROUS PAVEMENT
PTP	PROPOSED TRAD. PAVEMENT
VGC	VERTICAL GRANITE CURB
SGC	SLOPED GRANITE CURB
BC	BITUMINOUS CURB
---	PROPERTY LINE
---	EDGE OF PAVEMENT (EOP)
---	EOP WITH CURB
---	OVERHEAD UTILITIES
---	WATER LINE
---	SEWER LINE
---	GAS LINE
---	CHAINLINK FENCE
---	GUARDRAIL
---	EDGE OF WETLANDS
---	UTILITY POLE
---	LIGHT POLE
---	WETLANDS
---	SEWER MANHOLE
---	CATCH BASIN
---	SEWER CLEANOUT
---	WATER VALVE
---	TREE
---	FEMA FLOODZONE X

2  
4-3  
NF ALPHA XI DELTA  
NEW HAMPSHIRE LLC  
C/O JESSICA KLOPPER  
9102 FOUNDERS RD.  
INDIANAPOLIS, IN 46268  
S.C.R.D. 4627/611

2  
4-4  
NF FALL LINE PROPERTIES INC.  
32 MADBURY RD.  
DURHAM, NH 03824  
S.C.R.D. 3648/442



**Drainage Structure Chart**

Structure #	Structure	Size	Rim	Rim Elevation	Description
YD1	Solid HDPE Pipe Riser	12" Diameter	12" Plastic Round Grate	58.70	See Notes 2 & 4
YD2	Solid HDPE Pipe Riser	12" Diameter	12" Plastic Round Grate	56.30	See Notes 2 & 4
DW3	Concrete Drywell	4' Diameter	NEENAH #R-3570	52.00	See Notes 1-3
DW4	Concrete Drywell	4' Diameter	NEENAH #R-3570	51.80	See Notes 1-3

Notes:  
 1. Proposed drywells to be by Shea Concrete or equal.  
 2. Use temporary SiltSack Type C or equal on all rims during construction (see detail on sheet D3).  
 3. DW3 & DW 4 underlain by Mirafi 140N geotextile fabric extended 4' out in all directions from edge of drywell (see detail on sheet D3).  
 4. Risers are constructed with a 12" HDPE tee fitting into the proposed 12" HDPE perforated underdrain with a solid HDPE pipe extending to the surface with a grate set in the end of the pipe (see detail on sheet D4).

**Pipe Listing**

Pipe #	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	Material	Diameter (inches)	Pipe Type
PUD1	52.10	50.85	55	0.023	SDR-35	6	Perforated
PUD2	50.85	49.33	50	0.030	SDR-35	6	Perforated
PUD3	50.40	49.33	55	0.019	SDR-35	6	Perforated
PUD4	49.33	49.10	90	0.003	SDR-35	6	See Note 4
PUD5	49.33	49.10	30	0.008	SDR-35	6	Perforated
PDL6	49.10	49.00	20	0.005	HDPE	12	Solid
PDL7	55.70	53.50	35	0.063	SDR-35	8	Solid
PDL8	53.25	52.10	35	0.033	SDR-35	8	See Note 4

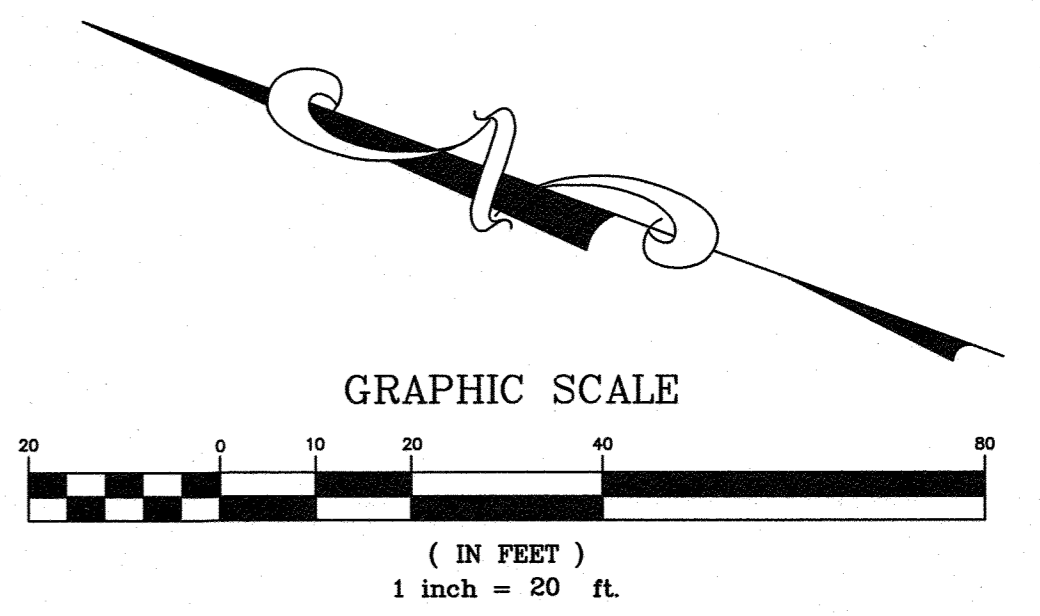
- Notes:
- All perforated pipe shall be solid outside of porous pavement areas.
  - Pipe PDL6 to have end section trash guard installed where it daylight (see pipe grate protection detail on sheet D5).
  - Pipe PDL6 to have flared entrance/exit where it daylight (see flared end section detail on sheet D5).
  - Pipes PUD4 and PDL8 are perforated within the extent of the porous pavement and solid elsewhere.
  - Perforated pipes shall have two rows of holes 1/2" in diameter, 5 inches on center, and spaced 120" apart. Perforations shall be mirrored about the y-axis, and both shall be located on the bottom half of the pipe.
  - All drains directing stormwater from gutters to YD1, YD2, and directly to the porous pavement shall be 6" diameter, solid, SDR-35 pipe. Field locate elevation, providing 18 inches of cover (minimum) over top of pipe.

**NOTES:**

- OWNER OF RECORD: TAX MAP 2, LOT 12-12 RICHMOND PROPERTY GROUP 333 N. ALABAMA ST. INDIANAPOLIS, IN 46204 SCRD BK 4626 PG 647
- THE INTENT OF THIS PLAN IS TO SHOW THE DRAINAGE STRUCTURES AND PROPOSED GRADING ASSOCIATED WITH THE SITE IMPROVEMENTS.
- PARCEL IS ZONED CENTRAL BUSINESS (CB) PER THE 2006 DURHAM ZONING DISTRICT MAP.
- A PORTION OF THE PARCEL IS IN A FLOOD HAZARD ZONE; REFERENCE FLOOD INSURANCE RATE MAP 33017C0318E, DATED SEPTEMBER 30, 2015.
- SURVEY FIELDWORK CONDUCTED BY DOUCET SURVEY, LLC IN AUGUST, 2019.
- SOILS AND WETLANDS WERE DELINEATED BY GZA GEOENVIRONMENTAL, INC. DURING AUGUST, 2019.
- PROPERTY TO BE SERVICED BY TOWN WATER AND SEWER.
- ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
- THIS PLAN WAS PREPARED WITH ON-SITE FIELD SURVEY AND EXISTING PLANS. THE CONTRACTOR SHOULD NOTIFY EMANUEL ENGINEERING, INC. DURING CONSTRUCTION IF ANY DISCREPANCY TO THE PLAN IS FOUND ON SITE.
- BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
- ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
- HOUSE ROOF GUTTERS OR DRIP EDGES DRAIN INTO POROUS PAVEMENT. ALL DOWNSPOUT LEADERS TO HAVE A LEADER ADAPTER/GAP INSTALLED TO ALLOW FOR OVERFLOW AT THE SURFACE.

**REFERENCE PLANS:**

- "PLAN OF LAND, LAND OF THE UNIVERSITY OF NEW HAMPSHIRE FOR GAMMA THETA CORPORATION, GARRISON AVENUE, (NO TAX MAP/LOT NUMBER ASSIGNED) DURHAM, NEW HAMPSHIRE" DATED JULY 11, 2014 BY DOUCET SURVEY, INC. S.C.R.D. PLAN 108-020.
- "EXISTING CONDITIONS PLAN OF 17 & 21 MADBURY ROAD FOR AG ARCHITECTS, PC" DATED MAY 11, 2006 BY DOUCET SURVEY, INC.
- "TOWN OF DURHAM SEWER EASEMENTS, PETTEE BROOK INTERCEPTOR" DATED NOVEMBER 1984 BY G.L. DAVIS & ASSOCIATES S.C.R.D. ROCKET 4 FOLDER 4 PLAN 26.
- "RE-SUBDIVISION OF LAND IN DURHAM, NH PREPARED FOR THETA GAMMA OF DELTA ZETA HOUSE CORP." DATED AUGUST 4, 1980 BY JOHN M. DURGIN ASSOCIATES, INC. S.C.R.D. DRAWER 21, PLAN 86.
- "PLAN OF LAND FOR ERNEST CUTLER" DATED OCTOBER 1911 BY JOHN M. DURGIN ASSOCIATES, INC.
- "UNIVERSITY OF NEW HAMPSHIRE GARRISON AVENUE AREA" DATED SEPTEMBER 16, 1957 BY G.L. DAVIS & ASSOCIATES.



1	MAR 24, 2020	FOR APPROVAL	
ISS. DATE:		DESCRIPTION OF ISSUE:	CHK:
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CHECKED:	BDS	CHECKED:	BDS



CLIENT:  
**RICHMOND PROPERTY GROUP**  
 333 N. ALABAMA ST.  
 INDIANAPOLIS, IN 46204

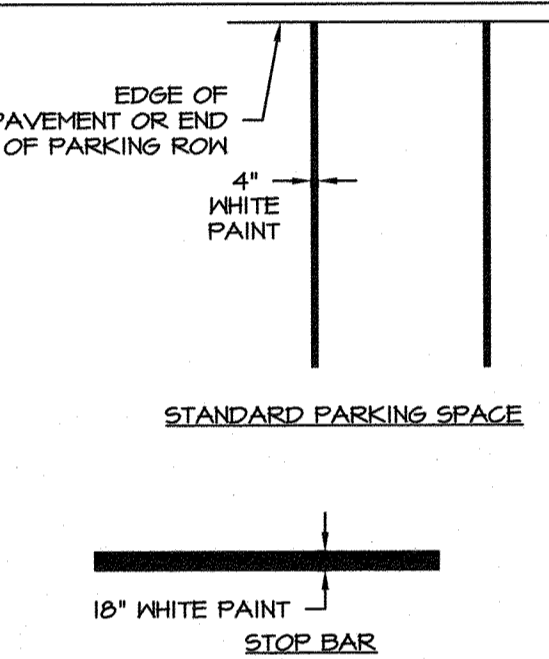
TITLE:  
**GRADING & DRAINAGE PLAN**  
 FOR  
**RICHMOND PROPERTY GROUP**  
 ELIZABETH DEMERRIT HOUSE  
 18 GARRISON AVENUE (SITE)  
 DURHAM, NH 03824

PROJECT: 19-083    SCALE: 1"=20'    SHEET: C3

SEAL:  
  
 BRUCE D. SCAMMAN  
 No. 11236  
 LICENSED PROFESSIONAL ENGINEER  
 STATE OF NEW HAMPSHIRE  
 2/25/20

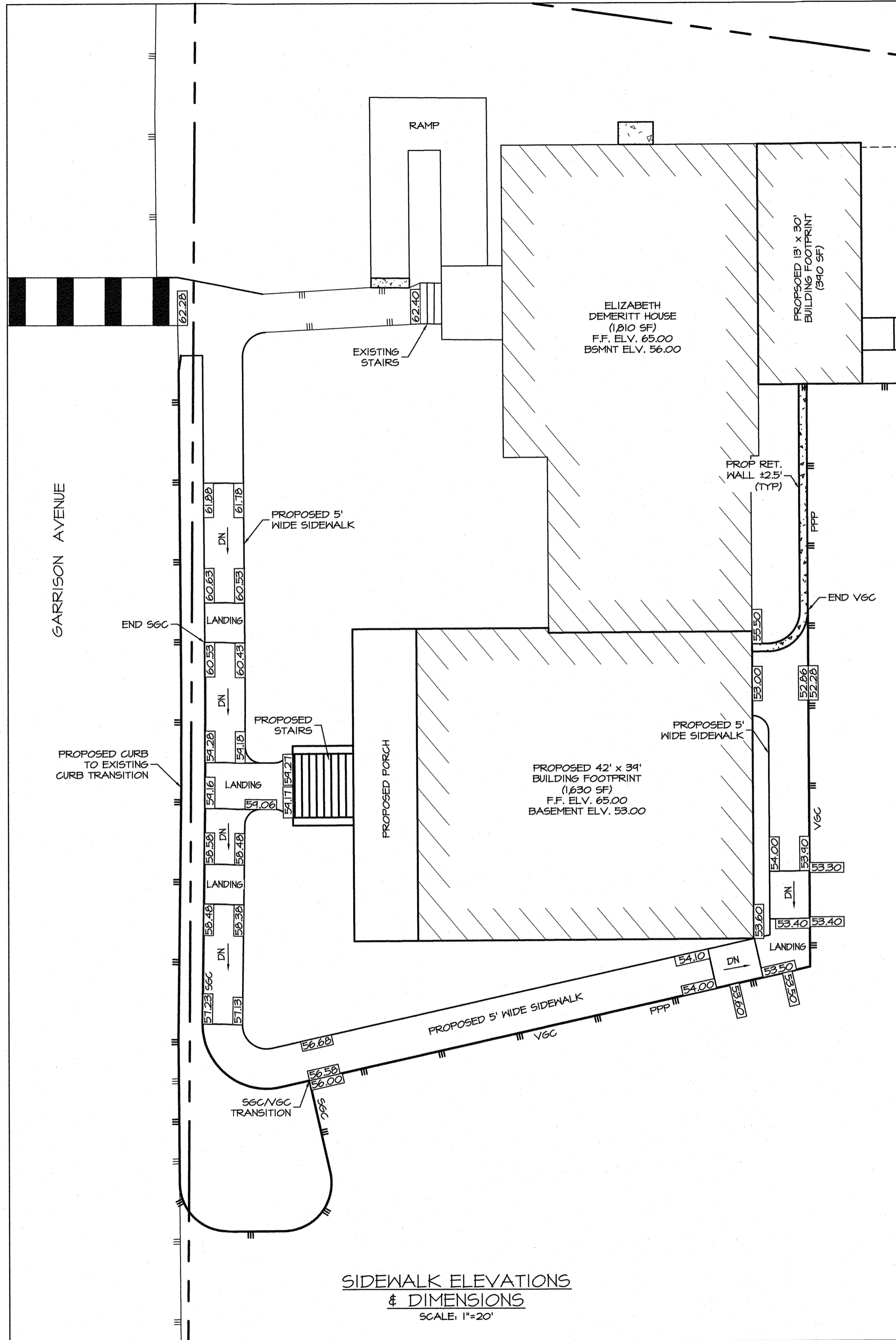
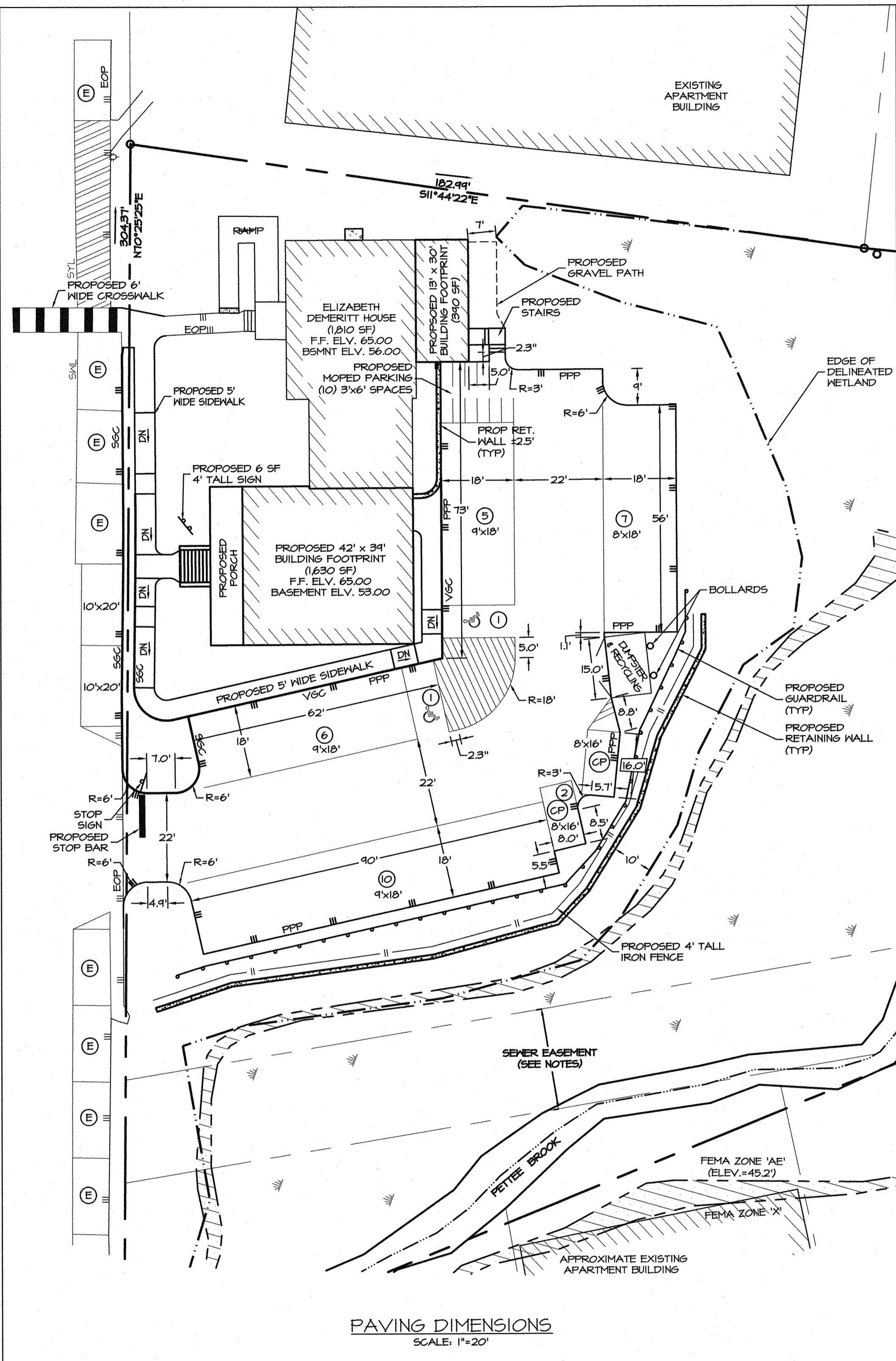
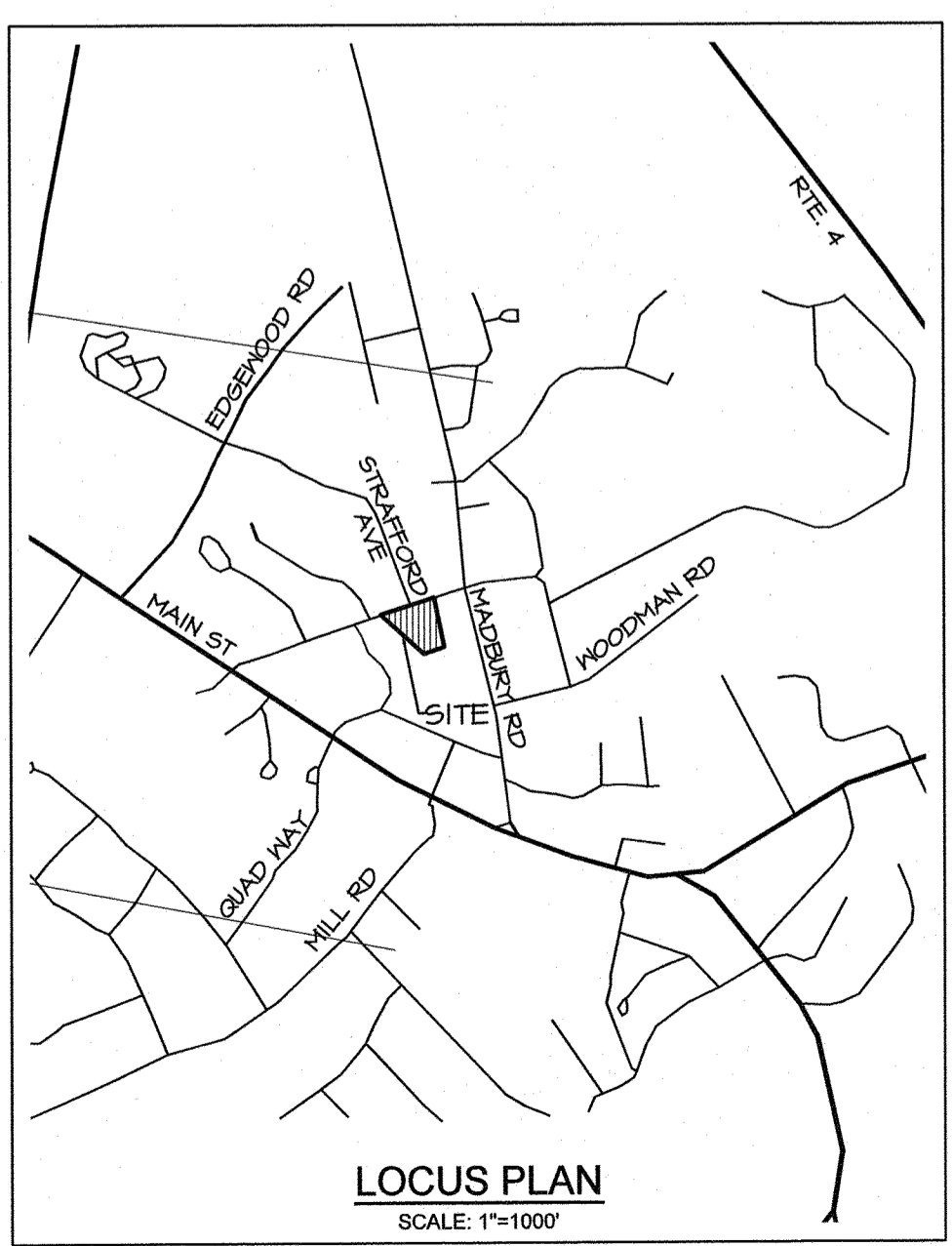
**LEGEND**

- BOUND FOUND
- IRON PIPE FOUND
- (TYP) TYPICAL
- PPP PROPOSED POROUS PAVEMENT
- PTP PROPOSED TRAD. PAVEMENT
- VGC VERTICAL GRANITE CURB
- SGC SLOPED GRANITE CURB
- BC BITUMINOUS CURB
- PROPERTY LINE
- EDGE OF PAVEMENT (EOP)
- EOP WITH CURB
- UNDERGROUND UTILITIES
- OHE OVERHEAD UTILITIES
- W WATER LINE
- S SEWER LINE
- GAS LINE
- IRON FENCE
- GUARD RAIL
- EDGE OF WETLANDS
- UTILITY POLE
- LIGHT POLE
- WETLANDS
- BOLLARD
- ELECTRICAL METER
- SEWER MANHOLE
- CATCH BASIN
- SEWER CLEANOUT
- WATER VALVE
- TREE
- PARKING SPACES IN ROW
- COMPACT PARKING SPOT
- LANDSCAPING
- FEMA FLOOD ZONE X



**PAINTING NOTES:**  
 1. ALL PAINTING TO BE REFLECTIVE.  
 2. SEE SHEET D4 FOR DETAILS ON PARKING STALLS FOR THE PHYSICALLY CHALLENGED.  
 3. SEE PLAN FOR STANDARD AND COMPACT PARKING STALL DIMENSIONS.

