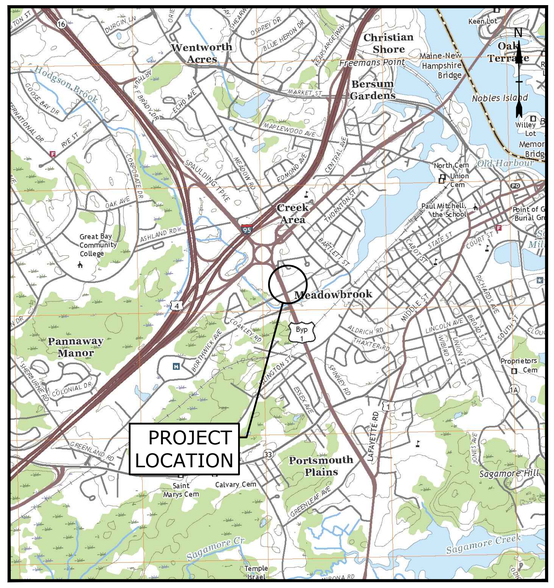
PROPOSED MEDICAL OFFICE BUILDING

185 COTTAGE STREET
PORTSMOUTH, NEW HAMPSHIRE
PERMIT DESIGN DRAWINGS
AUGUST 20, 2018

LAST REVISED: OCTOBER 9, 2018

LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	10/09/2018
1 OF 1	EXISTING CONDITIONS PLAN	08/14/2018
C-101	DEMOLITION PLAN	10/09/2018
C-102	SITE PLAN	10/09/2018
C-103	GRADING, DRAINAGE & EROSION CONTROL PLAN	10/09/2018
C-104	UTILITIES PLAN	10/09/2018
C-105	LANDSCAPE PLAN	10/09/2018
C-106	PHOTOMETRICS PLAN	10/09/2018
C-501	EROSION CONTROL NOTES SHEET	10/09/2018
C-502	DETAILS SHEET	10/09/2018
C-503	DETAILS SHEET	10/09/2018
C-504	DETAILS SHEET	10/09/2018
C-505	DETAILS SHEET	10/09/2018
C-506	DETAILS SHEET	10/09/2018
A301	EXTERIOR ELEVATIONS	08/15/2018

LIST OF PERMITS & APPROVALS		
LOCAL	STATUS	DATE
SITE PLAN REVIEW PERMIT	PENDING	
ZONING BOARD OF ADJUSTMENT - VARIANCE FOR USE	APPROVED	6/26/2018



LOCATION MAP
SCALE: 1" = 2,000'

CONSTRUCTION NOTES:
1. THE CONTRACTOR SHALL NOT RELY ON SCALED DIMENSIONS AND SHALL CONTACT THE ENGINEER FOR CLARIFICATION IF A REQUIRED DIMENSION IS NOT PROVIDED ON THE PLANS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, AND FOR SITE CONDITIONS THROUGHOUT CONSTRUCTION. NEITHER THE PLANS NOR THE SEAL OF THE ENGINEER AFFIXED HEREON EXTEND TO OR INCLUDE SYSTEMS REQUIRED FOR THE SAFETY OF THE CONTRACTOR, THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND IMPLEMENTING SAFETY PROCEDURES AND SYSTEMS AS REQUIRED BY THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AND ANY STATE OR LOCAL SAFETY REGULATIONS.
3. TIGHE & BOND. ASSUMES NO RESPONSIBILITY FOR ANY ISSUES LEGAL OR OTHERWISE, RESULTING FROM CHANGES MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION OF TIGHE & BOND.

PREPARED BY:

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102 Kent Place
Newmarket, NH 03110

ARCHITECH:
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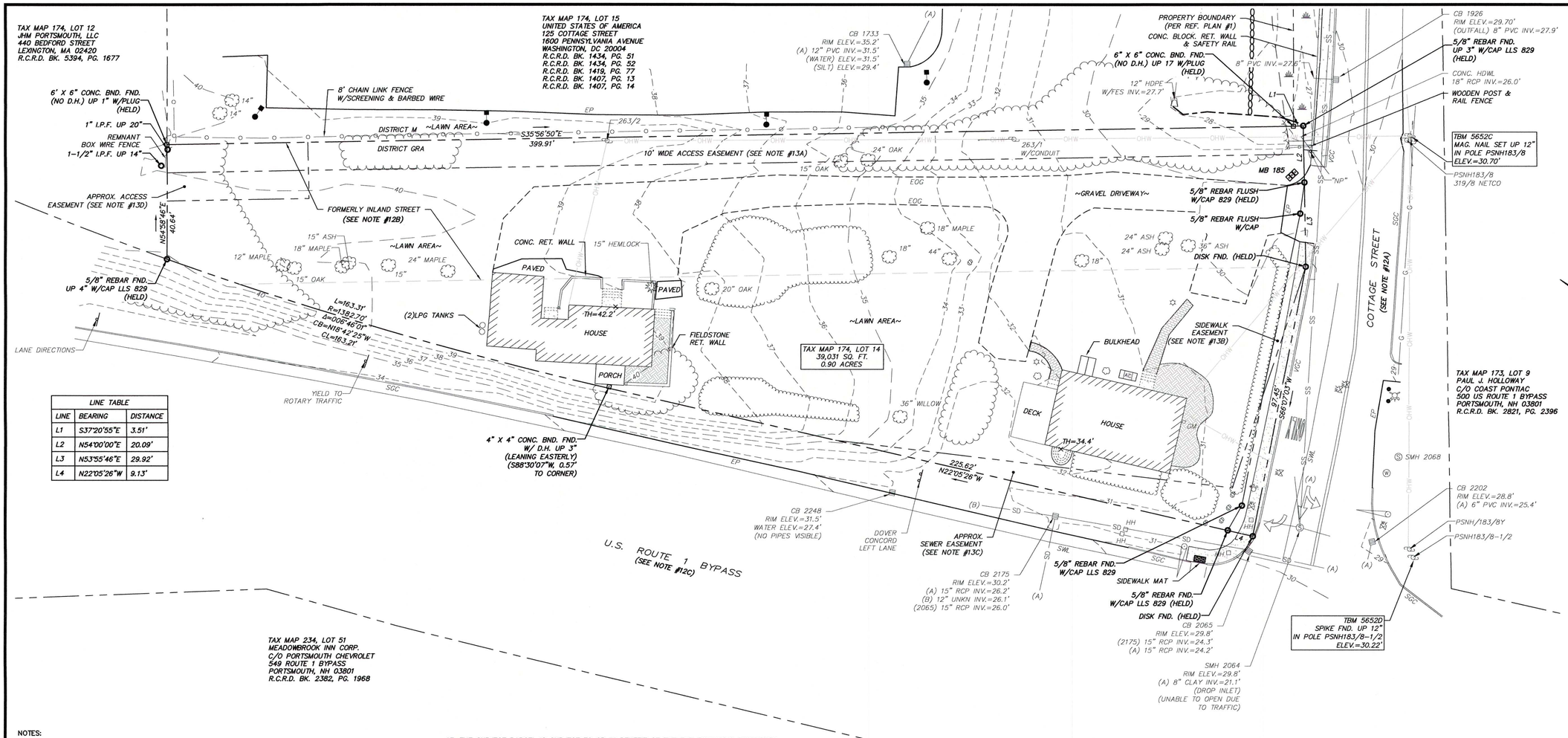
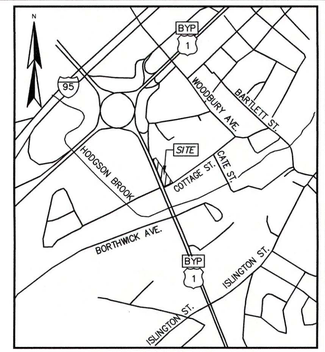
Portsmouth, NH 03801

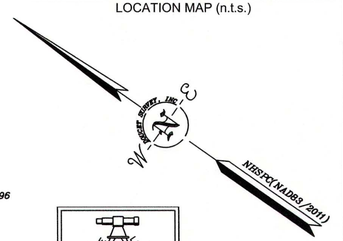
COMPLETE SET 15 SHEETS



LINE TABLE		
LINE	BEARING	DISTANCE
L1	S37°20'55"E	3.51'
L2	N54°00'00"E	20.09'
L3	N53°55'46"E	29.92'
L4	N22°05'26"W	9.13'



LOCATION MAP (n.t.s.)



I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE (NHRSA TITLE LXIV) 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 1:15,000.

L.L.S. #989

5/14/18 DATE

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.

20 0 20 40
SCALE: 1 INCH = 20 FT.

NOTES:

1. REFERENCE: TAX MAP 174, LOT 14
2. PARCEL AREA: 39,031 SQ. FT. OR 0.90 AC.
3. OWNER OF RECORD: COLMAN C. GARLAND
   416 SADDLEBACK DRIVE
   FAIRVIEW, TX 75069
   R.C.R.D. BOOK 2232, PAGE 1002
4. DISTRICT: GRA, GENERAL RESIDENCE A
   DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA	7,500 sq.ft.
MIN. FRONTAGE	100 ft.
MIN. DEPTH	70 ft.
MIN. FRONT SETBACK	15 ft.
MIN. SIDE SETBACK	10 ft.
MIN. REAR SETBACK	20 ft.
MAX. BUILDING HEIGHT	35 ft. (SLOPED ROOF)
	30 ft. (FLAT ROOF)
MAX. BUILDING COVERAGE	25 %

   ZONING INFORMATION LISTED HEREON IS BASED ON THE CITY OF PORTSMOUTH ZONING ORDINANCE AS AMENDED JANUARY 9, 2017 AS AVAILABLE ON THE CITY WEBSITE ON JULY 17, 2018. ADDITIONAL REGULATIONS APPLY, AND REFERENCE IS HEREBY MADE TO THE EFFECTIVE ZONING ORDINANCE. THE LAND OWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE MUNICIPAL, STATE AND FEDERAL REGULATIONS.
5. FIELD SURVEY PERFORMED BY E.J.S. & S.J.H. DURING MARCH 2017 AND BY L.P.S. & S.N.F. DURING JULY 2018 USING A TRIMBLE S6 TOTAL STATION WITH A TRIMBLE TSC3 DATA COLLECTOR AND A SOKKIA B21 AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.
6. HORIZONTAL DATUM BASED ON NEW HAMPSHIRE STATE PLANE(2800) NAD83(2011) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.
7. VERTICAL DATUM IS BASED ON NGVD29 PER DISK V 28 1942 ELEV. 25.59.
8. FLOOD HAZARD ZONE: "X", PER FIRM MAP 330150259E, DATED 05/17/05.
9. 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.
10. DUE TO THE COMPLEXITY OF RESEARCHING ROAD RECORDS AS A RESULT OF INCOMPLETE, UNORGANIZED, INCONCLUSIVE, OBLITERATED, OR LOST DOCUMENTS, THERE IS AN INHERENT UNCERTAINTY INVOLVED WHEN ATTEMPTING TO DETERMINE THE LOCATION AND WIDTH OF A ROADWAY RIGHT OF WAY. THE EXTENT OF THE ROUTE 1 BY-PASS AND COTTAGE STREET AS DEPICTED HEREON ARE BASED ON RESEARCH CONDUCTED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS, THE PORTSMOUTH CITY HALL AND THE NH DEPARTMENT OF TRANSPORTATION.
11. WETLANDS WERE NOT DELINEATED ON THIS SITE. OBSERVED EDGE OF WATER SHOWN IS BASED ON AN APPROXIMATE LOCATION BY DOUCET SURVEY.
12. RIGHT OF WAYS
    A. COTTAGE STREET IS A 50' WIDE RIGHT OF WAY PER R.C.R.D. PLAN 223.
    B. TITLE TO LAND THAT WAS FORMERLY KNOWN AS INLAND STREET WAS OBTAINED BY JANE GARLAND PER SUPERIOR COURT DECREE DESCRIBED IN R.C.R.D. BOOK 2232, PAGE 1002.
    C. U.S. ROUTE 1 BYPASS IS A 100' WIDE RIGHT OF WAY PER REFERENCE PLAN #7.
13. THE SUBJECT PARCEL IS SUBJECT TO OR IN BENEFIT OF THE THE FOLLOWING EASEMENTS:
    A. 10' WIDE ACCESS EASEMENT IN FAVOR OF TAX MAP 174, LOT 15, PER R.C.R.D. BOOK 2232, PAGE 1640.
    B. SIDEWALK EASEMENT IN FAVOR OF THE CITY OF PORTSMOUTH, PER R.C.R.D. BOOK 5496, PAGE 324. SEE ADDITIONAL RIGHTS LISTED IN THE REFERENCED DEED.
    C. SEWER EASEMENT IN FAVOR OF THE CITY OF PORTSMOUTH, PER R.C.R.D. BOOK 1281, PAGE 268.
    D. ACCESS EASEMENT, PER R.C.R.D. BOOK 2232, PAGE 1122. ASSESSORS LOT PLAN #211 AS REFERENCED HAS NOT BEEN LOCATED. APPROXIMATE LOCATION OF EASEMENT IS SHOWN PER REFERENCE PLAN #2.
14. PROPER FIELD PROCEDURES WERE FOLLOWED IN ORDER TO GENERATE CONTOURS AT 1' INTERVALS. ANY MODIFICATION OF THIS INTERVAL WILL DIMINISH THE INTEGRITY OF THE DATA, AND DOUCET SURVEY, INC. WILL NOT BE RESPONSIBLE FOR ANY SUCH ALTERATION PERFORMED BY THE USER.
15. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON OBSERVABLE PHYSICAL EVIDENCE AND PAINT MARKS FOUND ON-SITE.
16. 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.
17. ALL ELECTRIC, GAS, TEL. WATER, SEWER AND DRAIN SERVICES ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN ON THIS SITE 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:

1. "BOUNDARY SURVEY USARC 99TH RSC EAST PREPARED FOR UNITED STATES OF AMERICA", BY YORK LAND SERVICES, LLC, DATED AUGUST 27, 2009, R.C.R.D. PLAN D-36061.
2. "ALTA/ACSM LAND TITLE SURVEY IN PORTSMOUTH, NH FOR JHM PORTSMOUTH, LLC", BY ROBER SURVEY, R.C.R.D. PLAN D-38205.
3. "STANDARD PROPERTY SURVEY AND PROPOSED SIDEWALK EASEMENT FOR THE CITY OF PORTSMOUTH, FOR PROPERTY AT 185 COTTAGE STREET OWNED BY COLMAN C. GARLAND", BY EASTERLY SURVEYING, INC., DATED NOVEMBER 30, 2012, R.C.R.D. PLAN D-38017.
4. "STANDARD BOUNDARY SURVEY AND SUBDIVISION PLAN OF LAND, LOT 8, TAX MAP 173, 160 COTTAGE STREET PORTSMOUTH, NH", BY CIVILWORKS ENGINEERS & SURVEYORS, R.C.R.D. PLAN D-28981.
5. "SPADEA LOTS GARDEN STREET & CENTER STREET", BY JOHN W. DURGIN CIVIL ENGINEERS, DATED NOVEMBER 1950, R.C.R.D. PLAN 01676.
6. "PLAN OF A LOT OF LAND BELONGING TO FRANK JONES", DATED JULY 1901, R.C.R.D. PLAN 223.
7. "MAINE-NEW HAMPSHIRE INTERSTATE BRIDGE AUTHORITY, PISCATAQUA RIVER BRIDGE, KITTERY, MAINE-PORTSMOUTH, NEW HAMPSHIRE, RIGHT OF WAY MAPS, N.H. APPROACH, BY ALBERT MOULTON, CE, DATED 1954, ON FILE A THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.

LEGEND

LOT LINE	FIRE HYDRANT
APPROXIMATE ABUTTERS LOT LINE	WATER GATE VALVE
EASEMENT LINE	WATER SHUTOFF VALVE
STONE WALL	CATCH BASIN
CHAIN LINK FENCE	DRAIN MANHOLE
OHW OVERHEAD WIRE	FES FLARED END SECTION
SS SEWER LINE	WATER MANHOLE
SD DRAIN LINE	SEWER MANHOLE
G GAS LINE	HAND HOLE
30 MAJOR CONTOUR LINE	CONIFEROUS TREE
29 MINOR CONTOUR LINE	DECIDUOUS TREE
TREE LINE	MAST ARM
SHRUB LINE	TYP. TYPICAL
OBSERVED EDGE OF WATER	GRAN. GRANITE
STREAM	CONC. CONCRETE
CONCRETE	BND. FND. BOUND FOUND
LANDSCAPED AREA	D.H. DRILL HOLE
BRICK	I.P.F. IRON PIPE FOUND
UTILITY POLE	TH THRESHOLD
UTILITY POLE & GUY WIRE	E.P. EDGE OF PAVEMENT
LIGHT POLE (ONE ARM)	E.O.G. EDGE OF GRAVEL
SIGN	V.G.C. VERTICAL GRANITE CURB
SIGN (TWO POSTS)	S.G.C. SLOPED GRANITE CURB
BOUND FOUND	S.W.L. SINGLE WHITE LINE
IRON PIPE/ROD FOUND	D.Y.L. DOUBLE YELLOW LINE
BOLLARD	"NP" NO PARKING SIGN
WET AREA	

EXISTING CONDITIONS PLAN

FOR

TIGHE & BOND

LAND OF

COLMAN C. GARLAND

(TAX MAP 174, LOT 14)

185 COTTAGE STREET

PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY:	M.T.L.	DATE:	JULY 2018
CHECKED BY:	M.W.F.	DRAWING NO.:	5652A
JOB NO.:	5652	SHEET	1 OF 1

DOUCET SURVEY INC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857 (603) 659-6560
2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com

LEGEND

- APPROXIMATE LIMIT OF PROPOSED SAW CUT
- LIMIT OF WORK
- LOT LINE
- APPROXIMATE ABUTTERS LOT LINE
- EASEMENT LINE
- STONE WALL
- CHAIN LINK FENCE
- OVERHEAD WIRE
- SEWER LINE
- DRAIN LINE
- GAS LINE
- MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- TREE LINE
- SHRUB LINE
- OBSERVED EDGE OF WATER
- STREAM
- APPROXIMATE LIMIT OF PAVEMENT TO BE REMOVED
- BUILDING TO BE REMOVED
- LOCATION OF PROPOSED BUILDING
- CONCRETE
- LANDSCAPED AREA
- BRICK

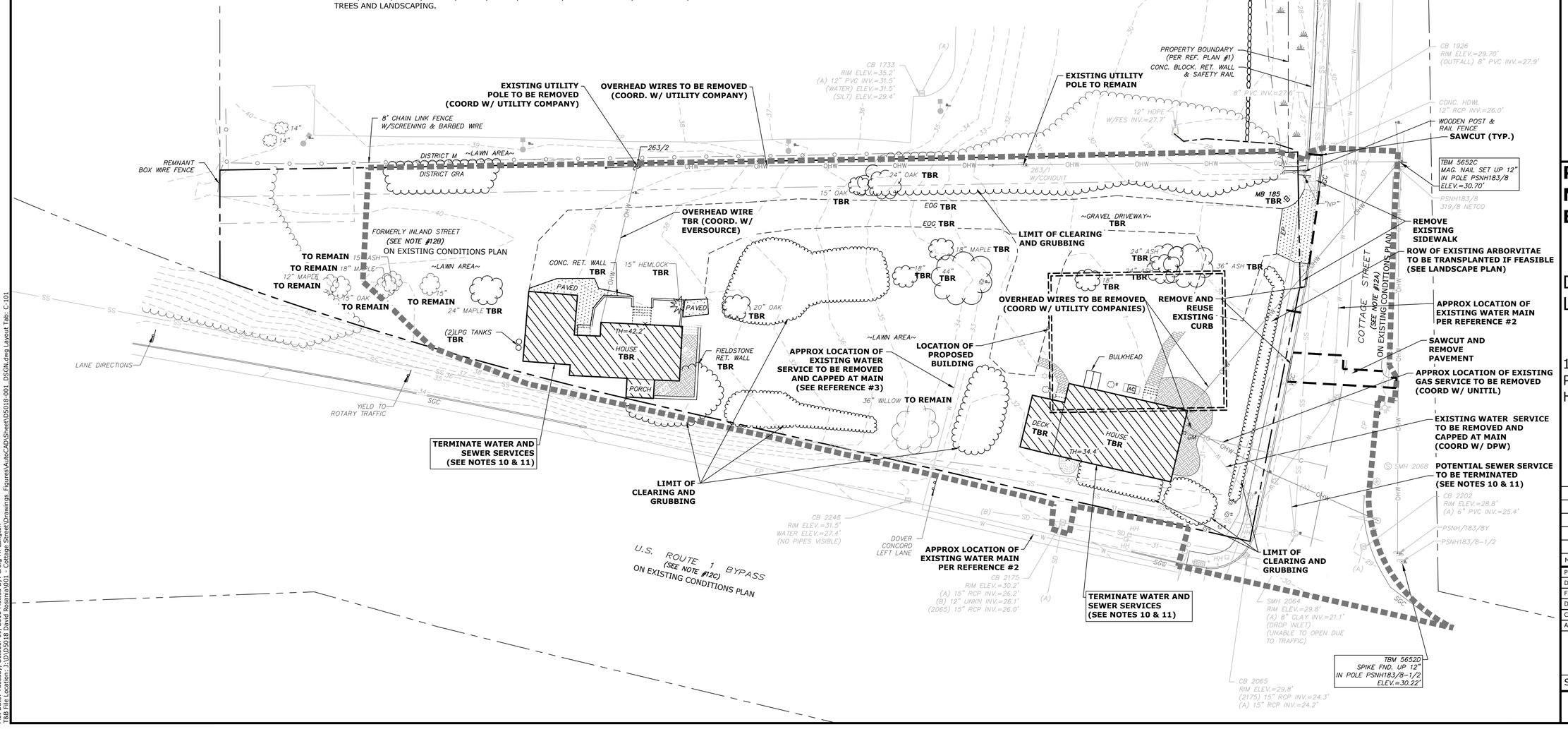
TBR	TO BE REMOVED
BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE

DEMOLITION NOTES:

1. THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
2. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
3. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.
4. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
5. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
6. SAW CUT AND REMOVE PAVEMENT ONE (1) FOOT OFF PROPOSED EDGE OF PAVEMENT OR EXISTING CURB LINE IN ALL AREAS WHERE PAVEMENT TO BE REMOVED ABUTS EXISTING PAVEMENT OR CONCRETE TO REMAIN.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
8. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.
10. UTILITIES SHALL BE TERMINATED AT THE MAIN LINE PER UTILITY COMPANY STANDARDS. THE CONTRACTOR SHALL REMOVE ALL ABANDONED UTILITIES LOCATED WITHIN THE LIMITS OF WORK.
11. CONTRACTOR SHALL VERIFY ORIGIN OF ALL DRAINS AND UTILITIES PRIOR TO TERMINATION AND REMOVAL.
12. PAVEMENT REMOVAL LIMITS ARE SHOWN FOR CONTRACTOR'S CONVENIENCE. ADDITIONAL PAVEMENT REMOVAL MAY BE REQUIRED DEPENDING ON THE CONTRACTOR'S OPERATION. CONTRACTOR TO VERIFY FULL LIMITS OF PAVEMENT REMOVAL PRIOR TO BID.
13. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE PADS, UTILITIES AND PAVEMENT WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: CONCRETE, PAVEMENT, CURBS, LIGHTING, MANHOLES, CATCH BASINS, UNDER GROUND PIPING, POLES, STAIRS, SIGNS, FENCES, RAMPS, WALLS, BOLLARDS, BUILDING SLABS, FOUNDATION, TREES AND LANDSCAPING.
14. COORDINATE ALL WORK WITHIN THE PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
15. REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL STUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
16. CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED BY BY THE CONTRACTOR, THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED SURVEYOR TO REPLACE DISTURBED MONUMENTS.
17. PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS/CURB INLETS WITHIN CONSTRUCTION LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT MAY RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
18. THE CONTRACTOR SHALL PHASE DEMOLITION AND CONSTRUCTION AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO EXISTING BUSINESSES AND HOMES THROUGHOUT THE CONSTRUCTION PERIOD. EXISTING BUSINESS AND HOME SERVICES INCLUDE, BUT ARE NOT LIMITED TO ELECTRICAL, COMMUNICATION, FIRE PROTECTION, DOMESTIC WATER AND SEWER SERVICES. TEMPORARY SERVICES, IF REQUIRED, SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. CONTRACTOR SHALL PROVIDE DETAILED CONSTRUCTION SCHEDULE TO OWNER PRIOR TO ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
19. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
20. THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFETY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.
21. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL UTILITIES TO BE REMOVED AND PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.
22. THE CONTRACTOR SHALL REMOVE AND SALVAGE EXISTING GRANITE CURB FOR REUSE.

REFERENCE:

1. EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY BY DOUCET SURVEY, INC., DATED JULY 2018.
2. CITY OF PORTSMOUTH GIS.
3. TIGHE & BOND FILED VERIFICATION OF DIG SAFE MARKINGS ON SEPTEMBER 18, 2018.



Last Save Date: October 9, 2018 10:11 AM By: CML
Plot Date: Tuesday, October 09, 2018 Plotted By: Craig M. Langton
T&B File Location: J:\D5018 David Rosania\001 - Cottage Street\Drawings, Figures\AutoCAD\Sheet\D5018-001_DSGN.dwg Layout Tab: C-101

Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE
BRADLEE NEZINSKA
No. 09690
LICENSED
PROFESSIONAL ENGINEER
10-9-18

STATE OF NEW HAMPSHIRE
PATRICK M CRIMMINS
No. 13276
LICENSED
PROFESSIONAL ENGINEER
10-9-18

SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Proposed Medical Office Building

DAR Real Estate, LLC

185 Cottage Street
Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	10/9/2018	PB Submission
B	9/18/2018	Revised TAC Submission
A	8/20/2018	TAC Submission

PROJECT NO:	D5108-001
DATE:	8/20/2018
FILE:	D5018-001_DSGN.DWG
DRAWN BY:	JPC/CML
CHECKED:	CML/PMC
APPROVED:	BLM

DEMOLITION PLAN

SCALE: AS SHOWN

C-101

LEGEND

- PROPERTY LINE
- PROPERTY LINE BUILDING SETBACK
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED FENCE LINE
- PROPOSED TREE LINE
- APPROXIMATE LIMIT OF PROPOSED SAW CUT
- PROPOSED BUILDING
- PROPOSED NO PARKING STRIPING
- PROPOSED CONCRETE SIDEWALK
- PROPOSED BITUMINOUS CONCRETE
- PROPOSED 1.5" MILL & WEARING COURSE OVERLAY
- PROPOSED BOLLARD
- BLDG — BUILDING
- TYP — TYPICAL
- COORD — COORDINATE
- CONST. — CONSTRUCT
- 30'R — PROPOSED CURB RADIUS
- VGC — PROPOSED VERTICAL GRANITE CURB
- SGC — PROPOSED SLOPED GRANITE CURB
- PROPOSED LIGHT POLE

SITE NOTES:

1. STRIPE PARKING AREAS AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, ADA SYMBOLS, PAINTED ISLANDS, CROSS WALKS, ARROWS, LEGENDS AND CENTERLINES SHALL BE THERMOPLASTIC MATERIAL. THERMOPLASTIC MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO AASHTO M249. (ALL MARKINGS EXCEPT CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT. CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT. ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE "F").
2. ALL PAVEMENT MARKINGS AND SIGNS TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS, LATEST EDITIONS.
3. SEE DETAILS FOR PARKING STALL MARKINGS, ADA SYMBOLS, SIGNS AND SIGN POSTS.
4. CENTERLINES SHALL BE FOUR (4) INCH WIDE YELLOW LINES. STOP BARS SHALL BE EIGHTEEN (18) INCHES WIDE.
5. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
6. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
7. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
8. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND CITY CODES & SPECIFICATIONS.
9. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
10. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
11. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR ALL CONCRETE PADS & SIDEWALKS ADJACENT TO BUILDING.
12. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS.
13. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
14. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING CONTRACTOR.
15. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
16. THE APPLICANT SHALL HAVE A COMMUNICATIONS SITE SURVEY CONDUCTED BY A MOTOROLA COMMUNICATIONS CARRIER APPROVED BY THE CITY'S COMMUNICATIONS DIVISION. THE RADIO COMMUNICATIONS CARRIER MUST BE FAMILIAR AND CONVERSANT WITH THE PORTSMOUTH POLICE AND FIRE RADIO SYSTEMS CONFIGURATION. IF THE SITE SURVEY INDICATES THAT IT IS NECESSARY TO INSTALL A SIGNAL REPEATER EITHER ON OR NEAR THE PROPOSED PROJECT, THOSE COSTS SHALL BE RESPONSIBILITY OF THE PROPERTY OWNER. THE PROPERTY OWNER WILL BE REQUIRED TO MAINTAIN ANY INSTALLED EQUIPMENT. THE PROPERTY OWNER SHALL BE RESPONSIBLE TO PAY FOR THE SITE SURVEY WHETHER OR NOT THE SURVEY INDICATES THAT EQUIPMENT IS NECESSARY. THE OWNER SHALL COORDINATE WITH THE SUPERVISOR OF RADIO COMMUNICATIONS FOR THE CITY. THE SURVEY SHALL BE COMPLETED AND THE REPORT PROVIDED TO THE FIRE DEPARTMENT. ALL REQUIRED EQUIPMENT SHALL BE INSTALLED, TESTED, AND ACCEPTED PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
17. APPLICANT SHALL BE RESPONSIBLE FOR IMPLEMENTING THE APPROVED OPERATION AND MAINTENANCE PLAN INCLUDING THE MAINTENANCE REQUIREMENTS FOR THE PROPOSED RAIN GARDEN AND FILTERRA BIORETENTION SYSTEM LISTED ON SHEET C-103.
18. REFUSE REMOVAL SHALL OCCUR OUTSIDE HOURS OF OPERATION TO ALLOW FOR VEHICULAR TURNING MOVEMENTS WITHOUT CONFLICTS TO PARKED CARS, AND SHALL COMPLY WITH THE CITY OF PORTSMOUTH NOISE ORDINANCE.
19. IF MECHANICAL UNITS ARE TO LOCATED AT GROUND LEVEL THE UTILITIES PLAN SHEET C-104 SHALL BE UPDATED TO SHOW THEM AND SUBMITTED TO THE CITY OF PORTSMOUTH PRIOR TO CONSTRUCTION.

