LOCATION PLAN

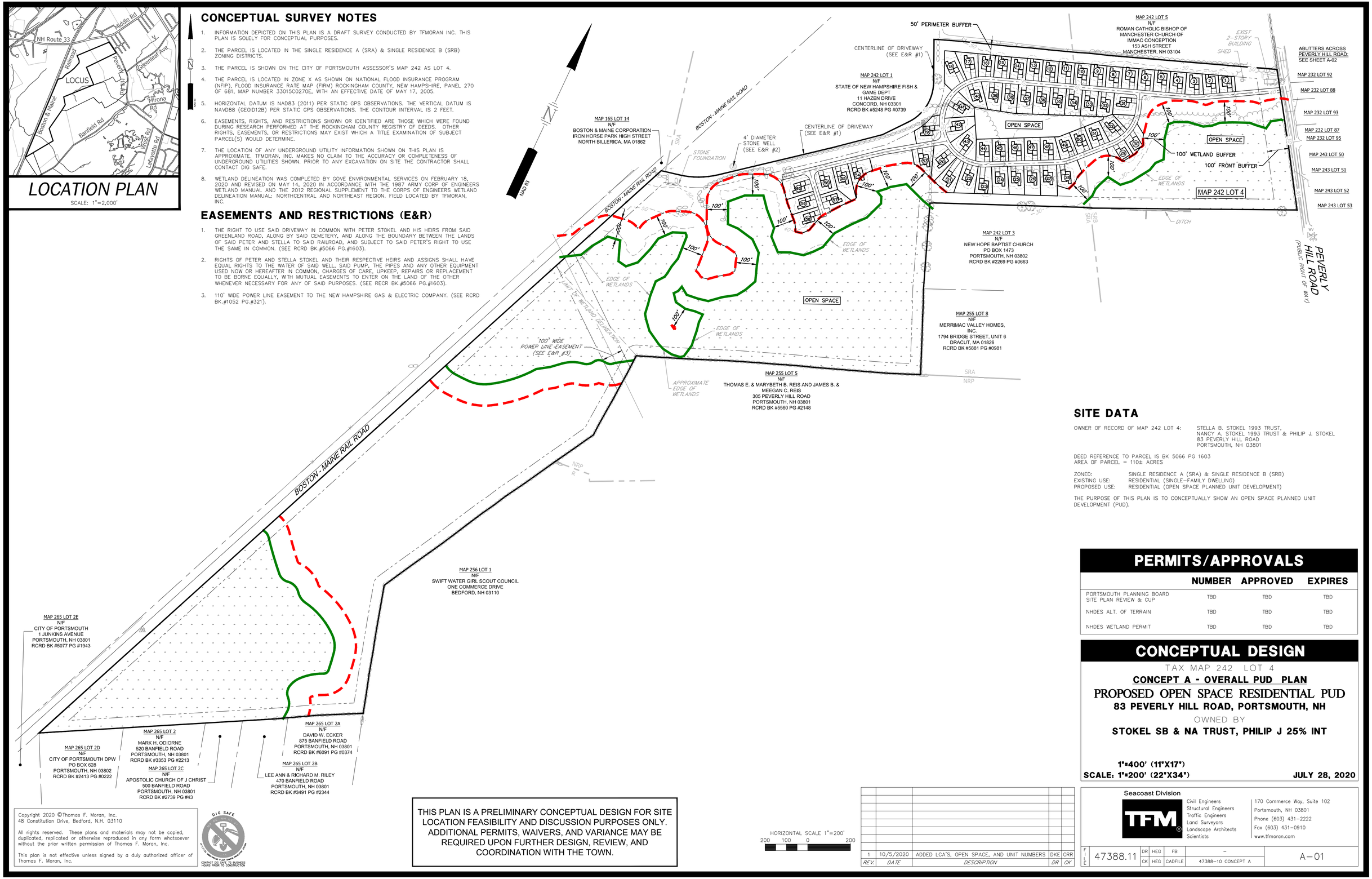
SCALE: 1"=2,000'