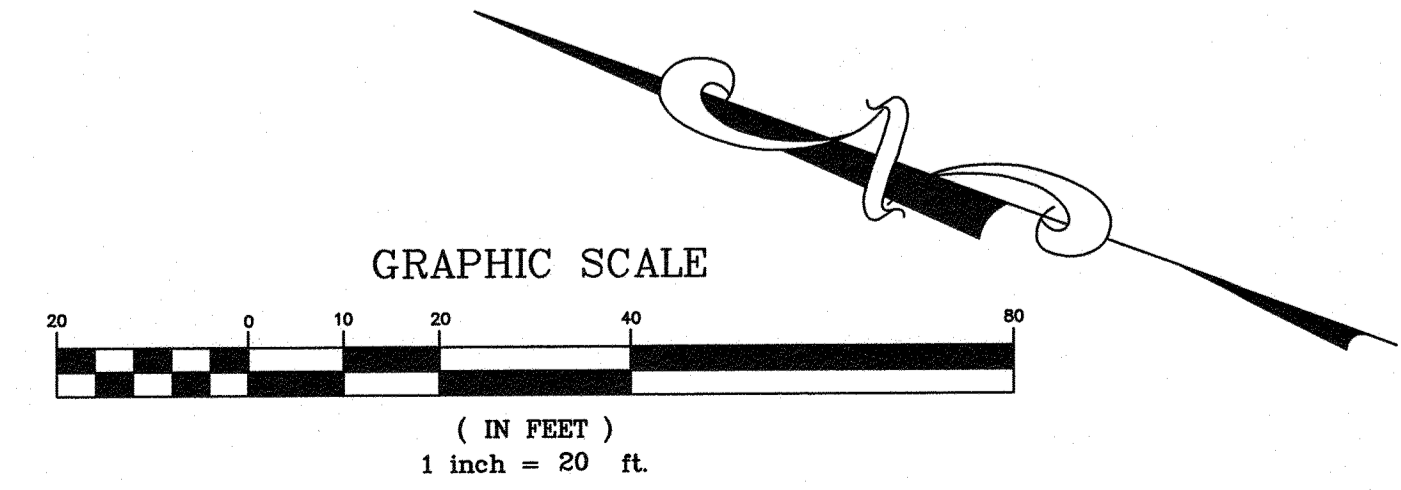
**PAINT STRIPING DETAILS**  
 NOT TO SCALE



**SIGN SCHEDULE**

MANUFACTURE	SIGN NUMBER	SIGN (N.T.S.)	SIZE OF SIGN (WIDTH HEIGHT)	DESCRIP.	MOUNT TYPE	MOUNT HEIGHT	REMARKS
WORKSAFE TCI OR EQUAL	R1-1 (ONE LOCATION)	STOP	36" 36"	WHITE ON RED	ULI-MATE OR EQUAL	7'-0"	REFLECTORIZED

NOTES: 1. ALL SIGNS AND SIGN POSTS IN THE NHDOT RIGHT OF WAY TO MEET 2004 MUTCD STANDARDS WITH REVISION NUMBERS 1 AND 2 INCORPORATED, DATED MAY 2012.  
 2. ALL MOUNTING HEIGHTS ARE MEASURED FROM THE GROUND TO THE BOTTOM OF THE SIGN.



- NOTES:**
- OWNER OF RECORD:  
 TAX MAP 2, LOT 12-12  
 RICHMOND PROPERTY GROUP  
 333 N. ALABAMA ST.  
 INDIANAPOLIS, IN 46204  
 SCRD BK 4626 PG 647
  - THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION, SIZE, PAVING, AND RADII OF THE DRIVEWAY, PARKING LOT, CURBING, AND SIDEWALKS WITHIN THE SITE.
  - PARCEL IS ZONED CENTRAL BUSINESS (CB) PER THE 2006 DURHAM ZONING DISTRICT MAP.
  - A PORTION OF THE PARCEL IS IN A FLOOD HAZARD ZONE, REFERENCE FLOOD INSURANCE RATE MAP 33017G0318E, DATED SEPTEMBER 30, 2015.
  - SURVEY FIELDWORK CONDUCTED BY DOUCET SURVEY, LLC IN AUGUST, 2014.
  - SOILS AND METLANDS WERE DELINEATED BY GZA GEOENVIRONMENTAL, INC. DURING AUGUST, 2014.
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  - ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
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1	MAR 24, 2020	FOR APPROVAL	
ISS. DATE:		DESCRIPTION OF ISSUE:	CHK.
DRAWN:	JJM	DESIGN:	MCV
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**EMANUEL ENGINEERING**  
 civil & structural consultants, land planners  
 118 PORTSMOUTH AVENUE, A202  
 STRATHAM, NH 03885  
 P. 603-772-4480 F. 603-772-4487  
 WWW.EMANUELENGINEERING.COM

CLIENT:  
**RICHMOND PROPERTY GROUP**  
 333 N. ALABAMA ST.  
 INDIANAPOLIS, IN 46204

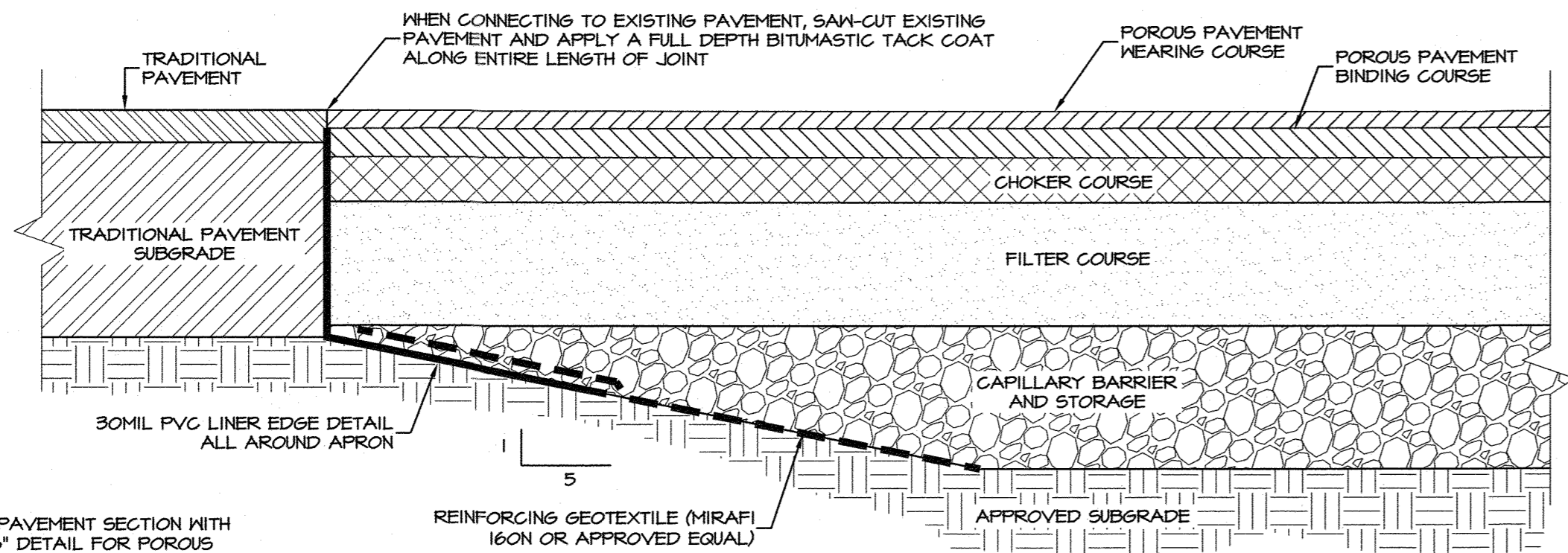
TITLE:  
**PAVING & CURBING PLAN**  
 FOR  
**RICHMOND PROPERTY GROUP**  
 ELIZABETH DEMERRITT HOUSE  
 18 GARRISON AVENUE (SITE)  
 DURHAM, NH 03824

PROJECT:	SCALE:	SHEET:
19-083	AS SHOWN	C4

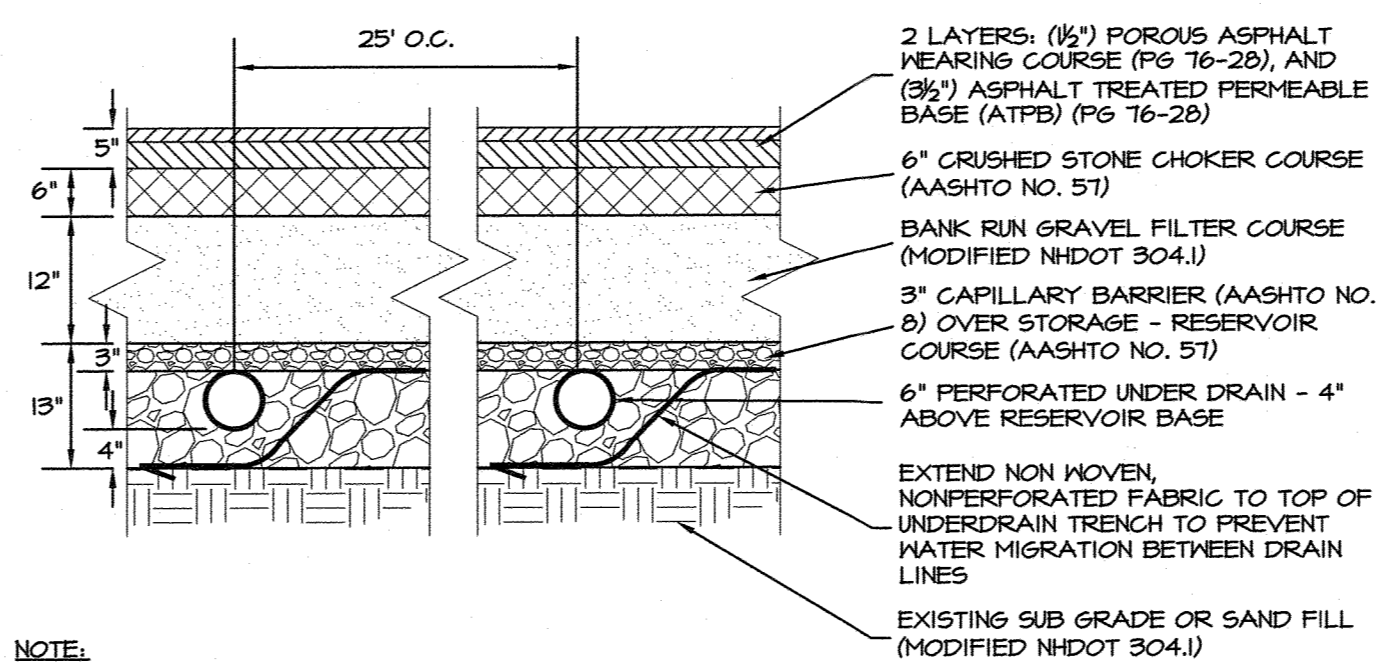
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 LICENSED PROFESSIONAL ENGINEER  
 STATE OF NEW HAMPSHIRE  
 3/25/20