SITE DATA:

LOCATION: TAX MAP 174, LOT 14
185 COTTAGE STREET
PORTSMOUTH, NEW HAMPSHIRE

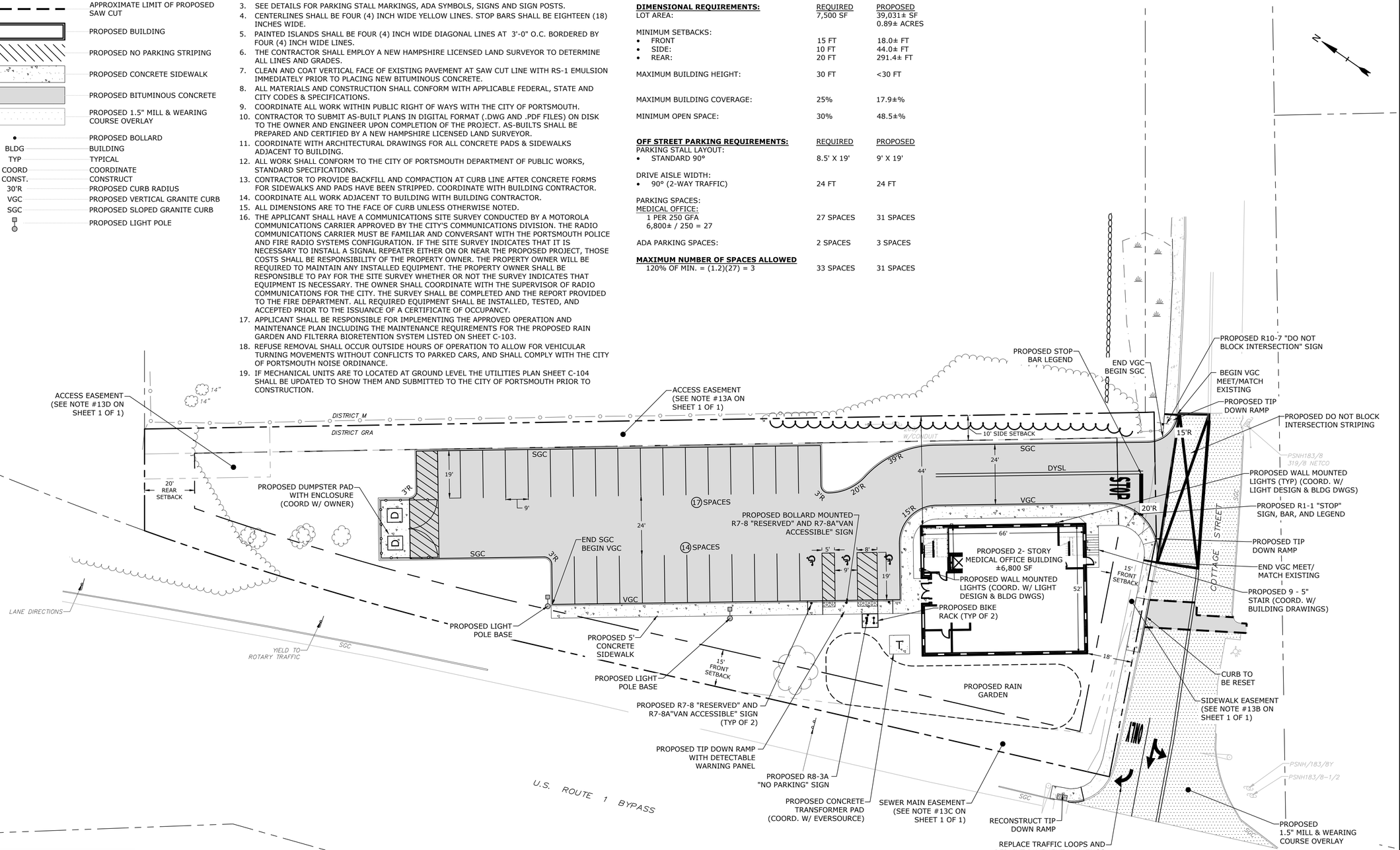
ZONING DISTRICT: GENERAL RESIDENCE A (GRA)

USE: MEDICAL OFFICE*

* USE VARIANCE GRANTED ON JUNE 26, 2018

DIMENSIONAL REQUIREMENTS:	REQUIRED	PROPOSED
LOT AREA:	7,500 SF	39,031± SF 0.89± ACRES
MINIMUM SETBACKS:		
• FRONT	15 FT	18.0± FT
• SIDE:	10 FT	44.0± FT
• REAR:	20 FT	291.4± FT
MAXIMUM BUILDING HEIGHT:	30 FT	<30 FT
MAXIMUM BUILDING COVERAGE:	25%	17.9±%
MINIMUM OPEN SPACE:	30%	48.5±%

OFF STREET PARKING REQUIREMENTS:	REQUIRED	PROPOSED
PARKING STALL LAYOUT:		
• STANDARD 90°	8.5' X 19'	9' X 19'
DRIVE AISLE WIDTH:		
• 90° (2-WAY TRAFFIC)	24 FT	24 FT
PARKING SPACES:		
MEDICAL OFFICE:		
1 PER 250 GFA 6,800± / 250 = 27	27 SPACES	31 SPACES
ADA PARKING SPACES:	2 SPACES	3 SPACES
MAXIMUM NUMBER OF SPACES ALLOWED		
120% OF MIN. = (1.2)(27) = 3	33 SPACES	31 SPACES



1. THE SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS
2. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR

ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS

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STATE OF NEW HAMPSHIRE — PATRICK M CRIMMINS No. 18276 — LICENSED PROFESSIONAL ENGINEER — 10-9-18

SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Proposed Medical Office Building

DAR Real Estate, LLC

185 Cottage Street
Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	10/9/2018	PB Submission
B	9/18/2018	Revised TAC Submission
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CHECKED:	CML/PMC
APPROVED:	BLM

SITE PLAN

SCALE: AS SHOWN

C-102

Last Save Date: October 9, 2018 10:11 AM By: CML
Plot Date: Tuesday, October 09, 2018 Plotted By: Craig M. Langton
T&B File Location: J:\D5018 David Rosania\001 - Cottage Street\Drawings, Figures\AutoCAD\Sheet\D5018-001_DSGN.dwg Layout Tab: C-102

LEGEND

- PROPOSED MAJOR CONTOUR LINE (7)
- PROPOSED MINOR CONTOUR LINE (6)
- PROPOSED DRAIN LINE (TYP)
- PROPOSED SILT SOCK
- INLET PROTECTION SILT SACK
- PROPOSED CATCHBASIN
- PROPOSED DOUBLE GRATE CATCHBASIN
- PROPOSED DRAIN MANHOLE
- PROPOSED SLOPE (2%)
- PROPOSED SPOT GRADE (29.90)
- PROPOSED RIP RAP
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- BLDG — BUILDING
- TYP — TYPICAL
- COORD — COORDINATE

GRADING AND DRAINAGE NOTES:

1. COMPACTION REQUIREMENTS:

BELOW PAVED OR CONCRETE AREAS	95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%

   * ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.
2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL) OR RCP CLASS IV, UNLESS OTHERWISE SPECIFIED.
3. SEE UTILITY PLAN FOR ALL SITE UTILITY INFORMATION.
4. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
5. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
6. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS AND DRAIN LINES, WITHIN THE LIMIT OF WORK, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
7. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
9. ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
10. ALL PROPOSED CATCH BASINS SHALL BE EQUIPPED WITH OIL/GAS SEPARATOR HOODS AND 4' SUMPS.
11. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS AND CONSTRUCTION SPECIFICATIONS, LATEST REVISIONS.
12. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
13. SEE EXISTING CONDITIONS PLAN FOR BENCH MARK INFORMATION.
14. LOCATION OF EXISTING UTILITIES MAY VARY AND CONNECTION LOCATION SHALL BE VERIFIED IN FIELD

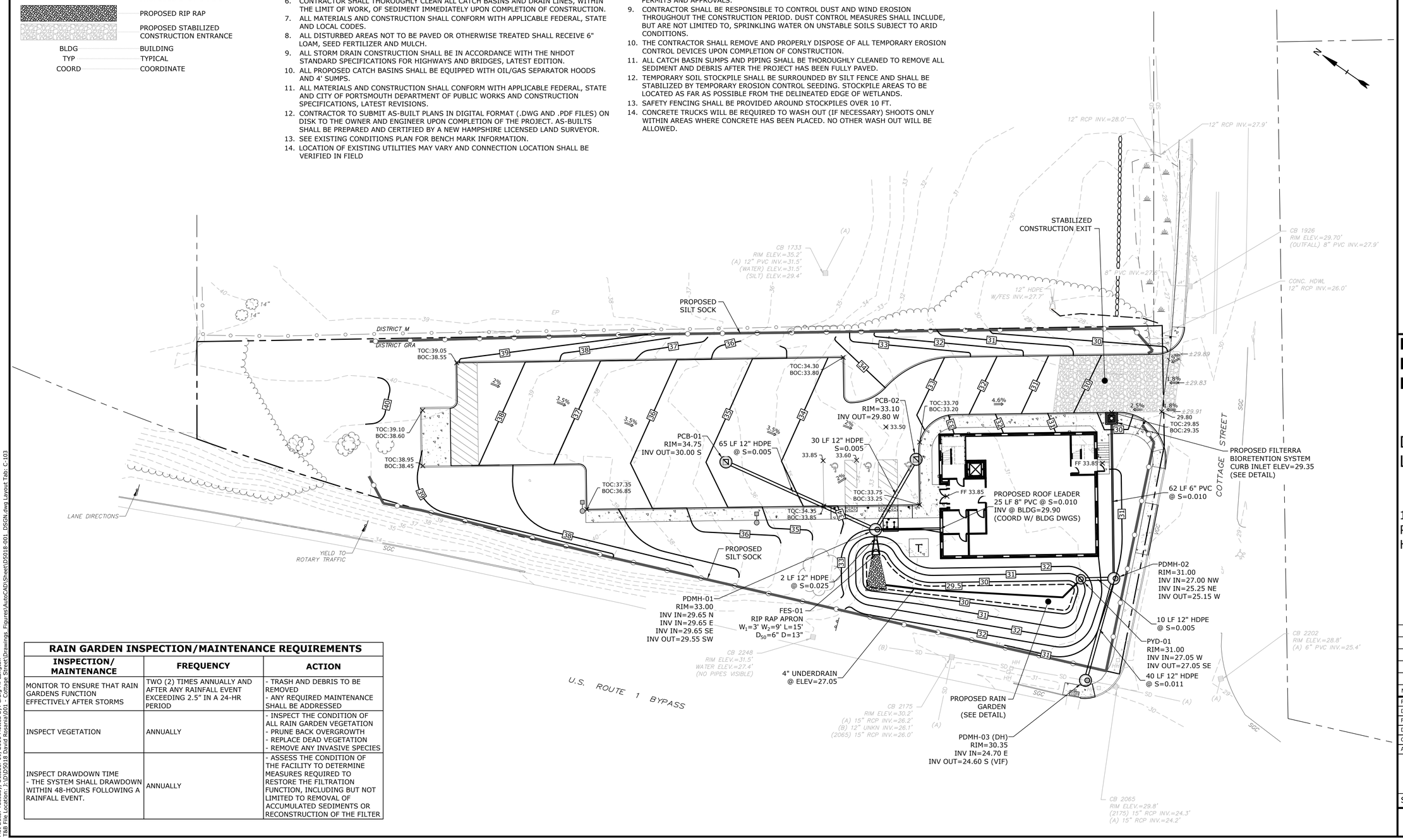
EROSION CONTROL NOTES:

1. INSTALL EROSION CONTROL BARRIERS AS SHOWN AS FIRST ORDER OF WORK.
2. SEE GENERAL EROSION CONTROL NOTES ON "EROSION CONTROL NOTES & DETAILS SHEET".
3. PROVIDE INLET PROTECTION AROUND ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS. MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED.
4. INSTALL STABILIZED CONSTRUCTION ENTRANCES.
5. INSPECT INLET PROTECTION AND PERIMETER EROSION CONTROL MEASURES DAILY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
6. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED, FERTILIZER AND MULCH.
7. CONSTRUCT EROSION CONTROL BLANKET ON ALL SLOPES STEEPER THAN 3:1.
8. PRIOR TO ANY WORK OR SOIL DISTURBANCE COMMENCING ON THE SUBJECT PROPERTY, INCLUDING MOVING OF EARTH, THE APPLICANT SHALL INSTALL ALL EROSION AND SILTATION MITIGATION AND CONTROL MEASURES AS REQUIRED BY STATE AND LOCAL PERMITS AND APPROVALS.
9. CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE CONSTRUCTION PERIOD. DUST CONTROL MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, SPRINKLING WATER ON UNSTABLE SOILS SUBJECT TO ARID CONDITIONS.
10. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
11. ALL CATCH BASIN SUMPS AND PIPING SHALL BE THOROUGHLY CLEANED TO REMOVE ALL SEDIMENT AND DEBRIS AFTER THE PROJECT HAS BEEN FULLY PAVED.
12. TEMPORARY SOIL STOCKPILE SHALL BE SURROUNDED BY SILT FENCE AND SHALL BE STABILIZED BY TEMPORARY EROSION CONTROL SEEDING. STOCKPILE AREAS TO BE LOCATED AS FAR AS POSSIBLE FROM THE DELINEATED EDGE OF WETLANDS.
13. SAFETY FENCING SHALL BE PROVIDED AROUND STOCKPILES OVER 10 FT.
14. CONCRETE TRUCKS WILL BE REQUIRED TO WASH OUT (IF NECESSARY) SHOOTS ONLY WITHIN AREAS WHERE CONCRETE HAS BEEN PLACED. NO OTHER WASH OUT WILL BE ALLOWED.

FILTERRA BIORETENTION SYSTEM INSPECTION & MAINTENANCE REQUIREMENTS*

INSPECTION/ MAINTENANCE	FREQUENCY	ACTION
VISUAL INSPECTION	TWO (2) TIMES ANNUALLY	• REMOVE TRASH AND DEBRIS AS NEEDED. • REMOVE ACCUMULATED SEDIMENT. • TRASH AND DEBRIS SHOULD BE REMOVED, AND MULCH COVER RAKED LEVEL. ENSURE BARK NUGGET MULCH IS NOT USED. • REPLACE MULCH AS A MINIMUM, IF PONDING OBSERVED. • TRIM/PRUNE PLANTS IN ACCORDANCE WITH TYPICAL LANDSCAPING AND SAFETY NEEDS.

* FILTERRA BIORETENTION SYSTEM OPERATION AND MAINTENANCE REQUIRE SHALL MEET OR EXCEED THE MANUFACTURES REQUIREMENTS.



RAIN GARDEN INSPECTION/MAINTENANCE REQUIREMENTS

INSPECTION/ MAINTENANCE	FREQUENCY	ACTION
MONITOR TO ENSURE THAT RAIN GARDENS FUNCTION EFFECTIVELY AFTER STORMS	TWO (2) TIMES ANNUALLY AND AFTER ANY RAINFALL EVENT EXCEEDING 2.5" IN A 24-HR PERIOD	- TRASH AND DEBRIS TO BE REMOVED - ANY REQUIRED MAINTENANCE SHALL BE ADDRESSED
INSPECT VEGETATION	ANNUALLY	- INSPECT THE CONDITION OF ALL RAIN GARDEN VEGETATION - PRUNE BACK OVERGROWTH - REPLACE DEAD VEGETATION - REMOVE ANY INVASIVE SPECIES
INSPECT DRAWDOWN TIME - THE SYSTEM SHALL DRAWDOWN WITHIN 48-HOURS FOLLOWING A RAINFALL EVENT.	ANNUALLY	- ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE THE FILTRATION FUNCTION, INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER

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SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

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APPROVED:	BLM

GRADING, DRAINAGE & EROSION CONTROL PLAN

SCALE: AS SHOWN

C-103

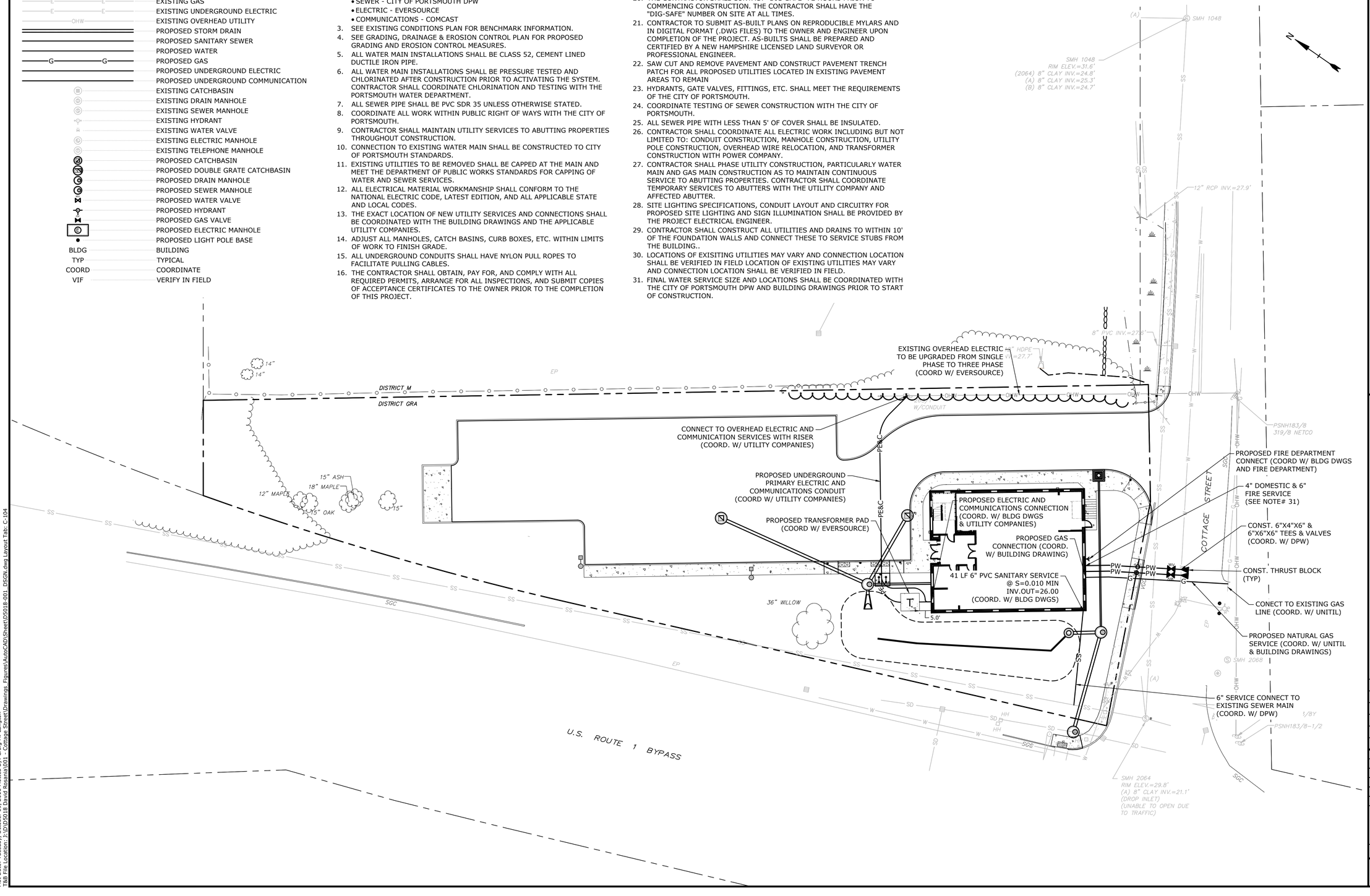
Last Save Date: October 9, 2018 10:11 AM By: CML
Plot Date: Tuesday, October 09, 2018 Plotted By: Craig M. Langton
T&B File Location: J:\D5018 David Rosania\001 - Cottage Street\Drawings, Figures\AutoCAD\Sheet\D5018-001_DSGN.dwg Layout Tab: C-103

LEGEND

- MATCH LINE
- EXISTING STORM DRAIN
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER TO BE REMOVED
- EXISTING SANITARY SEWER TO BE ABANDONED
- EXISTING WATER
- EXISTING GAS
- EXISTING UNDERGROUND ELECTRIC
- EXISTING OVERHEAD UTILITY
- PROPOSED STORM DRAIN
- PROPOSED SANITARY SEWER
- PROPOSED WATER
- PROPOSED GAS
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED UNDERGROUND COMMUNICATION
- EXISTING CATCHBASIN
- EXISTING DRAIN MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING ELECTRIC MANHOLE
- EXISTING TELEPHONE MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED DOUBLE GRATE CATCHBASIN
- PROPOSED DRAIN MANHOLE
- PROPOSED SEWER MANHOLE
- PROPOSED WATER VALVE
- PROPOSED HYDRANT
- PROPOSED GAS VALVE
- PROPOSED ELECTRIC MANHOLE
- PROPOSED LIGHT POLE BASE
- BLDG — BUILDING
- TYP — TYPICAL
- COORD — COORDINATE
- VIF — VERIFY IN FIELD

UTILITY NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
   - NATURAL GAS -UNITIL
   - WATER - CITY OF PORTSMOUTH DPW
   - SEWER - CITY OF PORTSMOUTH DPW
   - ELECTRIC - EVERSOURCE
   - COMMUNICATIONS - COMCAST
3. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
4. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
5. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, CEMENT LINED DUCTILE IRON PIPE.
6. ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE PORTSMOUTH WATER DEPARTMENT.
7. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
8. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
9. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
10. CONNECTION TO EXISTING WATER MAIN SHALL BE CONSTRUCTED TO CITY OF PORTSMOUTH STANDARDS.
11. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
12. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
13. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
14. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
15. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
16. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.
17. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
18. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
19. A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS.
20. THE CONTRACTOR SHALL CONTACT "DIG-SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL HAVE THE "DIG-SAFE" NUMBER ON SITE AT ALL TIMES.
21. CONTRACTOR TO SUBMIT AS-BUILT PLANS ON REPRODUCIBLE MYLARS AND IN DIGITAL FORMAT (.DWG FILES) TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR OR PROFESSIONAL ENGINEER.
22. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
23. HYDRANTS, GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
24. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
25. ALL SEWER PIPE WITH LESS THAN 5' OF COVER SHALL BE INSULATED.
26. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
27. CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
28. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER.
29. CONTRACTOR SHALL CONSTRUCT ALL UTILITIES AND DRAINS TO WITHIN 10' OF THE FOUNDATION WALLS AND CONNECT THESE TO SERVICE STUBS FROM THE BUILDING..
30. LOCATIONS OF EXISITING UTILITIES MAY VARY AND CONNECTION LOCATION SHALL BE VERIFIED IN FIELD LOCATION OF EXISTING UTILITIES MAY VARY AND CONNECTION LOCATION SHALL BE VERIFIED IN FIELD.
31. FINAL WATER SERVICE SIZE AND LOCATIONS SHALL BE COORDINATED WITH THE CITY OF PORTSMOUTH DPW AND BUILDING DRAWINGS PRIOR TO START OF CONSTRUCTION.



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UTILITIES PLAN

SCALE: AS SHOWN

C-104

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T&B File Location: J:\D\D5018 David Rossini\001 - Cottage Street\Drawings, Figures\AutoCAD\Sheet\D5018-001_DSGN.dwg Layout Tab: C-104

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL FURNISH AND PLANT ALL PLANTS IN QUANTITIES AS SHOWN ON THIS PLAN. NO SUBSTITUTIONS WILL BE PERMITTED UNLESS APPROVED BY OWNER. ALL PLANTS SHALL BE NURSERY GROWN.
2. ALL PLANTS SHALL BE NURSERY GROWN AND PLANTS AND WORKMANSHIP SHALL CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS, INCLUDING BUT NOT LIMITED TO SIZE, HEALTH, SHAPE, ETC., AND SHALL BE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO ARRIVAL ON-SITE AND AFTER PLANTING.
3. PLANT STOCK SHALL BE GROWN WITHIN THE HARDINESS ZONES 4 THRU 7 ESTABLISHED BY THE PLANT HARDINESS ZONE MAP, MISCELLANEOUS PUBLICATIONS NO. 814, AGRICULTURAL RESEARCH SERVICE, UNITED STATES DEPARTMENT AGRICULTURE, LATEST REVISION.
4. PLANT MATERIAL SHALL BARE THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL PLANTING GRADE PRIOR TO DIGGING.
5. THE NUMBER OF EACH INDIVIDUAL PLANT TYPE AND SIZE PROVIDED IN THE PLANT LIST OR ON THE PLAN IS FOR THE CONTRACTOR'S CONVENIENCE ONLY. IF A DISCREPANCY EXISTS BETWEEN THE NUMBER OF PLANTS ON THE LABEL AND THE NUMBER OF SYMBOLS SHOWN ON THE DRAWINGS, THE GREATER NUMBER SHALL APPLY.
6. NO SUBSTITUTION OF PLANT MATERIALS WILL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE.
7. THE CONTRACTOR SHALL LOCATE, VERIFY AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTING AND UTILITIES SHALL IMMEDIATELY BE REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED, SHALL RECEIVE 6" OF LOAM AND SEED. NO FILL SHALL BE PLACED IN ANY WETLAND AREA.
9. THREE INCHES (3") OF BARK MULCH IS TO BE USED AROUND THE TREE AND SHRUB PLANTING AS SPECIFIED IN THE DETAILS. WHERE BARK MULCH IS TO BE USED IN A CURBED ISLAND THE BARK MULCH SHALL MEET THE TOP INSIDE EDGE OF THE CURB. ALL OTHER AREAS SHALL RECEIVE 6" INCHES OF LOAM AND SEED.
10. LANDSCAPING SHALL BE LOCATED WITHIN 150 FT OF EXTERIOR HOSE ATTACHMENT OR SHALL BE PROVIDED WITH AN IRRIGATION SYSTEM.
11. SEE PLANTING DETAILS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
12. TREE STAKES SHALL REMAIN IN PLACE FOR NO LESS THAN 6 MONTHS AND NO MORE THAN 1 YEAR.
13. PLANTING SHALL BE COMPLETED FROM APRIL 15TH THROUGH OCTOBER 1ST. NO PLANTING DURING JULY AND AUGUST UNLESS SPECIAL PROVISIONS ARE MADE FOR DROUGHT.
14. PARKING AREA PLANTED ISLANDS TO HAVE MINIMUM OF 1'-0" TOPSOIL PLACED TO WITHIN 3 INCHES OF THE TOP OF CURB ELEVATION. REMOVE ALL CONSTRUCTION DEBRIS BEFORE PLACING TOPSOIL.
15. TREES SHALL BE PRUNED IN ACCORDANCE WITH THE LATEST EDITION OF ANSI A300 'TREES, SHRUBS AND OTHER WOOD PLANT MAINTENANCE STANDARD PRACTICES.
16. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24 HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN, IF NECESSARY DURING THE FIRST GROWING SEASON. LANDSCAPE CONTRACTOR SHALL COORDINATE WATERING SCHEDULE WITH OWNER DURING THE ONE (1) YEAR GUARANTEE PERIOD.
17. EXISTING TREES AND SHRUBS SHOWN ON THE PLAN ARE TO REMAIN UNDISTURBED. ALL EXISTING TREES AND SHRUBS SHOWN TO REMAIN ARE TO BE PROTECTED WITH A 4-FOOT SNOW FENCE PLACED AT THE DRIP LINE OF THE BRANCHES OR AT 8 FEET MINIMUM FROM THE TREE TRUNK. ANY EXISTING TREE OR SHRUB SHOWN TO REMAIN, WHICH IS REMOVED DURING CONSTRUCTION, SHALL BE REPLACED BY A TREE OF COMPARABLE SIZE AND SPECIES TREE OR SHRUB.
18. THE CONTRACTOR SHALL GUARANTEE ALL PLANTINGS TO BE IN GOOD HEALTHY, FLOURISHING AND ACCEPTABLE CONDITION FOR A PERIOD OF ONE (1) YEAR BEGINNING AT THE DATE OF ACCEPTANCE OF SUBSTANTIAL COMPLETION. ALL GRASSES, TREES AND SHRUBS THAT, IN THE OPINION OF THE LANDSCAPE ARCHITECT, SHOW LESS THAN 80% HEALTHY GROWTH AT THE END OF ONE YEAR PERIOD SHALL BE REPLACED BY THE CONTRACTOR.
19. UPON EXPIRATION OF THE CONTRACTOR'S ONE YEAR GUARANTEE PERIOD, THE OWNER SHALL BE RESPONSIBLE FOR LANDSCAPE MAINTENANCE INCLUDING WATERING DURING PERIODS OF DROUGHT
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED AND CONTINUE UNTIL THE FORMAL ACCEPTANCE OF ALL THE PLANTINGS.
21. PRE-PURCHASE PLANT MATERIAL AND ARRANGE FOR DELIVERY TO MEET PROJECT SCHEDULE AS REQUIRED IT MAY BE NECESSARY TO PRE-DIG CERTAIN SPECIES WELL IN ADVANCE OF ACTUAL PLANTING DATES.
22. THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS SHALL BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR AND REPLACEMENT OF ALL REQUIRED SCREENING AND LANDSCAPE MATERIALS.
23. ALL REQUIRED PLANT MATERIALS SHALL BE TENDED AND MAINTAINED IN A HEALTHY GROWING CONDITION, REPLACED WHEN NECESSARY, AND KEPT FREE OF REUSE AND DEBRIS. ALL REQUIRED FENCES AND WALLS SHALL BE MAINTAINED IN GOOD REPAIR.
24. THE PROPERTY OWNER SHALL BE RESPONSIBLE TO REMOVE AND REPLACE DEAD OR DISEASED PLANT MATERIALS IMMEDIATELY WITH THE SAME TYPE, SIZE AND QUANTITY OF PLANT MATERIALS AS ORIGINALLY INSTALLED, UNLESS ALTERNATIVE PLANTINGS ARE REQUESTED, JUSTIFIED AND APPROVED BY THE PLANNING BOARD OR PLANNING DIRECTOR.

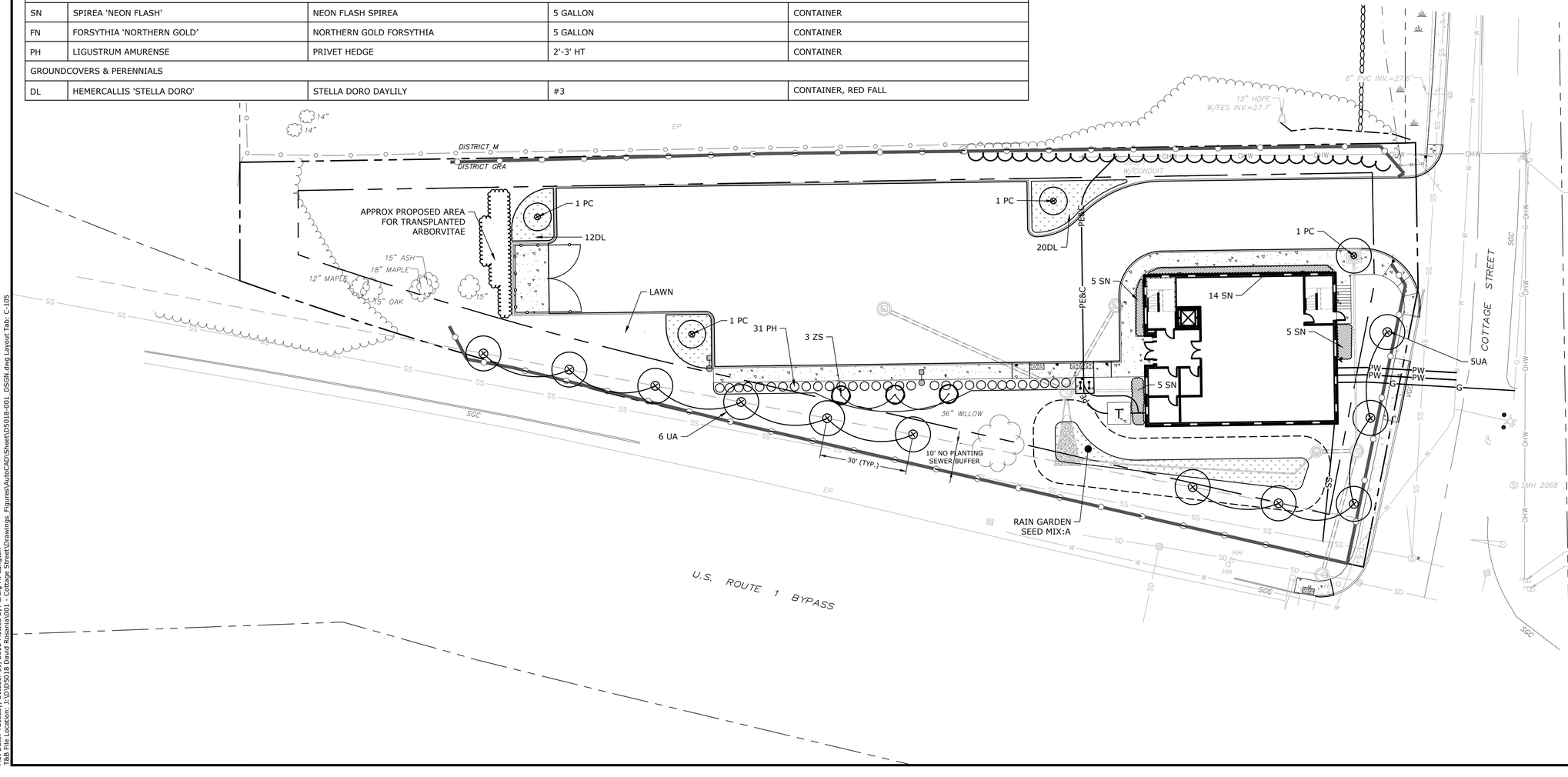
PLANT SCHEDULE

CODE	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
TREES				
ZS	ZELKOVA SERRATA 'GREEN VASE'	GREEN VASE ZELKOVA	2½ - 3" CALIPER	B & B
UA	ULMUS AMERICANA 'PRINCETON'	PRINCETON AMERICAN ELM	2½ - 3" CALIPER	B & B
PC	PRYUS CALLERYANA 'CHANTIC LEER'	CHATICLEER PEAR	2½ - 3" CALIPER	B & B, SINGLE STEM, WHITE
SHRUBS				
SN	SPIREA 'NEON FLASH'	NEON FLASH SPIREA	5 GALLON	CONTAINER
FN	FORSYTHIA 'NORTHERN GOLD'	NORTHERN GOLD FORSYTHIA	5 GALLON	CONTAINER
PH	LIGUSTRUM AMURENSE	PRIVET HEDGE	2'-3' HT	CONTAINER
GROUNDCOVERS & PERENNIALS				
DL	HEMERCALLIS 'STELLA DORO'	STELLA DORO DAYLILY	#3	CONTAINER, RED FALL

SEED MIX A:

50% NEW ENGLAND PLANTS - NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS & MOIST SITES

50% NEW ENGLAND WETLAND PLANTS - NEW ENGLAND CONSERVATION WILDLIFE MIX



SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE – BRADLEE NEZINSKA No. 09690 LICENSED PROFESSIONAL ENGINEER – 10-9-18

STATE OF NEW HAMPSHIRE – PATRICK M CRIMMINS No. 18376 LICENSED PROFESSIONAL ENGINEER – 10-9-18

Proposed Medical Office Building

DAR Real Estate, LLC

185 Cottage Street
Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	10/9/2018	PB Submission
B	9/18/2018	Revised TAC Submission
A	8/20/2018	TAC Submission

PROJECT NO:	D5108-001
DATE:	8/20/2018
FILE:	D5018-001_DSGN.DWG
DRAWN BY:	JPC/CML
CHECKED:	CML/PMC
APPROVED:	BLM

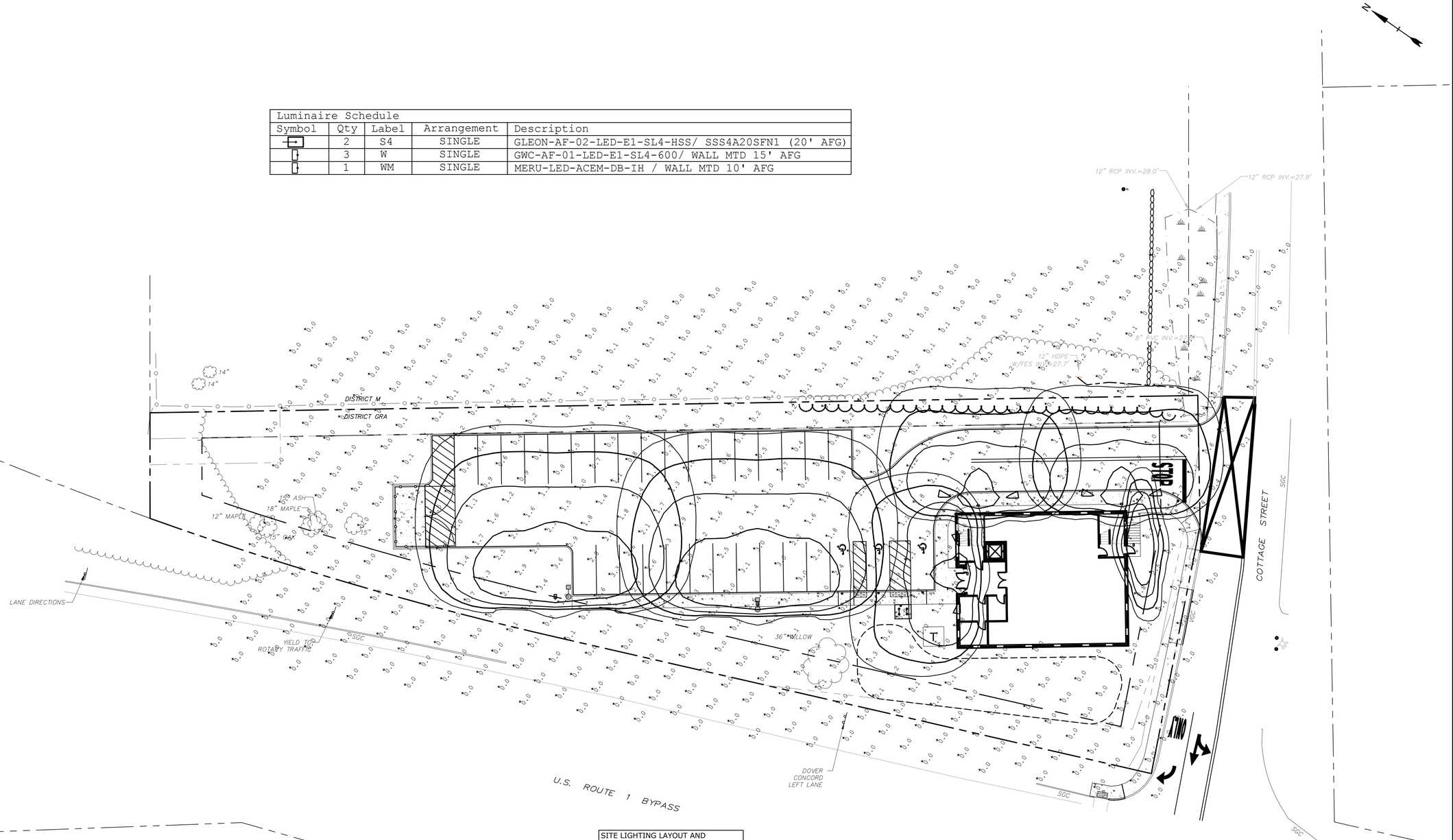
LANDSCAPE PLAN

SCALE: AS SHOWN

C-105

Last Save Date: October 9, 2018 10:11 AM By: CML
Plot Date: Tuesday, October 09, 2018 Plotted By: Craig M. Langton
T&B File Location: J:\D\D5018 David Rosania\001 - Cottage Street\Drawings Figures\AutoCAD\Sheet\D5018-001_DSGN.dwg Layout Tab: C-105

Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
	2	S4	SINGLE	GLEON-AF-02-LED-E1-SL4-HSS/ SSS4A20SFN1 (20' AFG)
	3	W	SINGLE	GWC-AF-01-LED-E1-SL4-600/ WALL MTD 15' AFG
	1	WM	SINGLE	MERU-LED-ACEM-DB-IH / WALL MTD 10' AFG



SITE LIGHTING LAYOUT AND PHOTOMETRICS PLAN PROVIDED BY CHARRON, INC. ON AUGUST 14, 2018

Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE – BRADLEE NEDZKTA No. 09690 – LICENSED PROFESSIONAL ENGINEER

STATE OF NEW HAMPSHIRE – PATRICK M CRIMMINS No. 12376 – LICENSED PROFESSIONAL ENGINEER

SCALE IN FEET
0 20' 40'
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PHOTOMETRICS PLAN

SCALE: AS SHOWN

C-106

Last Save Date: October 9, 2018 10:11 AM By: CML
Plot Date: Tuesday, October 09, 2018 Plotted By: Craig M. Langton
T&B File Location: J:\D\D5018 Dawid Rosania\001 - Cottage Street\Drawings, Figures\AutoCAD\Sheet\D5018-001_DSGN.dwg Layout Tab: C-106

GENERAL PROJECT INFORMATION

PROJECT OWNER: COLEMAN GARLAND
416 SADDLEBACK DRIVE
FAIRVIEW, TX 75069

1. PROJECT NAME: COTTAGE STREET
   PROJECT ADDRESS: 185 COTTAGE STREET
   PORTSMOUTH, NH 03801
   PROJECT MAP / LOT: 174 / LOT 14
   PROJECT LATITUDE: 43°-04'-13.4"N
   PROJECT LONGITUDE: 70°-46'-42.7"W

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF THE DEMOLITION TWO (2) EXISTING RESIDENTIAL BUILDINGS, RE-GRADING OF SITE, CONSTRUCTION OF MEDICAL OFFICE BUILDING, PARKING LOT AND RELEVANT UTILITIES. THE WORK IS ANTICIPATED TO START IN FALL 2018, AND BE COMPLETED BY FALL 2019.