CONCEPTUAL SURVEY NOTES

1. INFORMATION DEPICTED ON THIS PLAN IS A DRAFT SURVEY CONDUCTED BY TFMORAN INC. THIS PLAN IS SOLELY FOR CONCEPTUAL PURPOSES.
2. THE PARCEL IS LOCATED IN THE SINGLE RESIDENCE A (SRA) & SINGLE RESIDENCE B (SRB) ZONING DISTRICTS.
3. THE PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 242 AS LOT 4.
4. THE PARCEL IS LOCATED IN ZONE X AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP), FLOOD INSURANCE RATE MAP (FIRM) ROCKINGHAM COUNTY, NEW HAMPSHIRE, PANEL 270 OF 681, MAP NUMBER 33015C0270E, WITH AN EFFECTIVE DATE OF MAY 17, 2005.
5. HORIZONTAL DATUM IS NAD83 (2011) PER STATIC GPS OBSERVATIONS. THE VERTICAL DATUM IS NAVD88 (GEOID12B) PER STATIC GPS OBSERVATIONS. THE CONTOUR INTERVAL IS 2 FEET.
6. EASEMENTS, RIGHTS, AND RESTRICTIONS SHOWN OR IDENTIFIED ARE THOSE WHICH WERE FOUND DURING RESEARCH PERFORMED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS. OTHER RIGHTS, EASEMENTS, OR RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF SUBJECT PARCEL(S) WOULD DETERMINE.
7. THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. TFMORAN, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UNDERGROUND UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE.
8. WETLAND DELINEATION WAS COMPLETED BY GOVE ENVIRONMENTAL SERVICES ON FEBRUARY 18, 2020 AND REVISED ON MAY 14, 2020 IN ACCORDANCE WITH THE 1987 ARMY CORP OF ENGINEERS WETLAND MANUAL AND THE 2012 REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION. FIELD LOCATED BY TFMORAN, INC.

EASEMENTS AND RESTRICTIONS (E&R)

1. THE RIGHT TO USE SAID DRIVEWAY IN COMMON WITH PETER STOKEL AND HIS HEIRS FROM SAID GREENLAND ROAD, ALONG BY SAID CEMETERY, AND ALONG THE BOUNDARY BETWEEN THE LANDS OF SAID PETER AND STELLA TO SAID RAILROAD, AND SUBJECT TO SAID PETER'S RIGHT TO USE THE SAME IN COMMON. (SEE RCRD BK.#5066 PG.#1603).
2. RIGHTS OF PETER AND STELLA STOKEL AND THEIR RESPECTIVE HEIRS AND ASSIGNS SHALL HAVE EQUAL RIGHTS TO THE WATER OF SAID WELL, SAID PUMP, THE PIPES AND ANY OTHER EQUIPMENT USED NOW OR HEREAFTER IN COMMON, CHARGES OF CARE, UPKEEP, REPAIRS OR REPLACEMENT TO BE BORNE EQUALLY, WITH MUTUAL EASEMENTS TO ENTER ON THE LAND OF THE OTHER WHENEVER NECESSARY FOR ANY OF SAID PURPOSES. (SEE RECR BK.#5066 PG.#1603).
3. 110' WIDE POWER LINE EASEMENT TO THE NEW HAMPSHIRE GAS & ELECTRIC COMPANY. (SEE RCRD BK.#1052 PG.#321).



SITE DATA

OWNER OF RECORD OF MAP 242 LOT 4: STELLA B. STOKEL 1993 TRUST, NANCY A. STOKEL 1993 TRUST & PHILIP J. STOKEL, 83 PEVERLY HILL ROAD, PORTSMOUTH, NH 03801

DEED REFERENCE TO PARCEL IS BK 5066 PG 1603
AREA OF PARCEL = 110± ACRES

ZONED: SINGLE RESIDENCE A (SRA) & SINGLE RESIDENCE B (SRB)
EXISTING USE: RESIDENTIAL (SINGLE-FAMILY DWELLING)
PROPOSED USE: RESIDENTIAL (OPEN SPACE PLANNED UNIT DEVELOPMENT)

THE PURPOSE OF THIS PLAN IS TO CONCEPTUALLY SHOW AN OPEN SPACE PLANNED UNIT DEVELOPMENT (PUD).

PERMITS/APPROVALS

	NUMBER	APPROVED	EXPIRES
PORTSMOUTH PLANNING BOARD SITE PLAN REVIEW & CUP	TBD	TBD	TBD
NHDES ALT. OF TERRAIN	TBD	TBD	TBD
NHDES WETLAND PERMIT	TBD	TBD	TBD

CONCEPTUAL DESIGN

TAX MAP 242 LOT 4

CONCEPT A - OVERALL PUD PLAN

PROPOSED OPEN SPACE RESIDENTIAL PUD

83 PEVERLY HILL ROAD, PORTSMOUTH, NH

OWNED BY

STOKEL SB & NA TRUST, PHILIP J 25% INT

1"=400' (11"X17")
SCALE: 1"=200' (22"X34") **JULY 28, 2020**

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

THIS PLAN IS A PRELIMINARY CONCEPTUAL DESIGN FOR SITE LOCATION FEASIBILITY AND DISCUSSION PURPOSES ONLY. ADDITIONAL PERMITS, WAIVERS, AND VARIANCE MAY BE REQUIRED UPON FURTHER DESIGN, REVIEW, AND COORDINATION WITH THE TOWN.