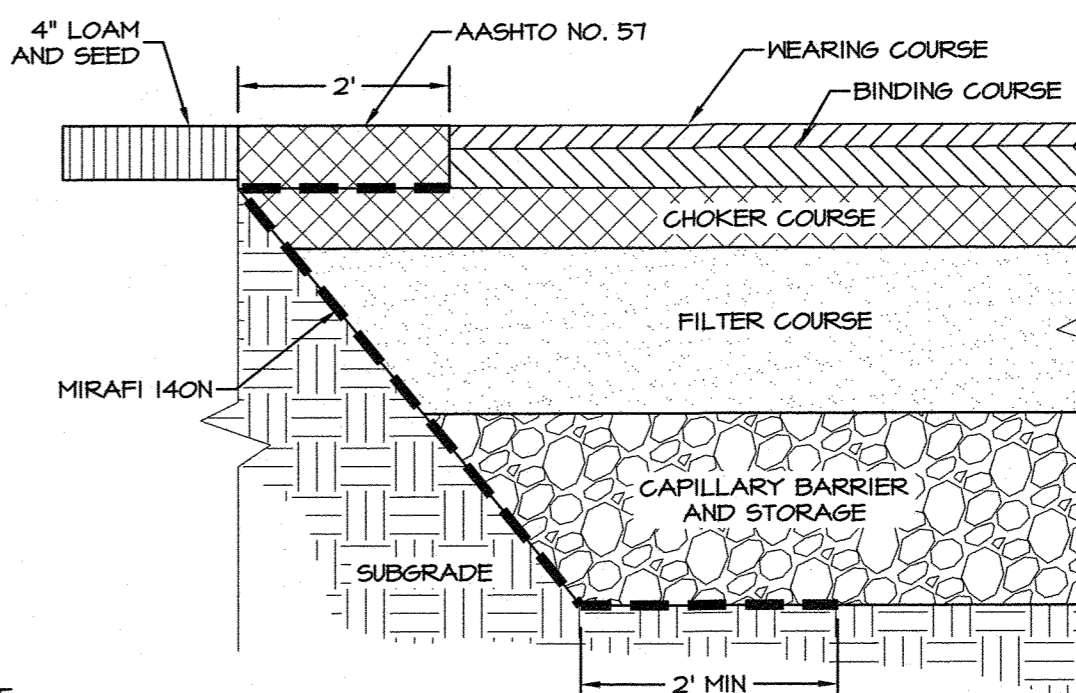




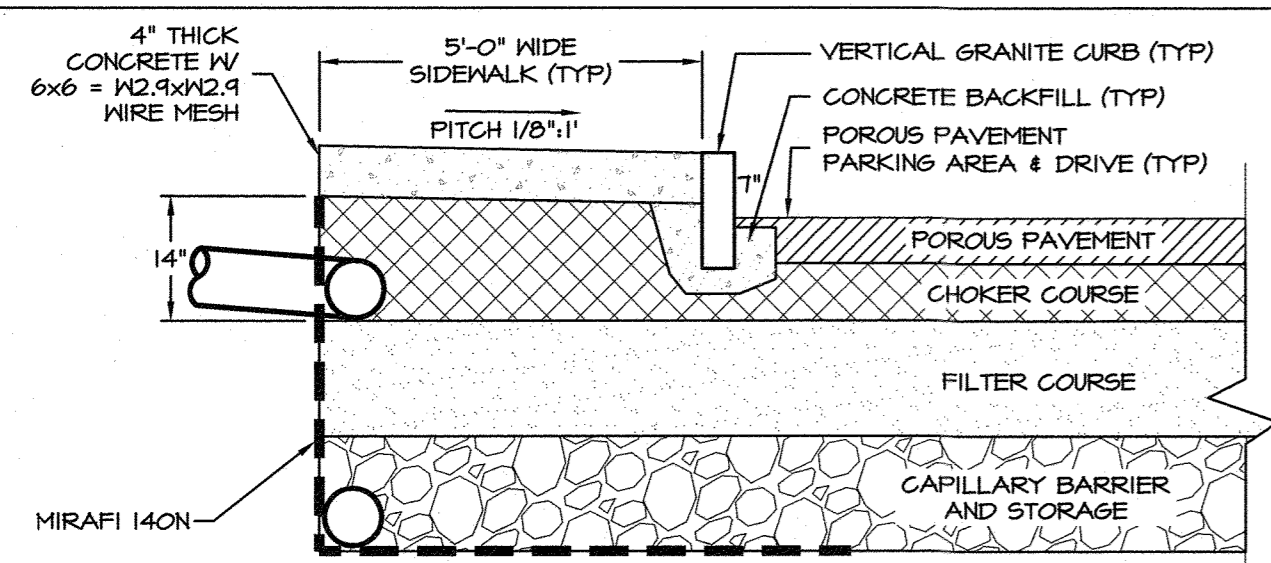
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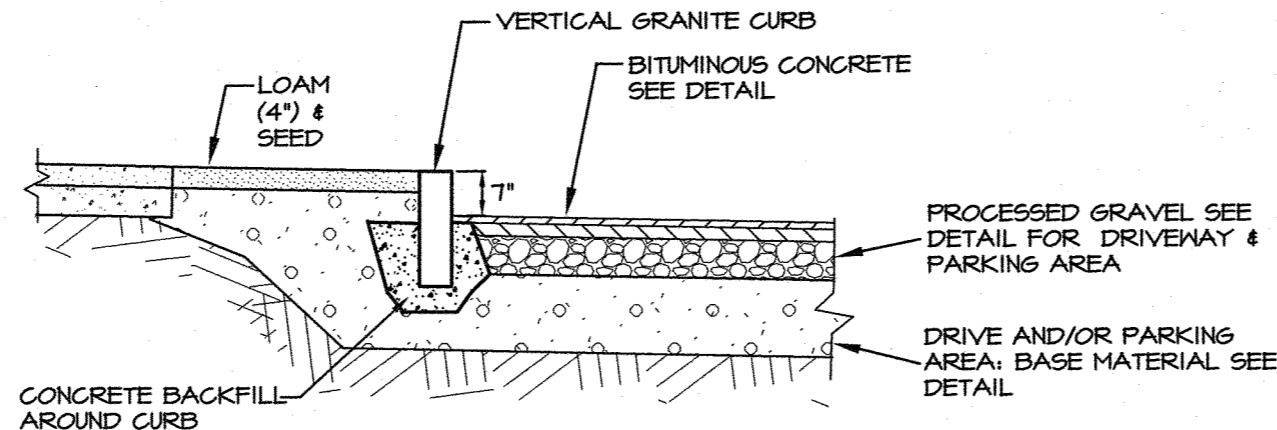
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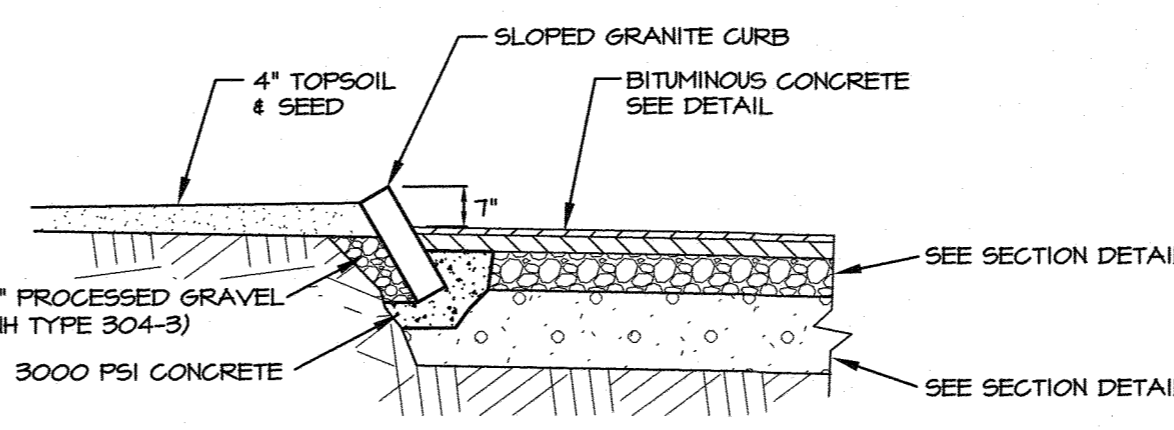
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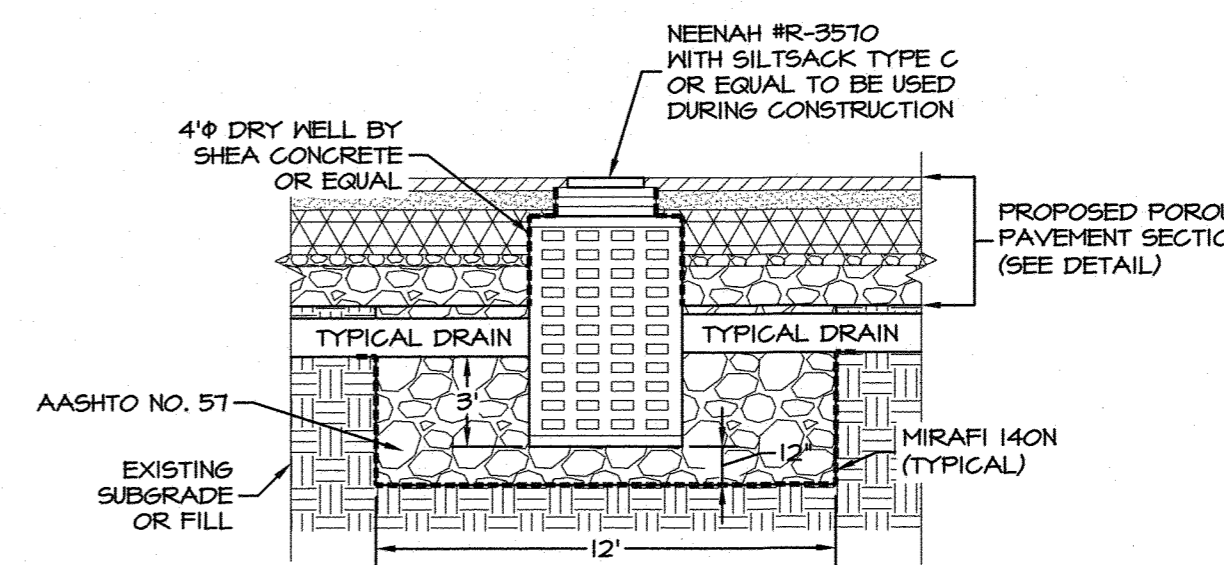
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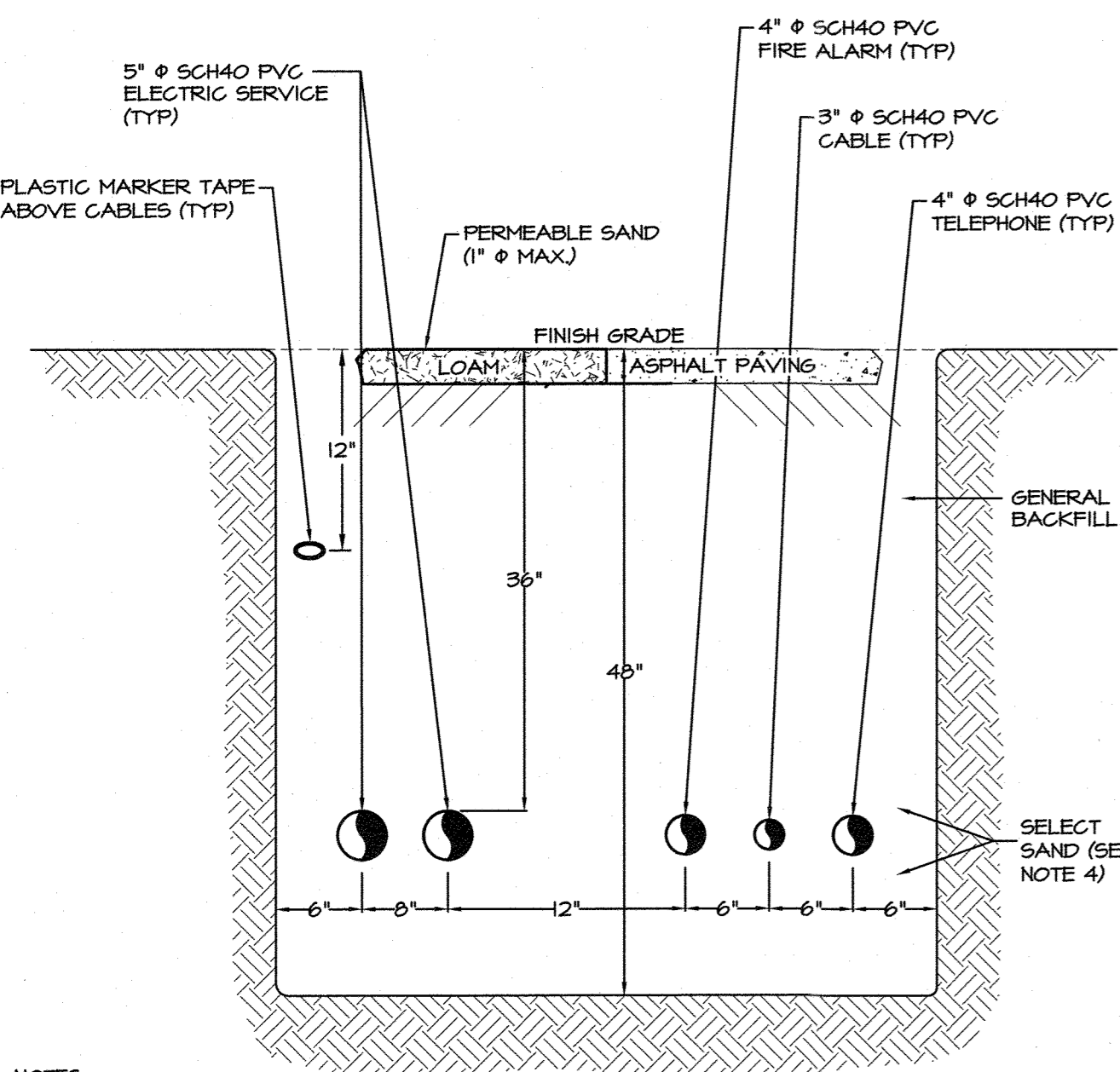
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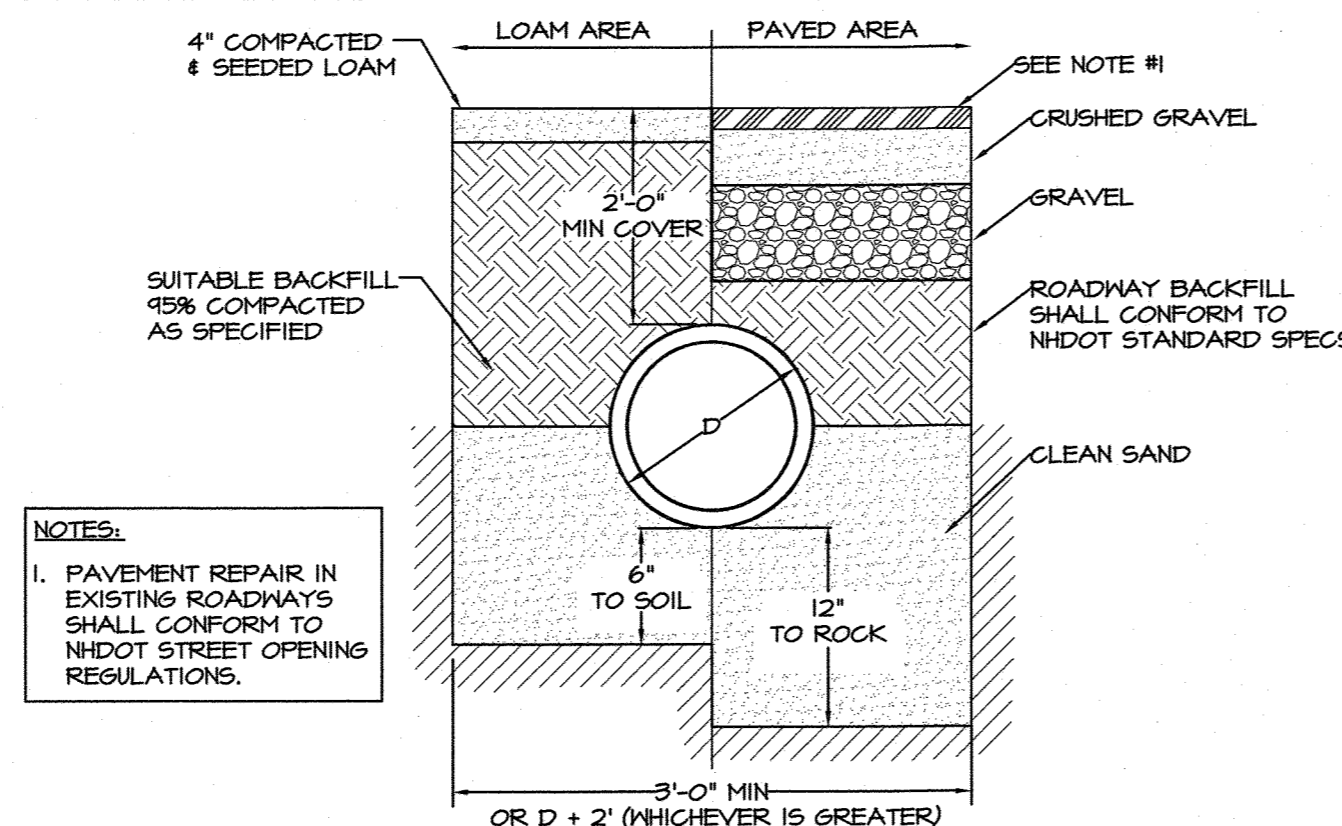
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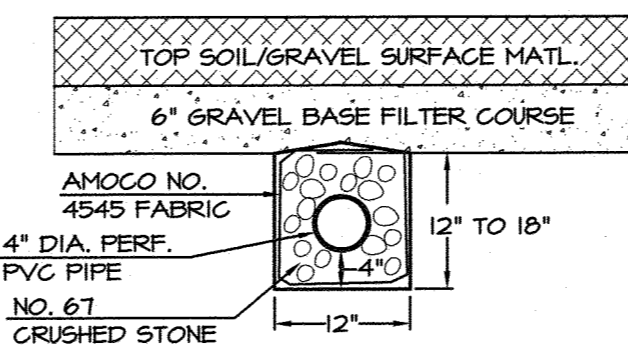
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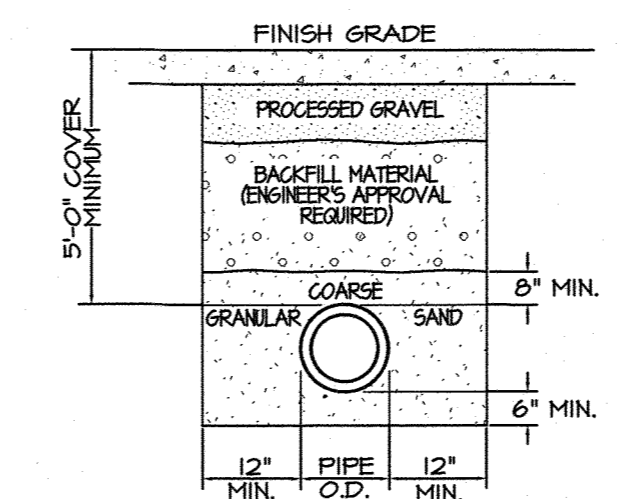
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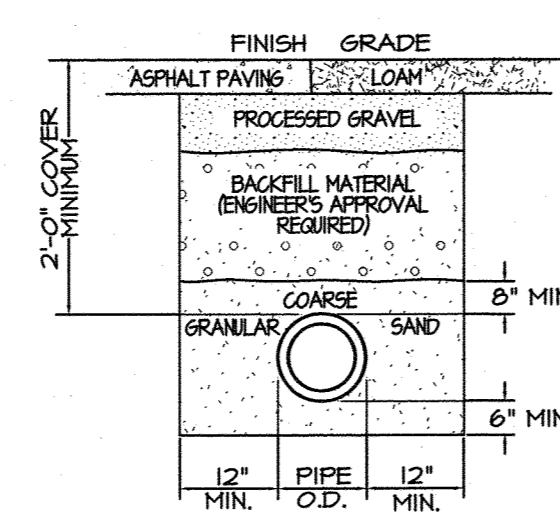
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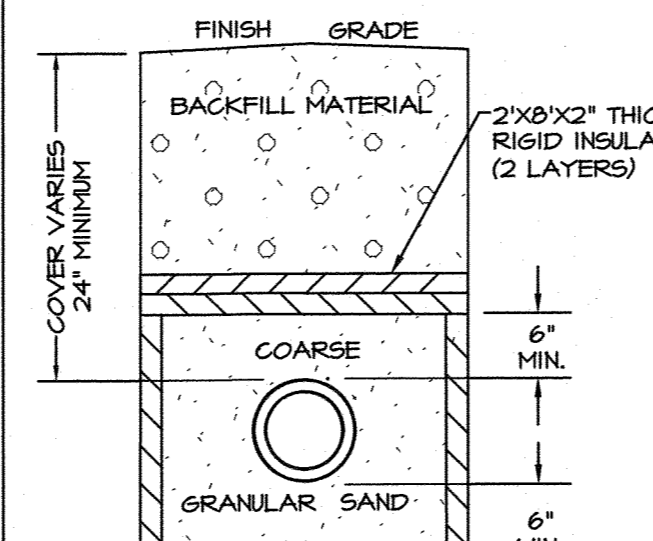
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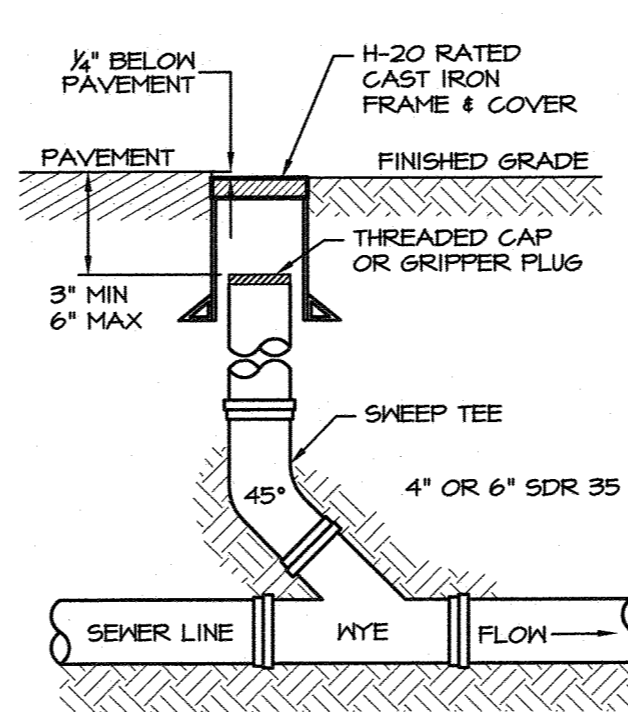
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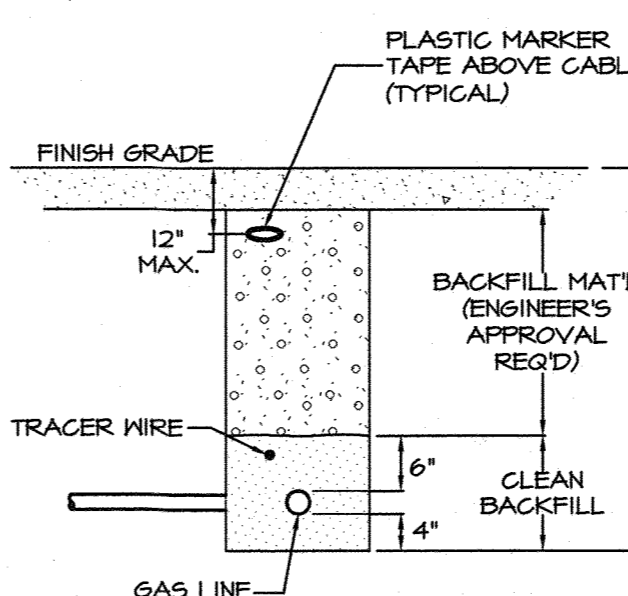
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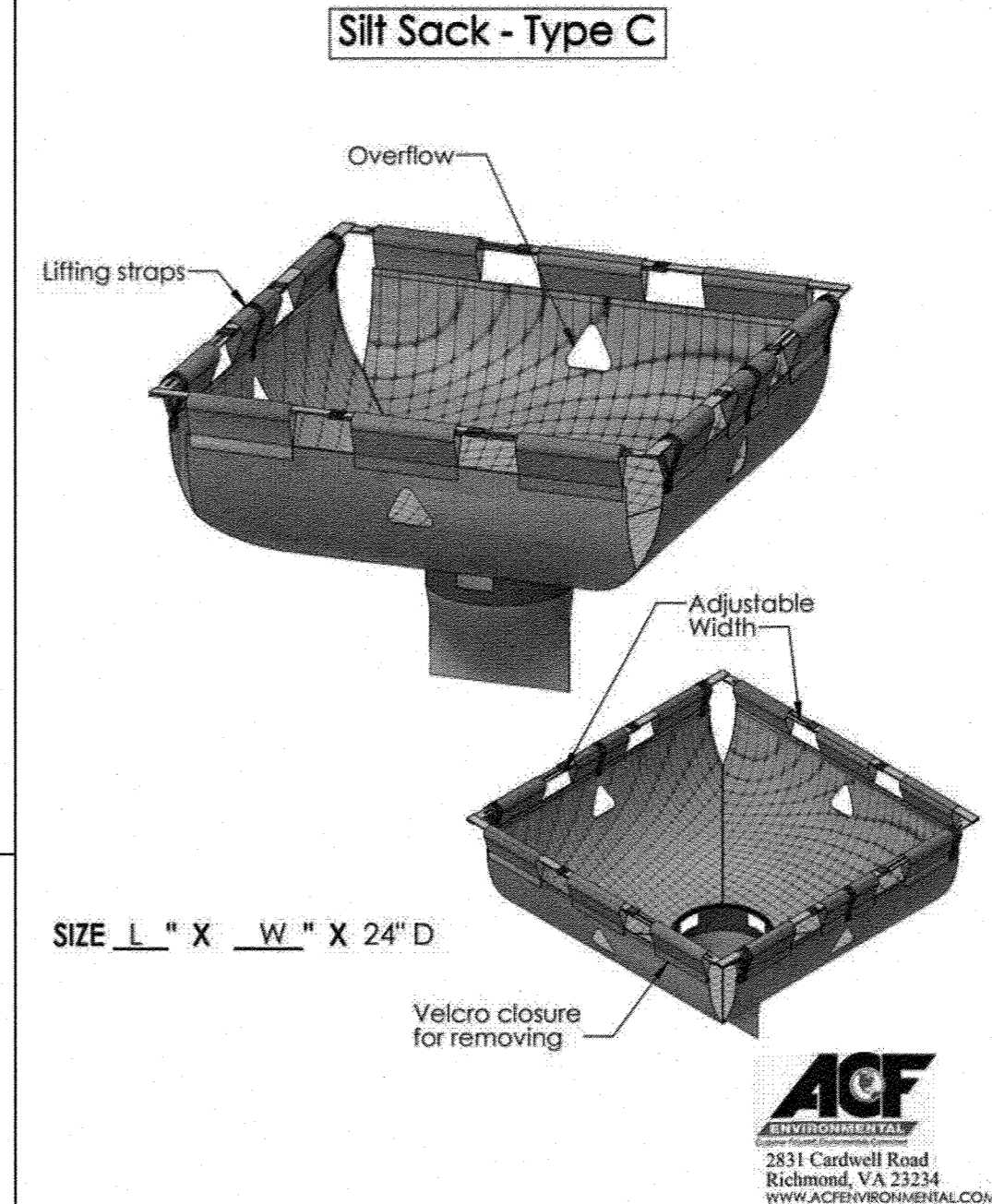
**PIPE INSTALLATION DETAIL**  
N.T.S.



**SERVICE CLEANOUT DETAIL**  
N.T.S.



**GAS LINE INSTALLATION**  
N.T.S.



**Silt Sack - Type C**

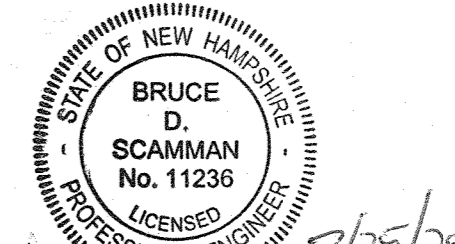
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1	MAR 11, 2020	PRELIMINARY	
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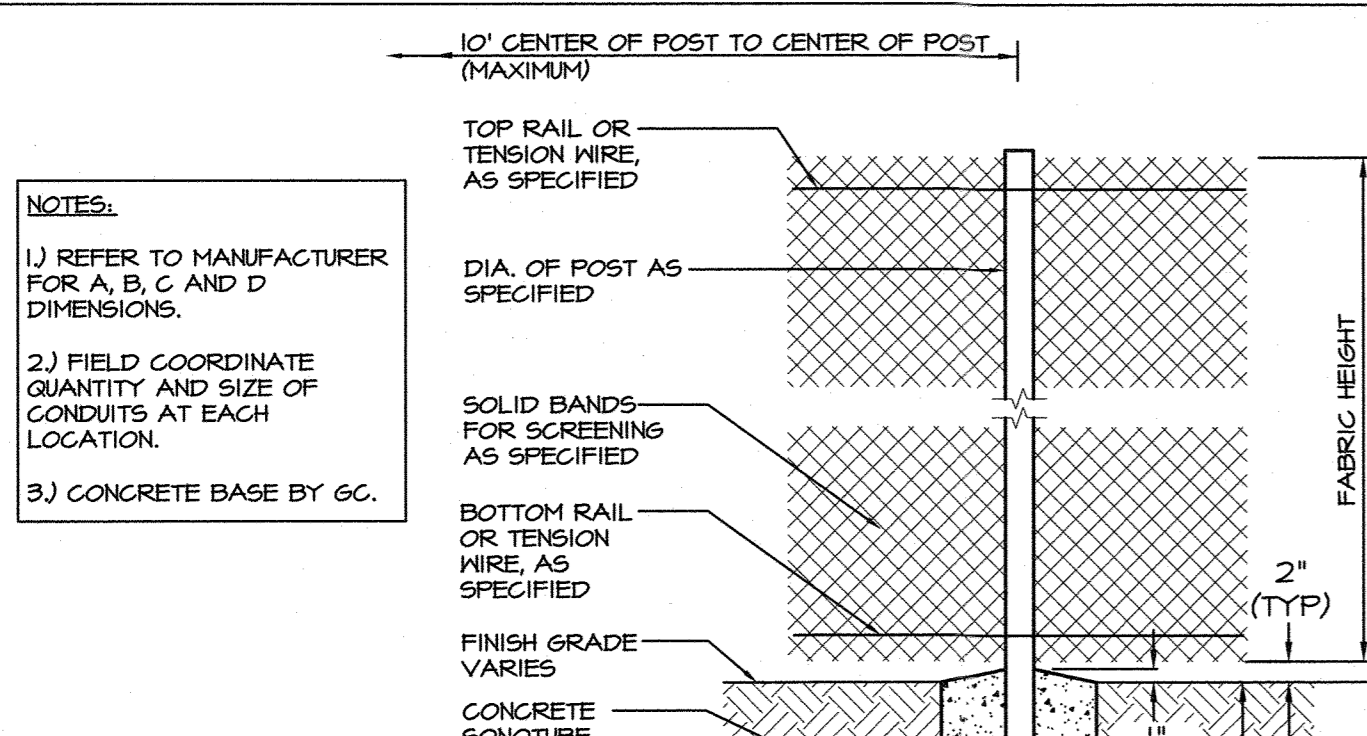
CLIENT:  
**RICHMOND PROPERTY GROUP**  
333 N. ALABAMA ST.  
INDIANAPOLIS, IN 46204

TITLE:  
**DETAILS FOR RICHMOND PROPERTY GROUP**  
ELIZABETH DEMERITT HOUSE  
18 GARRISON AVENUE (SITE)  
DURHAM, NH 03824

PROJECT:	SCALE:	SHEET:
19-083	AS SHOWN	D3







**NOTES:**

- REFER TO MANUFACTURER FOR A, B, C AND D DIMENSIONS.
- FIELD COORDINATE QUANTITY AND SIZE OF CONDUITS AT EACH LOCATION.
- CONCRETE BASE BY GC.

**GATE POST**

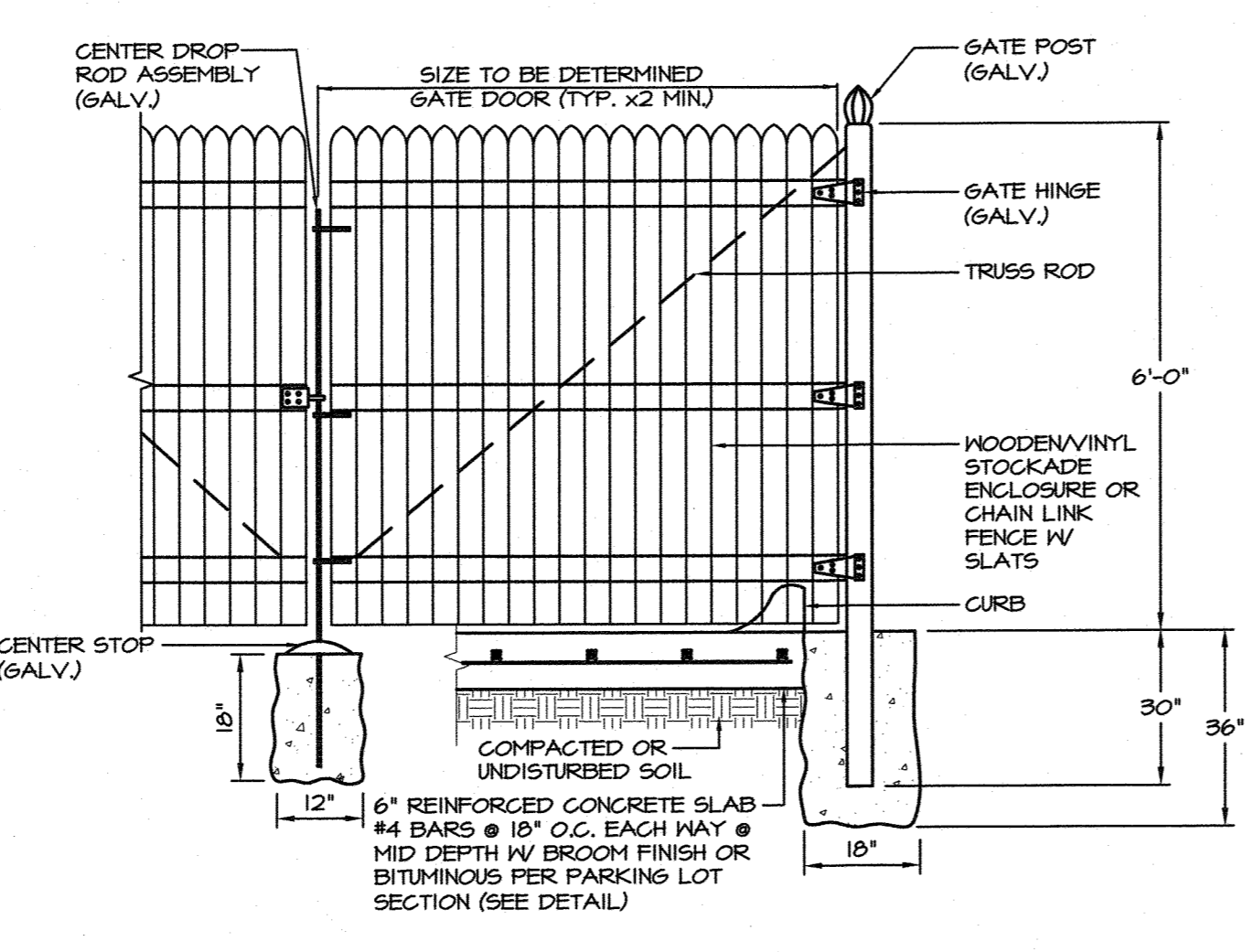
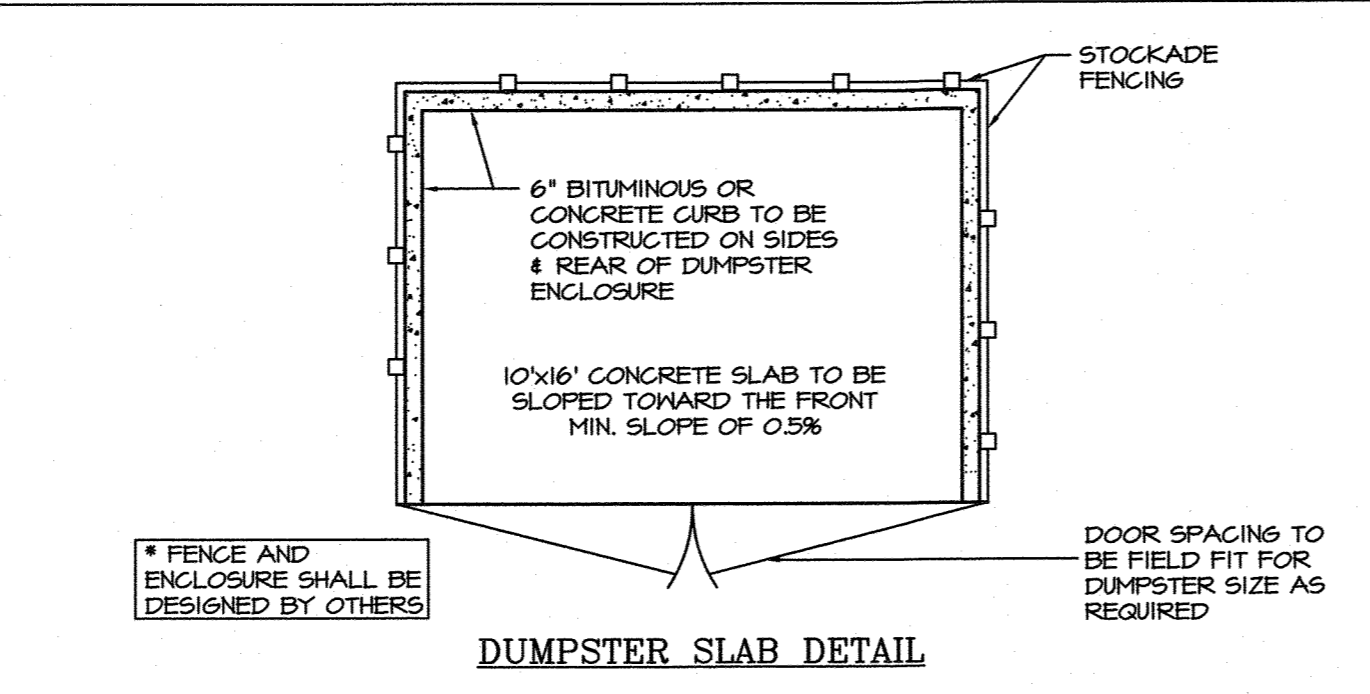
GATE LEAF WIDTH	GATE POST (OD)	FABRIC HEIGHT	"A" DIA.	"B" DEPTH	"C" POST EMBED.
3' TO 6'	2.875'	3' TO 5'	12"	38"	36"
		6' TO 9'	14"	42"	40"
7' TO 12'	4.000'	6' TO 9'	16"	46"	44"
		10' TO 12'	18"	46"	44"
13'	6.625'	8'-0"	18"	42"	40"
		16'-0"	24"	42"	40"