DISTURBED AREA

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 0.91 ACRES.

SOIL CHARACTERISTICS

BASED ON THE NRCS WEB SOIL SURVEY FOR ROCKINGHAM COUNTY THE SOILS ON SITE CONSIST OF URBAN LAND-CANTON COMPLEX SOILS WHICH ARE WELL DRAINED SOILS WITH HYDROLOGIC SOIL GROUP RATINGS OF C.

NAME OF RECEIVING WATERS

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA OVERLAND FLOW TO AN UNNAMED WETLAND AND ULTIMATELY FLOWS TO NORTH MILL POND.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

1. CUT AND CLEAR TREES.
2. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
   - NEW CONSTRUCTION
   - DEVELOPMENT OF BORROW PIT AREAS
   - DISPOSAL OF SEDIMENT SPOIL, STUMP AND OTHER SOLID WASTE
   - FLOOD PLAIN EXCAVATION WORK
   - STREAM CHANNEL MODIFICATIONS
   - CONTROL OF DUST
   - CONSTRUCTION OF ACCESS AND HAUL ROAD
   - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS
   - CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
3. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPS PRIOR TO DIRECTING RUNOFF TO THEM.
4. CLEAR AND DISPOSE OF DEBRIS.
5. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
6. GRADE AND GRAVEL ROADWAYS AND PARKING AREAS - ALL ROADS AND PARKING AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
7. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
8. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED.
9. SEDIMENT TRAPS AND/OR BASINS SHALL BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.
10. FINISH PAVING ALL ROADWAYS AND PARKING LOTS.
11. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
12. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
13. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

SPECIAL CONSTRUCTION NOTES:

1. THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE.
2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
3. LOT DISTURBANCE, OTHER THAN THAT SHOWN ON THE APPROVED PLANS, SHALL NOT COMMENCE UNTIL AFTER THE ROADWAY HAS THE BASE COURSE TO DESIGN ELEVATION AND THE ASSOCIATED DRAINAGE IS COMPLETE AND STABLE. – THIS NOTE IS APPLICABLE TO SINGLE/DUPLEX FAMILY SUBDIVISIONS, WHEN LOT DEVELOPMENT IS NOT PART OF THE PERMIT.

EROSION CONTROL NOTES:

1. ALL EROSION CONTROL MEASURES AND PRACTICES SHALL CONFORM TO THE "NEW HAMPSHIRE STORMWATER MANUAL VOLUME 3: EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" PREPARED BY THE NHDES.
2. PRIOR TO ANY WORK OR SOIL DISTURBANCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EROSION CONTROL MEASURES AS REQUIRED IN THE PROJECT MANUAL.
3. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL BARRIERS, INCLUDING HAY BALES, SILT FENCES, MULCH BERMS, SILT SACKS AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
4. SILT SACK INLET PROTECTION SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE DURATION OF THE PROJECT.
5. PERIMETER CONTROLS INCLUDING SILT FENCES, MULCH BERM, SILT SOCK, AND/OR HAY BALE BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL NON-PAVED AREAS HAVE BEEN STABILIZED.
6. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
7. ALL DISTURBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEIVE 6" LOAM, SEED AND FERTILIZER.
8. INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKLY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
9. CONSTRUCT EROSION CONTROL BLANKETS ON ALL SLOPES STEEPER THAN 3:1.

STABILIZATION:

1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.;
   E. IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.
2. WINTER STABILIZATION PRACTICES:
   A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS;
   B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
   C. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;
3. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
   3.1. TEMPORARY SEEDING;
   3.2. MULCHING.
4. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
5. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
6. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

DUST CONTROL:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD.
2. DUST CONTROL METHODS SHALL INCLUDE, BUT BE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
3. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

STOCKPILES:

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

OFF SITE VEHICLE TRACKING:

THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES.

VEGETATION:

1. TEMPORARY GRASS COVER:
   A. SEEDBED PREPARATION:
      - APPLY FERTILIZER AT THE RATE OF 600 POUNDS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF THREE (3) TONS PER ACRE;
2. SEEDING:
   A. UTILIZE ANNUAL RYE GRASS AT A RATE OF 40 LBS/ACRE;
   B. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED;
   C. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDROSEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING;
3. MAINTENANCE:
   A. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).
4. VEGETATIVE PRACTICE:
   A. FOR PERMANENT MEASURES AND PLANTINGS:
   B. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF THREE (3) TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 6.5;
   C. FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 800 POUNDS PER ACRE OF 10-20-20 FERTILIZER;
   D. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4-1/2 POUNDS AND 5-1/2 POUNDS PER INCH OF WIDTH;
   E. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH;
   F. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AS INDICATED ABOVE;
   G. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED;
   H. THE CONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED;
   I. A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE APPLIED AT THE INDICATED RATE:

SEED MIX	APPLICATION RATE
CREEPING RED FESCUE	84 LBS/ACRE
TALL FESCUE	84 LBS/ACRE
REDTOP	32 LBS/ACRE

   IN NO CASE SHALL THE WEED CONTENT EXCEED ONE (1) PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. SEEDING SHALL BE DONE NO LATER THAN SEPTEMBER 15. IN NO CASE SHALL SEEDING TAKE PLACE OVER SNOW.
5. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL):
   A. FOLLOW PERMANENT MEASURES SLOPE, LIME, FERTILIZER AND GRADING REQUIREMENTS. APPLY SEED MIXTURE AT TWICE THE INDICATED RATE. APPLY MULCH AS INDICATED FOR PERMANENT MEASURES.

CONCRETE WASHOUT AREA:

1. THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
   A. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FACILITY;
   B. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
   C. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
   D. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON-STORMWATER DISCHARGES:

1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL:

1. WASTE MATERIAL:
   A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE:
   A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE:
   A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION:

1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW.
2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
   A. GOOD HOUSEKEEPING - THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
      - ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE;
      - ALL REGULATED MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE, ON AN IMPERVIOUS SURFACE;
      - MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED;
      - THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS;
      - SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
      - WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
      - THE TRAINING OF ON-SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.
      - HAZARDOUS PRODUCTS - THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
   B. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
   C. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION;
   D. SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
      - PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
3. PETROLEUM PRODUCTS:
   A. ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE;
   B. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
   C. SECURE FUEL STORAGE AREAS AGAINST UNAUTHORIZED ENTRY;
   D. INSPECT FUEL STORAGE AREAS WEEKLY;
   E. WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS;
   F. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS;
   G. SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.
   H. THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
      - EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED;
      - PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS;
      - HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS;
      - USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES;
      - PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
   I. FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT SHALL COMPLY WITH THE REGULATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT, OR ITS SUCCESSOR DOCUMENT.
   HTTPS://WWW.DES.NH.GOV/ORGANIZATION/COMMISSIONER/PIP/FACTSHEETS/DWGB/DOCUMENTS/DWGB-22-6.PDF
4. FERTILIZERS:
   A. FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS;
   B. ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER;
   C. STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
5. PAINTS:
   A. ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE;
   B. EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
   C. EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
      - SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
   D. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES;
   E. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE;
   F. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY;
   G. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
   H. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED;
   I. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
      - VEHICLE FUELING AND MAINTENANCE PRACTICE:
   J. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPTMENT/VEHICAL FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
   K. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY;
   L. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
   M. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA;
   N. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE;
   O. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FLUID.

EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES

1. THIS PROJECT DOES NOT EXCEED ONE (1) ACRE OF DISTURBANCE AND THUS DOES NOT REQUIRE A SWPPP.THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT
   A. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
   B. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
   C. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
   D. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.

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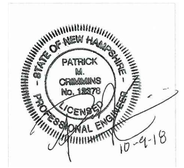


Proposed Medical Office Building

DAR Real Estate, LLC

185 Cottage Street
Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	10/9/2018	PB Submission
B	9/18/2018	Revised TAC Submission
A	8/20/2018	TAC Submission

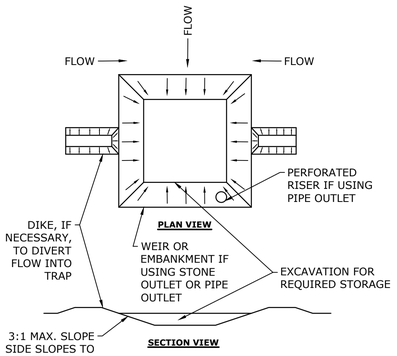
PROJECT NO:	D5108-001
DATE:	8/20/2018
FILE:	D5018-001_DTLS.DWG
DRAWN BY:	JPC/CML
CHECKED:	CML/PMC
APPROVED:	BLM

EROSION CONTROL NOTES SHEETS

SCALE: AS SHOWN

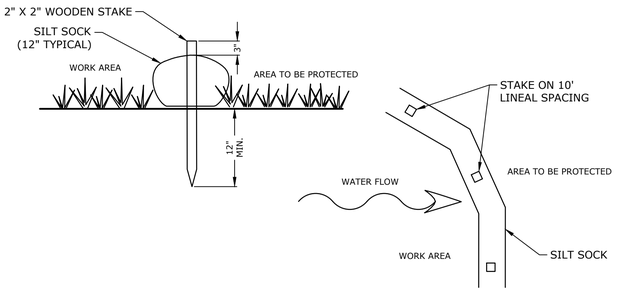
C-501

Last Save Date: October 8, 2018 3:18 PM By: CML
Plot Date: October 10, 2018 8:45 AM By: Chip M. Langton
T&B File Location: J:\D\D5018 David Rosania\001 - Cottage Street\Drawings, Figures\AutoCAD\Sheet\D5018-001_DTLS.dwg Layout Tab: C-501



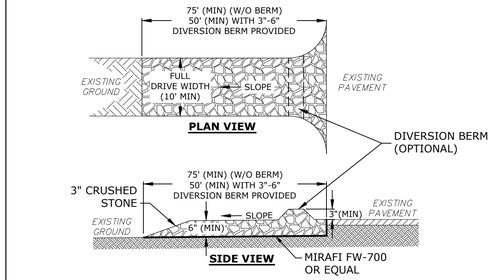
NOTES:
1. THE TRAP SHALL BE INSTALLED AS CLOSE TO THE DISTURBED AREA AS POSSIBLE.
2. THE MAXIMUM CONTRIBUTING AREA TO A SINGLE TRAP SHALL BE LESS THAN 5 ACRES.
3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
4. TRAP OUTLET SHALL BE MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP.
5. TRAP SHALL DISCHARGE TO A STABILIZED AREA.
6. TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
7. MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.
8. SEDIMENT TRAPS MUST BE USED AS NEEDED TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.

SEDIMENT TRAP
NO SCALE



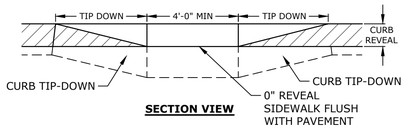
NOTE:
1. SILT SOCK SHALL BE SILT SOXX BY FILTREXX OR APPROVED EQUAL.
2. SILT SOCK SHALL BE FILLED WITH FILTERMEDIA BY FILTREXX OR APPROVED EQUAL.
3. WHERE TWO SILT SOCKS ARE JOINED, A MINIMUM OF 2 FEET OF OVERLAP SHALL BE MAINTAINED.
4. SILT SOCKS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. CONTRACTOR TO INSTALL SILT SOCK IN J-HOOK OR SMILE CONFIGURATION TO LIMIT CONCENTRATION OF STORMWATER RUNOFF AT A SINGLE DISHCARGE POINT.

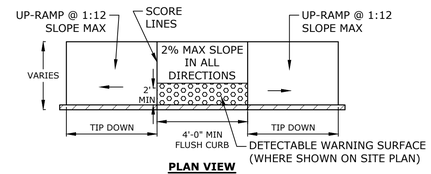
SILT SOCK
NO SCALE

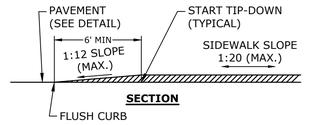


NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHINGS IS REQUIRED, IT SHALL BE DONE SO RUNOFF DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.
2. ONLY CONSTRUCTION TRAFFIC LEAVING THE SITE IS REQUIRED TO USE THE TEMPORARY STABILIZED EXIT.
3. CONTRACTOR MAY PROVIDE A SEPARATE, UNPROTECTED, ENTRANCE FOR TRAFFIC ENTERING THE SITE PROVIDED THAT IT IS SIGNED AS AN ENTRANCE ONLY.
4. LOCATE CONSTRUCTION ENTRANCES AND EXITS TO LIMIT SEDIMENT LEAVING THE SITE AND TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES.
5. ENTRANCES SHALL NOT BE LOCATED IN AREAS WITH STEEP GRADES OR AT CURVES IN PUBLIC ROADS.
6. THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF WAY.
   a. WHEN THE CONTROL PAD BECOMES INEFFECTIVE, THE STONE SHOULD BE REMOVED ALONG WITH THE COLLECTED SOIL MATERIAL, REGRADED ON SITE, AND STABILIZED PRIOR TO RECONSTRUCTING THE EXIT.
   b. THE CONTRACTOR SHOULD SWEEP THE PAVEMENT AT EXITS WHENEVER SOIL MATERIALS ARE TRACKED ONTO THE ADJACENT PAVEMENT OR TRAVELED WAY.
   c. WHEN WHEEL WASHING IS REQUIRED, IT SHOULD BE CONDUCTED ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT-TRAPPING DEVICE.
   d. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS TO THE GREATEST EXTENT PRACTICAL
7. NATURAL DRAINAGE THAT CROSSES THE LOCATION OF THE STONE PAD SHOULD BE INTERCEPTED AND PIPED BENEATH THE PAD, AS NECESSARY, WITH SUITABLE OUTLET PROTECTION.

STABILIZED CONSTRUCTION EXIT
NO SCALE

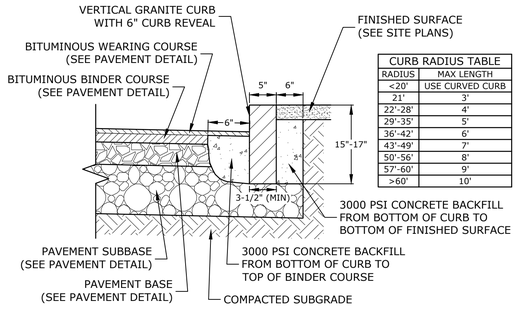






NOTES:
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
2. A 9" COMPACTED CRUSHED GRAVEL BASE (NHDOT ITEM No. 304.3) SHALL BE PROVIDED BENEATH RAMPS.
3. DETECTABLE WARNING PANEL SHALL BE CAST IRON WITH BLACK COATING

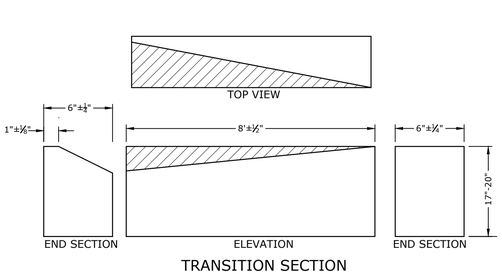
CONCRETE SIDEWALK TIP-DOWN RAMPS WITH DETECTABLE WARNING PANEL
NO SCALE



CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<20'	USE CURVED CURB
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
>60'	10'

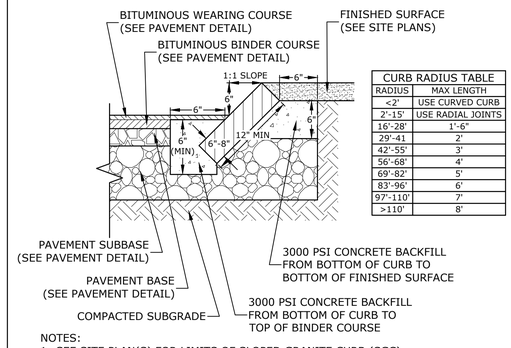
NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
7. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

VERTICAL GRANITE CURB
NO SCALE



TRANSITION SECTION
GRANITE SLOPE CURB TO VERTICAL GRANITE CURB

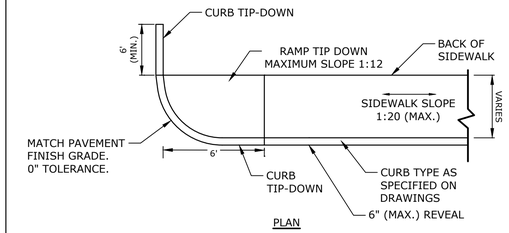
CURB TRANSITION
NO SCALE



CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<2'	USE CURVED CURB
2'-15'	USE RADIAL JOINTS
16'-28'	1'-6"
29'-41	2'
42'-55'	3'
56'-68'	4'
69'-82'	5'
83'-96'	6'
97'-110'	7'
>110'	8'

NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF SLOPED GRANITE CURB (SGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

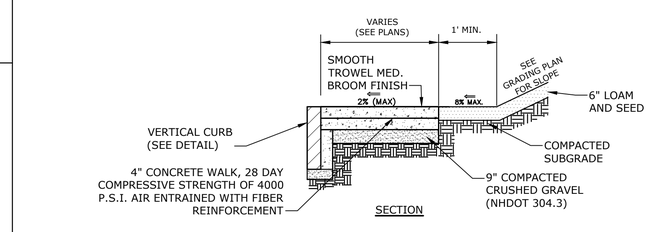
SLOPED GRANITE CURB
NO SCALE



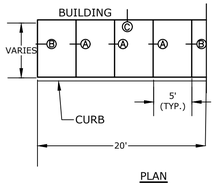
PLAN

NOTES:
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS
2. PROVIDE 6" COMPACTED CRUSHED GRAVEL BASE BENEATH RAMPS.
3. DETECTABLE WARNING STRIP SHALL BE ADA SOLUTIONS, INC. CAST IN PLACE RAMP. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

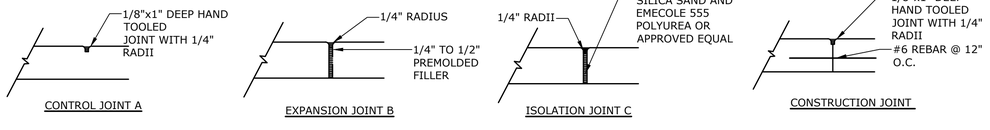
CONCRETE SIDEWALK TIP-DOWN RAMP
NO SCALE



SECTION

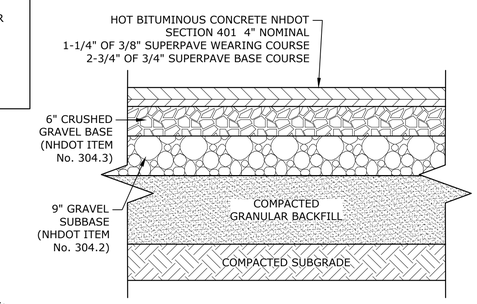


PLAN



NOTES:
1. SIDEWALK SHALL BE CONSTRUCTED TO CITY OF PORTSMOUTH STANDARDS

TYPICAL CONCRETE SIDEWALK WITH GRANITE CURB
NO SCALE



NOTES:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.
4. CONTRACTOR SHALL HAVE THE OPTION OF RECLAIMING THE EXISTING PAVEMENT AND REMOVING THE MATERIAL, THEN REUSING THE RECLAIMED MATERIAL AS A PAVEMENT SUBBASE.

NHDOT ITEM No. 304.2 (GRAVEL)	
SIEVE SIZE	% PASSING
6"	100
#4	25-70
#200	0-12

NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12

TYPICAL STANDARD DUTY PAVEMENT SECTION
NO SCALE

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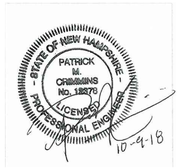

Proposed Medical Office Building

DAR Real Estate, LLC

185 Cottage Street
Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	10/9/2018	PB Submission
B	9/18/2018	Revised TAC Submission
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PROJECT NO:	D5108-001
DATE:	8/20/2018
FILE:	D5018-001_DTLS.DWG
DRAWN BY:	JPC/CML
CHECKED:	CML/PMC
APPROVED:	BLM

DETAILS SHEET

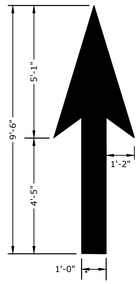
SCALE: AS SHOWN

C-502

Last Save Date: October 8, 2018 3:18 PM By: CML
Plot Date: October 8, 2018 3:18 PM By: Craig M. Langton
T&B File Location: J:\D\D5018 David Rosania\001 - Cottage Street\Drawings, Figures\AutoCAD\Sheet\D5018-001_DTLS.dwg Layout Tab: C-502

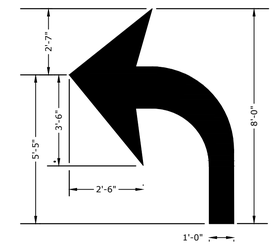
PAVEMENT MARKING NOTES:

1. ALL WORDS AND SYMBOLS SHALL BE RETROREFLECTIVE WHITE AND SHALL CONFORM TO THE LATEST VERSION OF THE MUTCD.
2. MULTI-WORD MESSAGES SHALL READ "UP"; THAT IS, THE FIRST WORD SHALL BE NEAREST THE APPROACHING DRIVER.
3. THE WORD "ONLY" SHALL NOT BE USED WITH THROUGH OR COMBINATION ARROWS, AND SHALL NOT BE USED ADJACENT TO A BROKEN LANE LINE. A WORD/SYMBOL SHALL PRECEED THE WORD "ONLY".
4. COMBINATION ARROWS MAY BE COMPRISED OF 2 SINGLE ARROWS (e.g. TURN AND THROUGH ARROWS). HOWEVER, THE SHAFTS OF THE ARROWS SHALL COINCIDE AS SHOWN.
5. PREFORMED WORDS AND SYMBOLS SHALL BE PRE-CUT BY THE MANUFACTURER.
6. WRONG-WAY ARROWS SHALL NOT BE SUBSTITUTED FOR THROUGH ARROWS.
7. ALL STOP BARS, WORDS, SYMBOLS AND ARROW SHALL BE THERMOPLASTIC.



THROUGH (STRAIGHT) ARROW

ONLY LEGEND

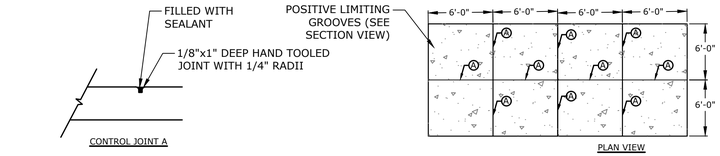


TURN ARROW
(RIGHT TURN OPPOSITE IN KIND)

PAVEMENT MARKINGS

NO SCALE

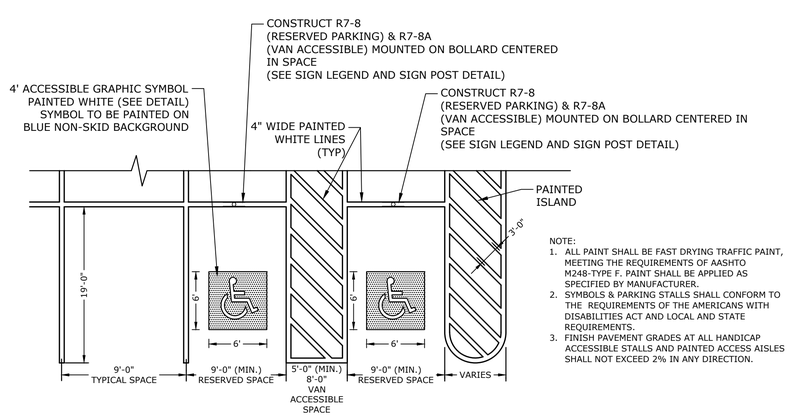
(REF: NHDOT STANDARD DETAIL PM-12)



NOTES:
1. CONCRETE TO BE 4500 PSI, 7% AIR ENTRAINED
2. STANDARD BROOM FINISH.

DUMPSTER PAD

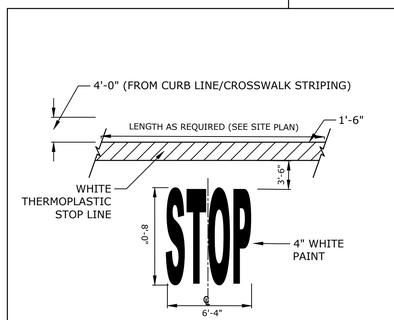
NO SCALE



NOTE:
1. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
3. FINISH PAVEMENT GRADES AT ALL HANDICAP ACCESSIBLE STALLS AND PAINTED ACCESS AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION.

STALL STRIPING - SINGE STRIPE

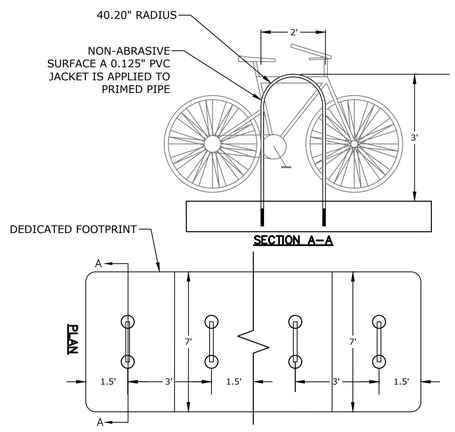
NO SCALE



NOTE:
1. PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS AS SHOWN ON SITE PLAN.
2. STRIPING SHALL BE CONSTRUCTED USING WHITE PAINT, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

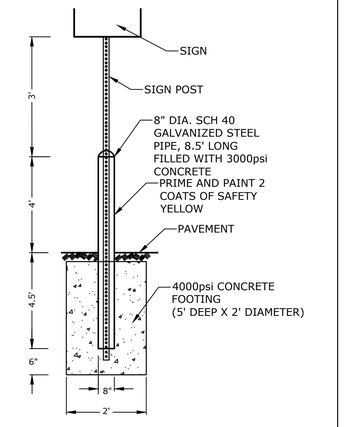
STOP BAR AND LEGEND

NO SCALE



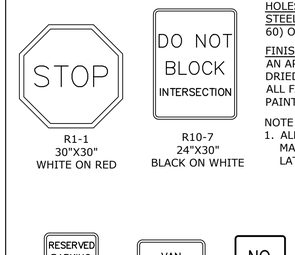
BIKE RACK

NO SCALE



BOLLARD MOUNTED SIGN DETAIL

NO SCALE



R1-1
30"X30"
WHITE ON RED

R10-7
24"X30"
BLACK ON WHITE

LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASSTM A-576 (GRADE 1070 - 1080)
FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN BAKED ON OR DRIED, PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.

NOTE:
1. ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

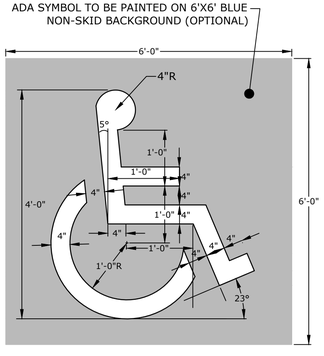
R7-8
12"X18"
BLUE AND GREEN ON WHITE

R7-8A
6"X12"
BLUE AND GREEN ON WHITE

R8-3A
18"X24"
RED ON WHITE

TYPICAL SIGN LEGEND

NO SCALE



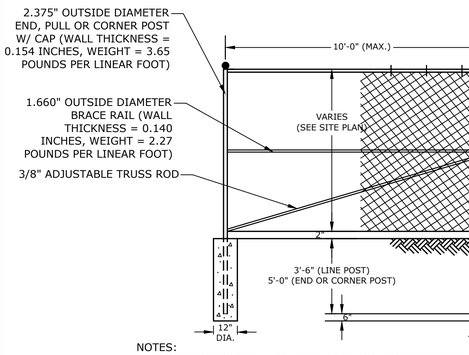
NOTES:
1. SYMBOL SHALL BE CONSTRUCTED IN ALL ACCESSIBLE SPACES USING FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.

OR

1. SYMBOL SHALL BE CONSTRUCTED IN ALL ACCESSIBLE SPACES USING WHITE THERMOPLASTIC, REFLECTORIZED PAVEMENT PARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505.
2. SYMBOL SHALL BE CONSTRUCTED TO THE LATEST ADA, STATE AND LOCAL REQUIREMENTS.

ACCESSIBLE SYMBOL

NO SCALE



NOTES:
1. CORNER POSTS SHALL BE USED AT SHARP BREAKS IN GRADE AND CHANGES IN HORIZONTAL ALIGNMENT OF 15' OR MORE.
2. POSTS, RAILS & BRACES SHALL BE TYPE I, SCHEDULE 40 BLACK VINYL COATED PIPE.
3. FABRIC TO BE BLACK VINYL COATED.
4. TIE WIRES SHALL BE 9 GAUGE GALVANIZED STEEL WIRE FOR ATTACHMENT OF FABRIC TO LINE POSTS.
5. TIE WIRES SHALL BE 13 GAUGE GALVANIZED STEEL WIRE FOR ATTACHMENT OF FABRIC TO RAILS AND BRACES.
6. HOG RING TIES SHALL BE 12- 1/2 GUAGE GALVANIZED STEEL WIRE FOR ATTACHMENT OF FABRIC TO TENSION WIRE.

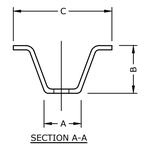
CHAIN LINK FENCE

NO SCALE

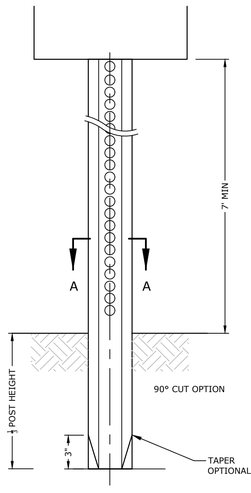
WT.	A	B	C
3 LBS	1 3/8" OR 1 5/8"	1 3/4" OR 1 5/8"	3 1/4"
4 LBS	1 3/8"	1 3/4"	3 1/4"

SIGN POST TO COMPLY WITH ALL ASPECTS OF NHDOT SECTION 615.

LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASSTM A-576 (GRADE 1070 - 1080)
FINISH: SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.



SECTION A-A



NOTES:
1. STEEL FOR POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499-81 GRADE 60 AND TO THE CHEMICAL REQUIREMENTS OF ASTM A1-76 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT OF 91 LBS. OR GREATER PER LINEAR YARD.
2. AFTER FABRICATION, ALL STEEL POSTS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A 123.
3. ALL SIGN POSTS SHALL HAVE "BREAKAWAY" FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS-1985." THE "BREAKAWAY" FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CARRY THE SIGNS SHOWN IN THE PLANS AT 60 MPH WIND LOADINGS. INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
4. TYPE A POSTS - 3 LB/FT TYPE B POSTS - 4 LB/FT.
5. ALL SIGNS TO BE CONSTRUCTED PER THE LATEST EDITION OF THE FHWA STANDARD HIGHWAY SIGNS MANUAL AND INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
6. MEET REQUIREMENTS OF SECTION 615 SIGNS OF NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2010 EDITION, AS AMENDED.