HORIZONTAL SCALE 1"=200'
200 100 0 200

REV.	DATE	DESCRIPTION	DR	CK
1	10/5/2020	ADDED LCA'S, OPEN SPACE, AND UNIT NUMBERS	DKE	CRR

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431-2222
Fax (603) 431-0910
www.tfmoran.com

FILE		DR	HEG	FB	–	
	47388.11	CK	HEG	CADFILE	47388-10 CONCEPT A	A-01

PUD SITE DATA

DIMENSIONAL REQUIREMENTS (PROPOSED PUD USE)

	REQUIRED:	PROVIDED:
MINIMUM LOT DIMENSIONS:		
MINIMUM LOT SIZE	10 AC	100± AC
FRONTAGE	100 FT OR (2) @ 50'	665± FT
BASE RESIDENTIAL DENSITY:	74 RESIDENCES	60 RESIDENCES
MINIMUM INTERNAL SETBACKS:		
FRONT	20 FT	20 FT
SIDE	25 FT	TBD
REAR	25 FT	25 FT
BETWEEN BUILDINGS	30 FT	30 FT
MINIMUM OPEN SPACE	25%	TBD
MINIMUM PERIMETER BUFFER:		
FRONT	100 FT	>100 FT
SIDE	50 FT	>50 FT
REAR	50 FT	>50 FT

BASE RESIDENTIAL DENSITY CALCULATIONS

REQUIRED BASE RESIDENTIAL DENSITY:

SRA:
- DEVELOPABLE AREA = TOTAL AREA – WETLANDS – 15% SLOPES
  = 3,938,561 SF – 1,684,960 SF – 156,927 SF
  = 2,096,674 SF
- MINIMUM LOT AREA PER DWELLING = 1 AC = 43,560 SF

SRB:
- DEVELOPABLE AREA = TOTAL AREA – WETLANDS – 15% SLOPES
  = 565,948 SF – 286,452 SF – 1,217 SF
- MINIMUM LOT AREA PER DWELLING = 15,000 SF

TOTAL REQUIRED = DEVELOPABLE AREA / MINIMUM LOT AREA PER DWELLING

(SRA) 2,096,674 SF / 43,560 SF = 48.1 RESIDENCES

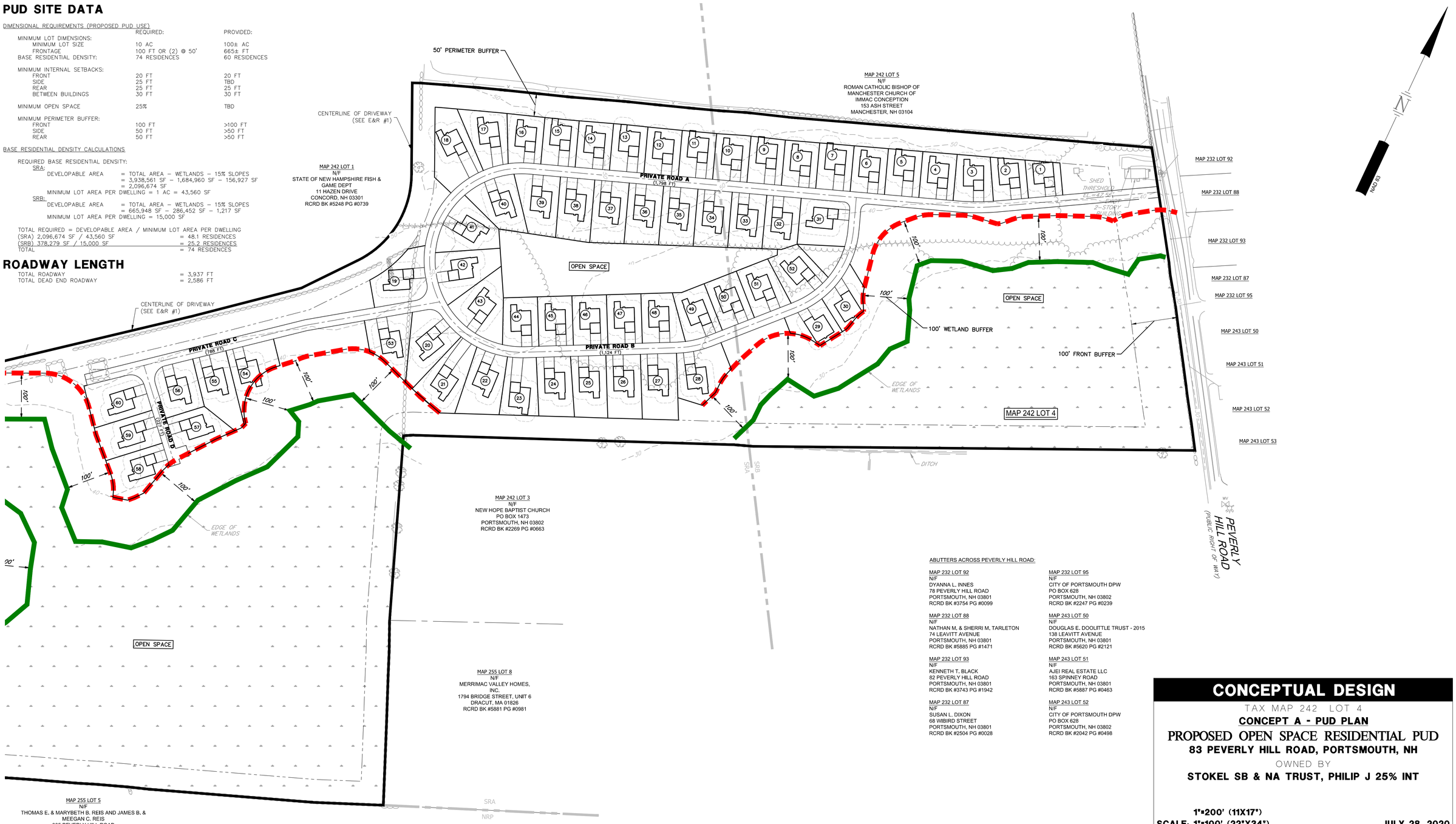
(SRB) 378,279 SF / 15,000 SF = 25.2 RESIDENCES