**LINE AND TERMINAL POSTS**

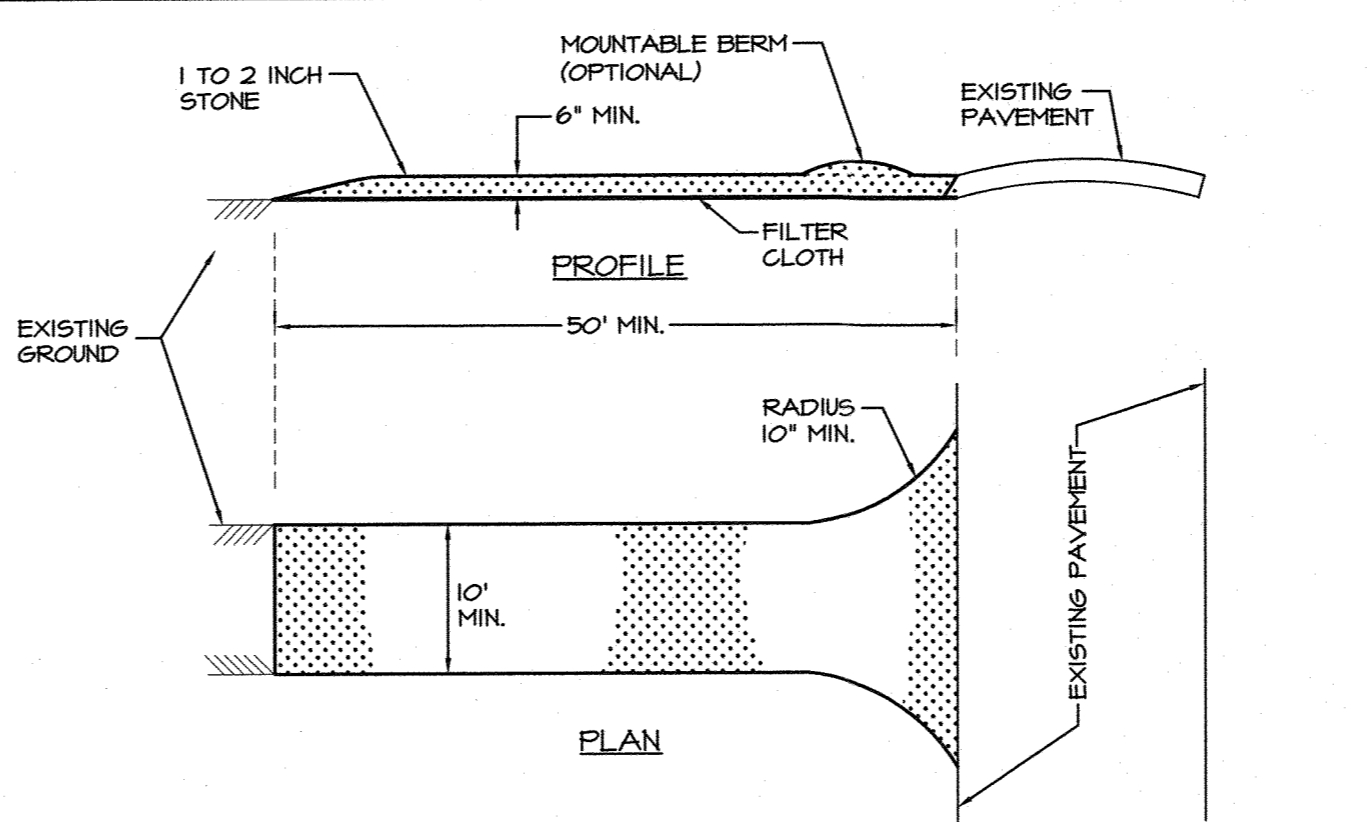
FABRIC HEIGHT	TYPE POST	"A" DIAM.	"B" DEPTH	"C" POST EMBEDMENT
3'-0" TO 4'-0"	LINE	6"	26"	24"
	TERMINAL	10"	32"	30"
5'-0"	LINE	8"	32"	30"
	TERMINAL	10"	32"	30"
6'-0" TO 9'-0"	LINE	12"	38"	36"
	TERMINAL	12"	38"	36"
10'-0" TO 12'-0"	LINE	18"	38"	36"
	TERMINAL	18"	38"	36"
13'-0" TO 18'-0"	LINE	24"	42"	40"
	TERMINAL	24"	42"	40"

NOTE: TERMINAL POSTS INCLUDE END, CORNER, AND FULL POSTS

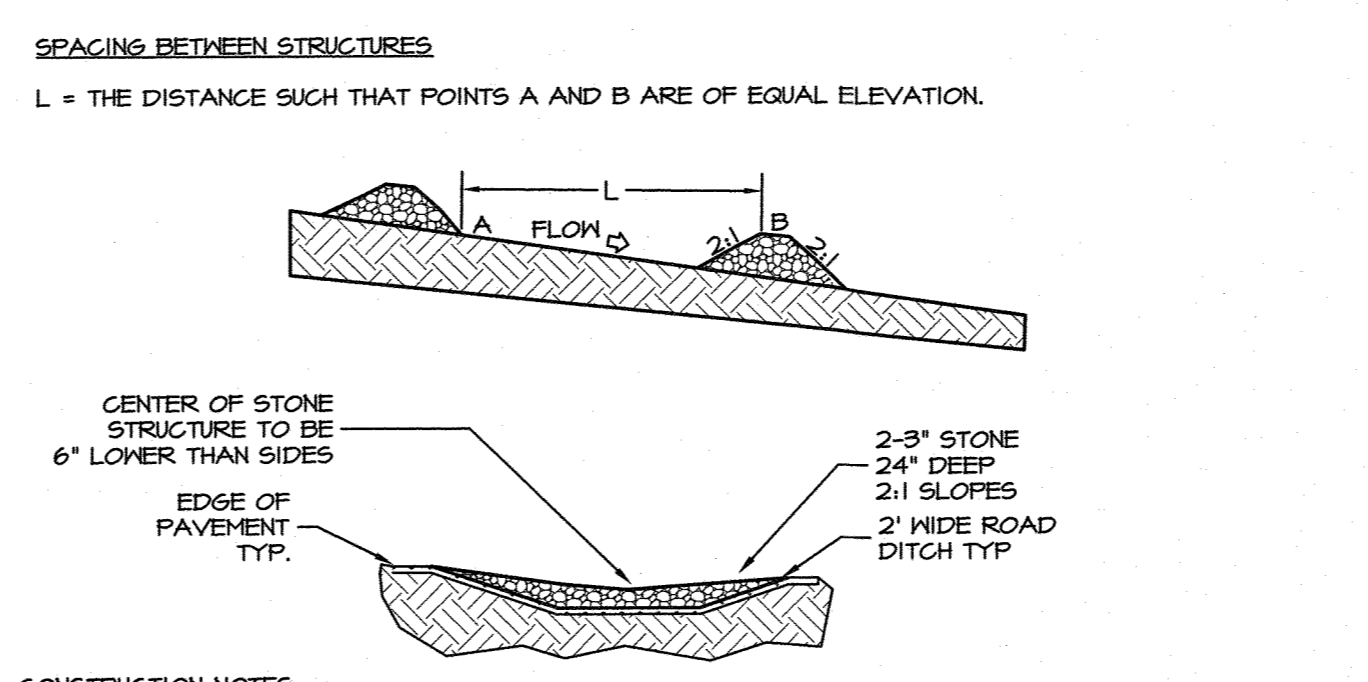
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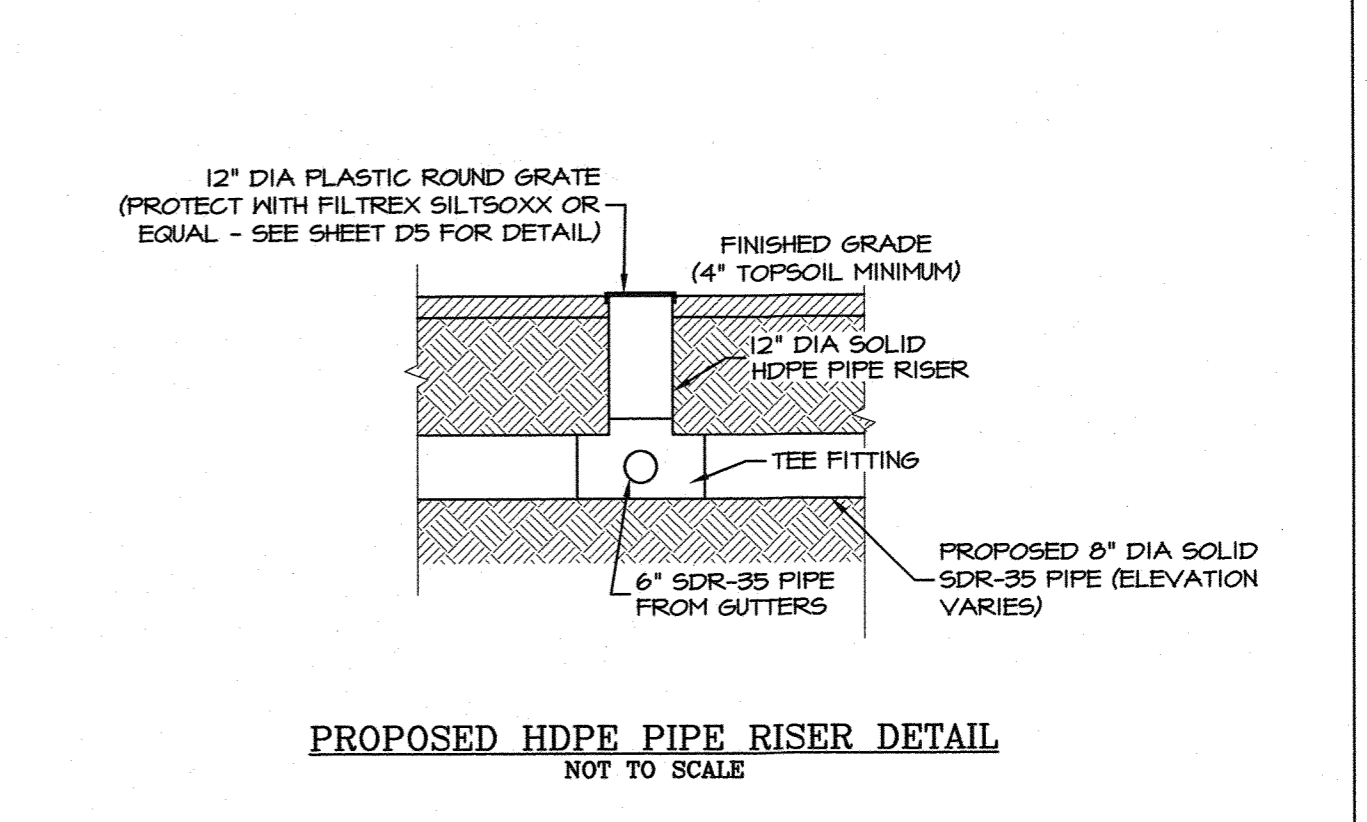
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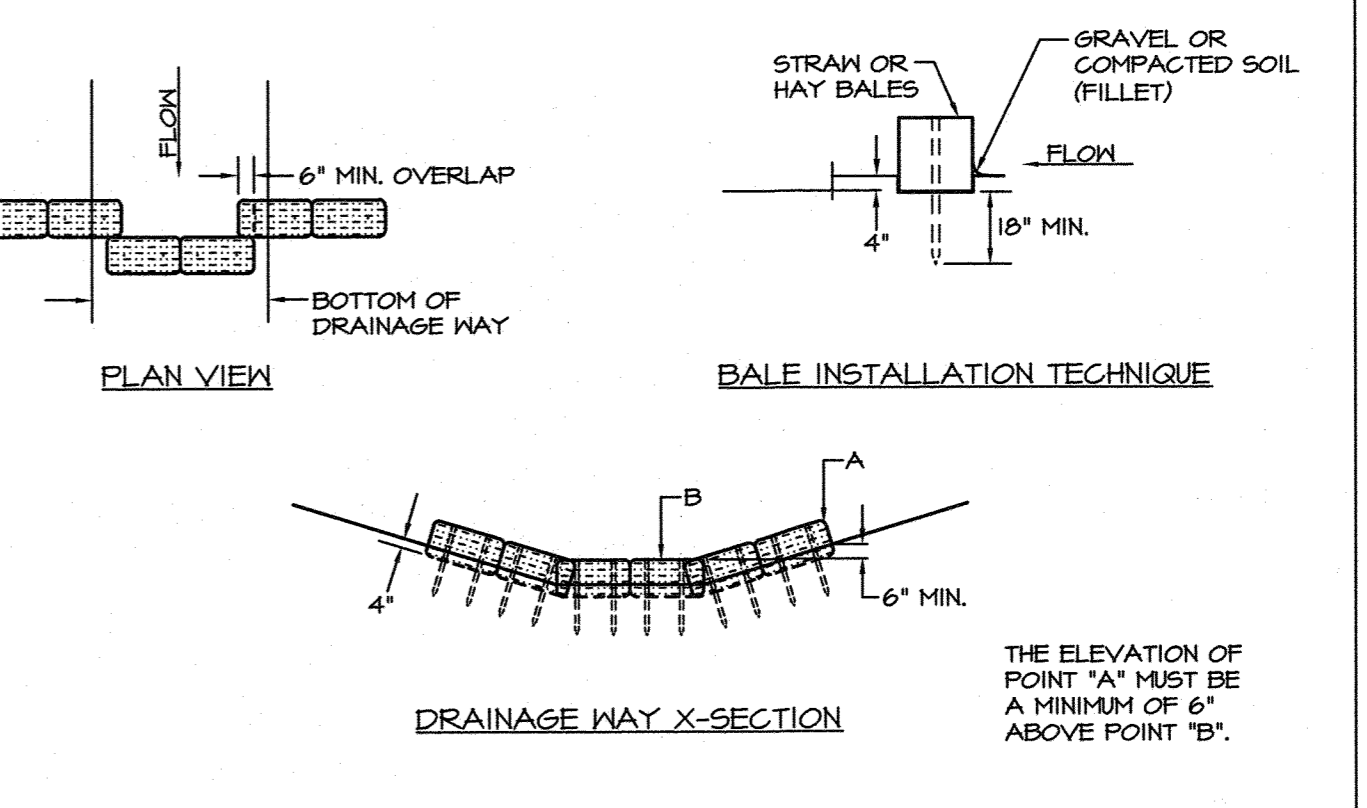
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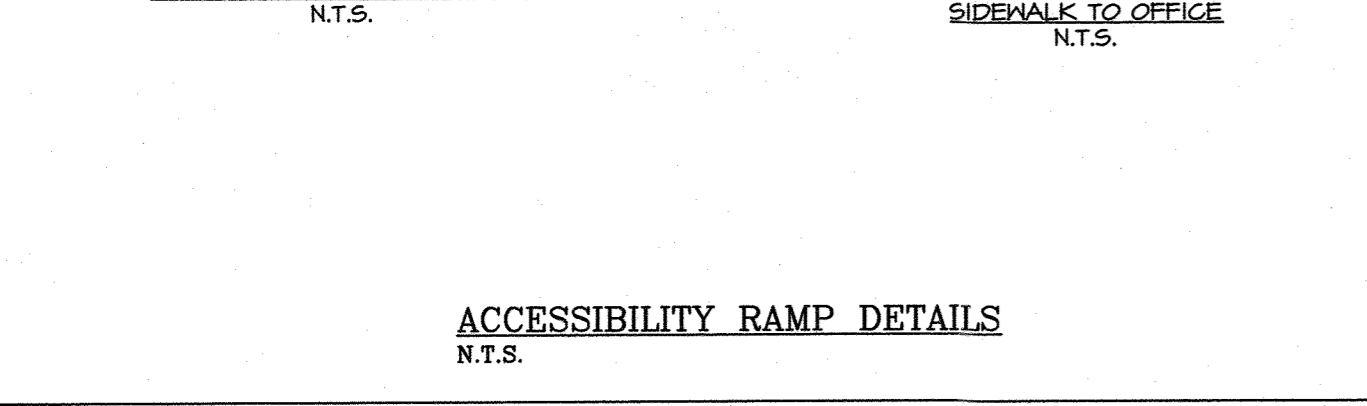
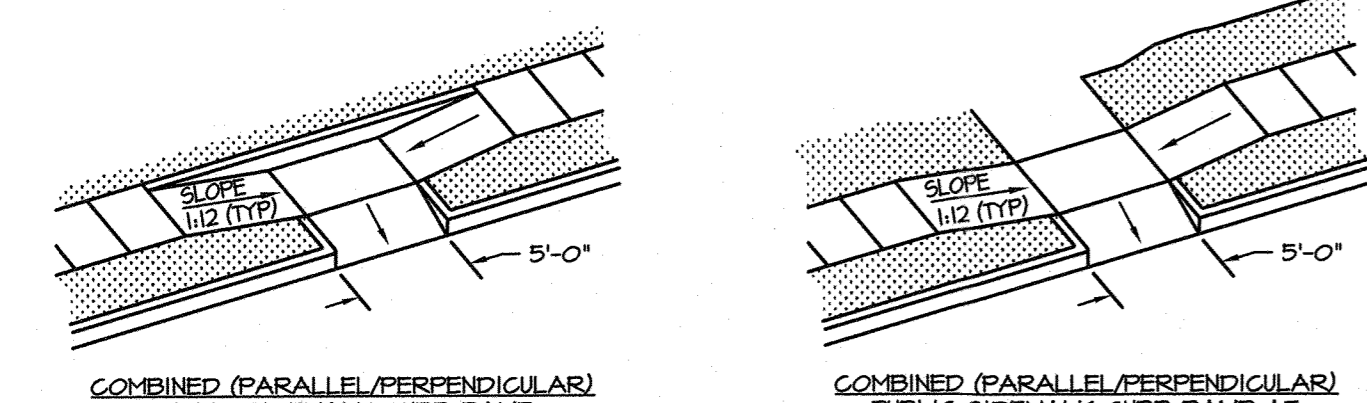
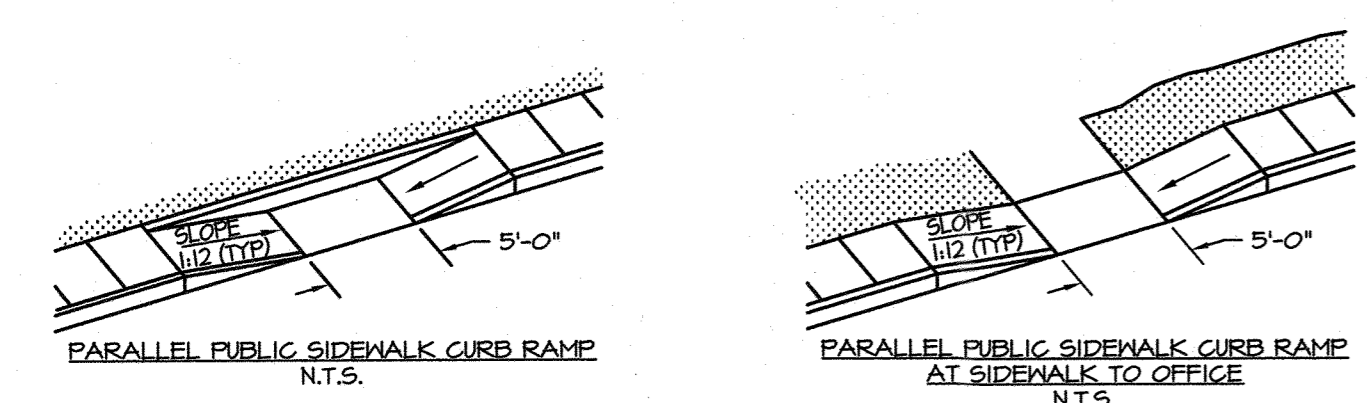
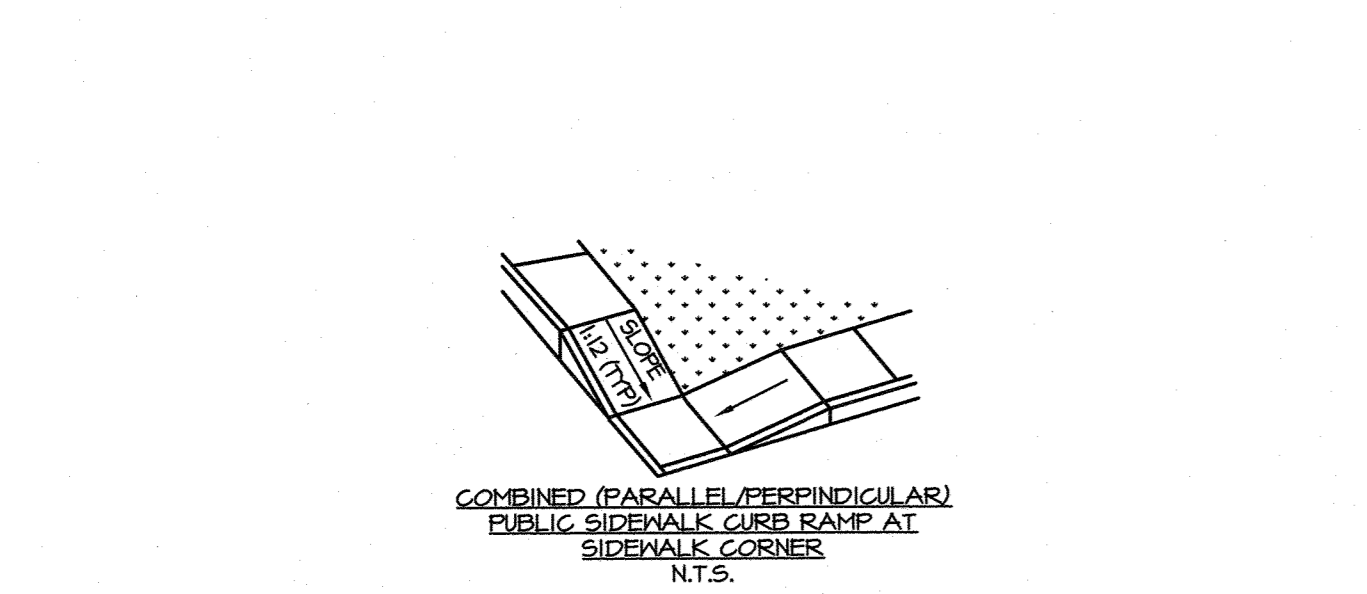
**TEMPORARY GRADE STABILIZATION STRUCTURE**  
N.T.S.