*IN LEDGE DRILL & GROUT TO A MIN OF 2'

SIGN POST

NO SCALE

Tighe&Bond
Engineers | Environmental Specialists

BRADLEE NEDEAU No. 08650 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE
10-4-18

PATRICK M. CUMMINS No. 18370 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE
10-4-18

Proposed Medical Office Building

DAR Real Estate, LLC

185 Cottage Street
Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	10/9/2018	PB Submission
B	9/18/2018	Revised TAC Submission
A	8/20/2018	TAC Submission

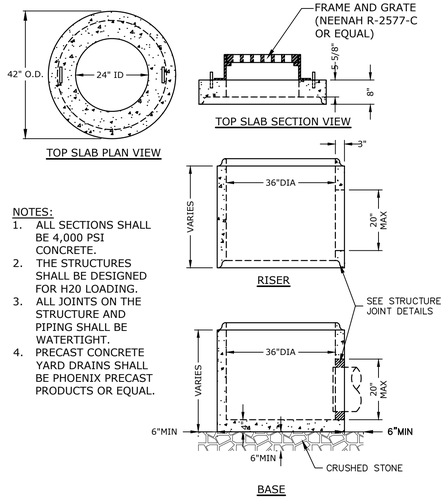
PROJECT NO:	D5108-001
DATE:	8/20/2018
FILE:	D5018-001_DTLS.DWG
DRAWN BY:	JPC/CML
CHECKED:	CML/PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

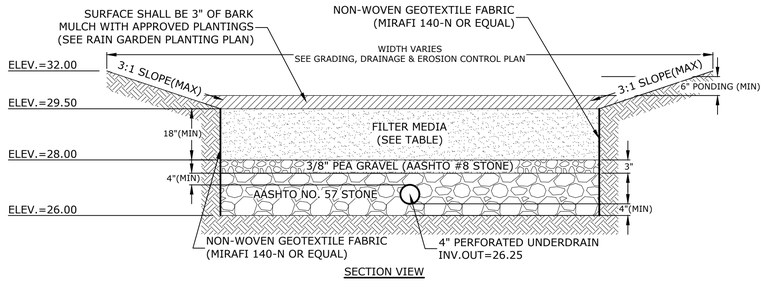
C-503

Last Save Date: October 8, 2018 3:18 PM By: CML
Plot Date: October 8, 2018 3:18 PM By: Carlo M. Langton
T&B File Location: J:\D\D5018 David Rosania\001 - Cottage Street\Drawings, Figures\AutoCAD\Sheet\D5018-001_DTLS.dwg Layout Tab: C-503



NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
3. ALL JOINTS ON THE STRUCTURE AND PIPING SHALL BE WATERTIGHT.
4. PRECAST CONCRETE YARD DRAINS SHALL BE PHOENIX PRECAST PRODUCTS OR EQUAL.

YARD DRAIN DETAIL
NO SCALE



SECTION VIEW

FILTER MEDIA COMPOSITION:

COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	GRADATION OF MATERIAL SIEVE NO.	PERCENT PASSING
ASTM C-33 CONCRETE SAND	50-55	SEE NOTE #5	
LOAMY SAND TOPSOIL	20-30	200	15-25
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH	20-30	200	5 MAX

NOTES:
1. BARK MULCH SHALL BE AGED A MINIMUM OF 12 MONTHS AND SHALL NOT FLOAT.
2. RAIN GARDENS SHALL NOT BE PLACED INTO SERVICE UNTIL THE PRACTICE HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
3. DO NOT TRAFFIC EXPOSED SOIL SURFACES WITH CONSTRUCTION EQUIPMENT. CONTRACTOR SHALL KEEP ALL EXCAVATION EQUIPMENT OUTSIDE OF THE LIMIT OF THE RAIN GARDEN.
4. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR LOCATIONS, LAYOUTS, AND ELEVATIONS.
5. THE SAND PORTION OF THE FILTER MEDIA SHALL MEET THE FOLLOWING GRADATION (ASTM C-33):

SIEVE SIZE	PERCENT PASSING
3/8"	100
#4	95-100
#8	80-100
#16	50-85
#30	25-60
#50	5-30
#100	0-10

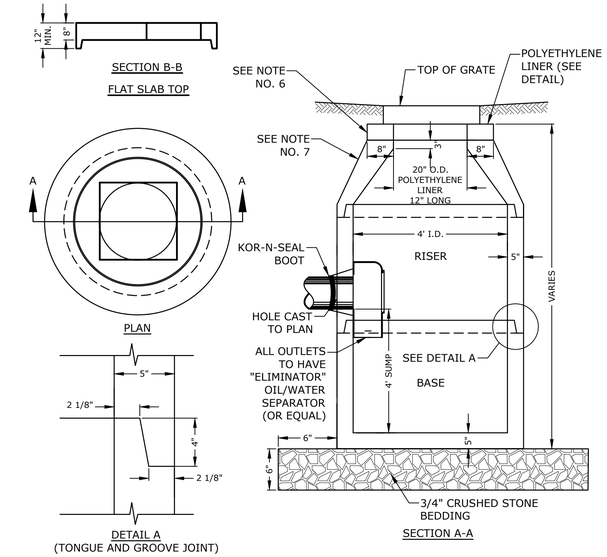
AASHTO #8 STONE (#8 to 3/8")

SIEVE SIZE	% PASSING
1/2"	100
3/8"	85-100
#4	10-30
#8	0-10
#16	0-5

AASHTO #57 STONE (#4 to 1")

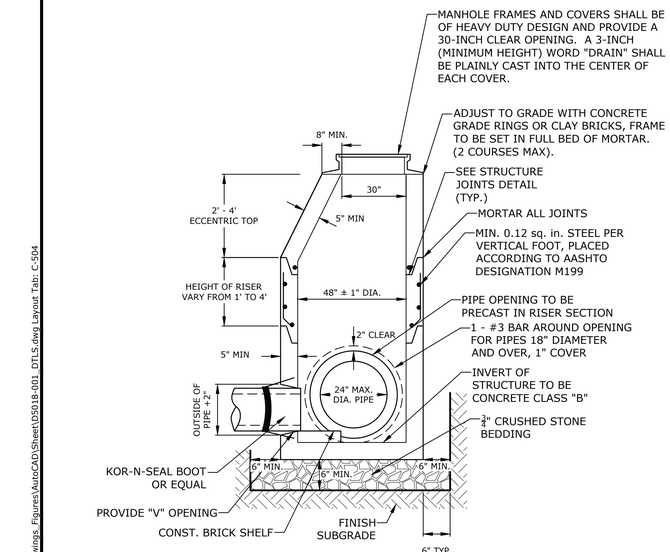
SIEVE SIZE	% PASSING
1-1/2"	100
1"	95-100
1/2"	25-60
#4	0-10
#8	0-5

RAIN GARDEN
NO SCALE



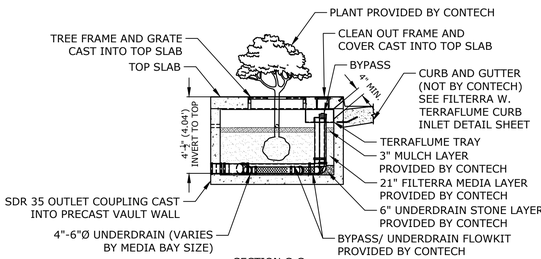
NOTES:
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
7. CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
8. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
9. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
10. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
11. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
12. "ELIMINATOR" OIL/WATER SEPARATOR SHALL BE INSTALLED TIGHT TO INSIDE OF CATCHBASIN.

4' DIAMETER CATCHBASIN
NO SCALE



NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
6. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
7. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
8. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZNTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.

4' DIAMTER DRAIN MANHOLE
NO SCALE

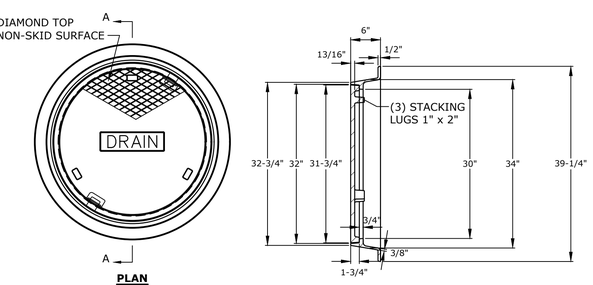


SECTION C-C

FITBC SQUARE CURB INLET							
DESIGNATION	AVAILABILITY	MEDIA BAY SIZE	VAULT SIZE (L x W)	MAX. OUTLET/BYPASS PIPE DIA.	MAX. BYPASS FLOW (CFS)	UNDERDRAIN PIPE DIA. (PERF.)	TREE GRATE QTY. & SIZE
FTIBC0404	ALL	4" X 4"	4'-0"	6" SDR 35	1.42	4" SDR 35	(1) 3' X 3'
FTIBC0606	ALL	6" X 6"	6'-0"	8" SDR 35	1.89	4" SDR 35	(1) 3' X 3'

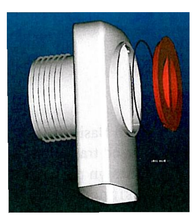
N/A = NOT AVAILABLE

FILTERRA BIORETENTION SYSTEM
NO SCALE



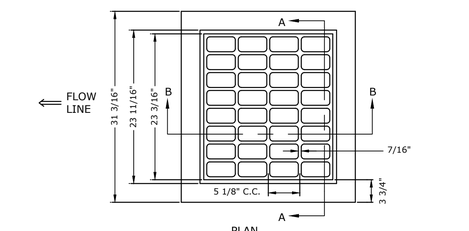
NOTES:
1. ALL DIMENSIONS ARE NOMINAL.
2. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   a. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   b. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   c. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
3. LABEL TYPE OF MANHOLE WITH 3" HIGH LETTERS IN HE CENTER OF THE COVER.

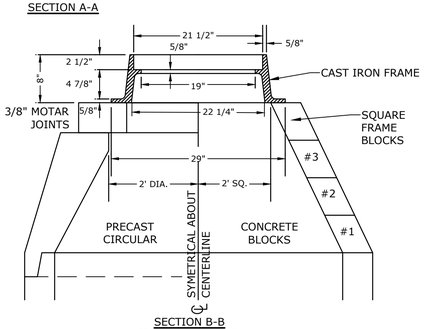
DRAIN MANHOLE FRAME & COVER
NO SCALE



NOTES:
1. ALL CATCH BASIN OUTLETS TO HAVE "ELIMINATOR" OIL AND FLOATING DEBRIS TRAP MANUFACTURED BY KLEANSTREAM (NO EQUAL)
2. INSTALL DEBRIS TRAP TIGHT TO INSIDE OF STRUCTURE.
3. 1/4" HOLE SHALL BE DRILLED IN TOP OF DEBRIS TRAP

"ELMINATOR" OIL FLOATING DEBRIS TRAP
NO SCALE

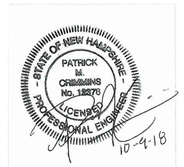




NOTE:
1. GRATE TO BE CAST IRON (NHDOT TYPE B ALTERNATE 1)
2. FRAME AND GRATE TO BE MANUFACTURED IN THE USA

CATCH BASIN FRAME & GRATE
NO SCALE

Tighe&Bond
Engineers | Environmental Specialists



Proposed Medical Office Building

DAR Real Estate, LLC

185 Cottage Street
Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	10/9/2018	PB Submission
B	9/18/2018	Revised TAC Submission
A	8/20/2018	TAC Submission

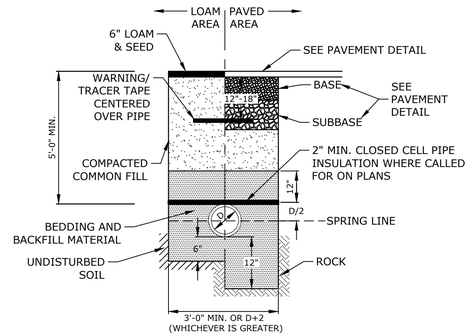
PROJECT NO:	D5108-001
DATE:	8/20/2018
FILE:	D5018-001_DTLS.DWG
DRAWN BY:	JPC/CML
CHECKED:	CML/PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

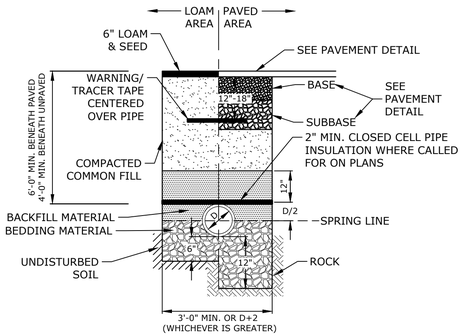
C-504

Last Save Date: October 8, 2018 3:18 PM By: CML
Plot Date: October 8, 2018 3:18 PM By: Craig M. Langton
T&B File Location: J:\D\D5018 David Rosania\001 - Cottage Street\Drawings, Figures\AutoCAD\Sheet\D5018-001_DTLS.dwg Layout Tab: C-504



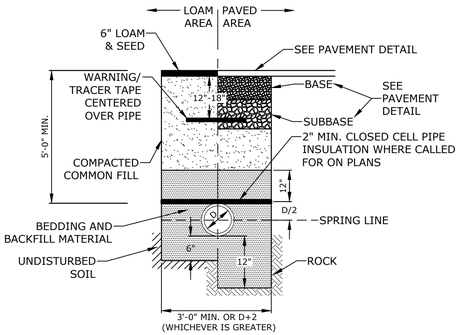
NOTE:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. ALL UTILITIES SHALL BE INSTALLED PER CITY OF PORTSMOUTH STANDARDS. COORDINATE ALL INSTALLATIONS THE CITY OF PORTSMOUTH

WATER TRENCH
NO SCALE



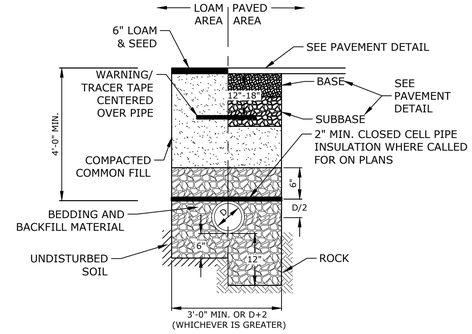
NOTE:
1. CRUSHED STONE BEDDING FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO SPRING LINE.
2. SAND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM SPRING LINE UP TO 12" ABOVE TOP OF PIPE.
3. SEWER SHALL BE INSTALLED PER THE CITY OF PORTSMOUTH STANDARDS. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

SEWER TRENCH
NO SCALE



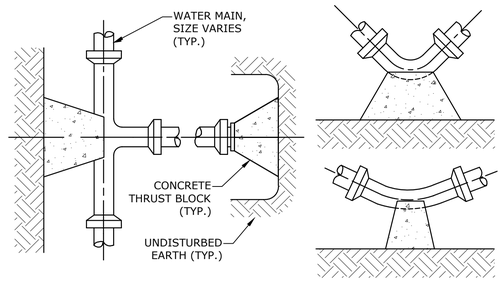
NOTE:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. ALL UTILITIES SHALL BE INSTALLED PER UNITIL'S STANDARDS. COORDINATE ALL INSTALLATIONS WITH UNITIL AND THE CITY OF PORTSMOUTH.

GAS TRENCH
NO SCALE



NOTE:
1. CRUSHED STONE BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 6" ABOVE TOP OF PIPE.
2. COORDINATE ALL INSTALLATIONS WITHIN THE RIGHT OF WAY WITH THE CITY OF PORTSMOUTH

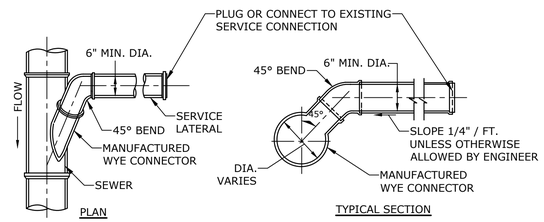
STORM DRAIN TRENCH
NO SCALE



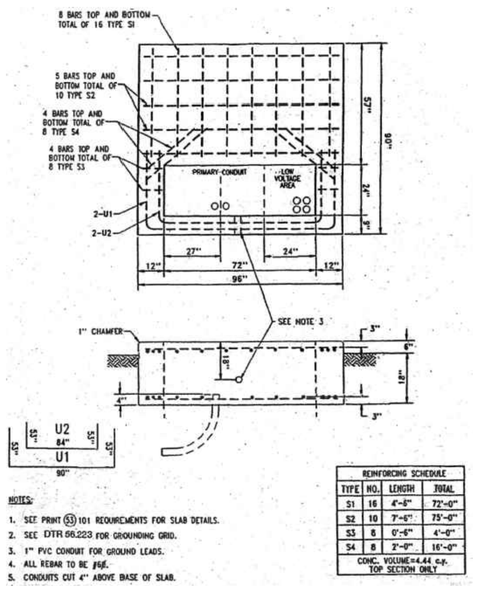
NOTES:
1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS.
4. WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.
5. INSTALLATION AND STANDARD DIMENSIONAL REQUIREMENTS SHALL BE WITH CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS.

TEST PRESSURE = 200psi	SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL					
	REACTION TYPE	PIPE SIZE				
		4"	6"	8"	10"	12"
	A 90°	0.89	2.19	3.82	11.14	17.24
	B 180°	0.65	1.55	2.78	8.38	12.00
	C 45°	0.48	1.19	2.12	6.02	9.32
	D 22-1/2°	0.25	0.60	1.06	3.08	4.74
	E 11-1/4°	0.13	0.30	0.54	1.54	2.38

THRUST BLOCKING DETAIL
NO SCALE

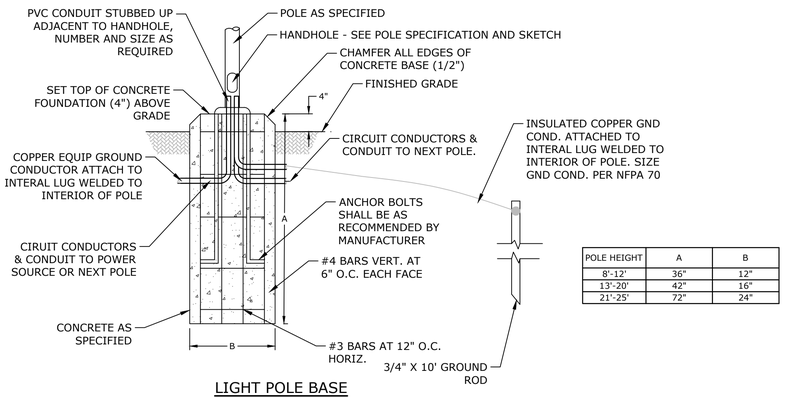


STANDARD SERVICE LATERAL CONNECTION
NO SCALE



REINFORCING SCHEDULE			
TYPE	NO.	LENGTH	TOTAL
S1	16	4'-6"	72'-0"
S2	10	7'-6"	75'-0"
S3	8	0'-6"	4'-0"
S4	8	2'-0"	16'-0"
CONC. VOLUME=4.44 c.y. TOP SECTION ONLY			

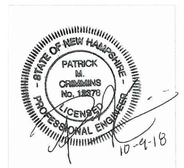
EVERSOURCE TRANSFORMER SLAB DETAIL
NO SCALE



POLE HEIGHT	A	B
8'-12'	36"	12"
13'-20'	42"	16"
21'-25'	72"	24"

LIGHT POLE BASE
NO SCALE

Tighe&Bond
Engineers | Environmental Specialists



Proposed Medical Office Building

DAR Real Estate, LLC

185 Cottage Street
Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	10/9/2018	PB Submission
B	9/18/2018	Revised TAC Submission
A	8/20/2018	TAC Submission

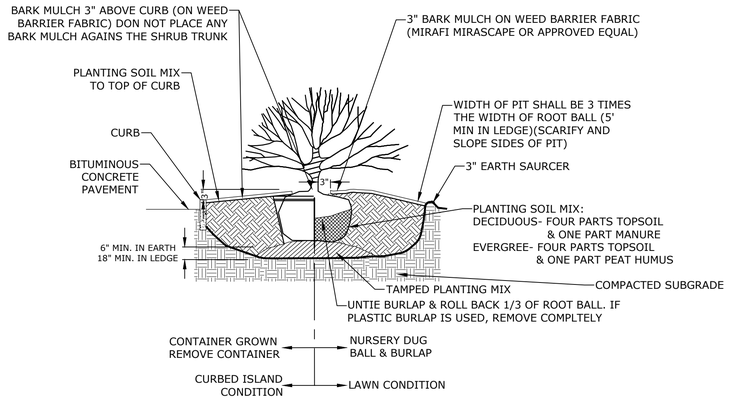
PROJECT NO:	D5108-001
DATE:	8/20/2018
FILE:	D5018-001_DTLS.DWG
DRAWN BY:	JPC/CML
CHECKED:	CML/PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

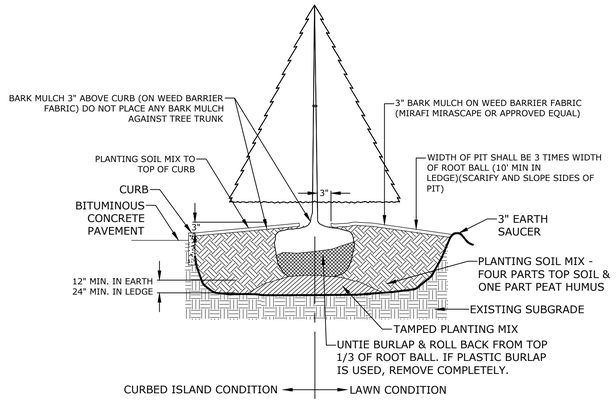
C-505

Last Save Date: October 8, 2018 3:18 PM By: CML
Plot Date: October 08, 2018 3:18 PM By: Craig M. Langton
T&B File Location: J:\D\D5018 David Rosania\001 - Cottage Street\Drawings_Figures\AutoCAD\Sheet\D5018-001_DTLS.dwg Layout Tab: C-505



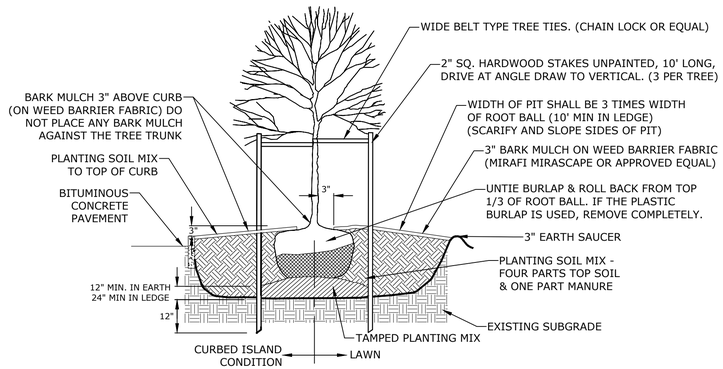
NOTE:
PLANT AT SAME DEPTH AS PREVIOUSLY PLANTED, OR WITHIN 2" ABOVE.

SHRUB PLANTING
NO SCALE



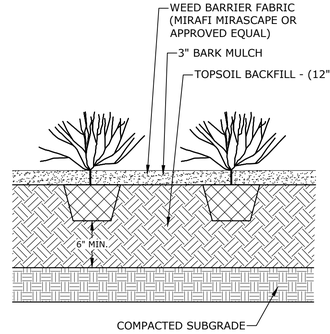
NOTE:
PLANT AT SAME DEPTH AS PREVIOUSLY PLANTED IN NURSERY, OR WITHIN 2" ABOVE.

EVERGREEN TREE PLANTING
NO SCALE

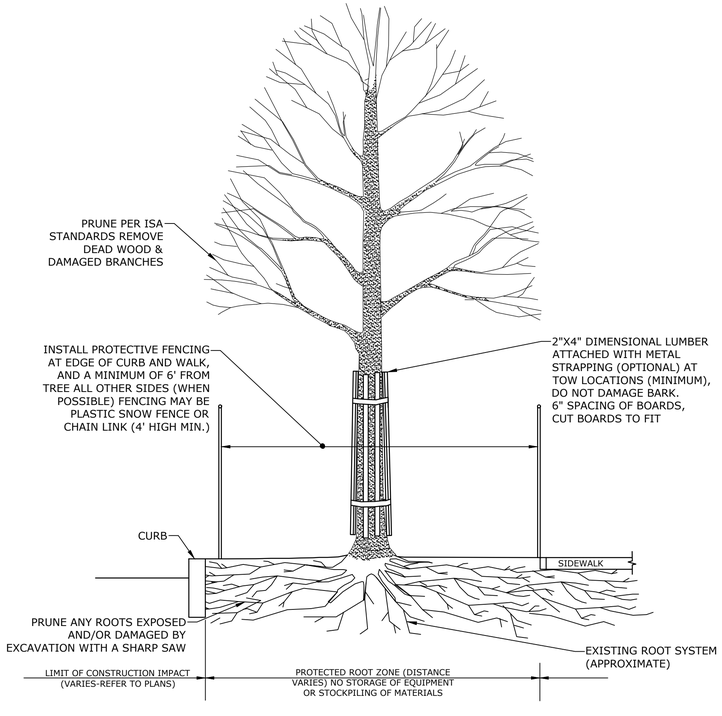


NOTE:
PLANT AT SAME DEPTH AS PREVIOUSLY PLANTED OR WITHIN 2" ABOVE.

DECIDUOUS TREE PLANTING
NO SCALE



PERENNIAL PLANTING
NO SCALE



TREE PROTECTION FOR EXISTING TREE
NO SCALE

Tighe&Bond
Engineers | Environmental Specialists

STATE OF NEW HAMPSHIRE - BRADLEE MEDEIROS No. 16650 LICENSED PROFESSIONAL ENGINEER
10-9-18

STATE OF NEW HAMPSHIRE - PATRICK M. CUMMINS No. 18376 LICENSED PROFESSIONAL ENGINEER
10-9-18

Proposed Medical Office Building

DAR Real Estate, LLC

185 Cottage Street
Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	10/9/2018	PB Submission
B	9/18/2018	Revised TAC Submission
A	8/20/2018	TAC Submission

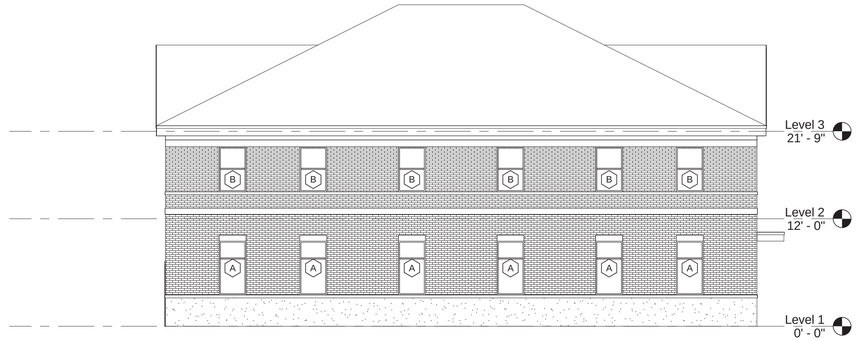
PROJECT NO:	D5108-001
DATE:	8/20/2018
FILE:	D5018-001_DTLS.DWG
DRAWN BY:	JPC/CML
CHECKED:	CML/PMC
APPROVED:	BLM

DETAILS SHEET

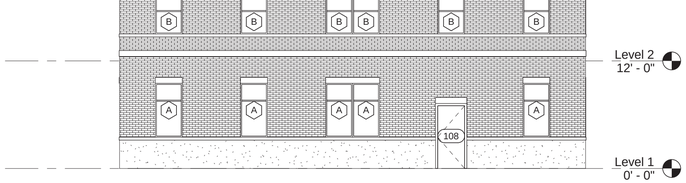
SCALE: AS SHOWN

C-506

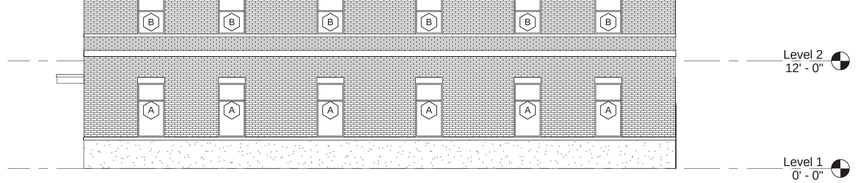
1 South
1/8" = 1'-0" | 1 - A101



2 West
1/8" = 1'-0" | 1 - A101



3 North
1/8" = 1'-0" | 1 - A101



4 East
1/8" = 1'-0" | 1 - A101

Seacoast Periodontics

Cottage Street
Portsmouth, NH

McHENRY
ARCHITECTURE
4 Market Street
Portsmouth, New Hampshire
603.430.0274

NOT FOR CONSTRUCTION
REVIEW SET ONLY

No.	Description	Date

Project Name:
Seacoast Periodontics

Drawing Name:
EXTERIOR ELEVATIONS

Project number:	18071
Date:	8/15/2018
Drawn by:	MB
Checked by:	JJ

A301

Scale: 1/8" = 1'-0"

9/10/2018 12:10:34 PM

Tighe&Bond
Engineers | Environmental Specialists

D5018-001
September 18, 2018

Ms. Dexter Legg, Chairman
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Waiver Request
Proposed Medical Office Building, 185 Cottage Street

Dear Chairman Legg:

On behalf of DAR Real Estate, LLC, we are submitting this Waiver Request from Site Plan Review Regulation Section 8.1.2 for the Proposed Medical Office Building project located 185 Cottage Street. Section 8.1.2 indicates that all new and relocated wires conduits and cables shall be located underground.

There are two (2) existing residences located at 185 Cottage Street that are currently serviced by overhead wires. Service to the residence on the western side of the parcel is fed into the site from an existing utility pole located along Cottage Street across from the site's driveway. Overhead services are connected to the existing residence by two (2) utility poles located on the property. The proposed project proposes to keep the first utility pole located in the center of the site. This pole would be re-used bring a three (3) phase electric service and telecommunication service overhead into the site from from Cottage Street. A riser would be constructed on this existing pole to drop the services underground to the proposed transformer and building.

We feel the waiver request is justified because using overhead wires to this pole would mimic the appearance of the existing condition to the first utility pole located in the center of the site. In addition, there are multiple utility crossings (gas, sewer, water and drainage) in Cottage Street which will pose a challenge for the construction of a new service underground in the street and may result in utility conflicts.

Sincerely,
TIGHE & BOND, INC.

Patrick M. Crimmins, P.E.
Senior Project Manager

Cc: DAR Real Estate, LLC
McHenry Architecture
Ricci Construction

Tighe&Bond
Engineers | Environmental Specialists

D5018-001
October 9, 2018

Mr. Dexter Legg, Chairman
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Site Review Application
Proposed Medical Office Building, 185 Cottage Street

Dear Chairman Legg:

On behalf of DAR Real Estate, LLC, we are pleased to submit the following supplemental materials to support a Site Review Application for the above referenced project:

- Two (2) full size and ten (10) half size copies of the Site Plan Set last revised October 9, 2018
- Twelve (12) copies of the Site Review Application dated August 20, 2018
- Twelve (12) copies of the Owner Authorization Letter from Colman C. Garland
- Twelve (12) copies of the Waiver Request Letter dated September 18, 2018
- Twelve (12) copies of the TAC Stipulation Response dated October 9, 2018
- Twelve (12) copies of the Fire Truck Turning Exhibit last revised August 20, 2018
- Twelve (12) copies of the Trip Generation Analysis, dated May 29, 2018
- Twelve (12) copies of the Drainage Analysis Memorandum last revised September 18, 2018
- Twelve (12) copies of the Green Building Statement prepared by McHenry Architecture
- Twelve (12) copies of the Lighting Cut Sheets
- Twelve (12) copies of Will Serve Letters from Unitil & Eversource
- Twelve (12) copies of Access Easements referenced in Existing Conditions Note #13A & 13D
- One (1) CD containing digital copies of the above listed materials

The proposed project includes the demolition of two (2) existing residential structures and construction of a two (2) story, ±6,800 SF medical office building with associated site improvements that consist of parking, stormwater management, utilities, lighting, and landscaping.

The proposed building layout shown on the Site Plans is based on a floor plan designed by McHenry Architecture, the project architect. Building elevations included in the Site Plan set and the Green Building Statement included in this package were prepared by McHenry Architecture.

On June 26, 2018 the Portsmouth Zoning Board of Adjustment (ZBA) granted a use variance for the site to allow medical (dental) offices where medical office us is not permitted in the General Residence A Zoning District. As part of the request for variance, a trip generation analysis was performed for this project and is enclosed with this package.

On October 2, 2018, the project received a recommendation for approval with stipulations from the Technical Advisory Committee (TAC). Enclosed is a TAC Stipulation Redponse which provides responses each of the stipulations.

We respectfully request to be placed on the Planning Board Agenda for October 18, 2018. Please contact me by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com if you have any questions or need any additional information.

Sincerely,
TIGHE & BOND, INC.

Patrick M. Crimmins, P.E.
Senior Project Manager

Cc: DAR Real Estate, LLC
McHenry Architecture
Ricci Construction

TAC Stipulation Response

Proposed Medical Office Building - 185 Cottage Street

October 9, 2018

Prior to Planning Board review			
#	**Comment**	**Response**	**Sheet #**
1	The 8 foot wide handicap access aisle shall have a NO PARKING sign to reinforce its intended use.	A "NO PARKING" has been added to the site plan and details.	C-102 & C-503
2	All proposed mechanical units shall be shown on the utility plan.	The applicant intends to put mechanical units on the roof of the proposed building where feasible. If any mechanical units are required to be on the ground the utilities plan shall be updated to depict this. See site note #19.	C-102
3	Consideration shall be given to adding additional street trees along Route 1 in the vicinity of the rain garden as long as adequate separation can be provided to the existing sewer line.	Two (2) additional elm trees have been added along Route 1.	C-105
4	The Site Plan to be recorded shall include a reference to the required raingarden and infiltration basin maintenance requirements.	Site note #17, stating "Applicant shall be responsible for implementing the approved operation and maintenance plan including the maintenance requirements for the proposed rain garden and Filterra bioretention system listed on sheet C-103."	C-102
5	Applicant shall look to relocate the existing arborvitae along the Cottage street frontage to another location such as behind the dumpster pad on site.	The existing arborvitae along Cottage Street have been called out to be transplanted to the area behind the proposed dumpster pad.	C-101 & C-105
6	Applicant shall provide a copy of the access easement to the abutting Doble Center property for review by the Planning Department.	Enclosed.	N/A
Prior to Planning Board review			
#	**Comment**	**Response**	**Sheet #**
7	Stormwater system maintenance and enforcement oversight by City of Portsmouth shall be documented in a deed restriction.	The applicant agrees.	N/A
8	Existing buildings shall be placarded for demolition as required by the demolition ordinance.	The applicant agrees.	N/A

D5018-1
May 29, 2018

Tighe&Bond
Engineers | Environmental Specialists

Mr. David Rosania
P.O. Box 93
Rye Beach, New Hampshire 03871

Re: **Trip Generation Analysis**
Proposed Medical Office Development – Cottage St., Portsmouth, NH

Dear David:

Tighe & Bond has performed a trip generation analysis for traffic related to the proposed 7,500 SF medical office development on a parcel of land located at the corner of Cottage Street and Route 1 Bypass that is identified as Map 174 Lot 14 on the City of Portsmouth Tax Maps. This trip generation analysis is provided to support a request for use variance as the parcel is currently zoned General Residence A.

This analysis was performed utilizing Institute of Transportation Engineers (ITE) Trip Generation Manual, latest edition. For purposes of analysis, we have compared the existing and proposed uses for the parcel. The parcel's existing use consists of three (3) residences. The proposed use for the parcel is 7,500 SF of medical office. The supporting trip generation calculations are enclosed with this letter.

	Existing Residences	Proposed Medical Office	Net Trips
Weekday AM Peak Hour			
Trips Entering	3	14	+11
Trips Exiting	9	4	- 5
Total Vehicle Trips	**12**	**18**	**+ 6**
Weekday PM Peak Hour			
Trips Entering	3	8	+ 5
Trips Exiting	1	20	+19
Total Vehicle Trips	**4**	**28**	**+24**
Average Daily			
Trips Entering	21	46	+25
Trips Exiting	21	46	+25
Total Vehicle Trips	**42**	**92**	**+50**

As depicted above, the proposed 7,500 SF medical office development will result in approximately 1 additional vehicle trip every 10 minutes during the Weekday AM Peak Hour and approximately 1 additional vehicle every 2-1/2 minutes during the Weekday PM Peak Hour. It is anticipated these additional trips will have minimal impact to the surrounding roadway network during these times. Also, the total daily trips will be generated during weekday professional business hours.

In October 2016, a proposed 24-hour fast food restaurant with drive thru previously requested and was denied several variances on this parcel including a use variance. Traffic impacts were cited as one of the primary concerns by the abutters and Zoning Board of Adjustment that ultimately led to the denial of the variance request. For purposes of comparison, we have also performed a trip generation analysis to compare the current proposed medical office to the previously denied fast food restaurant.

	Previously Denied Fast Food w/ Drive Thru	Proposed Medical Office	Net Trips
Weekday AM Peak Hour			
Trips Entering	46	14	- 32
Trips Exiting	45	4	- 41
Total Vehicle Trips	**91**	**18**	**- 73**
Weekday PM Peak Hour			
Trips Entering	34	8	- 26
Trips Exiting	31	20	- 11
Total Vehicle Trips	**65**	**28**	**- 37**
Average Daily			
Trips Entering	496	46	-450
Trips Exiting	496	46	-450
Total Vehicle Trips	**992**	**92**	**-900**

As depicted above, the current proposed medical office will generate less trips than the previously denied 24-hour fast food restaurant with drive thru. In addition to the reduced trip generation, the proposed medical office will be less impactful as there will be no concerns with drive-thru queuing. Also, vehicle trips will typically be generated during weekday professional business hours for the medical office use where the proposed 24-hour fast food restaurant with drive thru would have been generating vehicle trips all throughout day and significant trips would have been generated on weekends as shown in the enclosed Saturday daily calculations.

Please feel free to contact me at 603.433.8818 or pmcrimmins@tighebond.com if you have any questions.

Very truly yours,

TIGHE & BOND, INC.

Patrick M. Crimmins, P.E.
Project Manager

Enclosures: ITE Trip Generation Spreadsheets (Land Use Codes 210, 720 & 934)

J:\D\D5018 David Rosania\Report_Evaluation\Reports\Trip Generation\Trip Gen Letter.docx

Institute of Transportation Engineers (ITE)
Land Use Code (LUC) 210 - Single-Family Detached Housing

Average Vehicle Trips Ends vs: Dwelling Units
Independent Variable (X): 3

AVERAGE WEEKDAY DAILY
Ln T = 0.92 Ln (X) + 2.72
Ln T = 0.92 Ln 3 + 2.72
Ln T = 3.73
T = 41.71
T = 42 vehicle trips
with 50% (21 vph) entering and 50% (21 vph) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC
T = 0.70 * (X) + 9.74
T = 0.70 * 3 + 9.74
T = 11.84
T = 12 vehicle trips
with 25% (3 vph) entering and 75% (9 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC
Ln T = 0.90 Ln (X) + 0.51
Ln T = 0.90 Ln 3 + 0.51
Ln T = 1.50
T = 4.48
T = 4 vehicle trips
with 63% (3 vph) entering and 37% (1 vph) exiting.

Institute of Transportation Engineers (ITE)
Land Use Code (LUC) 720 - Medical-Dental Office Building

Average Vehicle Trips Ends vs: 1,000 Sq. Feet Gross Floor Area
Independent Variable (X): 7.500

AVERAGE WEEKDAY DAILY

T = 40.89 * (X) -214.97
T = 40.89 * 7.500 - 214.97
T = 91.71
T = 92 vehicle trips
with 50% (46 vph) entering and 50% (46 vph) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

T = 2.39 * (X)
T = 2.39 * 7.500
T = 17.93
T = 18 vehicle trips
with 79% (14 vph) entering and 21% (4 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

Ln T = 0.90 Ln (X) + 1.53
Ln T = 0.90 Ln 7.500 + 1.53
Ln T = 3.34
T = 28.32
T = 28 vehicle trips
with 28% (8 vph) entering and 72% (20 vph) exiting.

With Drive-Through Window

Average Vehicle Trips Ends vs: 1,000 Sq. Feet Gross Floor Area
Independent Variable (X): 2.000

AVERAGE WEEKDAY DAILY
T = 496.12 * (X)
T = 496.12 * 2.000
T = 992.24
T = 992 vehicle trips
with 50% (496 vpd) entering and 50% (496 vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC
T = 45.42 * (X)
T = 45.42 * 2.000
T = 90.84
T = 91 vehicle trips
with 51% (46 vph) entering and 49% (45 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC
T = 32.65 * (X)
T = 32.65 * 2.000
T = 65.30
T = 65 vehicle trips
with 52% (34 vph) entering and 48% (31 vph) exiting.

SATURDAY DAILY
T = 722.03 * (X)
T = 722.03 * 2.000
T = 1444.06
T = 1,444 vehicle trips
with 50% (722 vpd) entering and 50% (722 vpd) exiting.

CITY OF PORTSMOUTH
NEW HAMPSHIRE

SITE REVIEW APPLICATION

Building Permit Application Number _____

Case Number _____

Fee _____

Map: 174 Lot: 14 Zone: GRA Wetlands: Inland _____ Coastal _____ Lot Area: 0.91 Acres

Date of Approvals (Indicate if Pending)

Conservation Commission _____ Conditional Use _____ Board of Adjustment 6/26/18

Historic District Commission _____ Subdivision _____ Other _____

Street Address 185 Cottage Street

Description of Project including all use(s) This project consists of the demolition of 2 existing buildings and the construction of an 7,000 SF, 2-story medical office building with associated site improvements that include parking, stormwater management, utilities, lighting & landscaping.

Building(s) Footprint 3,500 SF Gross Floor Area 7,000 SF #of Stories 2

# of Dwelling Units _____ Number of Parking Spaces: Existing _____ Proposed 34

Print Information Below

Property Owner's Name Coleman Garland

Street Address 416 Saddleback Drive City/Town Fairview State TX Zip 75069

(603) 427-0000

Telephone # | Cell Phone # | Fax # | Email Address

Print Information Below

Applicant's / Developer's Name DAR Real Estate, LLC

Street Address 875 Greenland Rd, Suite B-7 City/Town Portsmouth State NH Zip 03801

(603) 294-0110 drosania@gmail.com

Telephone # | Cell Phone # | Fax # | Email Address

Print Information Below (Include Additional Contact Information on Next Page)

Check One: Owner's Attorney ☐ Applicant's Attorney ☐ Engineer X Surveyor ☐ Other ☐ If other, state relationship _____

Representative's Name Tighe & Bond

Street Address 177 Corporate Drive City/Town Portsmouth State NH Zip 03801

(603) 433-8818 pmcrimmins@tighebond.com

Telephone # | Cell Phone # | Fax # | Email Address

I hereby apply for Site Review and acknowledge that I will comply with all the ordinances and any stipulations of the Site Review Committee of the City of Portsmouth in the development and construction of this project.

Owner's Signature | Print Owner's Name David Rosania | Date 8/20/18

Applicant's/Developer's Signature | Print Applicant's/Developer's Name | Date

Print Information Below

Check One: Owner's Attorney ☐ Applicant's Attorney ☐ Engineer ☐ Surveyor ☐ Other ☐ If other, state relationship __________________

Representative's Name____

Street Address________________________________ City/Town ______________ State ____________ Zip ________

____

Telephone # Cell Phone # Fax # Email Address

Print Information Below

Check One: Owner's Attorney ☐ Applicant's Attorney ☐ Engineer ☐ Surveyor ☐ Other ☐ If other, state relationship __________________

Representative's Name____

Street Address________________________________ City/Town ______________ State ____________ Zip ________

____

Telephone # Cell Phone # Fax # Email Address

Print Information Below

Check One: Owner's Attorney ☐ Applicant's Attorney ☐ Engineer ☐ Surveyor ☐ Other ☐ If other, state relationship __________________

Representative's Name____

Street Address________________________________ City/Town ______________ State ____________ Zip ________

____

Telephone # Cell Phone # Fax # Email Address

Attachments

The following materials must be submitted to the Planning Department along with the completed Application Form:

☐ Site Plan Application Checklist
☐ Ten (10) stamped and folded copies of the site plan – four (4) full-size (22" x 34") and six (6) reduced (11" x 17")
☐ Digital copy of any plans and/or exhibits (in PDF format)
☐ Application Fee
☐ Any required State or Federal Permits

McHENRY ARCHITECTURE

September 4, 2018

City of Portsmouth Planning Board

GREEN BUILDING STATEMENT
Re: Proposed Medical Office Building at 185 Cottage Street, Portsmouth, NH

The building envelope of the proposed new medical office building at 185 Cottage Street is being designed to meet or exceed current State of NH adopted 2009 International Energy Code requirements. A U.S. Department of Energy "COMcheck" will be submitted with the building permit application.

· Foundation system to be cast in place concrete with continuous rigid insulation installed to depths required by the energy code. Continuous insulation to be provided under the concrete slab on grade for 2 feet along the exterior wall.

· Exterior walls to have cavity filled with closed cell spray foam insulation and a continuous air barrier. Exterior skin of building to be masonry.

· Exterior Windows to have thermally broken aluminum framing with insulated, high-performance glazing to provide enhanced thermal performance and solar control.

· Roofing system: Lighter colored architectural asphalt shingle roofing system over cavity filled with closed cell spray foam insulation.

· HVAC systems to consist of high-efficiency, variable volume rooftop units with economizers and variable speed drives. High efficiency condensing boilers with variable frequency pumps for providing heat to hydronic variable air volume boxes at spaces. Digital controls with occupancy sensors and nighttime setbacks.

· Plumbing: All fixtures to be low flow. High efficiency gas fired condensing boiler for domestic hot water.

· Lighting: Exterior lighting to be LED cutoff fixtures for energy efficiency and to minimize light pollution. All interior lighting to be LED throughout using less than 1 watt / sf and perimeter daylight sensors. Occupancy sensors to be utilized as required by code.

· Landscaping: local species that are drought tolerant to be incorporated into plantings list.

Sincerely,

Jeremiah Johnson
Senior Associate

4 Market Street, Portsmouth, NH 03801 T. 603.430.0274 F. 603.430.0247 www.mchenryarchitecture.com

McGraw-Edison

DESCRIPTION

The Galleon™ LED luminaire delivers exceptional performance in a highly scalable, low-profile design. Patented, high-efficiency AccuLED Optics™ system provides uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. IP66 rated and UL/cUL Listed for wet locations.

Catalog #		**Type**
Project		
Comments		**Date**
Prepared by		

SPECIFICATION FEATURES

Construction
Extruded aluminum driver enclosure thermally isolated from Light Squares for optimal thermal performance. Heavy-wall, die-cast aluminum end caps enclose housing and die-cast aluminum heat sinks. A unique, patent pending interlocking housing and heat sink provides scalability with superior structural rigidity. 3G vibration tested and rated. Optional tool-less hardware available for ease of entry into electrical chamber. Housing is IP66 rated.

Optics
Patented, high-efficiency injection-molded AccuLED Optics technology. Optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT 70 CRI. Optional 3000K, 5000K and 6000K CCT.

Electrical
LED drivers are mounted to removable tray assembly for ease of maintenance. 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. Standard with 0-10V dimming. Shipped standard with Eaton proprietary circuit module designed to withstand 10kV of transient line surge. The Galleon LED luminaire is suitable for operation in -40°C to 40°C ambient environments. For applications with ambient temperatures exceeding 40°C, specify the HA (High Ambient) option. Light Squares are IP66 rated. Greater than 90% lumen maintenance expected at 60,000 hours. Available in standard 1A drive current and optional 600mA, 800mA and 1200mA drive currents (nominal).

Mounting
STANDARD ARM MOUNT: Extruded aluminum arm includes internal bolt guides allowing for easy positioning of fixture during mounting. When mounting two or more luminaires at 90° and 120° apart, the EA extended arm may be required. Refer to the arm mounting requirement table. Round pole adapter included. For wall mounting, specify wall mount bracket option. QUICK MOUNT ARM: Adapter is bolted directly to the pole. Quick mount arm slide into place on the adapter and is secured via two screws, facilitating quick and easy installation. The versatile, patent pending, quick mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8". Removal of the door on the quick mount arm enables wiring of the fixture without having to access the driver compartment. A knock-out enables round pole mounting.

Finish
Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Heat sink is powder coated black. Standard housing colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available.

Warranty
Five-year warranty.

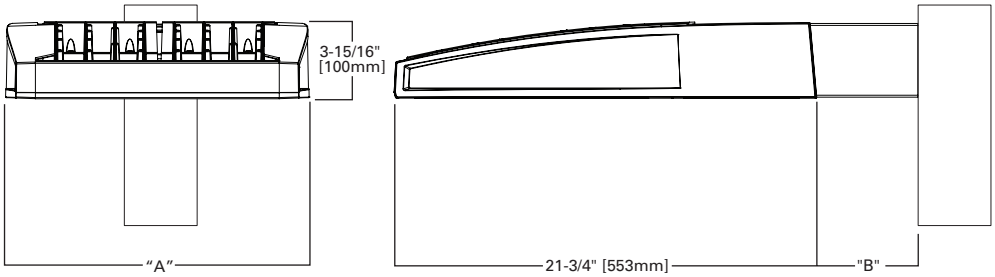
GLEON
GALLEON LED

1-10 Light Squares

Solid State LED

AREA/SITE LUMINAIRE

DIMENSIONS



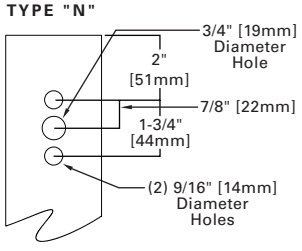
DIMENSION DATA

Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Optional Arm Length [1]	Weight with Arm (lbs.)	EPA with Arm [2] (Sq. Ft.)
1-4	15-1/2" (394mm)	7" (178mm)	10" (254mm)	33 (15.0 kgs.)	0.96
5-6	21-5/8" (549mm)	7" (178mm)	10" (254mm)	44 (20.0 kgs.)	1.00
7-8	27-5/8" (702mm)	7" (178mm)	13" (330mm)	54 (24.5 kgs.)	1.07
9-10	33-3/4" (857mm)	7" (178mm)	16" (406mm)	63 (28.6 kgs.)	1.12

NOTES: 1. Optional arm length to be used when mounting two fixtures at 90° on a single pole. **2.** EPA calculated with optional arm length.

DRILLING PATTERN

TYPE "N"



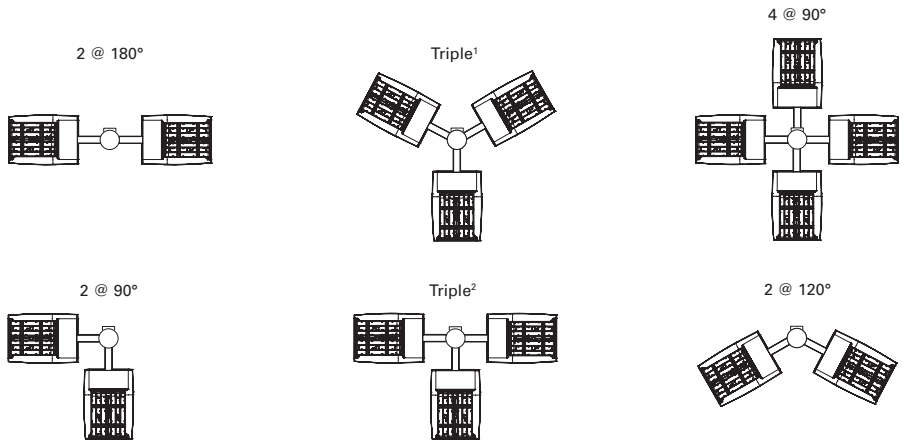
CERTIFICATION DATA
UL/cUL Wet Location Listed
ISO 9001
LM79 / LM80 Compliant
3G Vibration Rated
IP66 Rated
DesignLights Consortium™ Qualified*

ENERGY DATA
Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120V-277V 50/60Hz
347V & 480V 60Hz
-40°C Min. Temperature
40°C Max. Temperature
50°C Max. Temperature (HA Option)

*www.designlights.org

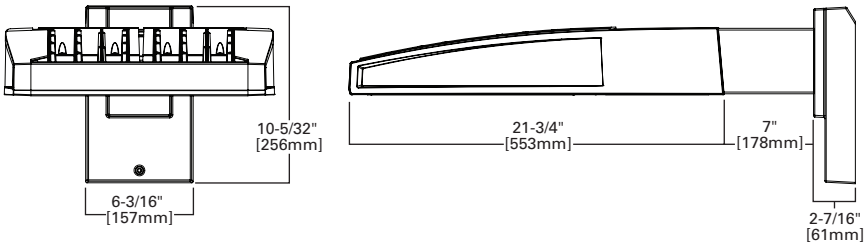
ARM MOUNTING REQUIREMENTS

Configuration	90° Apart	120° Apart
GLEON-AF-01	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-02	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-03	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-04	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-05	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AF-06	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AF-07	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AF-08	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AF-09	16" Extended Arm (Required)	16" Extended Arm (Required)
GLEON-AF-10	16" Extended Arm (Required)	16" Extended Arm (Required)

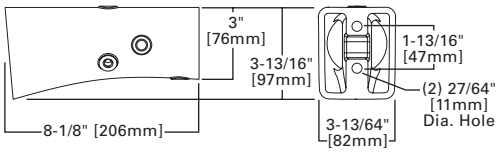


NOTES: 1 Round poles are 3 @ 120°. Square poles are 3 @ 90°. **2** Round poles are 3 @ 90°.

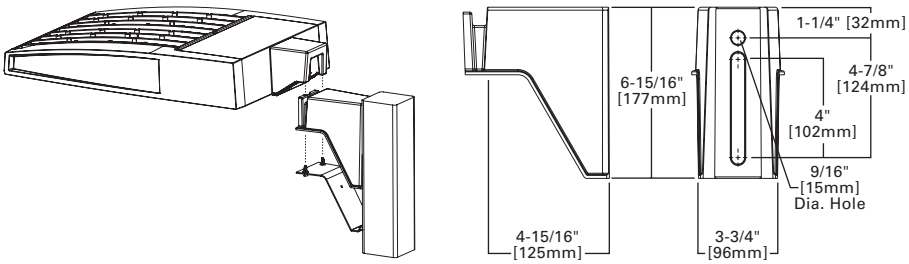
STANDARD WALL MOUNT



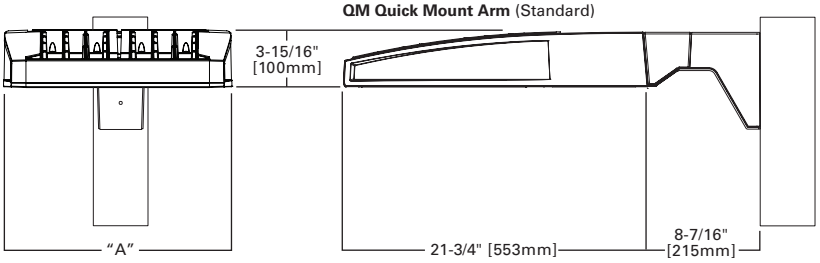
MAST ARM MOUNT



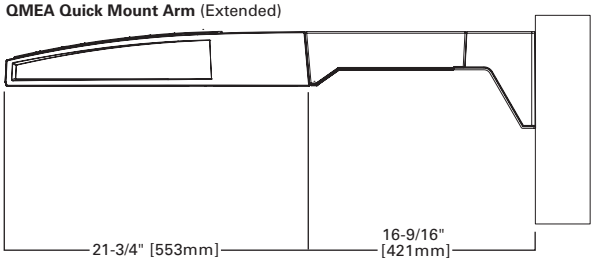
QUICK MOUNT ARM (INCLUDES FIXTURE ADAPTER)



QM Quick Mount Arm (Standard)



QMEA Quick Mount Arm (Extended)



QUICK MOUNT ARM DATA

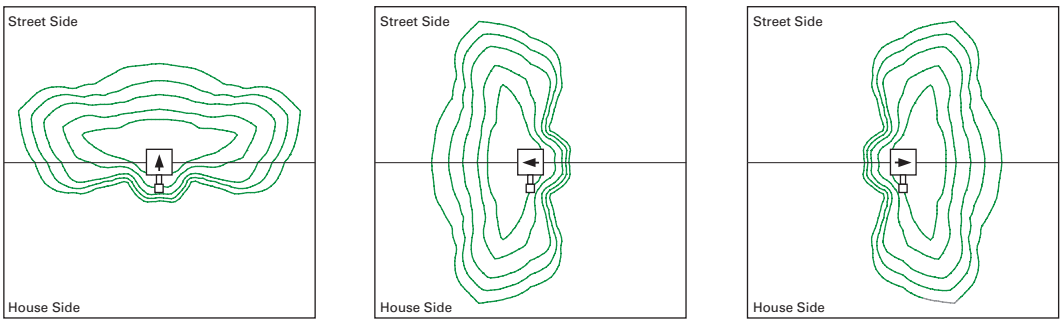
Number of Light Squares [1,2]	"A" Width	Weight with QM Arm (lbs.)	Weight with QMEA Arm (lbs.)	EPA (Sq. Ft.)
1-4	15-1/2" (394mm)	35 (15.91 kgs.)	38 (17.27 kgs.)	1.11
5-6 [3]	21-5/8" (549mm)	46 (20.91 kgs.)	49 (22.27 kgs.)	
7-8	27-5/8" (702mm)	56 (25.45 kgs.)	59 (26.82 kgs.)	

NOTES: 1 QM option available with 1-8 light square configurations. **2** QMEA option available with 1-6 light square configurations. **3** QMEA arm to be used when mounting two fixtures at 90° on a single pole.

Powering Business Worldwide

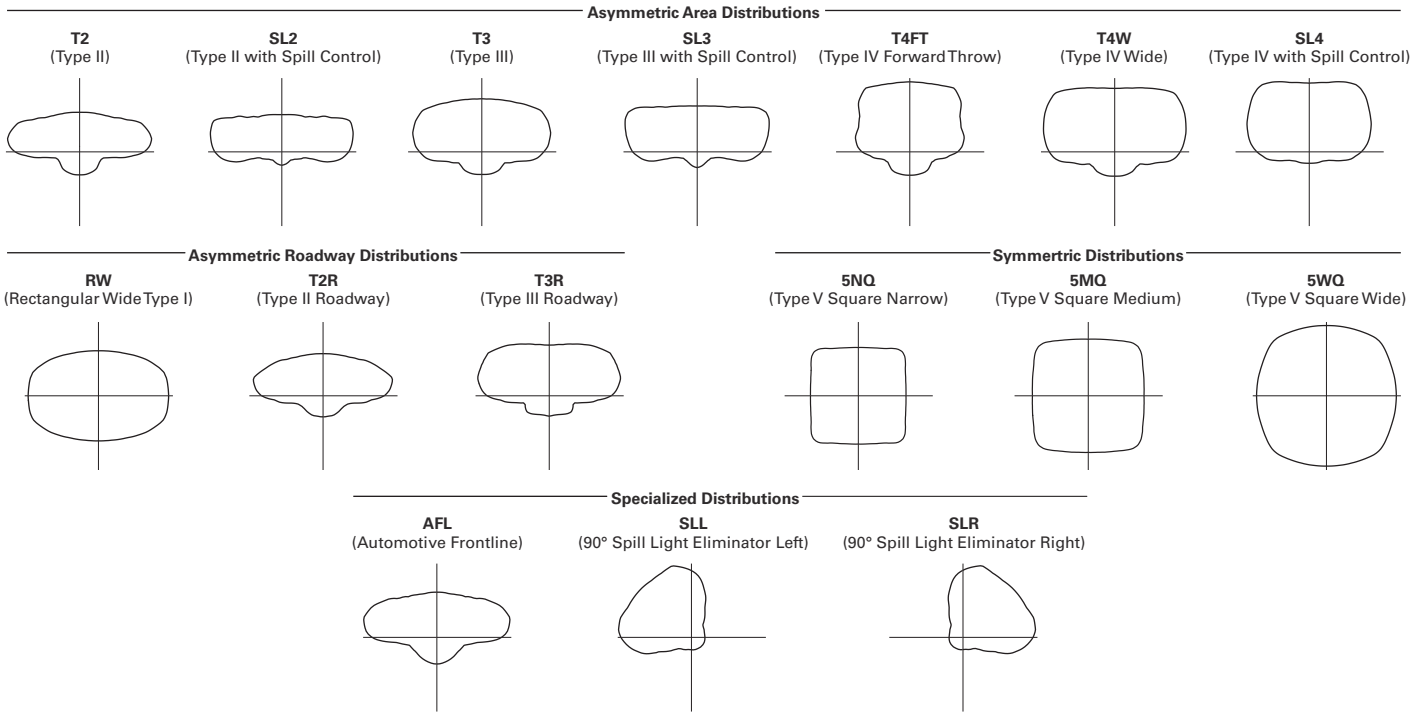
Eaton
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.eaton.com/lighting

OPTIC ORIENTATION



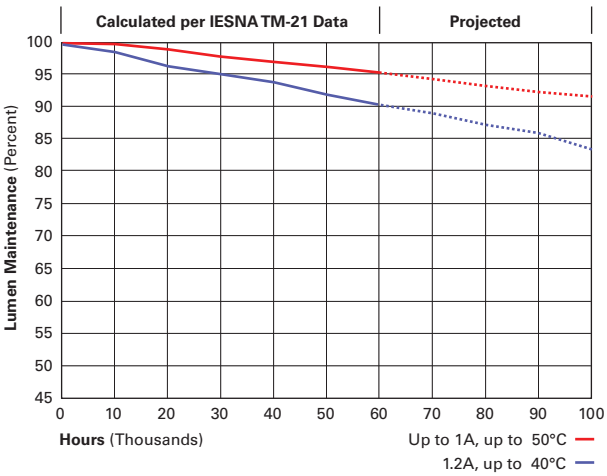
Standard | **Optics Rotated Left @ 90°** [L90] | **Optics Rotated Right @ 90°** [R90]

OPTICAL DISTRIBUTIONS



LUMEN MAINTENANCE

Drive Current	Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Projected L70 (Hours)
Up to 1A	Up to 50°C	> 95%	416,000
1.2A	Up to 40°C	> 90%	205,000



LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

Powering Business Worldwide

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McGraw-Edison

DESCRIPTION

The Galleon™ wall LED luminaire's appearance is complementary with the Galleon area and site luminaire bringing a modern architectural style to lighting applications. Flexible mounting options accommodate wall surfaces in both an upward and downward configuration. The Galleon family of LED products deliver exceptional performance with patented, high-efficiency AccuLED Optics™, providing uniform and energy conscious lighting for parking lots, building and security lighting applications.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction
Driver enclosure thermally isolated from optics for optimal thermal performance. Heavy wall aluminum housing die-cast with integral external heat sinks to provide superior structural rigidity and an IP66 rated housing. Overall construction passes a 1.5G vibration test to ensure mechanical integrity. UPLIGHTING: Specify with the UPL option for inverted mount uplight housing with additional protections to maintain IP rating.

Optics
Choice of thirteen patented, high-efficiency AccuLED Optics. The optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 3000K, 5000K and 6000K CCT. Greater than 90% lumen maintenance expected at 60,000 hours. Available in standard 1A drive current and optional 1200mA, 800mA, and 600mA drive currents.

Electrical
LED drivers are mounted for ease of maintenance. 120-277V 50/60Hz, 347V or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. Drivers are provided standard with 0-10V dimming. An optional Eaton proprietary surge protection module is available and designed to withstand 10kV of transient line surge. The Galleon Wall LED luminaire is suitable for operation in -30°C to 40°C ambient environments. For applications with ambient temperatures exceeding 40°C, specify the HA (High Ambient) option. Emergency egress options for -20°C ambient environments and occupancy sensor available.

Mounting
Gasketed and zinc plated rigid steel mounting attachment fits directly to 4" j-box or wall with the Galleon Wall "Hook-N-Lock" mechanism for quick installation. Secured with two captive corrosion resistant black oxide coated allen head set screws which are concealed but accessible from bottom of fixture.

Finish
Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult the McGraw-Edison Architectural Colors brochure for the complete selection.

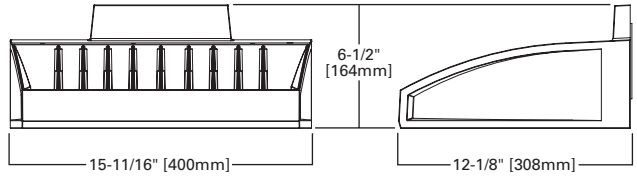
Warranty
Five-year warranty.

GWC GALLEON WALL LUMINAIRE

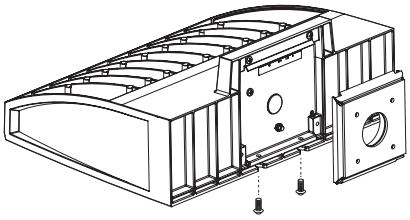
1-2 Light Squares
Solid State LED

WALL MOUNT LUMINAIRE

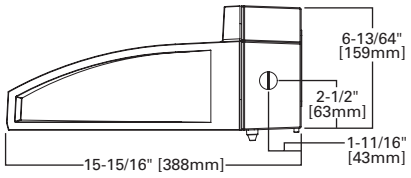
DIMENSIONS



HOOK-N-LOCK MOUNTING



BATTERY BACKUP AND THRU-BRANCH BACK BOX



CERTIFICATION DATA

UL/cUL Listed
LM79 / LM80 Compliant
IP66 Housing
ISO 9001
DesignLights Consortium™ Qualified*

ENERGY DATA

Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120-277V/50 & 60Hz, 347V/60Hz, 480V/60Hz
-30°C Minimum Temperature
40°C Ambient Temperature Rating

SHIPPING DATA

Approximate Net Weight:
27 lbs. (12.2 kgs.)

Powering Business Worldwide

*www.designlights.org

POWER AND LUMENS

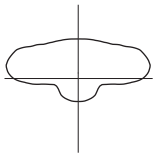
Number of Light Squares		1				2			
Drive Current		600mA	800mA	1.0A	1.2A	600mA	800mA	1.0A	1.2A
Nominal Power (Watts)		34	44	59	67	66	85	113	129
Input Current @ 120V (A)		0.30	0.39	0.51	0.58	0.58	0.77	1.02	1.16
Input Current @ 208V (A)		0.17	0.22	0.29	0.33	0.34	0.44	0.56	0.63
Input Current @ 240V (A)		0.15	0.19	0.26	0.29	0.30	0.38	0.48	0.55
Input Current @ 277V (A)		0.14	0.17	0.23	0.25	0.28	0.36	0.42	0.48
Input Current @ 347V (mA)		0.11	0.15	0.17	0.20	0.19	0.24	0.32	0.39
Input Current @ 480V (mA)		0.08	0.11	0.14	0.15	0.15	0.18	0.24	0.30
Optics									
T2	4000K/5000K Lumens	4,110	5,040	6,238	6,843	8,031	9,849	12,190	13,373
	3000K Lumens	3,638	4,461	5,522	6,057	7,109	8,718	10,791	11,838
	BUG Rating	B1-U0-G1	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2
T3	4000K/5000K Lumens	4,189	5,138	6,359	6,975	8,187	10,039	12,425	13,630
	3000K Lumens	3,708	4,548	5,629	6,174	7,247	8,887	10,999	12,065
	BUG Rating	B1-U0-G1	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2
T4FT	4000K/5000K Lumens	4,214	5,167	6,395	7,016	8,233	10,097	12,497	13,709
	3000K Lumens	3,730	4,574	5,661	6,211	7,288	8,938	11,062	12,135
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3
T4W	4000K/5000K Lumens	4,159	5,100	6,313	6,925	8,127	9,966	12,336	13,532
	3000K Lumens	3,682	4,515	5,588	6,130	7,194	8,822	10,920	11,979
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3
SL2	4000K/5000K Lumens	4,102	5,032	6,227	6,831	8,018	9,832	12,170	13,350
	3000K Lumens	3,631	4,454	5,512	6,047	7,098	8,703	10,773	11,817
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3
SL3	4000K/5000K Lumens	4,188	5,137	6,358	6,974	8,186	10,038	12,424	13,628
	3000K Lumens	3,707	4,547	5,628	6,173	7,246	8,886	10,998	12,064
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G3
SL4	4000K/5000K Lumens	3,980	4,880	6,040	6,626	7,776	9,537	11,803	12,949
	3000K Lumens	3,523	4,320	5,347	5,865	6,883	8,442	10,448	11,462
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G3
5NQ	4000K/5000K Lumens	4,321	5,298	6,558	7,193	8,443	10,353	12,814	14,057
	3000K Lumens	3,825	4,690	5,805	6,367	7,474	9,164	11,343	12,443
	BUG Rating	B2-U0-G1	B2-U0-G1	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2
5MQ	4000K/5000K Lumens	4,400	5,396	6,678	7,326	8,598	10,544	13,050	14,315
	3000K Lumens	3,895	4,777	5,911	6,485	7,611	9,334	11,552	12,672
	BUG Rating	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
5WQ	4000K/5000K Lumens	4,412	5,410	6,695	7,345	8,621	10,572	13,085	14,354
	3000K Lumens	3,906	4,789	5,926	6,502	7,631	9,358	11,583	12,706
	BUG Rating	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
SLL/SLR	4000K/5000K Lumens	3,681	4,515	5,588	6,129	7,193	8,821	10,917	11,976
	3000K Lumens	3,258	3,997	4,946	5,425	6,367	7,808	9,664	10,601
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G3
RW	4000K/5000K Lumens	4,281	5,250	6,498	7,129	8,366	10,259	12,698	13,930
	3000K Lumens	3,790	4,647	5,752	6,311	7,406	9,081	11,240	12,331
	BUG Rating	B2-U0-G1	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2

* Nominal lumen data for 70 CRI. BUG rating for 4000K/5000K. Refer to IES files for 3000K BUG ratings.