**PROPOSED HDPE PIPE RISER DETAIL**  
NOT TO SCALE



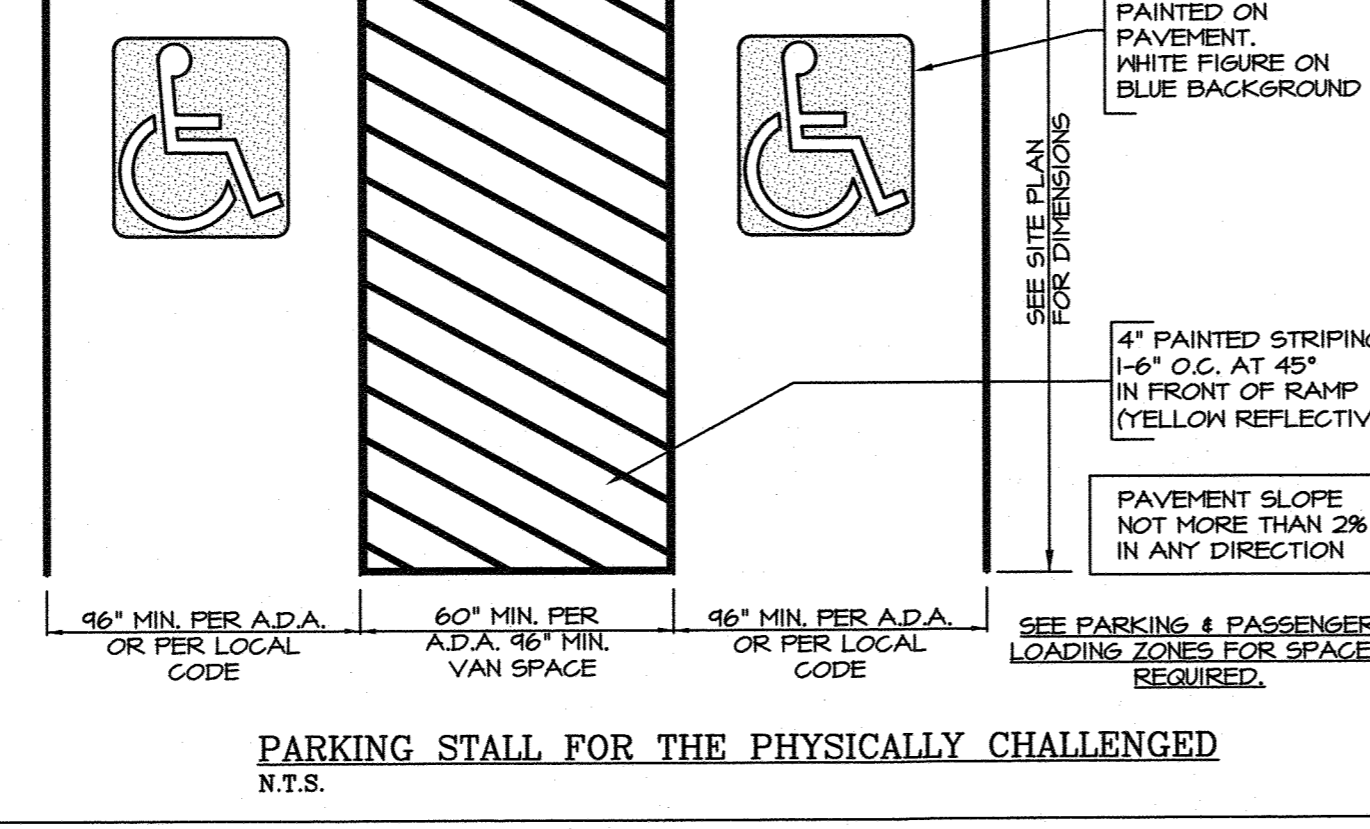
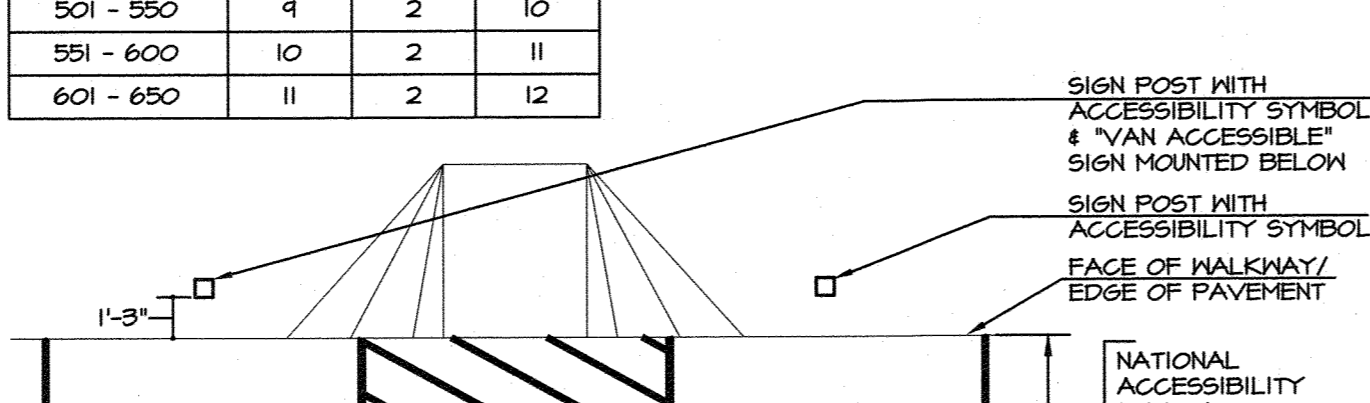
**STRAW OR HAY BALE GRADE STABILIZATION STRUCTURE**  
N.T.S.



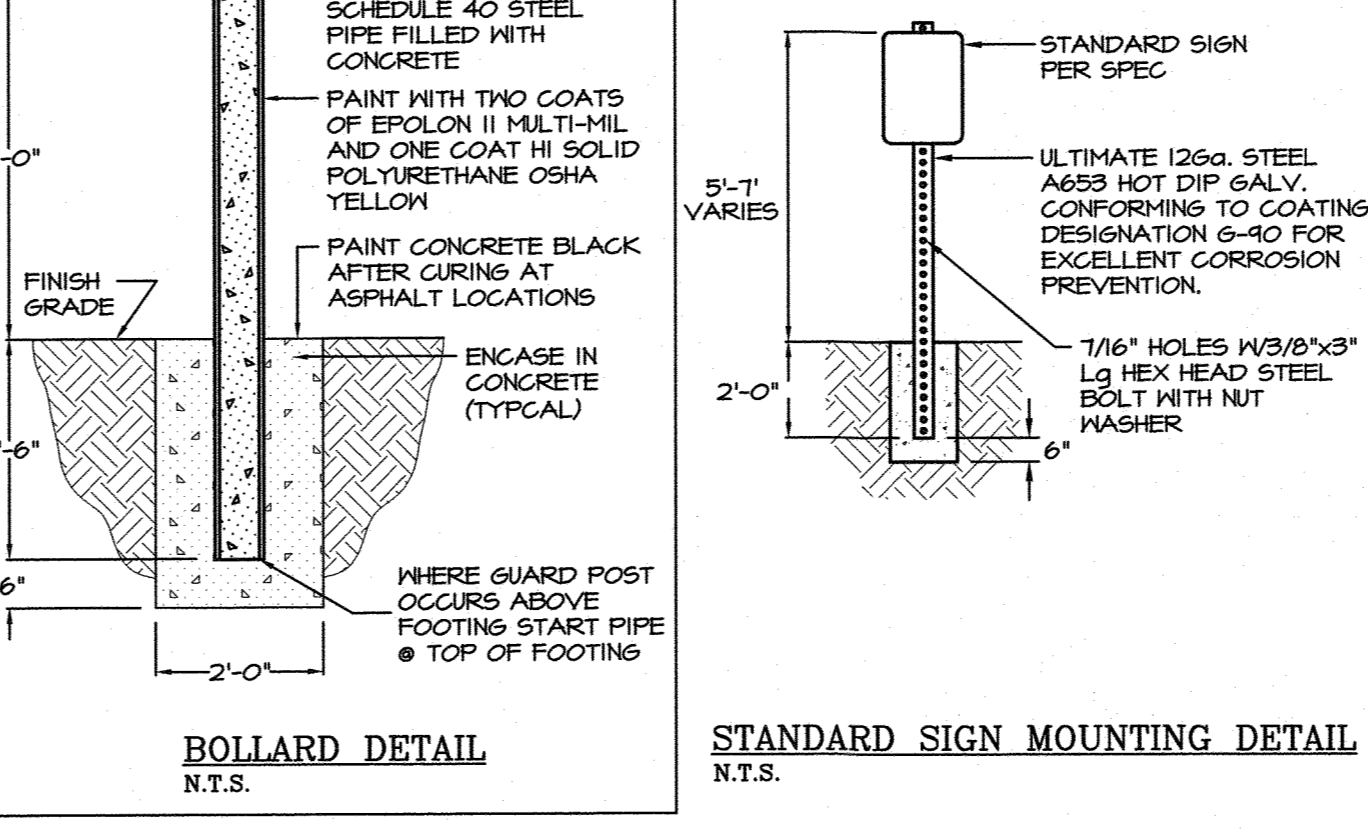
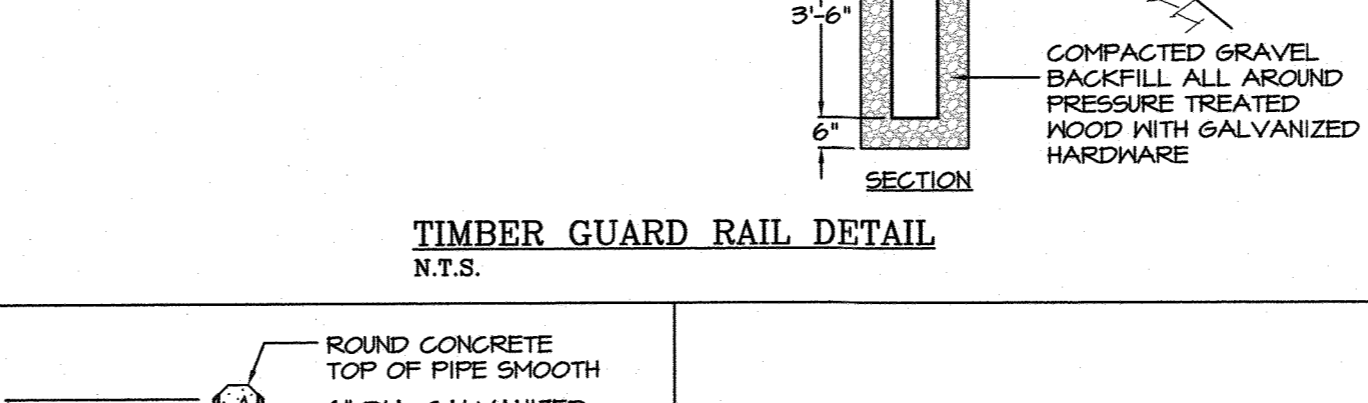
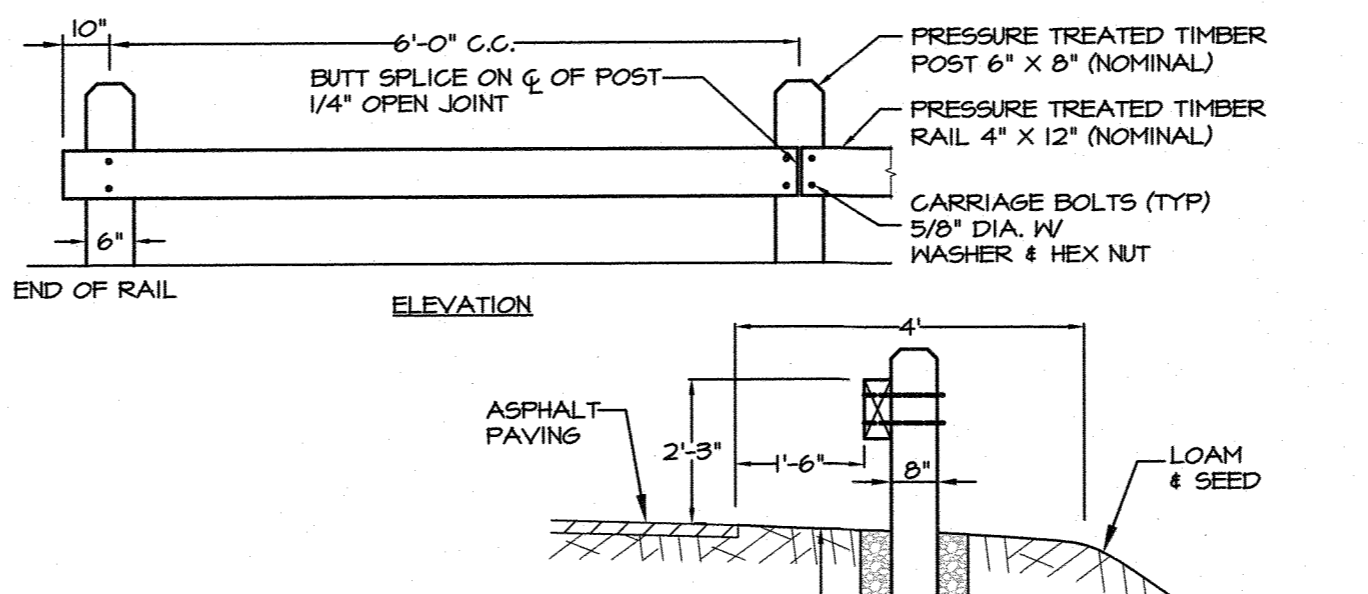
**ACCESSIBILITY RAMP DETAILS**  
N.T.S.

**PARKING & PASSENGER LOADING ZONES**

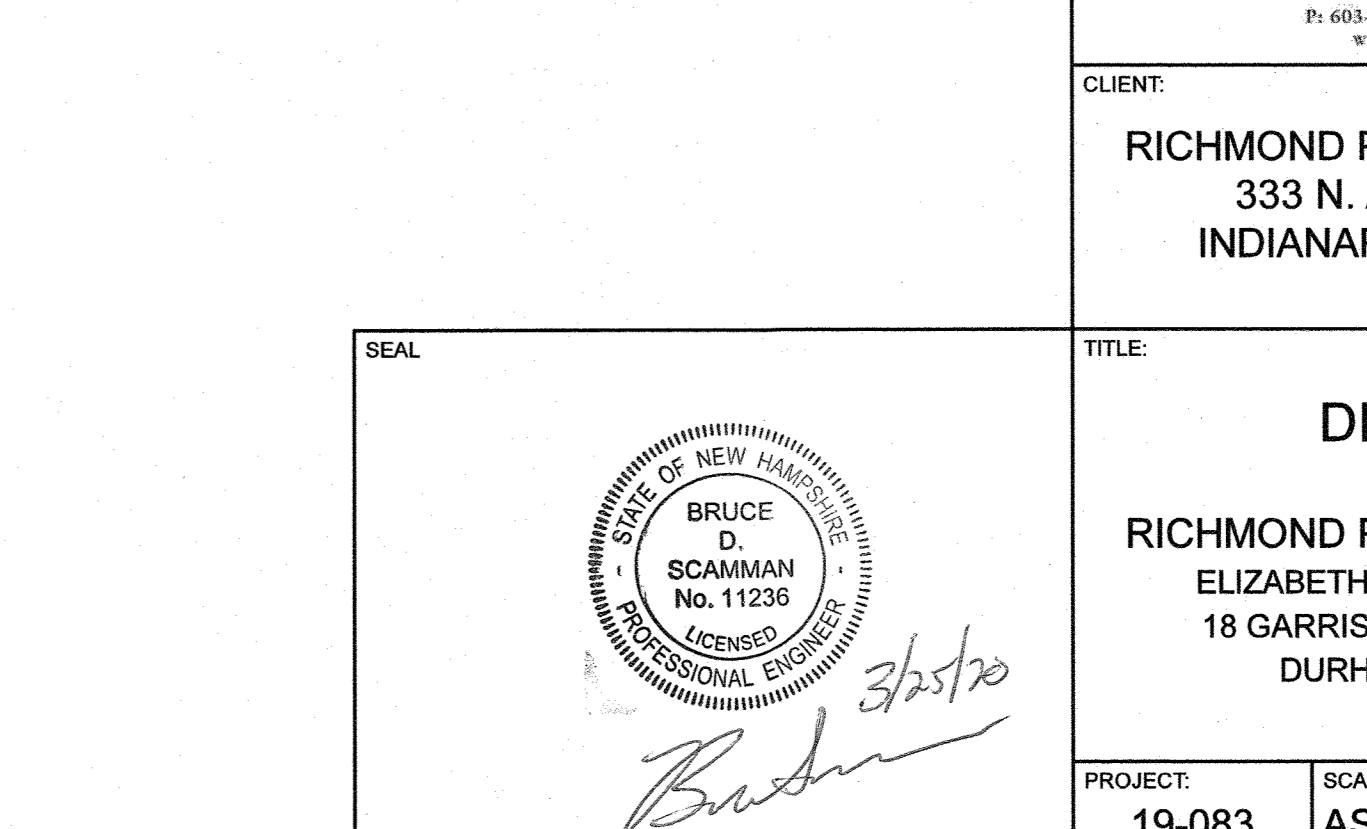
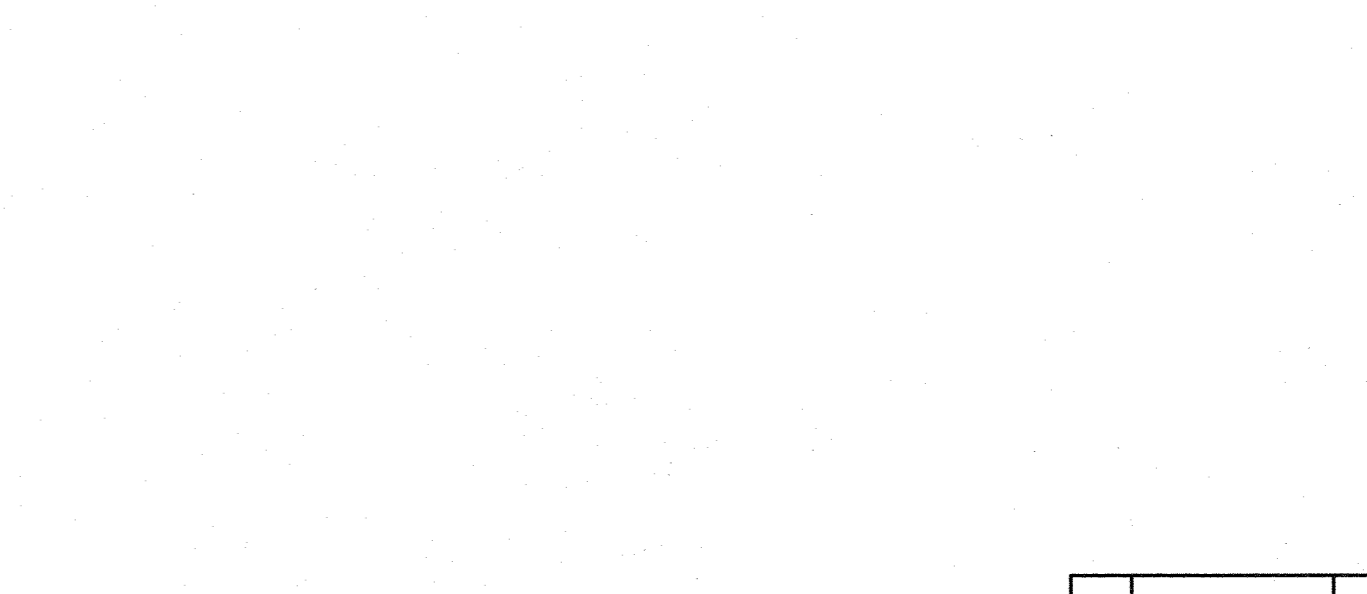
TOTAL # PARKING SPACES	STAND.	VAN	TOTAL
1 - 25	0	1	1
26 - 50	1	1	2
51 - 75	2	1	3
76 - 100	3	1	4
101 - 150	4	1	5
151 - 200	5	1	6
201 - 300	6	1	7
301 - 400	7	1	8
401 - 500	8	2	10
501 - 550	9	2	11
551 - 600	10	2	12
601 - 650	11	2	13



**PARKING STALL FOR THE PHYSICALLY CHALLENGED**  
N.T.S.



**BOLLARD DETAIL**  
N.T.S.



**STANDARD SIGN MOUNTING DETAIL**  
N.T.S.

2	MAR 24, 2020	FOR APPROVAL
1	MAR 11, 2020	PRELIMINARY
ISS. DATE:	MCV	CHK.
DRAWN:	MCV	DESIGN:
CHECKED:	BDS	CHECKED:

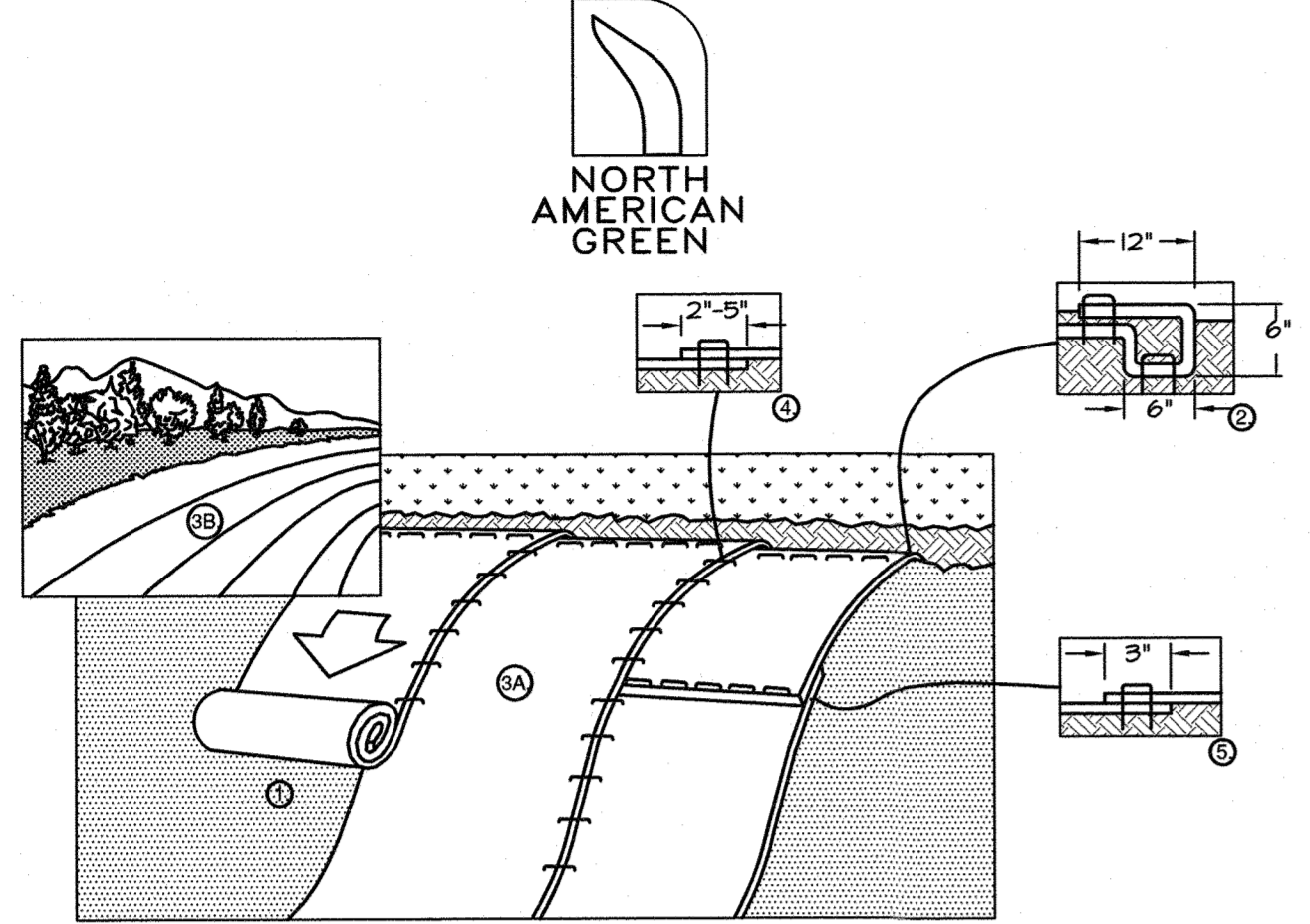
**EMANUEL ENGINEERING**  
civil & structural consultants, land planners  
118 PORTSMOUTH AVENUE, A202  
STRATHAM, NH 03885  
P: 603-772-4400 F: 603-772-4487  
WWW.EMANUELENGINEERING.COM

CLIENT:  
**RICHMOND PROPERTY GROUP**  
333 N. ALABAMA ST.  
INDIANAPOLIS, IN 46204

TITLE:  
**DETAILS FOR RICHMOND PROPERTY GROUP**  
ELIZABETH DEMERRITT HOUSE  
18 GARRISON AVENUE (SITE)  
DURHAM, NH 03824

PROJECT: 19-083  
SCALE: AS SHOWN  
SHEET: D4

**SLOPE INSTALLATION**



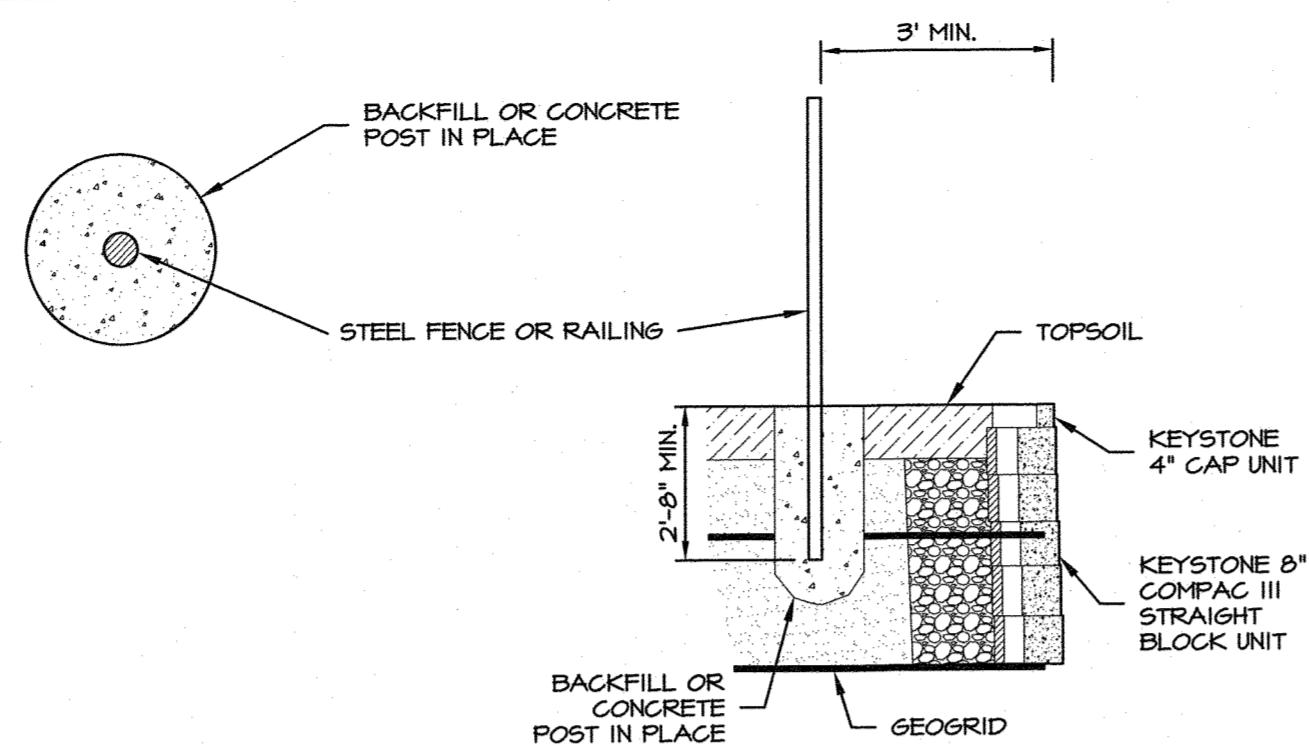
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE:  
 \* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

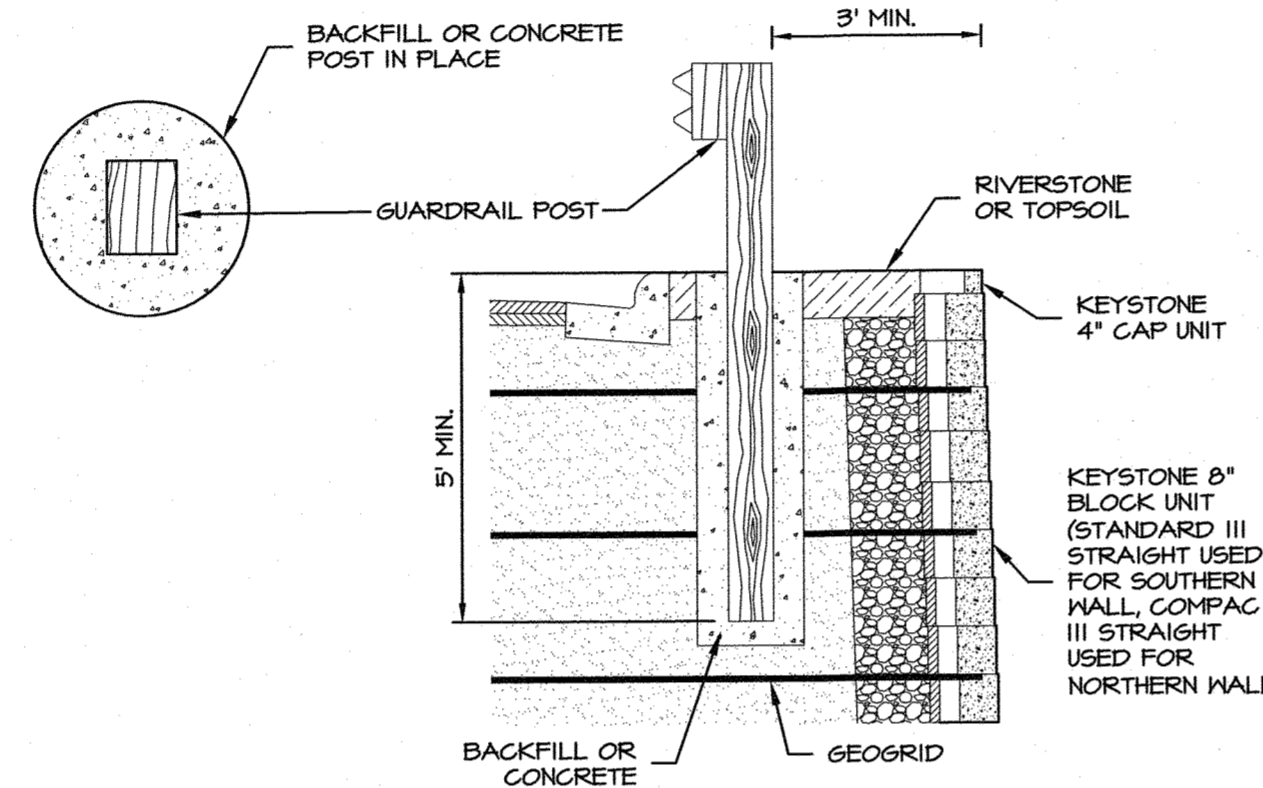
CRITICAL POINTS  
 A. OVERLAPS AND SEAMS  
 B. PROTECTED WATER LINE  
 C. CHANNEL BOTTOMSIDE SLOPE VERTICES

\* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.  
 \* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS IN EXCESS OF 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

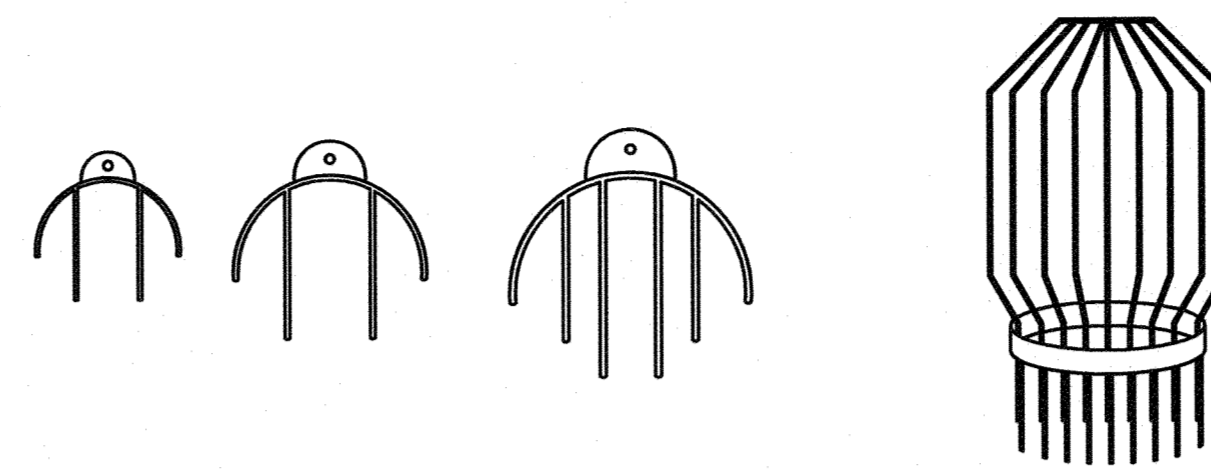
14644 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47125  
 USA 1-800-712-2040 CANADA 1-800-449-2040  
 www.nagreen.com



**TYPICAL FENCE POST OFFSET**  
N.T.S.

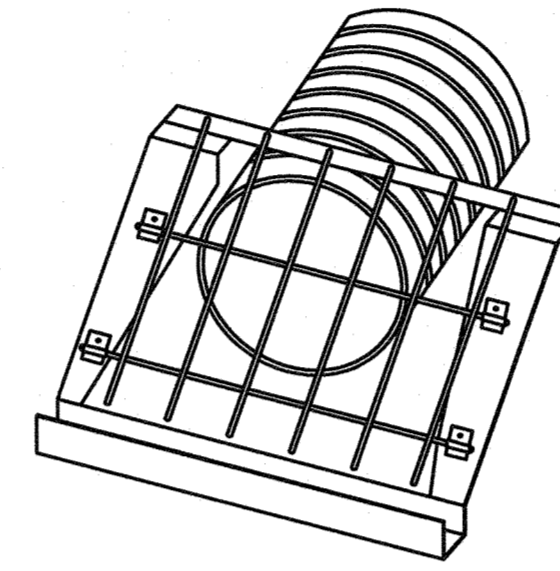


**TYPICAL GUARD RAIL CROSS-SECTION**  
N.T.S.



**ANIMAL GUARD GRATE**  
(FINGER STYLE)  
STANDARD SIZES:  
4", 6", 8", 10", 12", 15", 18", 24",  
30", 36" & 42"

**INLET BAR GUARD/GRATE**  
STANDARD SIZES:  
4", 6", 8", 10", 12", 15", 18", 24",  
30" & 36"

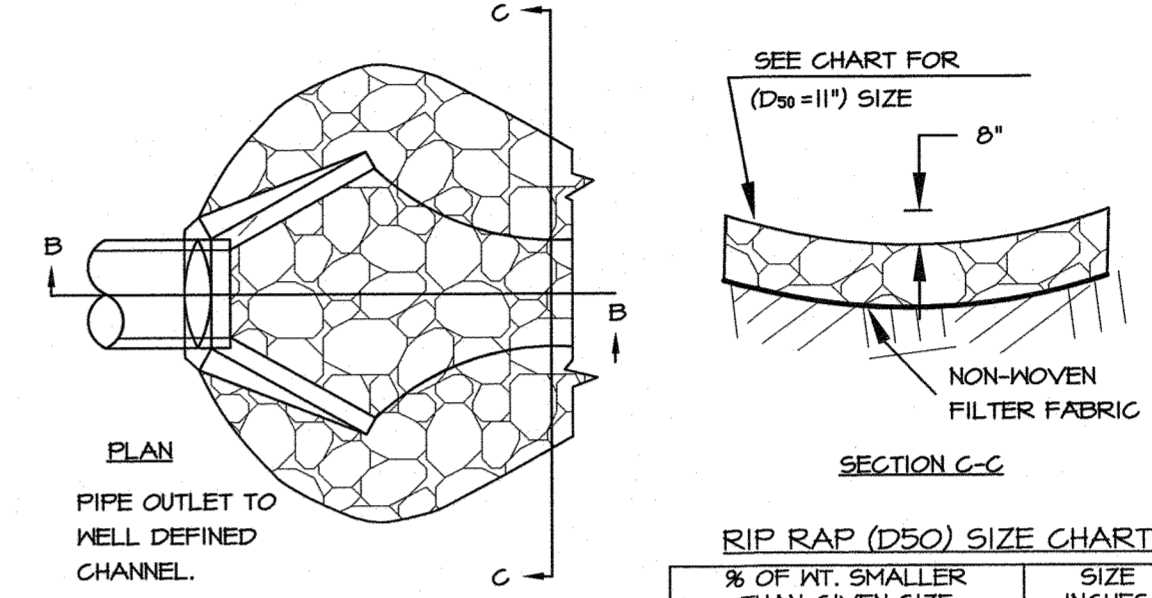
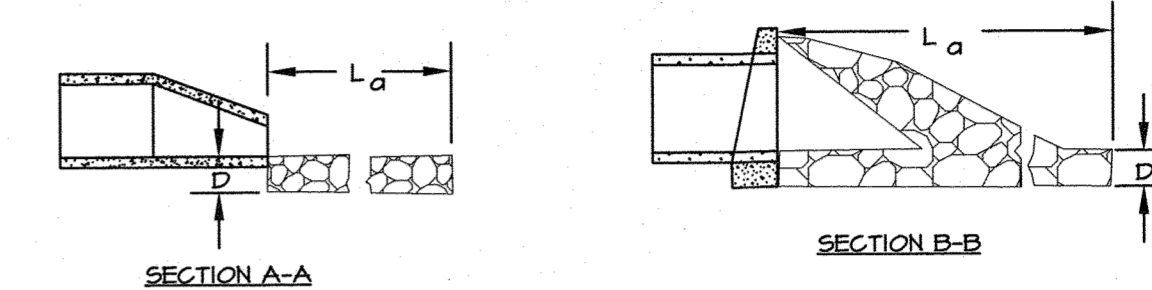
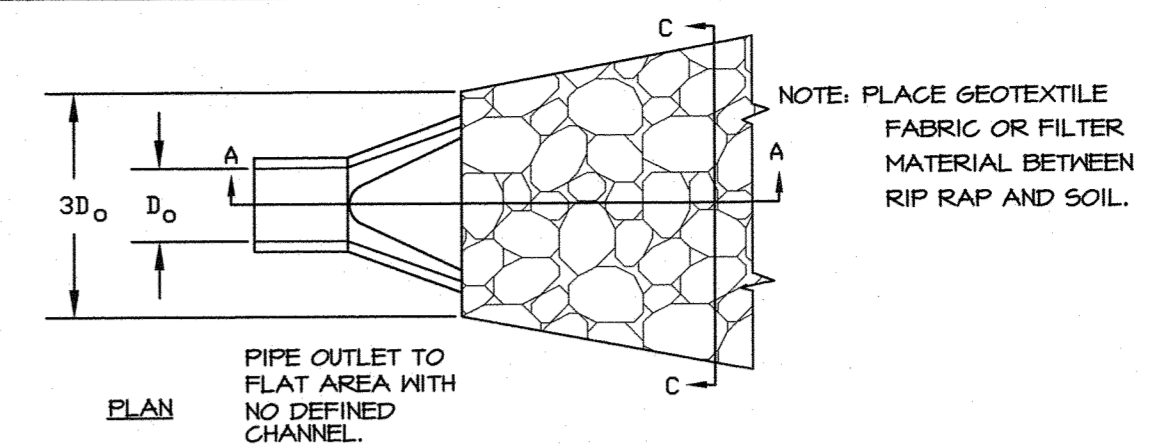


**END SECTION TRASH GUARD/GRATE**  
STANDARD SIZES:  
12", 15", 18", 24", 30", & 36"

**NOTES:**

- 1) PRODUCTS SHOWN MANUFACTURED BY ADVANCE DRAINAGE SYSTEM INC. WWW.ADS-PIPE.COM
- 2) USE ADVANCE DRAINAGE SYSTEM INC. OR EQUAL
- 3) FOLLOW MANUFACTURER INSTALLATION INSTRUCTIONS

**PIPE GRATE PROTECTION DETAIL**  
N.T.S.



**RIP RAP (1250) SIZE CHART**

% OF WT. SMALLER THAN GIVEN SIZE	SIZE INCHES
100	15.4-21.2
85	13.2-19.1
50	10.6-15.4
15	3.2-5.3

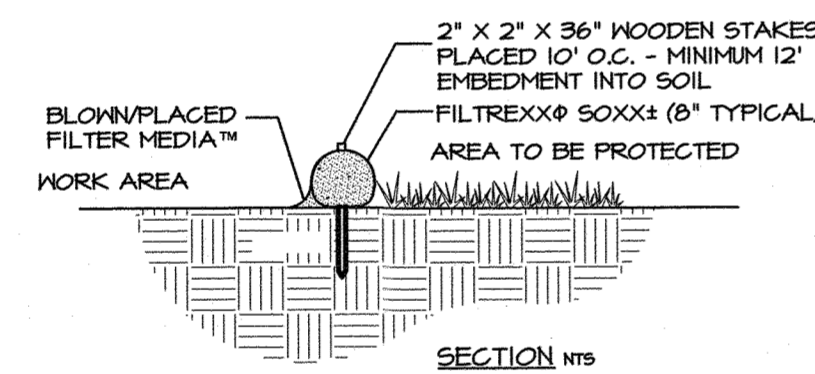
**CONSTRUCTION SPECIFICATIONS:**

1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIPRAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OF GRAVEL USED FOR FILTER OR RIPRAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIPRAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIPRAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

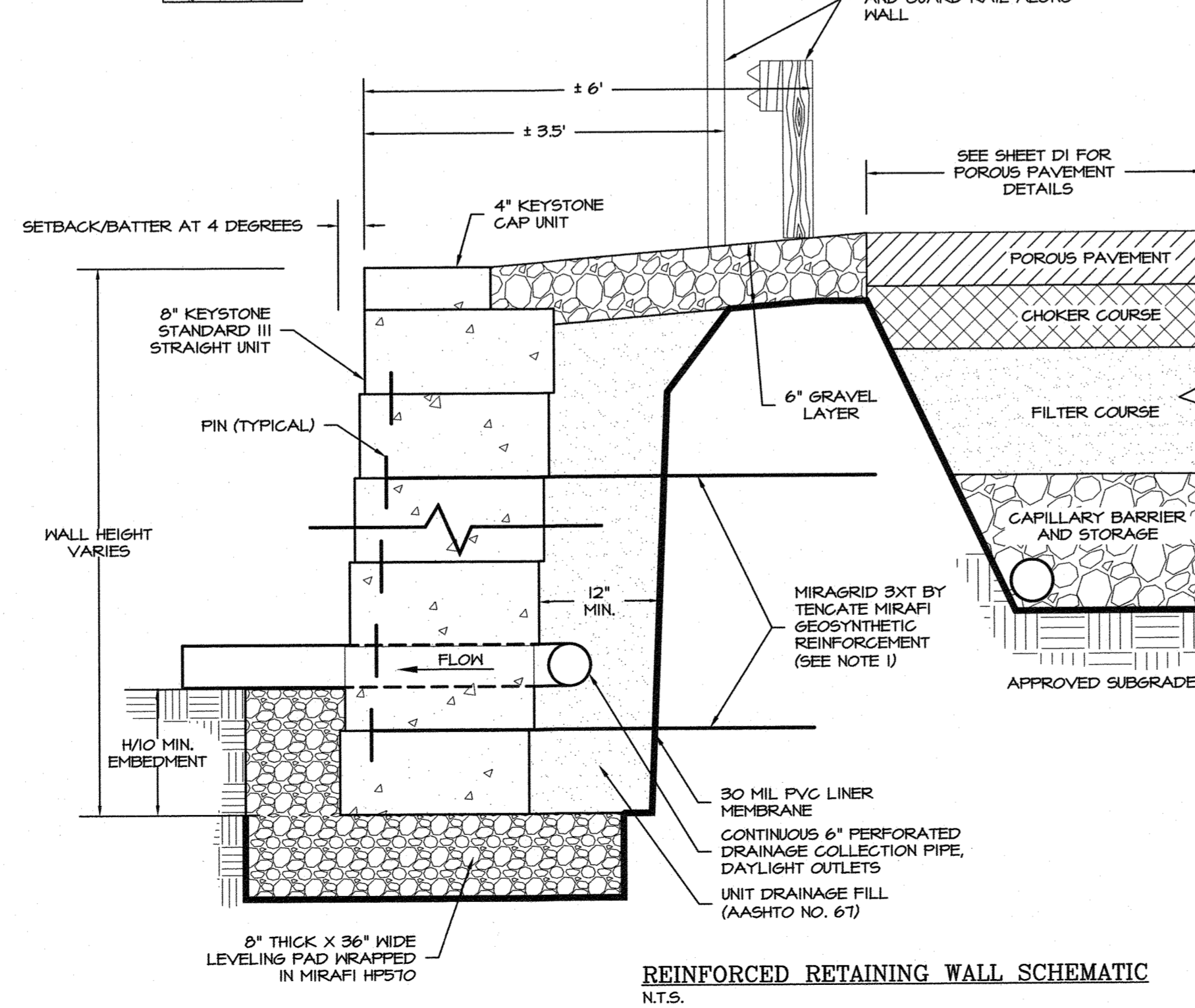
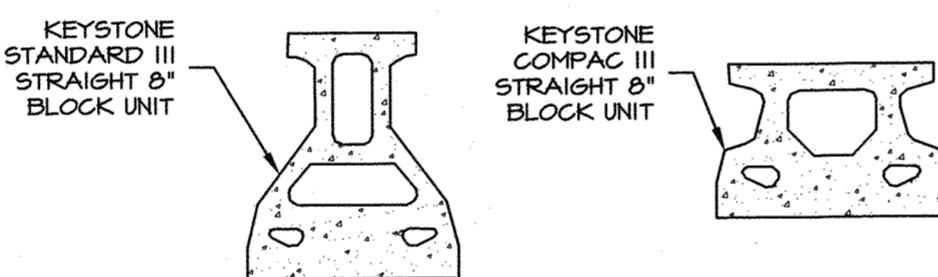
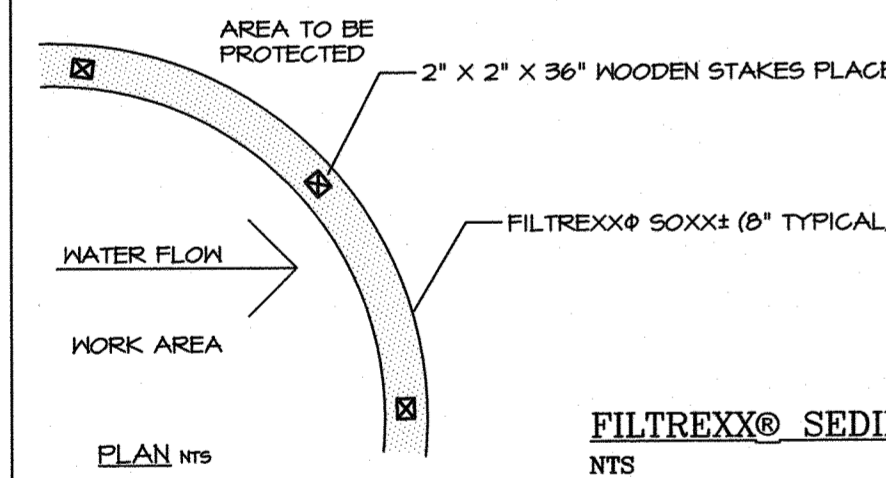
**PIPE OUTLET PROTECTION**  
N.T.S.