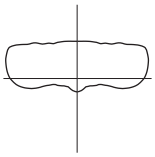
OPTICAL DISTRIBUTIONS

Asymmetric Area Distributions

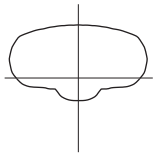
T2
(Type II)



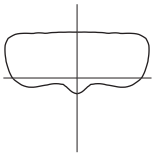
SL2
(Type II with Spill Control)



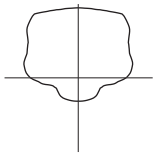
T3
(Type III)



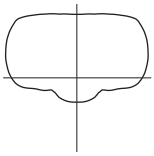
SL3
(Type III with Spill Control)



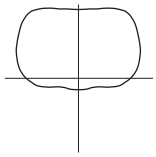
T4FT
(Type IV Forward Throw)



T4W
(Type IV Wide)

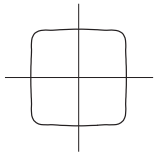


SL4
(Type IV with Spill Control)

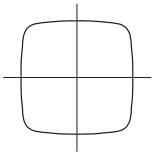


Symmertric Distributions

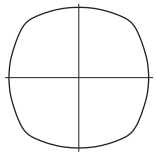
5NQ
(Type V Square Narrow)



5MQ
(Type V Square Medium)

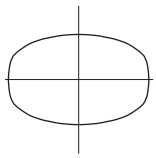


5WQ
(Type V Square Wide)

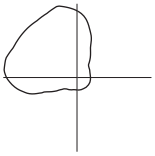


Specialized Distributions

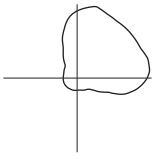
RW
(Rectangular Wide Type I)



SLL
(90° Spill Light Eliminator Left)

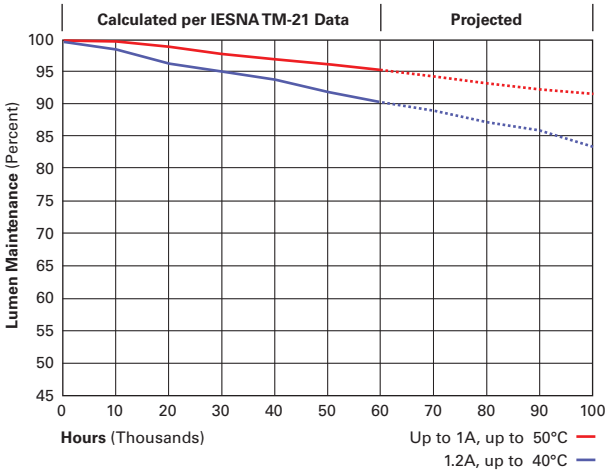


SLR
(90° Spill Light Eliminator Right)



LUMEN MAINTENANCE

Drive Current	Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Projected L70 (Hours)
Up to 1A	Up to 50°C	> 95%	> 416,000
1.2A	Up to 40°C	> 90%	> 205,000



LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

Powering Business Worldwide

Eaton
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.eaton.com/lighting

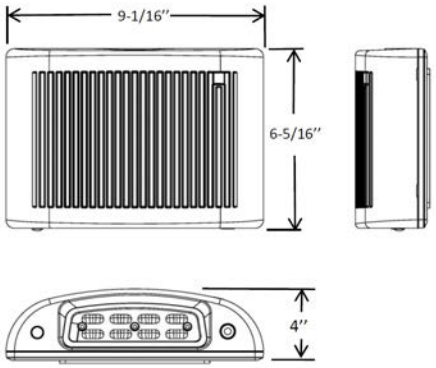
MERU Series

LED GENERAL & EMERGENCY LIGHTING

PROJECT:
FIXTURE TYPE:
LOCATION:
CONTACT/PHONE:

PRODUCT DESCRIPTION

The MERU Series is an architectural, low-profile outdoor light, offering "normally On" AC and emergency lighting with powerful LED illumination. The housing is fully sealed and gasketed, and has an IP65 rating. Designed for wall mounting with universal K/O pattern in back-plate for easy installation to most standard size junction boxes. Includes a single ½" NPT conduit entry in the top, center of the housing. Illumination provided by 8 high power LEDs which achieve 1,600 lumens in AC and 600 lumens in emergency. LED color at 4000K.



PRODUCT SPECIFICATIONS

CONSTRUCTION

Die cast aluminum housing with superior heat sink • Scratch resistant Polyester powder coat finish • UV resistant polycarbonate lens • Snap-fit housing and mounting plate are held together by four stainless steel clips • Universal mounting pattern molded into the back plate • 1/2" threaded top access for surface conduit installation • Silicone rubber seal with hollow center, shape adaptive design protects the electrical components • Junction box neoprene seal is attached to the back plate for a weather proof installation • Dark Bronze or White textured finish.

ELECTRICAL

Dual voltage 120/277VAC 60Hz input • Solid state charging and switching • Battery low voltage disconnect • AC power indicator and test switch at the bottom of the unit • Standard with Self Diagnostics to monitor proper operation.

LAMPS

Supplied with eight (8) LG SMD 4000K LED'S • L70 > 72,000hours • 17 Watts total (32 Watts with IH option) • 1600 Lumens in AC mode, 600 Lumens in Emergency mode • Full cut-off optics for Dark Sky compliance

BATTERY

Maintenance-free, long-life rechargeable NiCad battery will operate fixture for a minimum of 90 minutes in the event of a power outage • 24 hour recharge after 90 minute discharge.

CODE COMPLIANCE

UL924 • Listed for wet location applications (0˚C-50˚C) • Optional "IH" cold weather package for (-40˚C-50˚C) • IP65 Rated • NFPA 101 Life Safety Code compliant • NEC and OSHA compliant • DLC Listed • RoHS Compliant

WARRANTY

5-year warranty. Product specifications subject to change without notice.

ACEM Model (NiCad Battery Backup)

Integral photocell: Unit operates as a dusk to dawn luminaire and in the event of a power failure as an emergency light.
Remote Switched: The integral photocell can be defeated to allow remote switching for normal operation. In the event of a power failure unit operates as an emergency light.

INSTALLATION

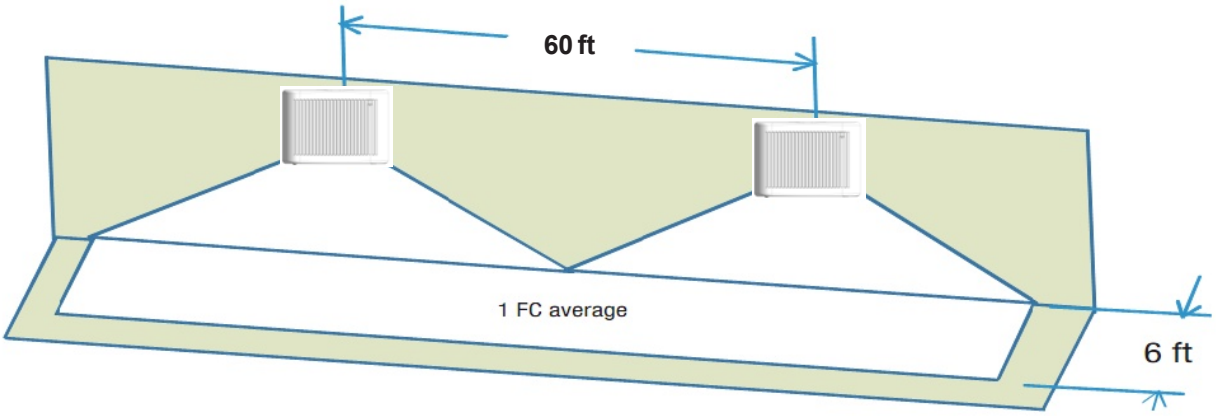
MOUNTING

Suitable for indoor or outdoor wall mounting on junction box, or with surface conduit using the supplied 1/2" threaded top access • Mounting plate has molded universal mounting pattern for simple mounting over junction box.

ORDERING INFORMATION

model	operation mode	housing color	options
MERU-LED	ACEM = General & Emergency Lighting	DB = Dark Bronze	*Self-Diagnostics & Photocell (Included Standard)*
	AC = General Lighting	WH = White	IH = Internal Heater
		BK = Black	PIR = Passive Infra-Red Motion Sensor
Ordering Example: MERU-ACEM-DB		NK = Nickel	

PHOTOMETRICS



Note: Meets Life Safety Code standard minimum illuminance of 0.1 FC and average illuminance of 1.0 FC.
Illustration shown is a guideline for corridor center-to-center with 9 ft mounting height and Minimum 80-50-20 reflectance values.

Mounting Height	Center to center distance
7.2ft	45ft
9ft	60ft
10ft	65ft

SELF DIAGNOSTICS

Included Self Diagnostic

Diagnostic Indicator / Test Switch

- Ready
- In Test
- Battery Circuit Fault
- Battery Capacity Failure
- Charger Failure
- Transformer Fault
- Lamp Failure

Manual Testing

Press button once - 1 minute test
Press button twice - 5 minute test
Press button 3 times - 30 minute test
Press button 4 times - 90 minute test

Full self-test, self-diagnostic system is standard in every unit, performs a monthly, test as well as continuously monitoring all functions to ensure reliability, a manual test may be initiated at any time

Steel Poles

SSS SQUARE STRAIGHT STEEL

Catalog #		**Type**	
Project			
Comments		**Date**	
Prepared by			

FEATURES
- ASTM Grade steel base plate with ASTM A366 base cover
- Hand hole assembly 3" x 5" on 5" and 6" pole; and 2" x 4" on 4" pole
- 10'-39' mounting heights
- Drilled or tenon (specify)

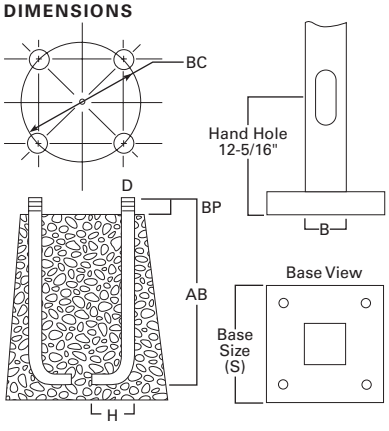
ORDERING INFORMATION

SAMPLE NUMBER: SSS5A20SFM1XG

Product Family	Shaft Size (Inches)[1]	Wall Thickness (Inches)	Mounting Height (Feet)	Base Type	Finish	Mounting Type	Number and Location of Arms	Arm Lengths (Feet)	Options (Add as Suffix)
SSS=Square Straight Steel	**4**=4" **5**=5" **6**=6"	**A**=0.120" **M**=0.188" **X**=0.250"	**10**=10' **15**=15' **20**=20' **25**=25' **30**=30' **35**=35' **39**=39'	**S**=Square Steel Base	**F**=Dark Bronze **G**=Galvanized Steel **J**=Summit White **K**=Carbon Bronze **L**=Dark Platinum **P**=Primer Powder Coat **R**=Hartford Green **S**=Silver **T**=Graphite Metallic **V**=Grey **W**=White **X**=Custom Color **Y**=Black	**2**=2-3/8" O.D. Tenon (4" Long) **3**=3-1/2" O.D. Tenon (5" Long) **4**=4" O.D. Tenon (6" Long) **5**=3" O.D. Tenon (4" Long) **6**=2-3/8" O.D. Tenon (6" Long) **7**=4" O.D. Tenon (10" Long) **A**=Type A Drilling **C**=Type C Drilling **E**=Type E Drilling **F**=Type F Drilling **G**=Type G Drilling **J**=Type J Drilling **K**=Type K Drilling **M**=Type M Drilling **R**=Type R Drilling **Z**=Type Z Drilling	**1**=Single **2**=2 at 180° **3**=Triple[2] **4**=4 at 90° **5**=2 at 90° **X**=None	**X**=None	**A**=1/2" Tapped Hub (Specify location desired) **B**=3/4" Tapped Hub (Specify location desired) **C**=Convenience Outlet[3] **E**=GFCI Convenience Outlet[3] **G**=Ground Lug **H**=Additional Hand Hole[4] **L**=Drilled for Bumper Glitter **V**=Vibration Dampener

NOTES: 1. All shaft sizes nominal. **2.** Square poles are 3 at 90°, round poles are 3 at 120°. **3.** Outlet is located 4' above base and on same side of pole as hand hole, unless specified otherwise. Receptacle not included, provision only. **4.** Additional hand hole is located 12" below pole top and 90° from standard hand hole location, unless otherwise specified.

DIMENSIONS



WARNING: Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to pole white paper WP513001EN for additional support information. Before installing, make sure proper anchor bolts and templates are obtained. The use of unauthorized accessories such as banners, signs, cameras or pennants for which the pole was not designed voids the pole warranty and may result in pole failure causing serious injury or property damage. Information regarding total loading capacity can be supplied upon request. The pole warranty is void unless poles are used and installed as a complete pole and luminaire combination. This warranty specifically excludes failure as the result of a third party act or omission, misuse, unanticipated uses, fatigue failure or similar phenomena resulting from induced vibration, harmonic oscillation or resonance associated with movement of air currents around the product.

Specifications and dimensions subject to change without notice. Consult your lighting representative at Eaton or visit www.eaton.com/lighting for available options, accessories and ordering information.

Effective Projected Area (At Pole Top)

Mounting Height (Feet)	Catalog Number [1, 2]	Wall Thickness (Inches)	Base Square [3] (Inches)	Bolt Circle Diameter (Inches)	Anchor Bolt Projection [3] (Inches)	Shaft Size [3] (Inches)	Anchor Bolt Diameter x Length x Hook (Inches)	Net Weight (Pounds)	Maximum Effective Projected Area (Square Feet) [4]				Max. Fixture Load - Includes Bracket (Pounds)
MH			S	BC	BP	B	D x AB x H		80 mph	90 mph	100 mph	110 mph	
10	SSS4A10S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	85	30.0	22.0	17.0	13.0	100
15	SSS4A15S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	118	15.0	11.5	8.7	6.5	100
20	SSS4A20S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	150	8.7	5.9	3.9	2.5	150
20	SSS5A20S	0.120	10-1/2	11	4-1/2	5	3/4 x 25 x 3	183	15.4	11.1	7.9	5.5	150
25	SSS4A25S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	181	3.7	1.7	0.3	--	200
25	SSS5A25S	0.120	10-1/2	11	5	5	3/4 x 25 x 3	222	9.3	6.0	3.5	1.6	200
25	SSS6A25S	0.120	12-1/2	12-1/2	5	6	1 x 36 x 4	284	9.9	6.1	3.5	1.2	200
30	SSS5A30S	0.120	10-1/2	11	4-1/2	5	3/4 x 25 x 3	260	4.7	2.1	--	--	200
30	SSS5M30S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	392	10.4	6.4	3.5	1.5	200
30	SSS6A30S	0.120	12-1/2	12-1/2	5	6	1 x 36 x 4	330	4.3	1.4	--	--	200
30	SSS6M30S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	489	19.0	13.0	8.7	5.6	200
35	SSS5M35S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	453	5.8	2.8	--	--	200
35	SSS6M35S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	564	12.8	7.2	3.7	1.0	200
35	SSS6X35S	0.250	12-1/2	12-1/2	5	6	1 x 36 x 4	738	16.5	11.0	6.8	3.5	200
39	SSS6M39S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	618	7.3	3.0	--	--	300
39	SSS6X39S	0.250	12-1/2	12-1/2	5	6	1 x 36 x 4	816	13.0	7.0	3.7	0.8	300

Effective Projected Area (Two Feet Above Pole Top)

Mounting Height (Feet)	Catalog Number [1, 2]	Wall Thickness (Inches)	Base Square [3] (Inches)	Bolt Circle Diameter (Inches)	Anchor Bolt Projection [3] (Inches)	Shaft Size [3] (Inches)	Anchor Bolt Diameter x Length x Hook (Inches)	Net Weight (Pounds)	Maximum Effective Projected Area (Square Feet) [4]				Max. Fixture Load - Includes Bracket (Pounds)
MH			S	BC	BP	B	D x AB x H		80 mph	90 mph	100 mph	110 mph	
10	SSS4A10S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	85	23.0	17.5	14.0	11.0	100
15	SSS4A15S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	118	13.4	10.0	7.5	5.7	100
20	SSS4A20S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	150	7.6	5.2	3.4	2.1	150
20	SSS5A20S	0.120	10-1/2	11	4-1/2	5	3/4 x 25 x 3	183	13.8	9.9	7.1	4.9	150
25	SSS4A25S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	181	3.4	1.6	0.3	--	200
25	SSS5A25S	0.120	10-1/2	11	5	5	3/4 x 25 x 3	222	8.5	5.5	3.2	1.5	200
25	SSS6A25S	0.120	12-1/2	12-1/2	5	6	1 x 36 x 4	284	9.1	5.6	3.0	1.2	200
30	SSS5A30S	0.120	10-1/2	11	4-1/2	5	3/4 x 25 x 3	260	1.8	--	--	--	200
30	SSS5M30S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	392	9.6	5.9	1.9	0.2	200
30	SSS6A30S	0.120	12-1/2	12-1/2	5	6	1 x 36 x 4	330	4.1	1.3	--	--	200
30	SSS6M30S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	489	18.5	12.5	8.4	5.3	200
35	SSS5M35S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	453	5.5	2.4	--	--	200
35	SSS6M35S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	564	11.8	7.0	3.5	1.0	200
35	SSS6X35S	0.250	12-1/2	12-1/2	5	6	1 x 36 x 4	738	16.0	10.5	6.4	3.4	200
39	SSS6M39S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	618	7.0	2.4	--	--	300
39	SSS6X39S	0.250	12-1/2	12-1/2	5	6	1 x 36 x 4	816	12.0	6.7	3.0	0.5	300

NOTES:

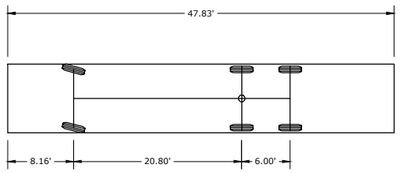
1. Catalog number includes pole with hardware kit. Anchor bolts not included. Before installing, make sure proper anchor bolts and templates are obtained.
2. Tenon size or machining for rectangular arms must be specified. Hand hole position relative to drill location.
3. Shaft size, base square, anchor bolts and projections may vary slightly. All dimensions nominal.
4. EPAs based on shaft properties with wind normal to flat. EPAs calculated using base wind velocity as indicated plus 30% gust factor.

AUTHORIZATION

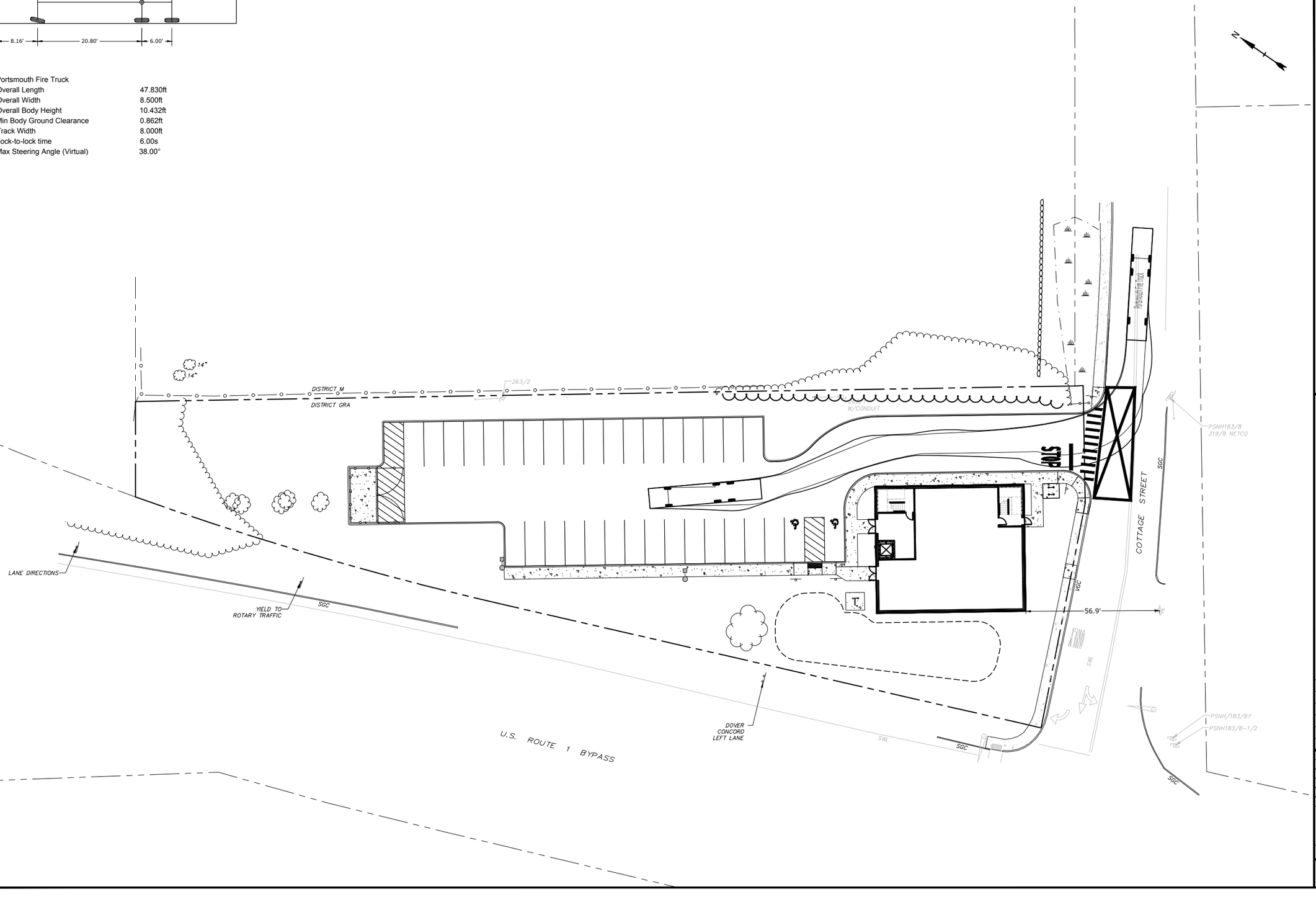
The undersigned, Colman C. Garland, owner of the property located at 185 Cottage Street, Portsmouth, New Hampshire and identified as Portsmouth Tax Map 19, Lot 6 (the "Property"), hereby authorize DAR Real Estate, LLC ("DAR") and its advisors Tighe & Bond and Hoefle, Phoenix, Gormley and Roberts, P.A., to file documents and appear before the Portsmouth Zoning Board of Adjustment, Planning Board and/or Technical Advisory Committee in all matters relating to applications by DAR to permit the construction of a medical office building on the Property.

Colman C. Garland

Colman C. Garland, Owner



Portsmouth Fire Truck	
Overall Length	47.830ft
Overall Width	8.500ft
Overall Body Height	10.432ft
Min Body Ground Clearance	0.862ft
Track Width	8.000ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	38.00°



SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Tighe&Bond
Engineers | Environmental Specialists

Proposed Medical Office Building

DAR Real Estate, LLC

185 Cottage Street
Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	8/20/2018	TAC Submission

PROJECT NO:	D5108-001
DATE:	8/20/2018
FILE:	D5018-001_DSGN.DWG
DRAWN BY:	JPC/CML
CHECKED:	CML/PMC
APPROVED:	BLM

FIRE TRUCK TURNING EXHIBIT

SCALE: AS SHOWN

1 OF 1

Last Save Date: August 20, 2018 12:23 PM By: CML
Plot Date: Monday, August 20, 2018 Plotted By: Craig M. Langton
T&B File Location: J:\D\D5018 Dawid Rosenia\001 - Cottage Street\Drawings, Figures\AutoCAD\Sheet\D5018-001_DSGN.dwg Layout Tab: Truck Turning

Unitil

9/10/18

DAR Real Estate, LLC
185 Cottage Street
Portsmouth, NH 03801

RE: Natural gas service to 185 Cottage Street, Portsmouth, NH

Unitil's natural gas division has reviewed the requested site for natural gas service.

Unitil hereby confirms natural gas is available from Cottage Street to supply the proposed lot development.

Please contact me with any questions at 603-294-5144.

Sincerely,

David Beaulieu
Business Development Executive
Unitil
325 West Road
Portsmouth, NH 03801

EVERSOURCE
ENERGY

September 12, 2018

1700 Lafayette Road
Portsmouth, NH 03801

Michael J Busby
603-436-7708 x555-5678
michael.busby@eversource.com

Craig Langton
Tighe & Bond
177 Corporate Drive
Portsmouth, NH 03801

Dear Mr. Langton:

I am responding to your request to confirm the availability of electric service for the proposed 185 Cottage Street Portsmouth NH, 03801 project being constructed for/by DAR Real Estate, LLC.

The proposed project consists of a 2-story medical office building (±6,800 SF), and associated site improvements. The proposed development will be constructed along Cottage Street and US Route 1 Bypass.

The developer will be responsible for the installation of all underground and overhead facilities and infrastructure improvements required to service the new building. The proposed building service is to be fed from existing utility pole on site (263/1) as depicted on Utilities Plan Sheet C-104. Three phase overhead conductors will need to be extended from Cottage street to the proposed riser pole (263/1). The developer will work with Eversource to obtain all necessary tree trimming, easements, and licenses for the proposed underground and overhead facilities listed above.

This letter serves as confirmation that Eversource has sufficient capacity in the area to provide service to this proposed development. The cost of extending service to the aforementioned location and any associated infrastructure improvements necessary to provide service will be borne by the developer unless otherwise agreed upon.

The attached drawing titled "Utilities Plan" dated 8/20/2018, shows transformer location and proposed underground conduit to service your proposed project.

Eversource approves the locations shown; assuming the final installed locations meet all clearances, physical protection, and access requirements as outlined in Eversource's "Information & Requirements For Electric Supply" (https://www.eversource.com/content/docs/default-source/pdfs/requirements-for-electric-service-connections.pdf?sfvrsn=2).

If you require additional information or I can be of further assistance please do not hesitate to contact me at our Portsmouth Office, 603-436-7708 Ext. 555-5678

Respectfully.

Michael J. Busby, PE
NH Eastern Regional Engineering and Design Manager, Eversource

cc: (via e-mail)
Michael Lee, Eastern Region Operations Manager, Eversource
Mary Jo Hanson, Field Supervisor, Electric Design, Eversource

Drainage Analysis

TO: City of Portsmouth Technical Advisory Committee (TAC)

FROM: Patrick M. Crimmins, P.E., Tighe & Bond
Craig M. Langton, P.E., Tighe & Bond

CC: DAR Real Estate, LLC

DATE: August 20, 2018
Revised: September 18, 2018

1.0 Project Description

The existing Site is comprised of a 0.90-acre lot which currently includes two residential structures. The proposed redevelopment includes the demolition of the two existing residential structures and construction of a two (2) story medical office building and associated site improvements. These site improvements include a stormwater management system which includes a proposed rain garden and an underground detention/infiltration system. The topography of the site generally slopes northwest to southwest from the rear of the site towards Cottage Street. Based on the NRCS Web Soil Survey for Rockingham County, the site consists of Urban Land-canton Complex. Stormwater runoff analyzed within this study has been modeled assuming hydrologic soils group C and an infiltration rate of 0.30 inches/hour.

For the purposes of this analysis, runoff generated by the site has been analyzed at a single distinct point of analysis, existing catch basin CB 2065. CB 2065 is part of the existing closed drainage system within Cottage Street and US Route 1 Bypass which ultimately drains into Hodgson Brook.

2.0 Drainage Analysis

2.1 Calculation Methods

The parcels on-site watersheds were analyzed under this section. The design storms analyzed in this study are the 2-year, 10-year, 25-year, and 50-year 24-hour duration storm as per NHDES AoT Regulations (Env-Wq 1500). The stormwater modeling system, HydroCAD 10.0 was utilized to predict the peak runoff rates from these storm events. A Type III storm pattern was used in the model.

The time of concentration was computed using the TR-55 Method, which provides a means of determining the time for an entire watershed to contribute runoff to a specific location via sheet flows, shallow concentrated flow and channel flow. Runoff curve numbers were calculated by estimating the coverage areas and then summing the curve number for the coverage area as a percent of the entire watershed.

References

1. HydroCAD Stormwater Modeling System, by HydroCAD Software Solutions LLC, Chocorua, New Hampshire.
2. New Hampshire Stormwater Management Manual, Volume 2, Post-Construction Best Management Practices Selection and Design, December 2008.
3. “Extreme Precipitation in New York & New England." Extreme Precipitation in New York & New England by Northeast Regional Climate Center (NRCC), 26 June 2012.

2.2 Pre-Development Conditions

Analyzing the pre-development condition was accomplished by modeling the entire property as one (1) watershed which all ultimately drains to the point of analysis, CB 2065.

The point of analysis and the contributing watershed area is described below:

Point of Analysis One (CB 2065)

Runoff from the site travels northwest to southwest from the rear of the site towards Cottage Street, where is enters the closed drainage system and ultimately flows through CB 2065. A visual representation of the designed stormwater runoff characteristics for the overall proposed pre-development watershed can be found on the attached plan entitled "Pre-Development Watershed Plan", Sheet C-801.

2.3 Post-Development Conditions

Analyzing the post-development drainage condition is characterized by six (6) watershed areas. Ultimately all of the post-development stormwater runoff is directed to the point of analysis, CB 2065.

The routing of the six (6) sub watershed areas ultimately through the point of analysis, CB 2065, is described below:

Each of the points of analysis and their contributing watershed areas are described below:

Point of Analysis One (CB 2065)

Modeling the post development drainage required dividing the overall post development watershed into six (6) distinct sub areas, to demonstrate the modeled treatment and detention capabilities of the proposed rain garden and Filterra Bioretention System. All new impervious areas in the post-development (i.e. paved drives, concrete sidewalks and clean roof runoff) are directed through either the rain garden or Filterra Bioretention System. This provides water quality treatment as well as detention/retention to reduce peak flow rates as compared to the pre-development drainage analysis. A visual representation of the designed stormwater runoff characteristics for the overall proposed post-development watershed can be found on the attached plan entitled "Post-Development Watershed Plan", Sheet C-802.

2.4 Peak Rate Comparisons

Table 2.4.1 summarizes and compares the pre- and post-development peak runoff rates for the 1-year, 2-year, 10-year, 25-year, and 50-year storm events at each discharge point.

Table 2.4.1 - Comparison of Pre- and Post-Development flows (cfs)

	2-Year Storm	10-Year Storm	25-Year Storm	50-Year Storm
Pre-Development Watershed				
PA-1 (CB 2065)	1.69	3.50	5.00	6.44
Post-Development Watershed				
PA-1 (CB 2065)	1.43	2.33	3.01	3.65

As depicted in Table 2.4.1, the post-development peak runoff rates are less than the pre-development rates.

2.5 Groundwater Recharge

The City of Portsmouth Site Review Regulations indicates efforts shall be made to infiltrate runoff throughout the site. The project will result in an increase of approximately 0.37 acres of impervious area. Based on the NRCS Web Soil Survey, the runoff analyzed within this study has been modeled assuming hydrologic soil group (HSG) C.

Infiltration will be provided on-site by the proposed rain garden. The designed infiltration rate of the system has been modeled at a conservative rate of 0.30 inches per hour (in./hr.) which is based on the NRCS Web Soil Survey, the minimal infiltration rate for the site's soils.

The proposed project is required to recharge 133 CF of runoff to groundwater based on the NH Stormwater Manual criteria. As shown in the enclosed groundwater recharge volume calculations, the proposed rain garden will provide 2,681 CF of storage below the overflow grate.

2.6 Stormwater Treatment

The stormwater management system has been designed to provide stormwater treatment as required by the City of Portsmouth Site Review.

The stormwater management system includes a proposed rain garden and Filterra Bioretention System for the treatment of stormwater runoff. Prior to the entering the proposed rain garden, runoff will be pre-treated with off-line catch basins equipped with oil separator hoods and deep sumps.

2.7 Summary

The proposed project will result in a reduction in post-development peak runoff rates from the pre-development condition. The impervious area resulting from the proposed project will be treated by the proposed rain garden and underground detention/infiltration system. The project's proposed rain garden and underground detention/infiltration system will provide groundwater recharge and stormwater treatment that meet the criteria of the NH Stormwater Manual.

3.0 Long Term Operation & Maintenance Plan

It is the intent of this Operation and Maintenance Plan to identify the areas of this site that need special attention and consideration, as well as implementing a plan to assure routine maintenance. By identifying the areas of concern as well as implementing a frequent and routine maintenance schedule the site will maintain a high quality stormwater runoff.

3.1 Contact/Responsible Party

DAR Real Estate, LLC
875 Greenland Road, Suite B-7
Portsmouth NH, 03801
603.294.0110

(Note: The contact information for the Contact/Responsible Party shall be kept current. If ownership changes, the Operation and Maintenance Plan must be transferred to the new party.)

3.2 Maintenance Items

Maintenance of the following items shall be recorded:

- Litter/Debris Removal
- Landscaping
- Catch basin Cleaning
- Pavement Sweeping
- Rain Garden Maintenance
- Rip Rap Maintenance
- Filterra Bioretention System

The following maintenance items and schedule represent the minimum action required. Periodic site inspections shall be conducted, and all measures must be maintained in effective operating condition. The following items shall be observed during site inspection and maintenance:

- Inspect vegetated areas, particularly slopes and embankments for areas of erosion. Replant and restore as necessary
- Inspect catch basins for sediment buildup
- Inspect site for trash and debris

3.3 Overall Site Operation & Maintenance Schedule

Overall Site Operation and Maintenance Schedule		
Maintenance Item	**Frequency of Maintenance**	**Operation**
Litter/Debris Removal	Weekly	Management Company
Pavement Sweeping • Sweep impervious areas to remove sand and litter.	Annually	Parking Lot Sweeper
Catch Basin (CB) Cleaning • CB to be cleaned of solids and oils.	Annually	Vacuum Truck
Landscaping • Landscaped islands to be maintained and mulched.	Maintained as required and mulched each Spring	Management Company
Rain Garden • -Trash and debris to be removed. • -Any required maintenance shall be addressed.	Two (2) times annually and after any rainfall event exceeding 2.5" in a 24-hr period	Management Company
Rip Rap Aprons • -Trash and debris to be removed. • -Any required maintenance shall be addressed.	Annually	Management Company
Filterra Bioretention System * • Remove debris from inlet and outlet structures. • Trash and debris to be removed from mulched area • Assessment of plant condition.	Periodically (At least two (2) times annually)	Management Company

* Filterra Bioretention System Operation and Maintenance require shall meet or exceed the manufactures requirements.

Rain Garden Inspection/Maintenance Requirements		
Inspection/ Maintenance	**Frequency**	**Action**
Monitor to ensure that Rain Gardens function effectively after storms	Two (2) times annually and after any rainfall event exceeding 2.5" in a 24-hr period	- Trash and debris to be removed - Any required maintenance shall be addressed
Inspect Vegetation	Annually	- Inspect the condition of all Rain Garden vegetation - Prune back overgrowth - Replace dead vegetation - Remove any invasive species
Inspect Drawdown Time - The system shall drawdown within 48-hours following a rainfall event.	Annually	- Assess the condition of the facility to determine measures required to restore the filtration function, including but not limited to removal of accumulated sediments or reconstruction of the filter.

Rip Rap Inspection/Maintenance Requirements		
Inspection/ Maintenance	**Frequency**	**Action**
Visual Inspection	Annually	- Visually inspect for damage and deterioration - Repair damages immediately

Filterra Bioretention System Inspection & Maintenance Requirements*		
Inspection/ Maintenance	**Frequency**	**Action**
Visual Inspection	Two (2) times annually	• Remove trash and debris as needed. • Remove accumulated sediment. • Trash and debris should be removed, and mulch cover raked level. Ensure bark nugget mulch is not used. • Replace mulch as a minimum, if ponding observed. • Trim/prune plants in accordance with typical landscaping and safety needs.

* Filterra Bioretention System Operation and Maintenance require shall meet or exceed the manufactures requirements.

3.4 Disposal Requirements

Disposal of debris, trash, sediment and other waste material should be done at suitable disposal/recycling sites and in compliance with all applicable local, state and federal waste regulations.

3.5 Snow & Ice Management for Standard Asphalt and Walkways

Snow storage areas shall be located such that no direct untreated discharges are possible to receiving waters from the storage site (snow storage areas have been shown on the Site Plan). Salt storage areas shall be covered or located such that no direct untreated discharges are possible to receiving waters from the storage site. Salt and sand shall be used to the minimum extent practical (refer to the New Hampshire Stormwater Management Manual, Volume 2, for de-icing application rate guidelines). Snow and ice removal shall be performed by a contractor certified by the “Green SnoPro” program, or approved equivalent, following best management practices for the application of deicing materials.

Typical Deicing Log Form				
Truck Station:				
Date:				
Air Temperature	Pavement Temp.	Relative Humidity	Dew Point	Sky
Reason for applying:				
Route:				
Chemical:				
Application Time:				
Application Amount:				
Observation (first day):				
Observation (after event):				
Observation (before next application):				
Name:				

3.6 Annual Updates & Log Requirements

The Owner and/or Contact/Responsible Party shall review this Operation and Maintenance Plan once per year for its effectiveness and adjust the plan and deed as necessary.

A log of all preventative and corrective measures for the stormwater system shall be kept on-site and be made available upon request by any public entity with administrative, health environmental or safety authority over the site. The flowing report logs and check lists are typical for overall site operation and maintenance, rain gardens and the Filterra Bioretention System.

Typical Overall Site Operation and Maintenance Report Log						
Project Name:						
Observation Item	**Date of Inspection**	**Observer**	**Maintenance Needed?**	**Comments**	**Date of Cleaning/ Repair**	**Performed By**
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			

Maintenance Checklist

Drainage System Failure	Problem	Conditions to Check	Condition that Should Exist	Actions
Inlet	Excessive sediment or trash accumulation.	Accumulated sediments or trash impair free flow of water into Filterra.	Inlet should be free of obstructions allowing free distributed flow of water into Filterra.	Sediments and/or trash should be removed.
Mulch Cover	Trash and floatable debris accumulation.	Excessive trash and/or debris accumulation.	Minimal trash or other debris on mulch cover.	Trash and debris should be removed and mulch cover raked level. Ensure bark nugget mulch is not used.
Mulch Cover	"Ponding" of water on mulch cover.	"Ponding" in unit could be indicative of clogging due to excessive fine sediment accumulation or spill of petroleum oils.	Stormwater should drain freely and evenly through mulch cover.	Recommend contact manufacturer and replace mulch as a minimum.
Vegetation	Plants not growing or in poor condition.	Soil/mulch too wet, evidence of spill. Incorrect plant selection. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Contact manufacturer for advice.
Vegetation	Plant growth excessive.	Plants should be appropriate to the species and location of Filterra.		Trim/prune plants in accordance with typical landscaping and safety needs.
Structure	Structure has visible cracks.	Cracks wider than 1/2 inch or evidence of soil particles entering the structure through the cracks.		Vault should be repaired.
Maintenance is ideally to be performed twice annually.				

Filterra Inspection & Maintenance Log

Filterra System Size/Model:_____ **Location:** _____

Date	Mulch & Debris Removed	Depth of Mulch Added	Mulch Brand	Height of Vegetation Above Grate	Vegetation Species	Issues with System	Comments
1/1/17	*5 – 5 gal Buckets*	*3″*	*Lowe's Premium Brown Mulch*	*4′*	*Galaxy Magnolia*	*- Standing water in downstream structure*	*- Removed blockage in downstream structure*

Regular Inspection and Maintenance Guidance for Bioretention Systems / Tree Filters

Maintenance of bioretention systems and tree filters can typically be performed as part of standard landscaping. Regular inspection and maintenance is critical to the effective operation of bioretention systems and tree filters to insure they remain clear of leaves and debris and free draining. This page provides guidance on maintenance activities that are typically required for these systems, along with the suggested frequency for each activity. Individual systems may have more, or less frequent maintenance needs depending on a variety of factors including but not limited to: the occurrence of large storm events, overly wet or dry periods, regional hydrologic conditions, and the upstream land use.

ACTIVITIES

The most common maintenance activity is the removal of sediment and organic debris from the system and bypass structures. Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Vegetation coverage is integral to the performance of the system, including infiltration rate and nutrient uptake. Vegetation care is important to system productivity and health.

ACTIVITY	FREQUENCY
CLOGGING AND SYSTEM PERFORMANCE	
A record should be kept of the time to drain for the system completely after a storm event. The system should drain completely within 72 hours.	After every major storm in the first few months, then annually at minimum.
Check to insure the filter surface remains well draining after storm events. **Remedy**: If filter bed is clogged, draining poorly, or standing water covers more than 50% of the surface 48 hours after a precipitation event, then remove top few inches of discolored material. Till, or rake remaining material as needed.	
Check inlets and outlets for leaves and debris. **Remedy**: Rake in and around the system to clear it of debris. Also, clear the inlet and overflow if obstructed.	Quarterly initially, annually as a minimum thereafter.
Check for animal burrows and short-circuiting in the system. **Remedy:** Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted	
Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy:** Repair or replace any damaged structural parts, inlets, outlets, sidewalls.	
VEGETATION	
Check for robust vegetation coverage throughout the system and dead or dying plants. **Remedy:** Vegetation should cover > 75% of the system and should be cared for as needed.	Annually or as needed

CHECKLIST FOR INSPECTION OF BIORETENTION SYSTEM / TREE FILTERS

Location:
Inspector:
Date:
Time:
Site Conditions:
Days Since Last Rain Event:

Inspection Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
1. Initial Inspection After Planting and Mulching		
Plants are stable, roots not exposed	**S** **U**	
Surface is at design level, no evidence of preferential flow/shoving	**S** **U**	
Inlet and outlet/bypass are functional	**S** **U**	
2. Debris Cleanup (1 time/year minimum, Spring/Fall)		
Litter, leaves, and dead vegetation removed from the system	**S** **U**	
Prune/mow vegetation	**S** **U**	
3. Standing Water (1 time/year and/or after large storm events)		
No evidence of standing water after 24-48 hours since rainfall	**S** **U**	
4. Vegetation Condition and Coverage		
Vegetation condition good with good coverage (typically > 75%)	**S** **U**	
5. Other Issues		
Note any additional issues not previously covered.	**S** **U**	

Corrective Action Needed	Due Date
1.	
2.	
3.	
Inspector Signature	**Date**

LEGEND

- PRE-DEVELOPMENT WATERSHED BOUNDARY
- NRCS WEB SOIL SURVEY BOUNDARIES
- LONGEST FLOW PATH
- PRE 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION
- PRE POND 1 — PRE-DEVELOPMENT POND DESIGNATION
- PA-1 — POINT OF ANALYSIS

WEB SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

SYMBOL	SOIL TYPE, SLOPE RATING	HSG
799	URBAN LAND-CANTON, 3 TO 15 PERCENT SLOPES	C

* SOIL DATA TAKEN FROM NRCS DATA

TAX MAP 174, LOT 12
JNM PORTSMOUTH, LLC
440 BEDFORD STREET
LEXINGTON, MA 02420
R.C.R.D. BK. 5394, PG. 1677

TAX MAP 174, LOT 15
UNITED STATES OF AMERICA
125 COTTAGE STREET
1600 PENNSYLVANIA AVENUE
WASHINGTON, DC 20004
R.C.R.D. BK. 1434, PG. 51
R.C.R.D. BK. 1434, PG. 52
R.C.R.D. BK. 1419, PG. 77
R.C.R.D. BK. 1407, PG. 13
R.C.R.D. BK. 1407, PG. 14

TAX MAP 234, LOT 51
MEADOWBROOK INN CORP.
C/O PORTSMOUTH CHEVROLET
549 ROUTE 1 BYPASS
PORTSMOUTH, NH 03801
R.C.R.D. BK. 2382, PG. 1968

TAX MAP 173, LOT 9
PAUL J. HOLLOWAY
C/O COAST PONTIAC
500 US ROUTE 1 BYPASS
PORTSMOUTH, NH 03801
R.C.R.D. BK. 2821, PG. 2396

8' CHAIN LINK FENCE W/SCREENING & BARBED WIRE
REMNANT BOX WIRE FENCE
LANE DIRECTIONS
YIELD TO ROTARY TRAFFIC
U.S. ROUTE 1 BYPASS
DOVER CONCORD LEFT LANE
COTTAGE STREET
CONC. RET. WALL
FIELDSTONE RET. WALL
PROPERTY BOUNDARY (PER REF. PLAN #1)
CONC. BLOCK. RET. WALL & SAFETY RAIL
WOODEN POST & RAIL FENCE
~LAWN AREA~
~GRAVEL DRIVEWAY~
PAVED
HOUSE
PORCH
DECK
BULKHEAD
(2) PROPANE TANKS
TH=42.2'
TH=34.4'
799 HSG C
PRE 1.0
36" WILLOW
PA-1

CB 1740
12" RCP INV.=28.0'
12" RCP INV.=27.9'
CB 1733
RIM ELEV.=35.2'
(A) 12" PVC INV.=31.5'
(WATER) ELEV.=31.5'
(SILT) ELEV.=29.4'
12" HDPE W/FES INV.=27.7'
8" PVC INV.=27.6'
CB 1926
RIM ELEV.=29.70'
(OUTFALL) 8" PVC INV.=27.9'
CONC. HDWL 12" RCP INV.=26.0'
TBM 5652C
MAG. NAIL SET UP 12" IN POLE PSNH183/8
ELEV.=30.70'
CB 2202
RIM ELEV.=28.8'
(A) 6" PVC INV.=25.4'
CB 2248
RIM ELEV.=31.5'
WATER ELEV.=27.4'
(NO PIPES VISIBLE)
CB 2175
RIM ELEV.=30.2'
(A) 15" RCP INV.=26.2'
(B) 12" UNKN INV.=26.1'
(2065) 15" RCP INV.=26.0'
CB 2065
RIM ELEV.=29.8'
(2175) 15" RCP INV.=24.3'
(A) 15" RCP INV.=24.2'
TBM 5652D
SPIKE FND. UP 12" IN POLE PSNH183/8-1/2
ELEV.=30.22'

15" ASH
18" MAPLE
12" MAPLE
15" OAK
24" OAK
15" HEMLOCK
20" OAK
18" MAPLE
24" ASH
36" ASH
263/2
MB 185

SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Tighe&Bond
Engineers | Environmental Specialists

Proposed Medical Office Building

DAR Real Estate, LLC

185 Cottage Street
Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	8/20/2018	TRC Submission

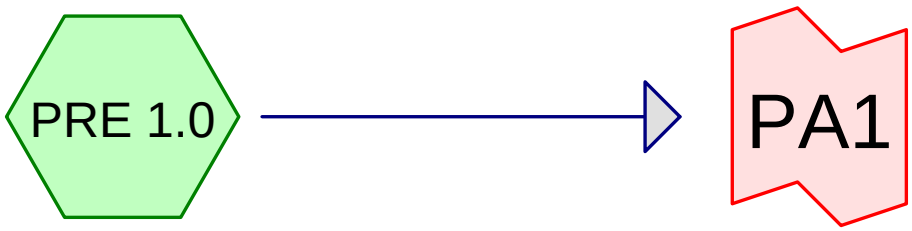
PROJECT NO:	D5108-001
DATE:	8/20/2018
FILE:	D5018-001_HYRDO.DWG
DRAWN BY:	JPC/CML
CHECKED:	CML/PMC
APPROVED:	BLM

PRE-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-801

Last Save Date: August 17, 2018 1:56 PM By: CML
Plot Date: Monday, August 27, 2018 Plotted By: Cindy M. Langton
T&B File Location: J:\D\D5018 David Rosania\001 - Cottage Street\Drawings, Figures\AutoCAD\Sheet\D5018-001_HYRDO.dwg Layout Tab: C-801



Subcat Reach Pond Link

Routing Diagram for D5018-001_PRE
Prepared by Tighe & Bond, Printed 8/16/2018

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.632	74	>75% Grass cover, Good, HSG C (PRE 1.0)
0.145	96	Gravel surface, HSG C (PRE 1.0)
0.016	98	Paved parking, HSG C (PRE 1.0)
0.096	98	Unconnected roofs, HSG C (PRE 1.0)
0.172	70	Woods, Good, HSG C (PRE 1.0)
1.061	**79**	**TOTAL AREA**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PRE 1.0: Runoff Area=46,210 sf 10.61% Impervious Runoff Depth>1.18"
Flow Length=406' Tc=3.2 min UI Adjusted CN=78 Runoff=1.69 cfs 0.104 af

Link PA1: Inflow=1.69 cfs 0.104 af
Primary=1.69 cfs 0.104 af

Total Runoff Area = 1.061 ac Runoff Volume = 0.104 af Average Runoff Depth = 1.18"
89.39% Pervious = 0.948 ac 10.61% Impervious = 0.113 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PRE 1.0: Runoff Area=46,210 sf 10.61% Impervious Runoff Depth>2.42"
Flow Length=406' Tc=3.2 min UI Adjusted CN=78 Runoff=3.50 cfs 0.214 af

Link PA1: Inflow=3.50 cfs 0.214 af
Primary=3.50 cfs 0.214 af

Total Runoff Area = 1.061 ac Runoff Volume = 0.214 af Average Runoff Depth = 2.42"
89.39% Pervious = 0.948 ac 10.61% Impervious = 0.113 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PRE 1.0: Runoff Area=46,210 sf 10.61% Impervious Runoff Depth>3.49"
Flow Length=406' Tc=3.2 min UI Adjusted CN=78 Runoff=5.00 cfs 0.309 af

Link PA1: Inflow=5.00 cfs 0.309 af
Primary=5.00 cfs 0.309 af

Total Runoff Area = 1.061 ac Runoff Volume = 0.309 af Average Runoff Depth = 3.49"
89.39% Pervious = 0.948 ac 10.61% Impervious = 0.113 ac

Summary for Subcatchment PRE 1.0:

Runoff = 5.00 cfs @ 12.05 hrs, Volume= 0.309 af, Depth> 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.17"

Area (sf)	CN	Adj	Description
6,317	96		Gravel surface, HSG C
7,478	70		Woods, Good, HSG C
4,198	98		Unconnected roofs, HSG C
27,511	74		>75% Grass cover, Good, HSG C
706	98		Paved parking, HSG C
46,210	79	78	Weighted Average, UI Adjusted
41,306			89.39% Pervious Area
4,904			10.61% Impervious Area
4,198			85.60% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	10	0.0500	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.21"
0.3	86	0.0756	4.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.7	241	0.0137	2.38		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	69	0.0246	8.94	10.98	**Pipe Channel, RCP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
3.2	406	Total			

Summary for Link PA1:

Inflow Area = 1.061 ac, 10.61% Impervious, Inflow Depth > 3.49" for 25-year event
Inflow = 5.00 cfs @ 12.05 hrs, Volume= 0.309 af
Primary = 5.00 cfs @ 12.05 hrs, Volume= 0.309 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PRE 1.0: Runoff Area=46,210 sf 10.61% Impervious Runoff Depth>4.54"
Flow Length=406' Tc=3.2 min UI Adjusted CN=78 Runoff=6.44 cfs 0.401 af

Link PA1: Inflow=6.44 cfs 0.401 af
Primary=6.44 cfs 0.401 af

Total Runoff Area = 1.061 ac Runoff Volume = 0.401 af Average Runoff Depth = 4.54"
89.39% Pervious = 0.948 ac 10.61% Impervious = 0.113 ac

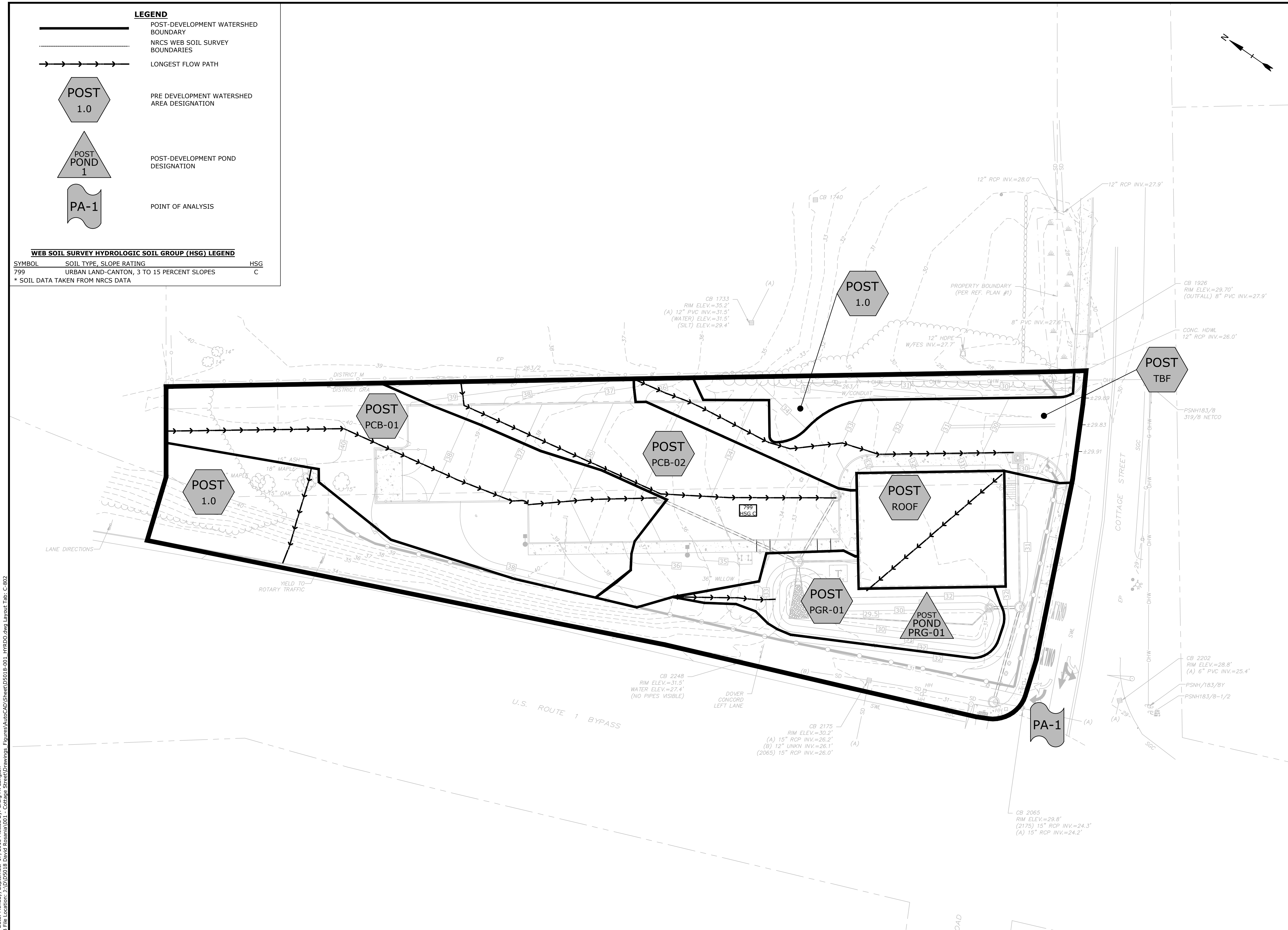
LEGEND

Symbol	Description
(heavy solid line)	POST-DEVELOPMENT WATERSHED BOUNDARY
(dotted line)	NRCS WEB SOIL SURVEY BOUNDARIES
(arrowed line)	LONGEST FLOW PATH
POST 1.0	PRE DEVELOPMENT WATERSHED AREA DESIGNATION
POST POND 1	POST-DEVELOPMENT POND DESIGNATION
PA-1	POINT OF ANALYSIS

WEB SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

SYMBOL	SOIL TYPE, SLOPE RATING	HSG
799	URBAN LAND-CANTON, 3 TO 15 PERCENT SLOPES	C

* SOIL DATA TAKEN FROM NRCS DATA



Tighe&Bond
Engineers | Environmental Specialists

Proposed Medical Office Building

DAR Real Estate, LLC

185 Cottage Street
Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
B	9/18/2018	Revised TAC Submission
A	8/20/2018	TAC Submission

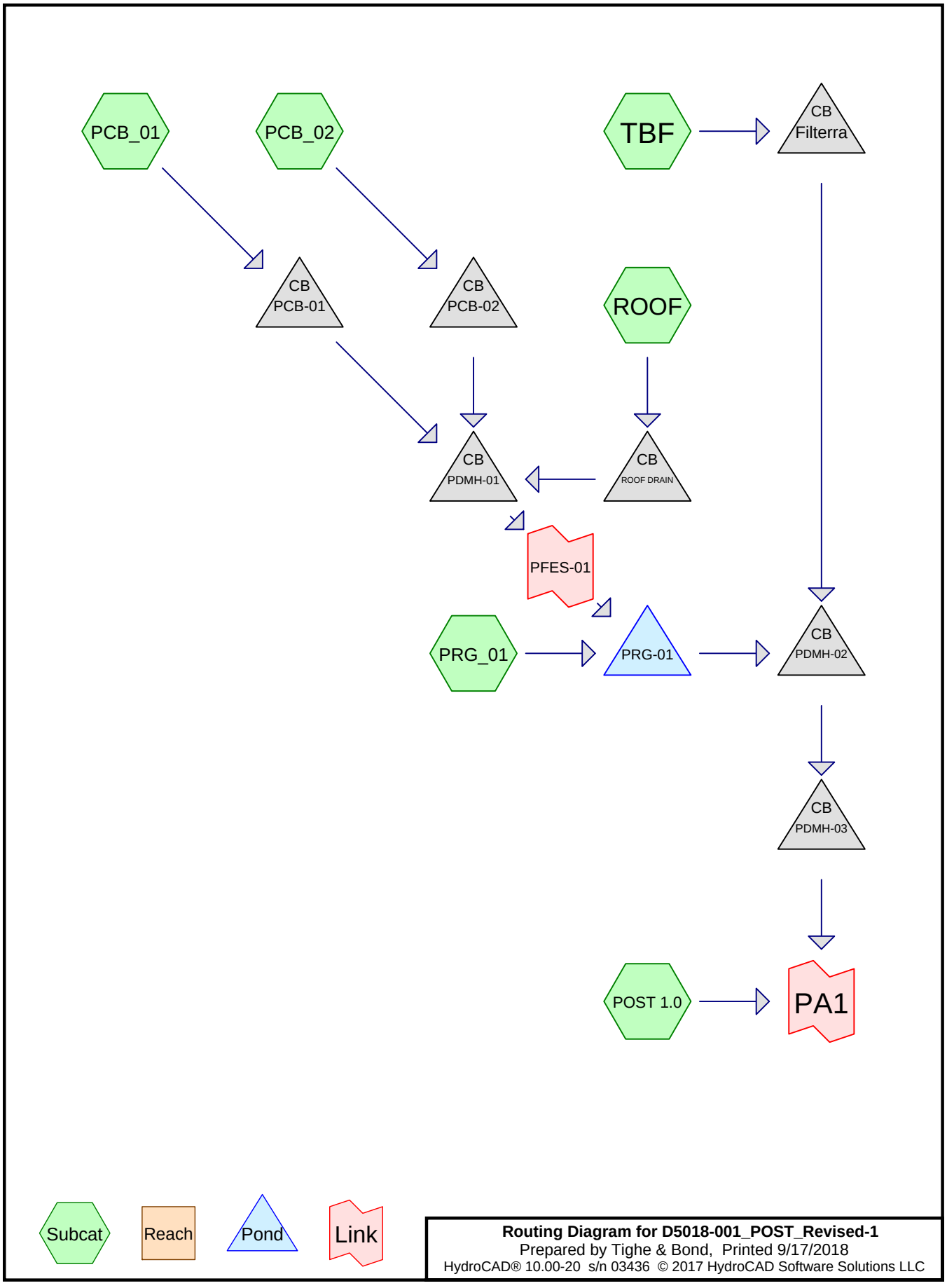
PROJECT NO:	D5108-001
DATE:	8/20/2018
FILE:	D5018-001_HYRDO.DWG
DRAWN BY:	JPC/CML
CHECKED:	CML/PMC
APPROVED:	BLM

POST-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-802

Last Save Date: September 14, 2018 3:55 PM By: CML
Plot Date: Monday, September 17, 2018 Plotted By: Craig M. Langton
T&B File Location: J:\D\D5018 David Rosania\001 - Cottage Street\Drawings_Figures\AutoCAD\Sheet\D5018-001_HYRDO.dwg Layout Tab: C-802



Routing Diagram for D5018-001_POST_Revised-1
Prepared by Tighe & Bond, Printed 9/17/2018

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.537	74	>75% Grass cover, Good, HSG C (PCB_01, PCB_02, POST 1.0, PRG_01, TBF)
0.399	98	Paved parking, HSG C (PCB_01, PCB_02, POST 1.0, TBF)
0.079	98	Unconnected roofs, HSG C (ROOF)
0.046	70	Woods, Good, HSG C (PCB_01, POST 1.0)
1.061	**85**	**TOTAL AREA**

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PCB_01: Runoff Area=10,751 sf 40.55% Impervious Runoff Depth=1.69"
Flow Length=207' Tc=6.5 min CN=84 Runoff=0.47 cfs 0.035 af

Subcatchment PCB_02: Runoff Area=8,781 sf 74.18% Impervious Runoff Depth=2.36"
Flow Length=186' Tc=3.0 min CN=92 Runoff=0.59 cfs 0.040 af

Subcatchment POST 1.0: Runoff Area=14,592 sf 12.31% Impervious Runoff Depth=1.22"
Flow Length=406' Tc=3.2 min CN=77 Runoff=0.51 cfs 0.034 af

Subcatchment PRG_01: Runoff Area=3,483 sf 0.00% Impervious Runoff Depth=1.04"
Flow Length=46' Slope=0.1086 '/' Tc=0.3 min CN=74 Runoff=0.11 cfs 0.007 af

Subcatchment ROOF: Runoff Area=3,429 sf 100.00% Impervious Runoff Depth=2.98"
Flow Length=80' Slope=0.0050 '/' Tc=1.8 min CN=98 Runoff=0.27 cfs 0.020 af

Subcatchment TBF: Runoff Area=5,168 sf 90.75% Impervious Runoff Depth=2.76"
Flow Length=179' Tc=1.7 min CN=96 Runoff=0.39 cfs 0.027 af

Pond Filterra: Peak Elev=26.29' Inflow=0.39 cfs 0.027 af
6.0" Round Culvert n=0.013 L=62.0' S=0.0097 '/' Outflow=0.39 cfs 0.027 af

Pond PCB-01: Peak Elev=30.49' Inflow=0.47 cfs 0.035 af
12.0" Round Culvert n=0.013 L=74.0' S=0.0047 '/' Outflow=0.47 cfs 0.035 af

Pond PCB-02: Peak Elev=30.35' Inflow=0.59 cfs 0.040 af
12.0" Round Culvert n=0.013 L=26.0' S=0.0058 '/' Outflow=0.59 cfs 0.040 af

Pond PDMH-01: Peak Elev=30.25' Inflow=1.26 cfs 0.094 af
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=1.26 cfs 0.094 af

Pond PDMH-02: Peak Elev=25.65' Inflow=0.93 cfs 0.116 af
12.0" Round Culvert n=0.013 L=40.0' S=0.0113 '/' Outflow=0.93 cfs 0.116 af

Pond PDMH-03: Peak Elev=25.06' Inflow=0.93 cfs 0.116 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0300 '/' Outflow=0.93 cfs 0.116 af

Pond PRG-01: Peak Elev=29.58' Storage=795 cf Inflow=1.35 cfs 0.101 af
Discarded=0.02 cfs 0.013 af Primary=0.65 cfs 0.088 af Outflow=0.66 cfs 0.101 af

Pond ROOF DRAIN: Peak Elev=30.31' Inflow=0.27 cfs 0.020 af
8.0" Round Culvert n=0.013 L=22.0' S=0.0114 '/' Outflow=0.27 cfs 0.020 af

Link PA1: Inflow=1.43 cfs 0.150 af
Primary=1.43 cfs 0.150 af

Link PFES-01: Inflow=1.26 cfs 0.094 af
Primary=1.26 cfs 0.094 af

Total Runoff Area = 1.061 ac Runoff Volume = 0.162 af Average Runoff Depth = 1.84"
55.01% Pervious = 0.583 ac 44.99% Impervious = 0.477 ac

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PCB_01: Runoff Area=10,751 sf 40.55% Impervious Runoff Depth=3.15"
Flow Length=207' Tc=6.5 min CN=84 Runoff=0.88 cfs 0.065 af

Subcatchment PCB_02: Runoff Area=8,781 sf 74.18% Impervious Runoff Depth=3.96"
Flow Length=186' Tc=3.0 min CN=92 Runoff=0.96 cfs 0.067 af

Subcatchment POST 1.0: Runoff Area=14,592 sf 12.31% Impervious Runoff Depth=2.51"
Flow Length=406' Tc=3.2 min CN=77 Runoff=1.07 cfs 0.070 af

Subcatchment PRG_01: Runoff Area=3,483 sf 0.00% Impervious Runoff Depth=2.26"
Flow Length=46' Slope=0.1086 '/' Tc=0.3 min CN=74 Runoff=0.24 cfs 0.015 af

Subcatchment ROOF: Runoff Area=3,429 sf 100.00% Impervious Runoff Depth=4.63"
Flow Length=80' Slope=0.0050 '/' Tc=1.8 min CN=98 Runoff=0.41 cfs 0.030 af

Subcatchment TBF: Runoff Area=5,168 sf 90.75% Impervious Runoff Depth=4.40"
Flow Length=179' Tc=1.7 min CN=96 Runoff=0.60 cfs 0.044 af

Pond Filterra: Peak Elev=26.65' Inflow=0.60 cfs 0.044 af
6.0" Round Culvert n=0.013 L=62.0' S=0.0097 '/' Outflow=0.60 cfs 0.044 af

Pond PCB-01: Peak Elev=30.74' Inflow=0.88 cfs 0.065 af
12.0" Round Culvert n=0.013 L=74.0' S=0.0047 '/' Outflow=0.88 cfs 0.065 af

Pond PCB-02: Peak Elev=30.61' Inflow=0.96 cfs 0.067 af
12.0" Round Culvert n=0.013 L=26.0' S=0.0058 '/' Outflow=0.96 cfs 0.067 af

Pond PDMH-01: Peak Elev=30.53' Inflow=2.13 cfs 0.162 af
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=2.13 cfs 0.162 af

Pond PDMH-02: Peak Elev=25.75' Inflow=1.27 cfs 0.206 af
12.0" Round Culvert n=0.013 L=40.0' S=0.0113 '/' Outflow=1.27 cfs 0.206 af

Pond PDMH-03: Peak Elev=25.14' Inflow=1.27 cfs 0.206 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0300 '/' Outflow=1.27 cfs 0.206 af

Pond PRG-01: Peak Elev=30.39' Storage=1,729 cf Inflow=2.33 cfs 0.177 af
Discarded=0.02 cfs 0.015 af Primary=0.75 cfs 0.162 af Outflow=0.77 cfs 0.177 af