**NOTES:**

1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPersed ON SITE, AS DETERMINED BY ENGINEER.
7. ADDITIONAL INFO AVAILABLE AT [HTTP://WWW.FILTREXX.COM](http://WWW.FILTREXX.COM)



**FILTREXX® SEDIMENT CONTROL**  
N.T.S.



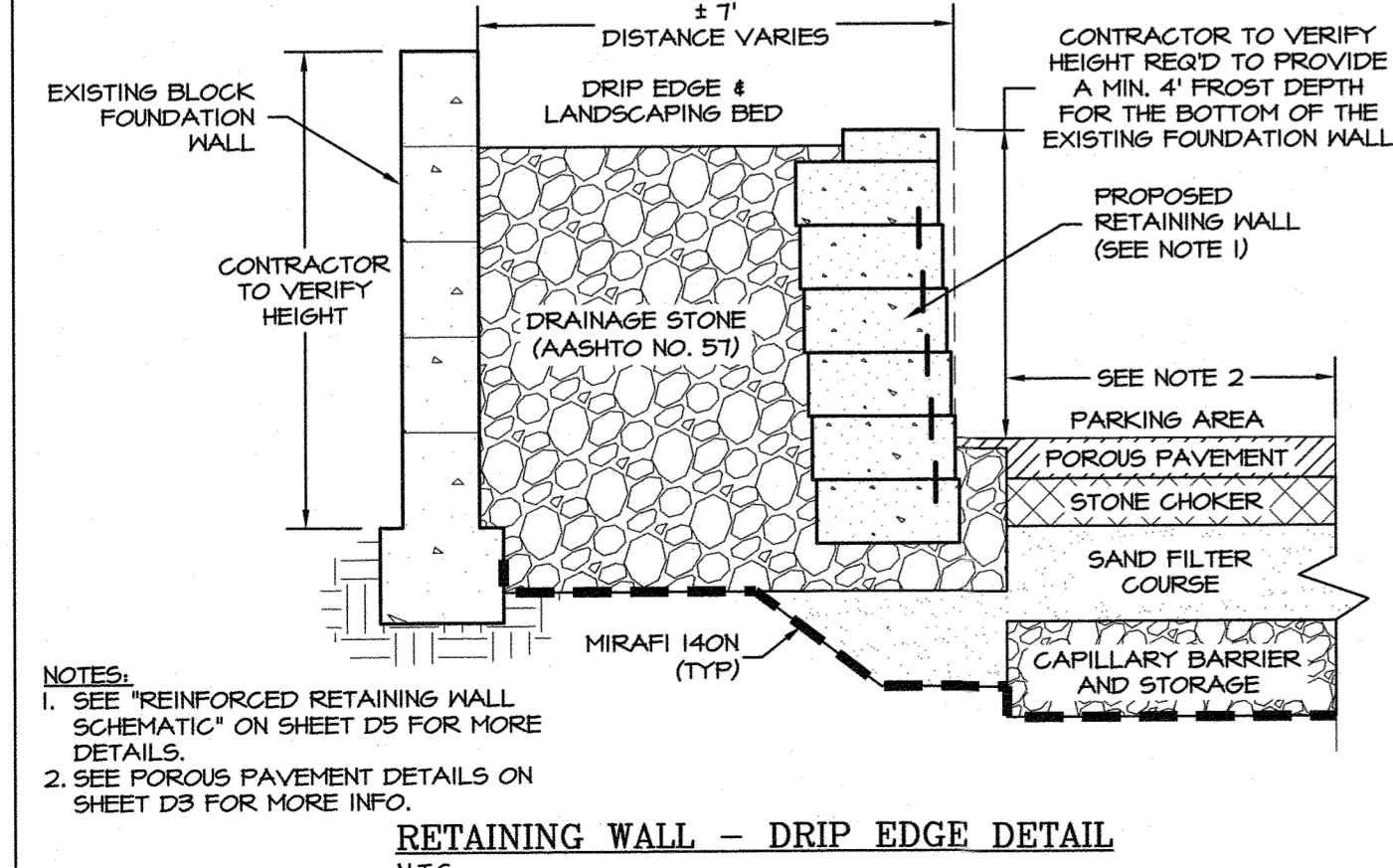
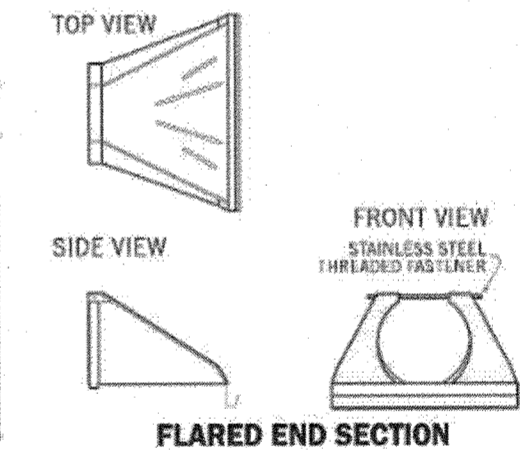
**REINFORCED RETAINING WALL SCHEMATIC**  
N.T.S.

**NOTES:**

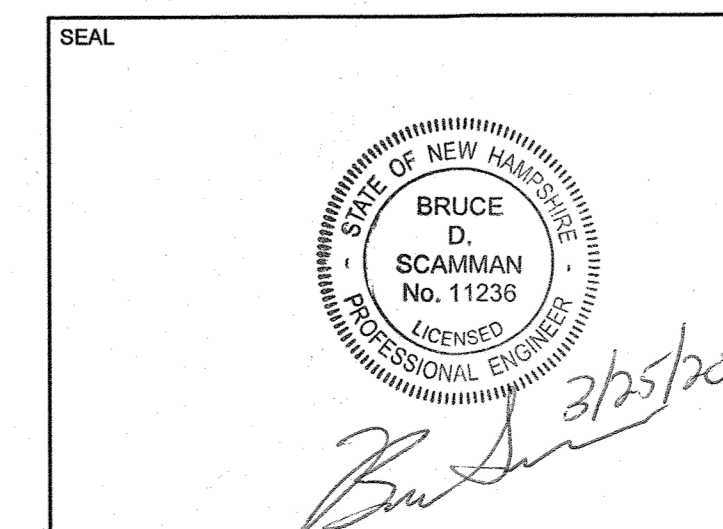
1. RETAINING WALL DESIGN BY OTHER. COORDINATE WITH MANUFACTURER ON USE AND LOCATION OF REINFORCEMENT.
2. WALL HEIGHT (H) IS THE TOTAL HEIGHT FROM TOP OF LEVELING PAD TO TOP OF WALL.
3. MINIMUM WALL EMBEDMENT IS 12 INCHES FROM TOP OF LEVELING PAD.
4. SUBSURFACE SOILS MUST BE CAPABLE OF SUPPORTING WALL SYSTEM.
5. UNIT DRAINAGE FILL IS 3/8 INCH CLEAN WASHED CRUSHED STONE. FILL ALL OPEN SPACES BETWEEN UNITS AND OPEN CAVITIES/CORES WITH SAME UNIT DRAINAGE MATERIALS EXCEPT WHERE FENCE POSTS ARE PRESENT. VOIDS IN BLOCKS HOLDING FENCE POSTS SHALL BE FILLED WITH NON-SHRINK GROUT, AND LOCATIONS SHALL BE VERIFIED WITH THE FENCE COMPANY.
6. LEVELING PAD IS CRUSHED STONE BASE MATERIAL.
7. ALL BACKFILL MATERIALS ARE COMPACTED IN 8" LIFTS TO 95% STANDARD PROCTOR DENSITY OR 92% MODIFIED PROCTOR DENSITY.
8. GEOGRIDS MUST BE OF APPROPRIATE TYPE AND LENGTH PER DESIGN.
9. FINISHED GRADE MUST PROVIDE POSITIVE DRAINAGE.
10. STEP THE LEVELING PAD IN 8" INCREMENTS AT THE APPROPRIATE ELEVATION CHANGE IN THE FOUNDATION.
11. REFER TO MANUFACTURER'S INSTALLATION MANUAL FOR ADDITIONAL DETAILS INCLUDING CORNERS AND CURVES.
12. REFER TO TENGATE MIRAFI INSTALLATION GUIDELINES FOR ORIENTATION OF GEOGRID AND CONNECTION OF PANELS.

**FLARED END SECTIONS**

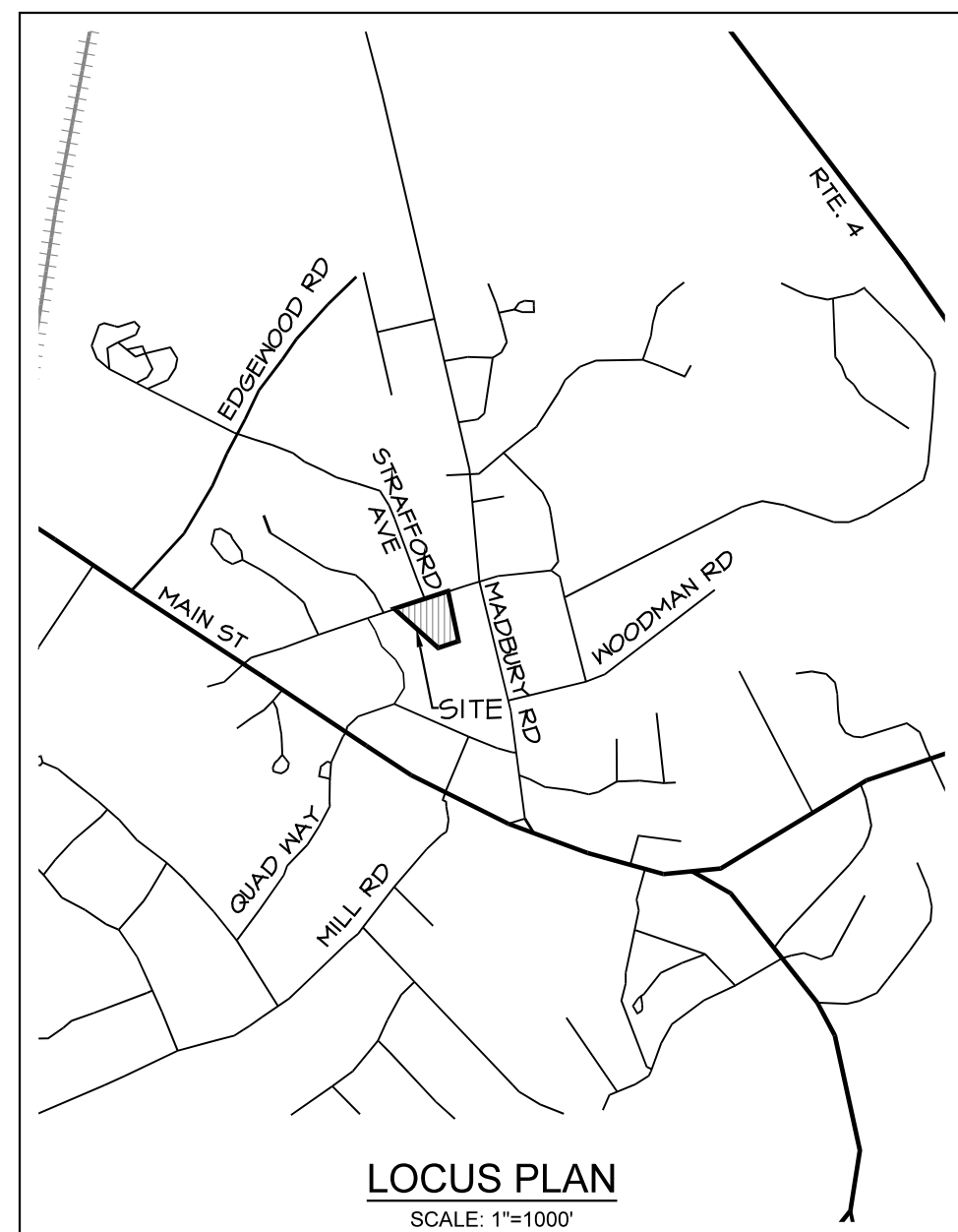
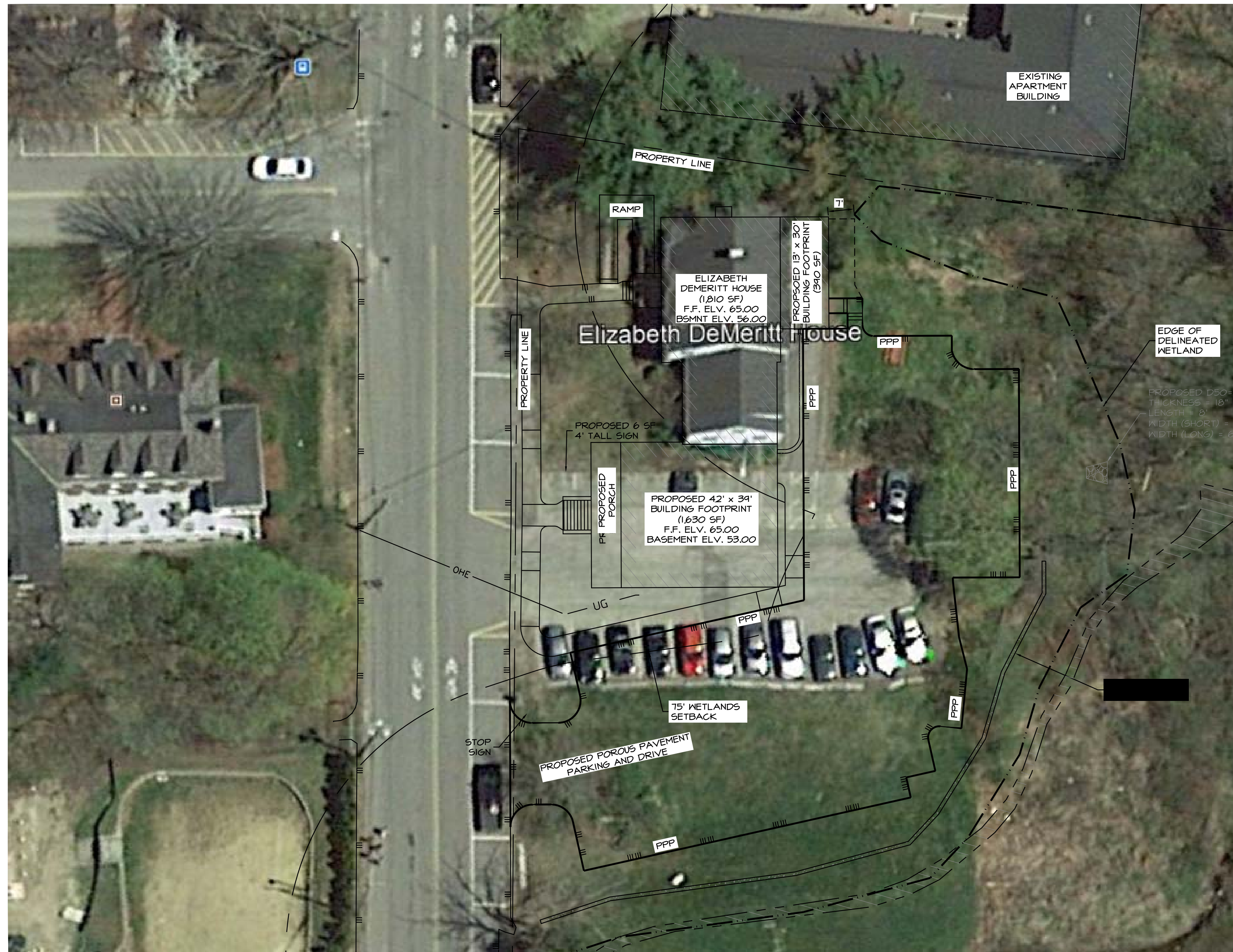
SIZE	PRODUCT CODE
10" (250mm)	1015NP
12" (300mm) / 15" (375mm)	1215NP
18" (450mm)	1810NP
24" (600mm)	2410NP
30" (750mm)	3015NP
36" (900mm)	3615NP



**RETAINING WALL - DRIP EDGE DETAIL**  
N.T.S.



2	MAR 24, 2020	FOR APPROVAL	
1	MAR 11, 2020	PRELIMINARY	
ISS. DATE:		DESCRIPTION OF ISSUE:	CHK.
DRAWN:	MCV	DESIGN:	MCV
CHECKED:	BDS	CHECKED:	BDS
 civil & structural consultants, land planners 118 PORTSMOUTH AVENUE, A202 STRATHAM, NH 03885 P: 603-772-4460 F: 603-772-4487 WWW.EMANUELENGINEERING.COM			
CLIENT:			
<b>RICHMOND PROPERTY GROUP</b> 333 N. ALABAMA ST. INDIANAPOLIS, IN 46204			
TITLE:			
<b>DETAILS</b> FOR <b>RICHMOND PROPERTY GROUP</b> ELIZABETH DEMERITT HOUSE 18 GARRISON AVENUE (SITE) DURHAM, NH 03824			
PROJECT:	SCALE:	SHEET:	
19-083	AS SHOWN	D5	

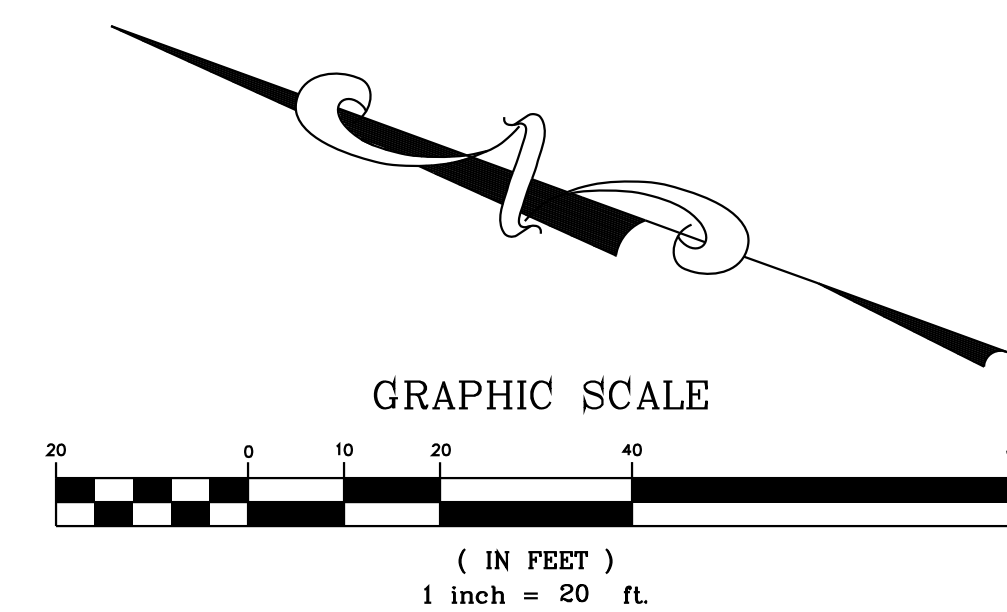


**NOTES:**

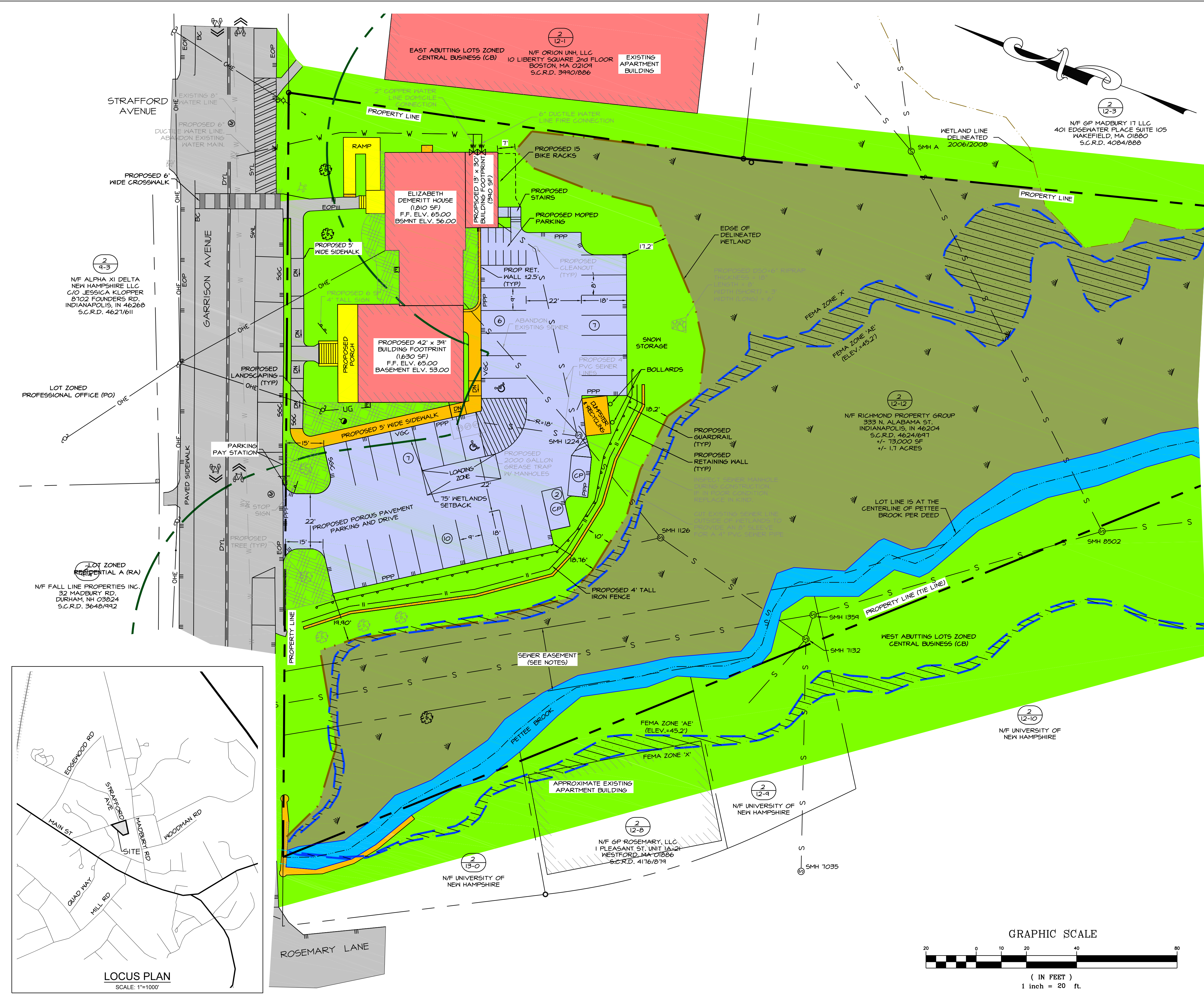
1. OWNER OF RECORD:  
TAX MAP 2, LOT 12-12  
RICHMOND PROPERTY GROUP  
333 N. ALABAMA ST.  
INDIANAPOLIS, IN 46204  
SCRD BK 4626 PG 69T
2. THE INTENT OF THIS PLAN IS TO SHOW  
PROPOSED SITE CONDITIONS FOR A  
FRATERNITY, DEPICTING BUILDING, DRIVEWAY,  
DRAINAGE, AND SITE IMPROVEMENTS IN  
RELATION TO AN OVERLAY OF THE EXISTING  
SITE.
3. PARCEL IS ZONED CENTRAL BUSINESS (CB) PER  
THE 2006 DURHAM ZONING DISTRICT MAP.
4. A PORTION OF THE PARCEL IS IN A FLOOD  
HAZARD ZONE; REFERENCE FLOOD INSURANCE  
RATE MAP 3301TC0318E, DATED SEPTEMBER  
30, 2015.
5. SURVEY FIELDWORK CONDUCTED BY DOUCET  
SURVEY, LLC IN AUGUST, 2019.
6. SOILS AND WETLANDS WERE DELINEATED BY  
GZA GEOTECHNICAL, INC. DURING AUGUST,  
2019.