Pond ROOF DRAIN: Peak Elev=30.56' Inflow=0.41 cfs 0.030 af
8.0" Round Culvert n=0.013 L=22.0' S=0.0114 '/' Outflow=0.41 cfs 0.030 af

Link PA1: Inflow=2.33 cfs 0.276 af
Primary=2.33 cfs 0.276 af

Link PFES-01: Inflow=2.13 cfs 0.162 af
Primary=2.13 cfs 0.162 af

Total Runoff Area = 1.061 ac Runoff Volume = 0.291 af Average Runoff Depth = 3.29"
55.01% Pervious = 0.583 ac 44.99% Impervious = 0.477 ac

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PCB_01: Runoff Area=10,751 sf 40.55% Impervious Runoff Depth=4.36"
Flow Length=207' Tc=6.5 min CN=84 Runoff=1.20 cfs 0.090 af

Subcatchment PCB_02: Runoff Area=8,781 sf 74.18% Impervious Runoff Depth=5.24"
Flow Length=186' Tc=3.0 min CN=92 Runoff=1.25 cfs 0.088 af

Subcatchment POST 1.0: Runoff Area=14,592 sf 12.31% Impervious Runoff Depth=3.63"
Flow Length=406' Tc=3.2 min CN=77 Runoff=1.54 cfs 0.101 af

Subcatchment PRG_01: Runoff Area=3,483 sf 0.00% Impervious Runoff Depth=3.33"
Flow Length=46' Slope=0.1086 '/' Tc=0.3 min CN=74 Runoff=0.36 cfs 0.022 af

Subcatchment ROOF: Runoff Area=3,429 sf 100.00% Impervious Runoff Depth=5.93"
Flow Length=80' Slope=0.0050 '/' Tc=1.8 min CN=98 Runoff=0.52 cfs 0.039 af

Subcatchment TBF: Runoff Area=5,168 sf 90.75% Impervious Runoff Depth=5.70"
Flow Length=179' Tc=1.7 min CN=96 Runoff=0.77 cfs 0.056 af

Pond Filterra: Peak Elev=27.28' Inflow=0.77 cfs 0.056 af
6.0" Round Culvert n=0.013 L=62.0' S=0.0097 '/' Outflow=0.77 cfs 0.056 af

Pond PCB-01: Peak Elev=30.96' Inflow=1.20 cfs 0.090 af
12.0" Round Culvert n=0.013 L=74.0' S=0.0047 '/' Outflow=1.20 cfs 0.090 af

Pond PCB-02: Peak Elev=30.83' Inflow=1.25 cfs 0.088 af
12.0" Round Culvert n=0.013 L=26.0' S=0.0058 '/' Outflow=1.25 cfs 0.088 af

Pond PDMH-01: Peak Elev=30.76' Inflow=2.82 cfs 0.216 af
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=2.82 cfs 0.216 af

Pond PDMH-02: Peak Elev=25.81' Inflow=1.49 cfs 0.279 af
12.0" Round Culvert n=0.013 L=40.0' S=0.0113 '/' Outflow=1.49 cfs 0.279 af

Pond PDMH-03: Peak Elev=25.19' Inflow=1.49 cfs 0.279 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0300 '/' Outflow=1.49 cfs 0.279 af

Pond PRG-01: Peak Elev=30.97' Storage=2,639 cf Inflow=3.10 cfs 0.239 af
Discarded=0.02 cfs 0.016 af Primary=0.81 cfs 0.223 af Outflow=0.84 cfs 0.239 af

Pond ROOF DRAIN: Peak Elev=30.79' Inflow=0.52 cfs 0.039 af
8.0" Round Culvert n=0.013 L=22.0' S=0.0114 '/' Outflow=0.52 cfs 0.039 af

Link PA1: Inflow=3.01 cfs 0.380 af
Primary=3.01 cfs 0.380 af

Link PFES-01: Inflow=2.82 cfs 0.216 af
Primary=2.82 cfs 0.216 af

Total Runoff Area = 1.061 ac Runoff Volume = 0.396 af Average Runoff Depth = 4.48"
55.01% Pervious = 0.583 ac 44.99% Impervious = 0.477 ac

Summary for Subcatchment PCB_01:

Runoff = 1.20 cfs @ 12.10 hrs, Volume= 0.090 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.17"

Area (sf)	CN	Description
609	70	Woods, Good, HSG C
5,782	74	>75% Grass cover, Good, HSG C
4,360	98	Paved parking, HSG C
10,751	84	Weighted Average
6,391		59.45% Pervious Area
4,360		40.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	10	0.0200	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.21"
2.6	76	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	121	0.0350	3.80		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.5	207	Total			

Summary for Subcatchment PCB_02:

Runoff = 1.25 cfs @ 12.05 hrs, Volume= 0.088 af, Depth= 5.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.17"

Area (sf)	CN	Description
2,267	74	>75% Grass cover, Good, HSG C
6,514	98	Paved parking, HSG C
8,781	92	Weighted Average
2,267		25.82% Pervious Area
6,514		74.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0080	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.21"
0.8	176	0.0350	3.80		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.0	186	Total			

Summary for Subcatchment POST 1.0:

Runoff = 1.54 cfs @ 12.05 hrs, Volume= 0.101 af, Depth= 3.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.17"

Area (sf)	CN	Description
1,407	70	Woods, Good, HSG C
11,389	74	>75% Grass cover, Good, HSG C
1,796	98	Paved parking, HSG C
14,592	77	Weighted Average
12,796		87.69% Pervious Area
1,796		12.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	10	0.0500	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.21"
0.3	86	0.0756	4.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.7	241	0.0137	2.38		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	69	0.0246	8.94	10.98	**Pipe Channel, RCP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
3.2	406	Total			

Summary for Subcatchment PRG_01:

Runoff = 0.36 cfs @ 12.01 hrs, Volume= 0.022 af, Depth= 3.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.17"

Area (sf)	CN	Description
3,483	74	>75% Grass cover, Good, HSG C
3,483		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	46	0.1086	2.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.21"

Summary for Subcatchment ROOF:

Runoff = 0.52 cfs @ 12.03 hrs, Volume= 0.039 af, Depth= 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.17"

Area (sf)	CN	Description
3,429	98	Unconnected roofs, HSG C
3,429		100.00% Impervious Area
3,429		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	80	0.0050	0.76		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.21"

Summary for Subcatchment TBF:

Runoff = 0.77 cfs @ 12.03 hrs, Volume= 0.056 af, Depth= 5.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.17"

Area (sf)	CN	Description
478	74	>75% Grass cover, Good, HSG C
4,690	98	Paved parking, HSG C
5,168	96	Weighted Average
478		9.25% Pervious Area
4,690		90.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	10	0.0570	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.21"
0.7	169	0.3700	4.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.7	179	Total			

Summary for Pond Filterra:

Inflow Area = 0.119 ac, 90.75% Impervious, Inflow Depth = 5.70" for 25-year event
Inflow = 0.77 cfs @ 12.03 hrs, Volume= 0.056 af
Outflow = 0.77 cfs @ 12.03 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min
Primary = 0.77 cfs @ 12.03 hrs, Volume= 0.056 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 27.28' @ 12.03 hrs
Flood Elev= 29.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	25.85'	**6.0" Round Culvert** L= 62.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 25.85' / 25.25' S= 0.0097 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.73 cfs @ 12.03 hrs HW=27.17' TW=25.80' (Dynamic Tailwater)
└**1=Culvert** (Outlet Controls 0.73 cfs @ 3.71 fps)

Summary for Pond PCB-01:

Inflow Area = 0.247 ac, 40.55% Impervious, Inflow Depth = 4.36" for 25-year event
Inflow = 1.20 cfs @ 12.10 hrs, Volume= 0.090 af
Outflow = 1.20 cfs @ 12.10 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min
Primary = 1.20 cfs @ 12.10 hrs, Volume= 0.090 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 30.96' @ 12.10 hrs
Flood Elev= 35.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	30.00'	**12.0" Round Culvert** L= 74.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 30.00' / 29.65' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.41 cfs @ 12.10 hrs HW=30.95' TW=30.65' (Dynamic Tailwater)
└**1=Culvert** (Outlet Controls 1.41 cfs @ 2.37 fps)

Summary for Pond PCB-02:

Inflow Area = 0.202 ac, 74.18% Impervious, Inflow Depth = 5.24" for 25-year event
Inflow = 1.25 cfs @ 12.05 hrs, Volume= 0.088 af
Outflow = 1.25 cfs @ 12.05 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.0 min
Primary = 1.25 cfs @ 12.05 hrs, Volume= 0.088 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 30.83' @ 12.10 hrs
Flood Elev= 33.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.80'	**12.0" Round Culvert** L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 29.80' / 29.65' S= 0.0058 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.05 hrs HW=30.71' TW=30.74' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)

Summary for Pond PDMH-01:

Inflow Area = 0.527 ac, 62.29% Impervious, Inflow Depth = 4.93" for 25-year event
Inflow = 2.82 cfs @ 12.06 hrs, Volume= 0.216 af
Outflow = 2.82 cfs @ 12.06 hrs, Volume= 0.216 af, Atten= 0%, Lag= 0.0 min
Primary = 2.82 cfs @ 12.06 hrs, Volume= 0.216 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 30.76' @ 12.06 hrs
Flood Elev= 33.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.55'	**12.0" Round Culvert** L= 4.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 29.55' / 29.50' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.76 cfs @ 12.06 hrs HW=30.74' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 2.76 cfs @ 3.74 fps)

Summary for Pond PDMH-02:

Inflow Area = 0.726 ac, 60.08% Impervious, Inflow Depth = 4.61" for 25-year event
Inflow = 1.49 cfs @ 12.03 hrs, Volume= 0.279 af
Outflow = 1.49 cfs @ 12.03 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min
Primary = 1.49 cfs @ 12.03 hrs, Volume= 0.279 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 25.81' @ 12.03 hrs
Flood Elev= 31.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	25.15'	**12.0" Round Culvert** L= 40.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 25.15' / 24.70' S= 0.0113 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.46 cfs @ 12.03 hrs HW=25.81' TW=25.18' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 1.46 cfs @ 3.78 fps)

Summary for Pond PDMH-03:

Inflow Area = 0.726 ac, 60.08% Impervious, Inflow Depth = 4.61" for 25-year event
Inflow = 1.49 cfs @ 12.03 hrs, Volume= 0.279 af
Outflow = 1.49 cfs @ 12.03 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min
Primary = 1.49 cfs @ 12.03 hrs, Volume= 0.279 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 25.19' @ 12.03 hrs
Flood Elev= 31.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.60'	**15.0" Round Culvert** L= 10.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 24.60' / 24.30' S= 0.0300 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=1.46 cfs @ 12.03 hrs HW=25.18' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.46 cfs @ 2.60 fps)

Summary for Pond PRG-01:

Inflow Area = 0.607 ac, 54.09% Impervious, Inflow Depth = 4.72" for 25-year event
Inflow = 3.10 cfs @ 12.05 hrs, Volume= 0.239 af
Outflow = 0.84 cfs @ 12.42 hrs, Volume= 0.239 af, Atten= 73%, Lag= 22.0 min
Discarded = 0.02 cfs @ 12.42 hrs, Volume= 0.016 af
Primary = 0.81 cfs @ 12.42 hrs, Volume= 0.223 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 30.97' @ 12.42 hrs Surf.Area= 3,478 sf Storage= 2,639 cf
Flood Elev= 32.00' Surf.Area= 4,202 sf Storage= 4,848 cf

Plug-Flow detention time= 36.0 min calculated for 0.238 af (100% of inflow)
Center-of-Mass det. time= 36.5 min (820.3 - 783.8)

Volume	Invert	Avail.Storage	Storage Description
#1	29.50'	4,125 cf	**Ponding Area (Prismatic)**Listed below (Recalc)
#2	28.00'	383 cf	**Filter Media (Prismatic)**Listed below (Recalc) 1,277 cf Overall x 30.0% Voids
#3	26.75'	340 cf	**Reservoir Course (Prismatic)**Listed below (Recalc) 851 cf Overall x 40.0% Voids
		4,848 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
29.50	850	0	0
30.00	1,152	501	501
31.00	1,798	1,475	1,976
32.00	2,500	2,149	4,125

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
28.00	851	0	0
29.50	851	1,277	1,277

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
26.75	851	0	0
27.75	851	851	851

Device	Routing	Invert	Outlet Devices
#1	Primary	27.05'	**12.0" Round Culvert** L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 27.05' / 26.10' S= 0.0365 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	27.05'	**4.0" Vert. Underdrain** C= 0.600
#3	Device 1	31.00'	**15.1" Horiz. Neenah R-2577-C** C= 0.600

			Limited to weir flow at low heads
#4	Discarded	26.75'	**0.300 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 12.42 hrs HW=30.96' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.81 cfs @ 12.42 hrs HW=30.96' TW=25.66' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.81 cfs of 6.99 cfs potential flow)
  ├**2=Underdrain** (Orifice Controls 0.81 cfs @ 9.32 fps)
  └**3=Neenah R-2577-C** (Controls 0.00 cfs)

Summary for Pond ROOF DRAIN:

Inflow Area = 0.079 ac,100.00% Impervious, Inflow Depth = 5.93" for 25-year event
Inflow = 0.52 cfs @ 12.03 hrs, Volume= 0.039 af
Outflow = 0.52 cfs @ 12.03 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 12.03 hrs, Volume= 0.039 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 30.79' @ 12.10 hrs
Flood Elev= 33.85'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.90'	**8.0" Round Culvert** L= 22.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.65' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.00 cfs @ 12.03 hrs HW=30.58' TW=30.67' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)

Summary for Link PA1:

Inflow Area = 1.061 ac, 44.99% Impervious, Inflow Depth = 4.30" for 25-year event
Inflow = 3.01 cfs @ 12.05 hrs, Volume= 0.380 af
Primary = 3.01 cfs @ 12.05 hrs, Volume= 0.380 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Link PFES-01:

Inflow Area = 0.527 ac, 62.29% Impervious, Inflow Depth = 4.93" for 25-year event
Inflow = 2.82 cfs @ 12.06 hrs, Volume= 0.216 af
Primary = 2.82 cfs @ 12.06 hrs, Volume= 0.216 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PCB_01: Runoff Area=10,751 sf 40.55% Impervious Runoff Depth=5.51"
Flow Length=207' Tc=6.5 min CN=84 Runoff=1.50 cfs 0.113 af

Subcatchment PCB_02: Runoff Area=8,781 sf 74.18% Impervious Runoff Depth=6.44"
Flow Length=186' Tc=3.0 min CN=92 Runoff=1.52 cfs 0.108 af

Subcatchment POST 1.0: Runoff Area=14,592 sf 12.31% Impervious Runoff Depth=4.72"
Flow Length=406' Tc=3.2 min CN=77 Runoff=1.99 cfs 0.132 af

Subcatchment PRG_01: Runoff Area=3,483 sf 0.00% Impervious Runoff Depth=4.38"
Flow Length=46' Slope=0.1086 '/' Tc=0.3 min CN=74 Runoff=0.47 cfs 0.029 af

Subcatchment ROOF: Runoff Area=3,429 sf 100.00% Impervious Runoff Depth=7.15"
Flow Length=80' Slope=0.0050 '/' Tc=1.8 min CN=98 Runoff=0.62 cfs 0.047 af

Subcatchment TBF: Runoff Area=5,168 sf 90.75% Impervious Runoff Depth=6.91"
Flow Length=179' Tc=1.7 min CN=96 Runoff=0.92 cfs 0.068 af

Pond Filterra: Peak Elev=27.99' Inflow=0.92 cfs 0.068 af
6.0" Round Culvert n=0.013 L=62.0' S=0.0097 '/' Outflow=0.92 cfs 0.068 af

Pond PCB-01: Peak Elev=31.20' Inflow=1.50 cfs 0.113 af
12.0" Round Culvert n=0.013 L=74.0' S=0.0047 '/' Outflow=1.50 cfs 0.113 af

Pond PCB-02: Peak Elev=31.08' Inflow=1.52 cfs 0.108 af
12.0" Round Culvert n=0.013 L=26.0' S=0.0058 '/' Outflow=1.52 cfs 0.108 af

Pond PDMH-01: Peak Elev=30.99' Inflow=3.46 cfs 0.268 af
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=3.46 cfs 0.268 af

Pond PDMH-02: Peak Elev=25.97' Inflow=2.05 cfs 0.349 af
12.0" Round Culvert n=0.013 L=40.0' S=0.0113 '/' Outflow=2.05 cfs 0.349 af

Pond PDMH-03: Peak Elev=25.31' Inflow=2.05 cfs 0.349 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0300 '/' Outflow=2.05 cfs 0.349 af

Pond PRG-01: Peak Elev=31.17' Storage=3,011 cf Inflow=3.83 cfs 0.298 af
Discarded=0.03 cfs 0.017 af Primary=1.73 cfs 0.281 af Outflow=1.75 cfs 0.298 af

Pond ROOF DRAIN: Peak Elev=31.04' Inflow=0.62 cfs 0.047 af
8.0" Round Culvert n=0.013 L=22.0' S=0.0114 '/' Outflow=0.62 cfs 0.047 af

Link PA1: Inflow=3.65 cfs 0.481 af
Primary=3.65 cfs 0.481 af

Link PFES-01: Inflow=3.46 cfs 0.268 af
Primary=3.46 cfs 0.268 af

Total Runoff Area = 1.061 ac Runoff Volume = 0.498 af Average Runoff Depth = 5.63"
55.01% Pervious = 0.583 ac 44.99% Impervious = 0.477 ac

Tighe&Bond

Engineers | Environmental Specialists

Project: Proposed Medical Office
Location: 185 Cottage Street
T&B #: D5018-001
Calculations By: CML
Checked By: PMC
Date: 8/20/2018
Last Revised: 9/18/2018

APRON DESIGN

Terms: FES 1

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:

Q (cfs)	2.82	cfs
Do (ft.)	1.00	ft
T_w (ft.)	1.36	ft

Output:

Width of Apron (W1)	3	ft.
Width of Apron (W2)	9	ft.
Length of Apron (L_a)	15	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

Groundwater Recharge Volume (GRV) Calculation

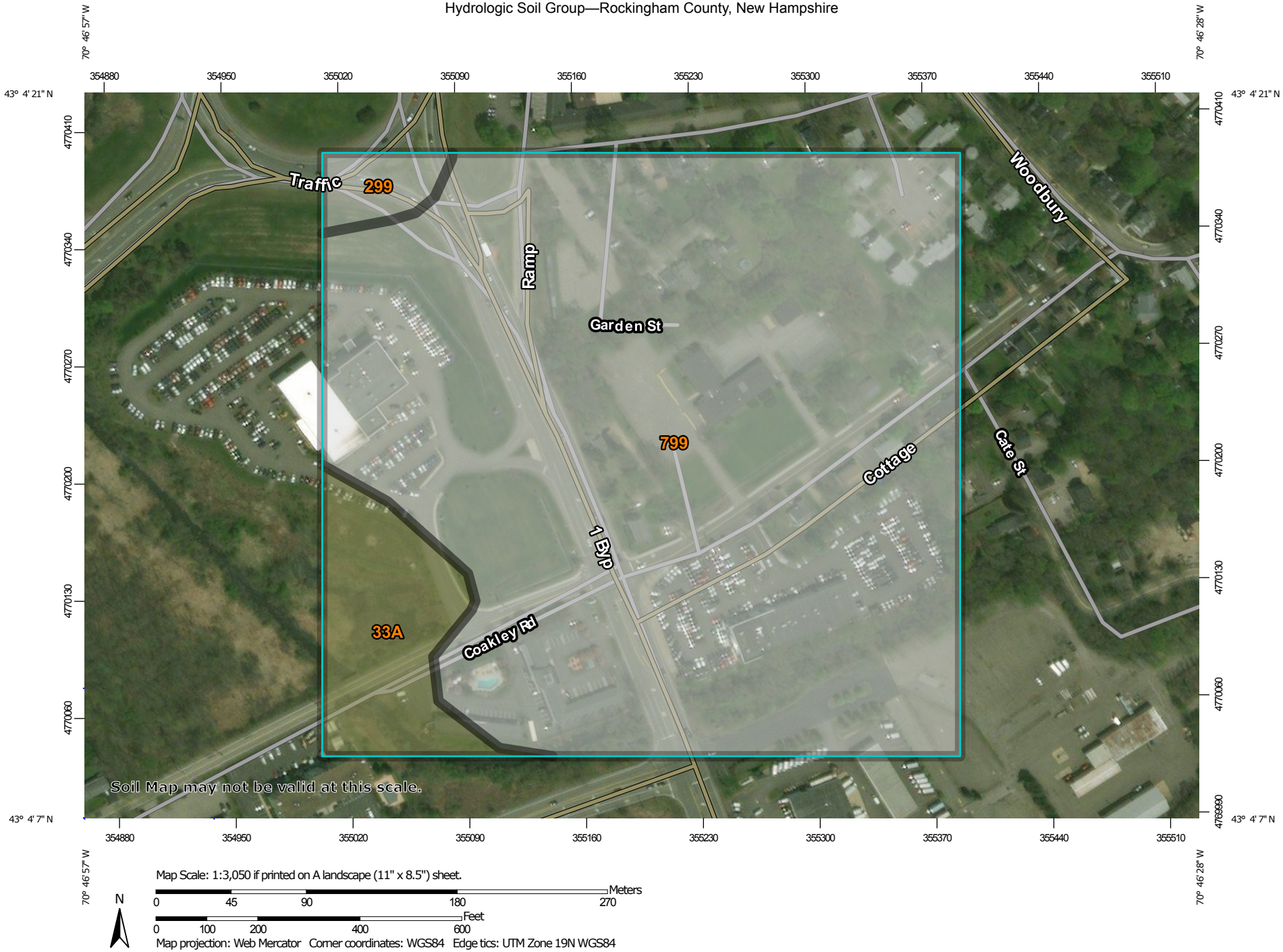
	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
0.37	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.10	inches	Rd = weighted groundwater recharge depth	
0.0366	ac-in	GRV = AI * Rd	
133	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12")	

Provide calculations below showing that the project meets the groundwater recharge requirements (Env-Wq 1507.04):

Proposed Rain Garden #1 Volume

GRVp = 2,681 CF

The groundwater recharge volume provided is greater than the required groundwater recharge volume required



Map Scale: 1:3,050 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 100 200 400 600

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Lines

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Points

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 19, Sep 11, 2017

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

Date(s) aerial images were photographed: Dec 31, 2009—Jun 26, 2016

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
33A	Scitico silt loam, 0 to 5 percent slopes	C/D	3.0	8.8%
299	Udorthents, smoothed		0.7	2.1%
799	Urban land-Canton complex, 3 to 15 percent slopes		30.5	89.1%
Totals for Area of Interest			**34.2**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.779 degrees West
Latitude	43.071 degrees North
Elevation	0 feet
Date/Time	Thu, 26 Jul 2018 14:23:32 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.66	2.92	**1yr**	2.35	2.81	3.22	3.94	4.55	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.49	3.21	3.57	**2yr**	2.84	3.43	3.94	4.68	5.33	**2yr**
5yr	0.37	0.58	0.73	0.97	1.25	1.60	**5yr**	1.08	1.46	1.88	2.43	3.14	4.07	4.58	**5yr**	3.60	4.40	5.04	5.93	6.70	**5yr**
10yr	0.41	0.65	0.82	1.11	1.45	1.89	**10yr**	1.25	1.72	2.23	2.89	3.75	4.87	5.53	**10yr**	4.31	5.32	6.08	7.11	7.98	**10yr**
25yr	0.48	0.76	0.96	1.33	1.77	2.33	**25yr**	1.53	2.14	2.77	3.62	4.74	6.17	7.10	**25yr**	5.46	6.83	7.80	9.02	10.05	**25yr**
50yr	0.53	0.86	1.10	1.53	2.06	2.75	**50yr**	1.78	2.52	3.28	4.32	5.66	7.39	8.58	**50yr**	6.54	8.25	9.42	10.81	11.98	**50yr**
100yr	0.59	0.96	1.24	1.76	2.41	3.24	**100yr**	2.08	2.97	3.89	5.15	6.76	8.86	10.38	**100yr**	7.84	9.98	11.37	12.96	14.28	**100yr**
200yr	0.67	1.10	1.42	2.04	2.81	3.82	**200yr**	2.43	3.50	4.60	6.11	8.07	10.61	12.55	**200yr**	9.39	12.07	13.74	15.55	17.04	**200yr**
500yr	0.79	1.31	1.70	2.47	3.46	4.74	**500yr**	2.98	4.36	5.74	7.68	10.21	13.49	16.15	**500yr**	11.94	15.53	17.65	19.78	21.52	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.89	**1yr**	0.63	0.87	0.92	1.32	1.67	2.22	2.51	**1yr**	1.97	2.41	2.86	3.16	3.88	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.34	3.06	3.45	**2yr**	2.70	3.32	3.82	4.55	5.08	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.12	2.74	3.79	4.20	**5yr**	3.36	4.04	4.72	5.54	6.25	**5yr**
10yr	0.39	0.59	0.73	1.03	1.33	1.60	**10yr**	1.14	1.56	1.81	2.39	3.06	4.38	4.87	**10yr**	3.87	4.69	5.45	6.42	7.21	**10yr**
25yr	0.44	0.67	0.83	1.19	1.56	1.90	**25yr**	1.35	1.86	2.10	2.76	3.54	4.70	5.91	**25yr**	4.16	5.69	6.67	7.81	8.70	**25yr**
50yr	0.48	0.73	0.91	1.31	1.77	2.17	**50yr**	1.52	2.12	2.35	3.08	3.94	5.31	6.83	**50yr**	4.70	6.57	7.76	9.07	10.04	**50yr**
100yr	0.54	0.81	1.02	1.47	2.01	2.47	**100yr**	1.74	2.42	2.63	3.43	4.37	5.96	7.89	**100yr**	5.27	7.59	9.02	10.54	11.59	**100yr**
200yr	0.59	0.89	1.13	1.64	2.28	2.82	**200yr**	1.97	2.75	2.94	3.80	4.82	6.67	9.12	**200yr**	5.90	8.77	10.49	12.27	13.41	**200yr**
500yr	0.69	1.02	1.32	1.91	2.72	3.37	**500yr**	2.35	3.29	3.41	4.34	5.49	7.75	11.03	**500yr**	6.86	10.61	12.81	15.02	16.23	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	**1yr**	0.77	1.06	1.26	1.74	2.21	2.99	3.15	**1yr**	2.65	3.03	3.58	4.38	5.05	**1yr**
2yr	0.34	0.52	0.64	0.86	1.06	1.27	**2yr**	0.92	1.24	1.48	1.96	2.51	3.43	3.70	**2yr**	3.03	3.56	4.08	4.83	5.64	**2yr**
5yr	0.40	0.62	0.76	1.05	1.33	1.62	**5yr**	1.15	1.58	1.88	2.53	3.25	4.34	4.95	**5yr**	3.84	4.76	5.37	6.36	7.14	**5yr**
10yr	0.47	0.72	0.89	1.24	1.61	1.97	**10yr**	1.39	1.93	2.28	3.10	3.94	5.34	6.19	**10yr**	4.72	5.95	6.79	7.82	8.74	**10yr**
25yr	0.57	0.87	1.09	1.55	2.04	2.56	**25yr**	1.76	2.50	2.95	4.06	5.13	7.81	8.31	**25yr**	6.91	7.99	9.10	10.31	11.39	**25yr**
50yr	0.67	1.02	1.27	1.82	2.45	3.12	**50yr**	2.11	3.05	3.59	4.99	6.29	9.78	10.41	**50yr**	8.66	10.01	11.37	12.69	13.93	**50yr**
100yr	0.78	1.19	1.49	2.15	2.94	3.79	**100yr**	2.54	3.71	4.36	6.14	7.72	12.25	13.04	**100yr**	10.84	12.54	14.20	15.65	17.05	**100yr**
200yr	0.92	1.38	1.75	2.53	3.53	4.63	**200yr**	3.05	4.52	5.32	7.55	9.47	15.38	16.35	**200yr**	13.61	15.72	17.75	19.28	20.87	**200yr**
500yr	1.14	1.69	2.18	3.16	4.50	6.00	**500yr**	3.88	5.87	6.90	9.98	12.44	20.79	22.06	**500yr**	18.40	21.21	23.87	25.41	27.28	**500yr**

Powered by ACIS Northeast Regional Climate Center

2232-1640

JAN 27 8 52 AM '75
REC'D ROCKINGHAM COUNTY
REGISTRY OF DEEDS

EASEMENT

INDENTURE, made the 8th day of January, 1975, between JANE C. GARLAND, Grantor and the UNITED STATES OF AMERICA, Grantee.

WHEREAS, the Grantor has petitioned the Rockingham County Superior Court to vest in her title to the following described premises:

A certain tract of land situated in Portsmouth, County of Rockingham and State of New Hampshire, and bounded and described as follows:

That entire portion of Inland Street, Portsmouth, New Hampshire as shown on Plan of Land of Frank Jones, said plan being recorded in the Rockingham County Registry of Deeds as Plan No. 00223, which lies adjacent to and is contiguous with the eastern boundary of the premises of your Petitioner, said premises being shown on City of Portsmouth Assessor's Lot Plan 211, and being designated therein as Lot No. 37; and

WHEREAS, the Grantor has petitioned said Court to order and declare that said portion of Inland Street as hereinabove described, be declared free and clear of all claims by any person, firm or corporation whatever, and free of any servitude of travel, public or private; and

WHEREAS, the Grantee is seized in fee simple of another parcel of land near the Grantor's land, said Grantee's land being known as the United States Armory; and

WHEREAS, the Grantor has agreed, in consideration of the Grantee's promise not to oppose said petition as hereinabove referred to, to grant to the Grantee an easement or right-of-way over that portion of Inland Street as hereinabove described;

W I T N E S S E T H:

THAT, in pursuance of said agreement, the Grantor hereby grants to the Grantee, its heirs and assigns;

FULL and FREE RIGHT and LIBERTY for the Grantee, its heirs and assigns, at all times hereafter, with or without vehicles, for all purposes connected with the use and enjoyment of the said land of the Grantee, to pass and repass along that portion of Inland Street as hereinabove described, a distance of ten (10) feet in width, said ten (10) feet being measured from the Easterly boundary line of said Inland Street as shown on said Lot Plan No. 94, for the purpose of going from the said Inland Street to the said land of the Grantee, or vice versa. And the right of the Grantee to use said described property for any other legal use without restriction of any kind.

TO HAVE AND TO HOLD the easement or right-of-way hereby granted unto the Grantee, its heirs and assigns as appurtenant to the said land of the grantee.

TAYLOR AND GRAY
ATTORNEYS AT LAW
450 MIDDLE STREET
PORTSMOUTH,
NEW HAMPSHIRE 03801

IN WITNESS WHEREOF, the Grantor has hereunto set her hand and seal the day and year first above-written.

WITNESS:

Teresa Ann Shifflett Jane C. Garland
Jane C. Garland

STATE OF NEW HAMPSHIRE
ROCKINGHAM, ss

On this the 8th day of January, 1975, personally appeared the above-named, JANE C. GARLAND and acknowledged the foregoing instrument to be her voluntary act and deed, before me,

Teresa Ann Shifflett
Justice of the Peace

TAYLOR AND GRAY
ATTORNEYS AT LAW
[illegible] MIDDLE STREET
PORTSMOUTH,
NEW HAMPSHIRE 03801

2232-1122

CONSIDERATION LESS THAN $100.00, no STAMPS REQUIRED

JAN 20 9 23 AM '75
REG'D ROCKINGHAM COUNTY
REGISTRY OF DEEDS

00802

EASEMENT

INDENTURE, made the 8th day of January, 1975, between JANE C. GARLAND, Grantor and the heirs and assigns of the said heirs of the late DANIEL A. YOKEN, said DANIEL A. YOKEN now being deceased, Grantee.

WHEREAS, the Grantor has petitioned the Rockingham County Superior Court to vest in her title to the following described premises:

A certain tract of land situated in Portsmouth, County of Rockingham, and State of New Hampshire, and bounded and described as follows:

That entire portion of Inland Street, Portsmouth, New Hampshire as shown on Plan of Land of Frank Jones, said plan being recorded in the Rockingham County Registry of Deeds as Plan No. 00223, which lies adjacent to and is contiguous with the eastern boundary of the premises of your Petitioner, said premises being shown on City of Portsmouth assessor's Lot Plan 211, and being designated therein as Lot No. 37; and

WHEREAS, the Grantor has petitioned said Court to order and declare that said portion of Inland Street as hereinabove described, be declared free and clear of all claims by any person, firm or corporation whatever, and free of any servitude of travel, public or private; and

WHEREAS, the Grantee is seized in fee simple of another parcel of land near the Grantor's land, said Grantee's land being shown on City of Portsmouth assessor's Lot Plan 94, designated as Lot No. 48; and

WHEREAS, the Grantor has agreed, in consideration of the Grantee's promise not to oppose said petition as hereinabove referred to, to grant to the Grantee an easement or right-of-way over that portion of Inland Street as hereinabove described;

W I T N E S S E T H:

THAT, in pursuance of said agreement, the Grantor hereby grants to the Grantee, his heirs and assigns, at all times hereafter, with or without vehicles, for all purposes connected with the use and enjoyment of the said land of the Grantee, to pass and repass along that portion of Inland Street as hereinabove described, a distance of twenty (20) feet in width, said twenty (20) feet being measured from the Easterly boundary line of said Inland Street as shown on said Lot Plan No. 94, for the purpose of going from the said Inland Street to the said land of the Grantee, or vice versa.

TO HAVE AND TO HOLD the easement or right-of-way hereby granted unto the Grantee, his heirs and assigns, as appurtenant to the said land of the Grantee.

TAYLOR AND GRAY
ATTORNEYS AT LAW
486 MIDDLE STREET
PORTSMOUTH,
NEW HAMPSHIRE 03801

IN WITNESS WHEREOF, the Grantor has hereunto set her hand and seal the day and year first above-written.

WITNESS:

Teresa Ann Shufelt Jane C. Garland
Jane C. Garland

STATE OF NEW HAMPSHIRE
ROCKINGHAM, ss

On this the 8th day of January, 1975, personally appeared the above-named JANE C. GARLAND and acknowledged the foregoing instrument to be her voluntary act and deed, before me,

Teresa Ann Shufelt
Justice of the Peace

TAYLOR AND GRAY
ATTORNEYS AT LAW
488 MIDDLE STREET
PORTSMOUTH,
NEW HAMPSHIRE 03801