**REFERENCE PLANS:**

1. "PLAN OF LAND, LAND OF THE UNIVERSITY OF  
NEW HAMPSHIRE FOR GAMMA THETA  
CORPORATION, GARRISON AVENUE, (NO TAX  
MAP/LOT NUMBER ASSIGNED) DURHAM, NEW  
HAMPSHIRE" DATED JULY 11, 2014 BY DOUCET  
SURVEY, INC. S.C.R.D. PLAN 108-020.
2. "EXISTING CONDITIONS PLAN OF 17 & 21  
MADBURY ROAD FOR AG ARCHITECTS, PC"  
DATED MAY 11, 2006 BY DOUCET SURVEY, INC.
3. "TOWN OF DURHAM SEWER EASEMENTS, PETTEE  
BROOK INTERCEPTOR" DATED NOVEMBER  
1964 BY G.L. DAVIS & ASSOCIATES S.C.R.D.  
POCKET 4 FOLDER 4 PLAN 26.
4. "RE-SUBDIVISION OF LAND IN DURHAM, NH  
PREPARED FOR THETA GAMMA OF DELTA  
ZETA HOUSE CORP." DATED AUGUST 4, 1980  
BY JOHN W. DURGIN ASSOCIATES, INC. S.C.R.D.  
DRAWER 21, PLAN 86.
5. "PLAN OF LAND FOR ERNEST CUTTER" DATED  
OCTOBER 1917 BY JOHN W. DURGIN  
ASSOCIATES, INC.
6. "UNIVERSITY OF NEW HAMPSHIRE GARRISON  
AVENUE AREA" DATED SEPTEMBER 16, 1957 BY  
G.L. DAVIS & ASSOCIATES.



2	MAR 25, 2020	FOR APPROVAL	
1	MAR 9, 2020	PRELIMINARY	
ISS. DATE:	DESCRIPTION OF ISSUE:		CHK.
DRAWN:	MCV	DESIGN:	MCV
CHECKED:	BDS	CHECKED:	BDS
 <small>civil &amp; structural consultants, land planners</small> 118 PORTSMOUTH AVENUE, A202 STRATHAM, NH 03885 P: 603-772-4400 F: 603-772-4487 WWW.EMANUELENGINEERING.COM			
CLIENT:			
RICHMOND PROPERTY GROUP 333 N. ALABAMA ST. INDIANAPOLIS, IN 46204			
TITLE:			
SITE PLAN W/ AERIAL OVERLAY FOR RICHMOND PROPERTY GROUP ELIZABETH DEMERRIT HOUSE 18 GARRISON AVENUE (SITE) DURHAM, NH 03824			
PROJECT:	SCALE:	SHEET:	
19-083	1"=20'	SK1	



**REFERENCE PLANS:**

- "PLAN OF LAND, LAND OF THE UNIVERSITY OF NEW HAMPSHIRE FOR GAMMA THETA CORPORATION, GARRISON AVENUE, (NO TAX MAP/LOT NUMBER ASSIGNED) DURHAM, NEW HAMPSHIRE" DATED JULY 11, 2014 BY DOUGET SURVEY, INC. S.C.R.D. PLAN 108-020.
- "EXISTING CONDITIONS PLAN OF 17 & 21 MADBURY ROAD FOR AG ARCHITECTS, PC" DATED MAY 11, 2006 BY DOUGET SURVEY, INC.
- "TOWN OF DURHAM SEWER EASEMENTS, PETTEE BROOK INTERCEPTOR" DATED NOVEMBER 1964 BY G.L. DAVIS & ASSOCIATES S.C.R.D. POCKET 4 FOLDER 4 PLAN 26.
- "RE-SUBDIVISION OF LAND IN DURHAM, NH PREPARED FOR THETA GAMMA OF DELTA ZETA HOUSE CORP." DATED AUGUST 4, 1980 BY JOHN W. DURGIN ASSOCIATES, INC. S.C.R.D. DRAWER 21, PLAN 86.
- "PLAN OF LAND FOR ERNEST CUTTER" DATED OCTOBER 1971 BY JOHN W. DURGIN ASSOCIATES, INC.
- "UNIVERSITY OF NEW HAMPSHIRE GARRISON AVENUE AREA" DATED SEPTEMBER 16, 1951 BY G.L. DAVIS & ASSOCIATES.

**NOTES:**

- OWNER OF RECORD: TAX MAP 2, LOT 12-12 RICHMOND PROPERTY GROUP 333 N. ALABAMA ST. INDIANAPOLIS, IN 46204 SGRD BK 4626 PG 647
- THE INTENT OF THIS PLAN IS TO SHOW PROPOSED SITE CONDITIONS FOR A FRATERNITY, DEPICTING BUILDING, DRIVEWAY, DRAINAGE, AND SITE IMPROVEMENTS.
- PARCEL IS ZONED CENTRAL BUSINESS (CB) PER THE 2006 DURHAM ZONING DISTRICT MAP.
- A PORTION OF THE PARCEL IS IN A FLOOD HAZARD ZONE; REFERENCE FLOOD INSURANCE RATE MAP 3301C0308E, DATED SEPTEMBER 30, 2015.
- SURVEY FIELDWORK CONDUCTED BY DOUGET SURVEY, LLC IN AUGUST, 2019.
- SOILS AND WETLANDS WERE DELINEATED BY GZA GEONVIRONMENTAL, INC. DURING AUGUST, 2019.
- PROPERTY TO BE SERVICED BY ON-SITE WELL AND SEPTIC.
- ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
- THIS PLAN WAS PREPARED WITH ON-SITE FIELD SURVEY AND EXISTING PLANS. THE CONTRACTOR SHOULD NOTIFY EMANUEL ENGINEERING, INC. DURING CONSTRUCTION IF ANY DISCREPANCY TO THE PLAN IS FOUND ON SITE.
- BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 12 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
- ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
- PARKING REQUIREMENTS (PER TOWN OF DURHAM SITE PLAN REGULATIONS, DATED 2019):
  - ONE SPACE PER RESIDENT (CB DISTRICT EXEMPT WITH FEE)
  - ONE HANDICAP SPACE PER TWENTY-FIVE SPACES
  - FRONT SETBACK = 15' OR BEHIND FRONT OF BUILDING; WHICHEVER IS GREATER
- PARKING SPACE DIMENSIONAL REQUIREMENTS:
  - 4'x18' PERPENDICULAR TO DRIVEWAY
  - 8'x22' PARALLEL TO DRIVEWAY
- THIS PARCEL IS SUBJECT TO AND/OR BENEFIT OF EASEMENTS RESTRICTIONS ETC. SEE EXISTING CONDITIONS PLAN BY DOUGET SURVEY, AS PART OF THIS PLAN SET, FOR MORE INFORMATION.

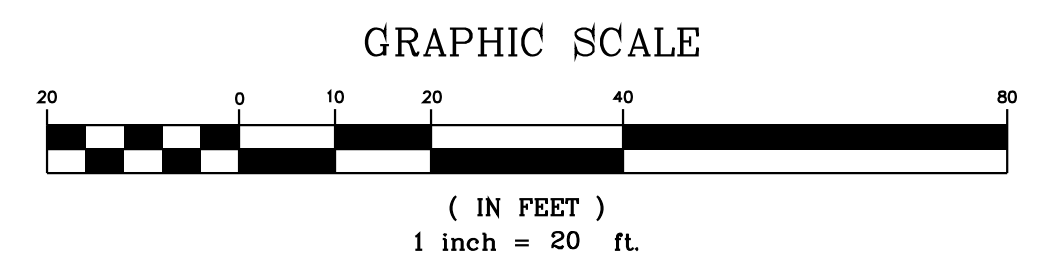
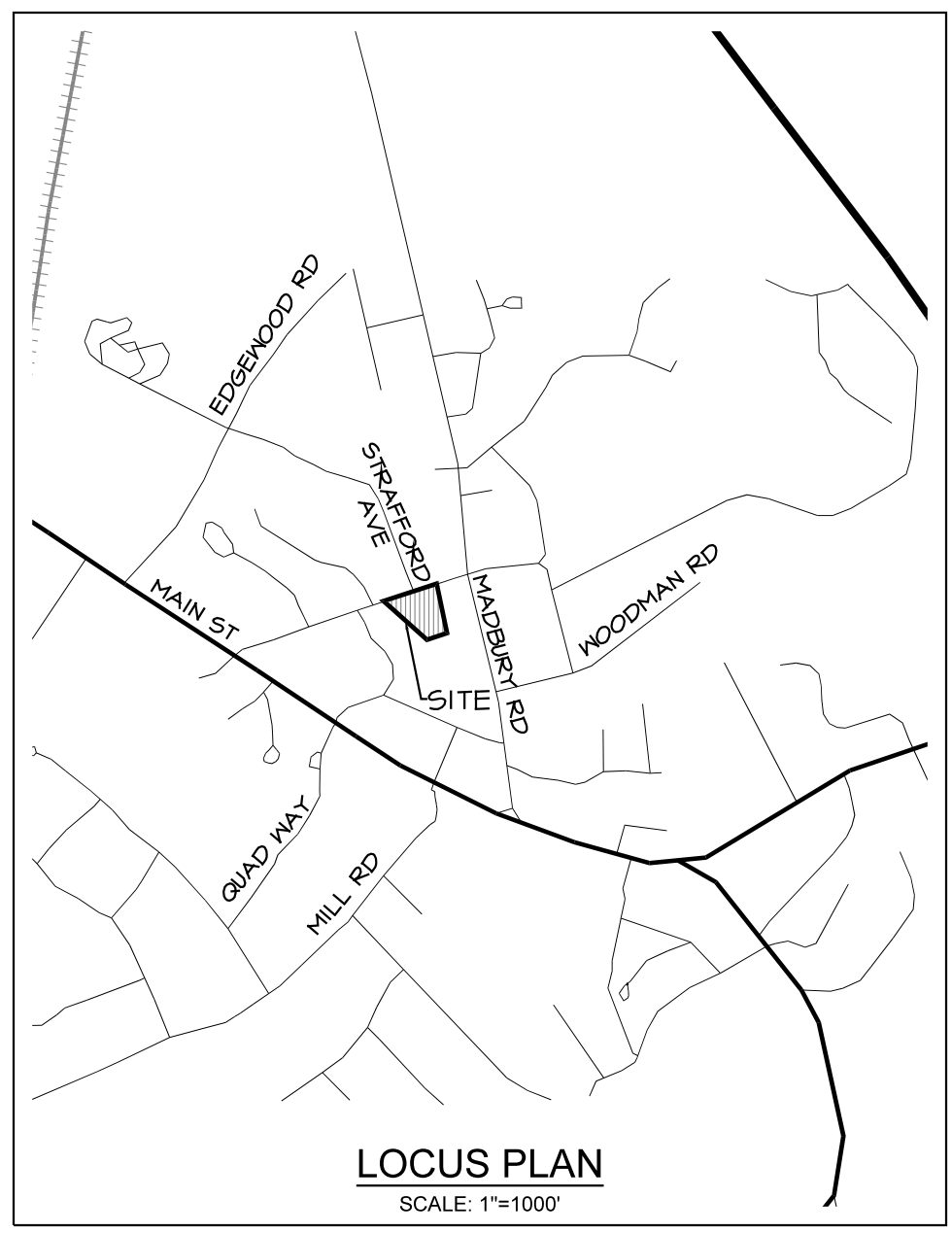
**LEGEND:**

- REBAR FOUND
- IRON PIPE FOUND
- VERTICAL GRANITE CURB
- SLOPED GRANITE CURB
- PROPOSED POROUS PAVEMENT
- PROPOSED TRADITIONAL PAVEMENT
- EDGE OF PAVEMENT
- OVERHEAD UTILITIES
- SEWER LINE
- GUARD RAIL
- UTILITY POLE
- LIGHT POLE
- WETLANDS
- PROPERTY LINE
- EDGE OF WETLANDS
- 75' WETLANDS SETBACK
- FEMA ZONE 'X'
- PROPOSED POROUS PAVEMENT

2  
9-3  
N/F ALPHA XI DELTA NEW HAMPSHIRE LLC  
C/O JESSICA KLOPPER  
8102 FOUNDERS RD.  
INDIANAPOLIS, IN 46268  
S.C.R.D. 4627/611

LOT ZONED PROFESSIONAL OFFICE (PO)

LOT ZONED RESIDENTIAL A (RA)  
N/F FALL LINE PROPERTIES INC.  
32 MADBURY RD.  
DURHAM, NH 03824  
S.C.R.D. 3648/912



1	MAR 24, 2020	FOR APPROVAL	
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CLIENT:  
**RICHMOND PROPERTY GROUP**  
333 N. ALABAMA ST.  
INDIANAPOLIS, IN 46204

TITLE:  
**COLORED SITE PLAN**  
FOR  
**RICHMOND PROPERTY GROUP**  
ELIZABETH DEMERITT HOUSE  
18 GARRISON AVENUE (SITE)  
DURHAM, NH 03824

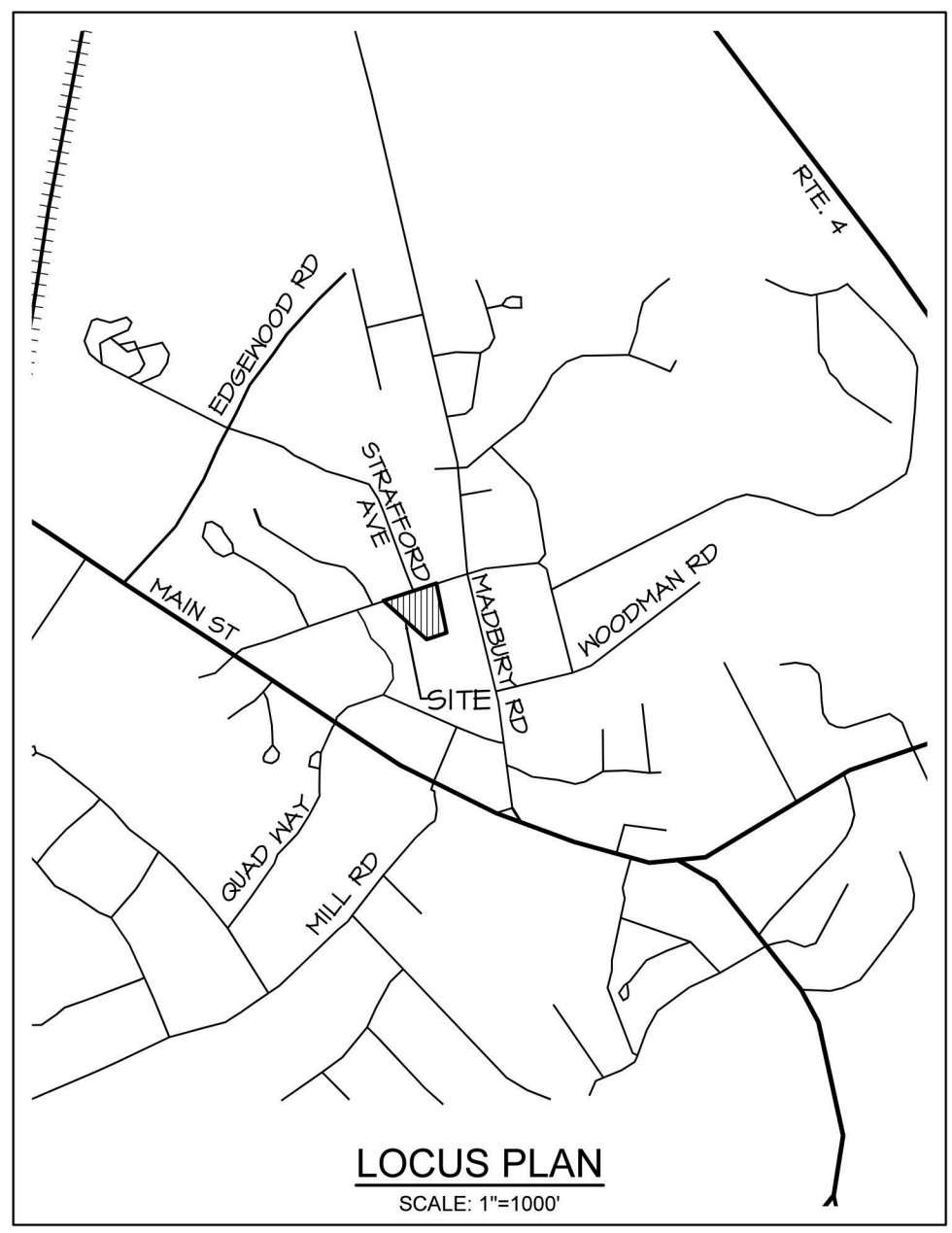
PROJECT:	SCALE:	SHEET:
19-083	1"=20'	SK2

**LEGEND**

□	BOUND FOUND
○	IRON PIPE FOUND
(TYP)	TYPICAL
PPP	PROPOSED POROUS PAVEMENT
PTP	PROPOSED TRAD. PAVEMENT
V6C	VERTICAL GRANITE CURB
S6C	SLOPED GRANITE CURB
BC	BITUMINOUS CURB
---	PROPERTY LINE
---	EDGE OF PAVEMENT (EOP)
---	EOP WITH CURB
---	OVERHEAD UTILITIES
---	WATER LINE
---	SEWER LINE
---	GAS LINE
---	CHAINLINK FENCE
---	GUARDRAIL
---	EDGE OF WETLANDS
---	UTILITY POLE
---	LIGHT POLE
---	WETLANDS
---	SEWER MANHOLE
---	CATCH BASIN
---	SEWER CLEANOUT
---	WATER VALVE
---	TREE
---	LANDSCAPING
---	FEMA FLOODZONE X

2  
4-3  
NF ALPHA XI DELTA  
NEW HAMPSHIRE LLC  
C/O JESSICA KLOPPER  
8702 FOUNDERS RD.  
INDIANAPOLIS, IN 46226  
S.C.R.D. 4621/611

2  
4-4  
NF FALL LINE PROPERTIES INC.  
52 MADBURY RD.  
DURHAM, NH 03824  
S.C.R.D. 3648/442



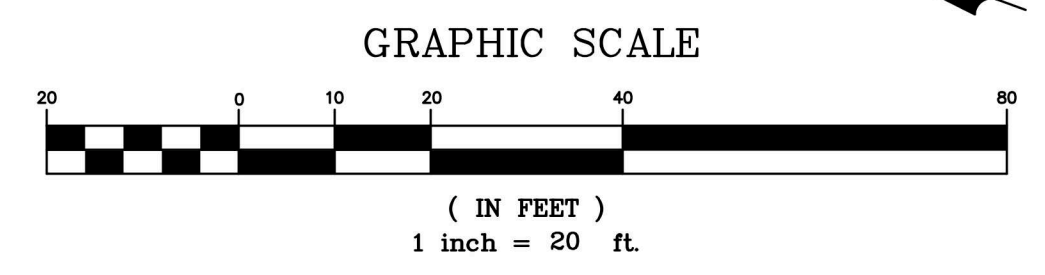
- NOTES:**
- OWNER OF RECORD: TAX MAP 2, LOT 12-12 RICHMOND PROPERTY GROUP 333 N. ALABAMA ST. INDIANAPOLIS, IN 46204 S.C.R.D. 4624/641
  - THE INTENT OF THIS PLAN IS TO SHOW THE DRAINAGE STRUCTURES AND PROPOSED GRADING ASSOCIATED WITH THE SITE IMPROVEMENTS.
  - PARCEL IS ZONED CENTRAL BUSINESS (CB) PER THE 2006 DURHAM ZONING DISTRICT MAP.
  - A PORTION OF THE PARCEL IS IN A FLOOD HAZARD ZONE; REFERENCE FLOOD INSURANCE RATE MAP 33017C0310E, DATED SEPTEMBER 30, 2015.
  - SURVEY FIELDWORK CONDUCTED BY DOUCET SURVEY, LLC IN AUGUST, 2014.
  - SOILS AND WETLANDS WERE DELINEATED BY GZA GEOENVIRONMENTAL, INC. DURING AUGUST, 2014.
  - PROPERTY TO BE SERVICED BY TOWN WATER AND SEWER.
  - ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
  - THIS PLAN WAS PREPARED WITH ON-SITE FIELD SURVEY AND EXISTING PLANS. THE CONTRACTOR SHOULD NOTIFY EMANUEL ENGINEERING, INC. DURING CONSTRUCTION IF ANY DISCREPANCY TO THE PLAN IS FOUND ON SITE.
  - BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 24 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
  - ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.

- REFERENCE PLANS:**
- "PLAN OF LAND, LAND OF THE UNIVERSITY OF NEW HAMPSHIRE FOR GAMMA THETA CORPORATION, GARRISON AVENUE, (NO TAX MAP)/LOT NUMBER ASSIGNED DURHAM, NEW HAMPSHIRE" DATED JULY 11, 2014 BY DOUCET SURVEY, INC. S.C.R.D. PLAN 108-020.
  - "EXISTING CONDITIONS PLAN OF 17 & 21 MADBURY ROAD FOR AG ARCHITECTS, PC" DATED MAY 11, 2006 BY DOUCET SURVEY, INC.
  - "TOWN OF DURHAM SEWER EASEMENTS, PETTIE BROOK INTERCEPTOR" DATED NOVEMBER 1964 BY G.L. DAVIS & ASSOCIATES S.C.R.D. POCKET 4 FOLDER 4 PLAN 26.
  - "RE-SUBDIVISION OF LAND IN DURHAM, NH PREPARED FOR THETA GAMMA OF DELTA ZETA HOUSE CORP." DATED AUGUST 4, 1980 BY JOHN W. DURGIN ASSOCIATES, INC. S.C.R.D. DRAWER 21, PLAN 86.
  - "PLAN OF LAND FOR ERNEST CUTLER" DATED OCTOBER 1917 BY JOHN W. DURGIN ASSOCIATES, INC.
  - "UNIVERSITY OF NEW HAMPSHIRE GARRISON AVENUE AREA" DATED SEPTEMBER 16, 1957 BY G.L. DAVIS & ASSOCIATES.

2  
12-10

**Plant List**

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
<b>TREES</b>					
Am	<i>Amelanchier x grandiflora</i> 'Autumn Brilliance'	Autumn Brilliance Serviceberry	1	8-10' ht.	multistemmed B&B
Bn	<i>Betula nigra</i> 'Heritage'	Heritage River Birch	4	10-12' ht.	multistemmed B&B
Ham	<i>Hamamelis x intermedia</i> 'Arnold promise'	Arnold Promise Witchhazel	1	7-8' ht.	multistemmed B&B
Sh	<i>Salix nigra</i>	Black Willow	1	2.5-3' cal.	BB
Uap	<i>Ulmus americana</i> 'Princeton'	Princeton American Elm	4	2.5-3' cal.	BB
<b>SHRUBS</b>					
CL	<i>Clethra alnifolia</i> 'Hummingbird'	Hummingbird Compact Summersweet	5	3 gal	full
Hyl	<i>Hydrangea arborescens</i> 'Incrediball'	Incrediball Hydrangea	10	7gal	BB
Imb	<i>Ilex meservei</i> 'Blue Mist'	Blue Mist Holly (female conical)	1	4.5' ht.	BB
Imc	<i>Ilex meservei</i> 'China Girl'	China Girl Holly	1	2.5-3'	BB
Jcsg	<i>Juniperus chinensis</i> 'Seagreen'	Seagreen Juniper	6	7.8' ht.	BB
Tax	<i>Taxus media</i> 'Ever-Low'	Ever-Low Yew	12	16'24" wide	BB
<b>PERENNIALS, GROUNDCOVERS, VINES AND ANNUALS</b>					
VM	<i>Vinca minor</i> 'Bowles'	Bowles Periwinkle	500	2.25" pots	



SEAL:

**PRELIMINARY**



2	MAR 11, 2020	PRELIMINARY	
1	MAR 6, 2020	PRELIMINARY	
ISS. DATE:	DESCRIPTION OF ISSUE:		CHK.
DRAWN:	JJM	DESIGN:	JJM
CHECKED:	BDS	CHECKED:	BDS



CLIENT:

**RICHMOND PROPERTY GROUP**  
333 N. ALABAMA ST.  
INDIANAPOLIS, IN 46204

TITLE:

**PRELIMINARY LANDSCAPE CONCEPT FOR RICHMOND PROPERTY GROUP ELIZABETH DEMERRITT HOUSE 18 GARRISON AVENUE (SITE) DURHAM, NH 03824**

PROJECT:	SCALE:	SHEET:
19-083	1"=20'	L-1