TOTAL = 74 RESIDENCES

ROADWAY LENGTH

TOTAL ROADWAY = 3,937 FT

TOTAL DEAD END ROADWAY = 2,586 FT



ABUTTERS ACROSS PEVERLY HILL ROAD:

MAP 232 LOT 92
N/F
DYANNA L. INNES
78 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
RCRD BK #3754 PG #0099

MAP 232 LOT 88
N/F
NATHAN M. & SHERRI M. TARLETON
74 LEAVITT AVENUE
PORTSMOUTH, NH 03801
RCRD BK #5885 PG #1471

MAP 232 LOT 93
N/F
KENNETH T. BLACK
82 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
RCRD BK #3743 PG #1942

MAP 232 LOT 87
N/F
SUSAN L. DIXON
68 WIBIRD STREET
PORTSMOUTH, NH 03801
RCRD BK #2504 PG #0028

MAP 232 LOT 95
N/F
CITY OF PORTSMOUTH DPW
PO BOX 628
PORTSMOUTH, NH 03802
RCRD BK #2247 PG #0239

MAP 243 LOT 50
N/F
DOUGLAS E. DOOLITTLE TRUST - 2015
138 LEAVITT AVENUE
PORTSMOUTH, NH 03801
RCRD BK #5620 PG #2121

MAP 243 LOT 51
N/F
AJEI REAL ESTATE LLC
163 SPINNEY ROAD
PORTSMOUTH, NH 03801
RCRD BK #5887 PG #0463

MAP 243 LOT 52
N/F
CITY OF PORTSMOUTH DPW
PO BOX 628
PORTSMOUTH, NH 03802
RCRD BK #2042 PG #0498

CONCEPTUAL DESIGN

TAX MAP 242 LOT 4

CONCEPT A - PUD PLAN

PROPOSED OPEN SPACE RESIDENTIAL PUD

83 PEVERLY HILL ROAD, PORTSMOUTH, NH

OWNED BY

STOKEL SB & NA TRUST, PHILIP J 25% INT

1"=200' (11X17")

SCALE: 1"=100' (22"X34") **JULY 28, 2020**

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

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HORIZONTAL SCALE 1"=100'
100 50 0 100

REV.	DATE	DESCRIPTION	DR	CK
1	10/5/2020	ADDED LCA'S, OPEN SPACE, AND UNIT NUMBERS	DKE	CRR

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431-2222
Fax (603) 431-0910
www.tfmoran.com

FILE	DR	HEG	FB	–	A–02
47388.11	CK	HEG	CADFILE	47388-10 CONCEPT A	

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

NEW HAMPSHIRE 200

Proposed Residential Subdivision
83 Peverly Hill Road
Portsmouth, NH 03801
Residential Unit Renderings

TFMoran, Inc.
48 Constitution Drive, Bedford, NH 03110
T(603) 472-4488 www.tfmoran.com

TFMoran, Inc. Seacoast Division
170 Commerce Way–Suite 102, Portsmouth, NH 03801
T(603) 431-2222

Stephen G. Pernaw & Company, Inc.

P.O. Box 1721 • Concord, NH 03302
tel: (603) 731-8500 • fax: (866) 929-6094 • sgp@ pernaw.com

Transportation: Engineering • Planning • Design

M E M O R A N D U M

Ref: 2047A

To: Michael Green
Green & Company

From: Stephen G. Pernaw, P.E., PTOE

Subject: Proposed Residential Development – Traffic Evaluation
Portsmouth, New Hampshire

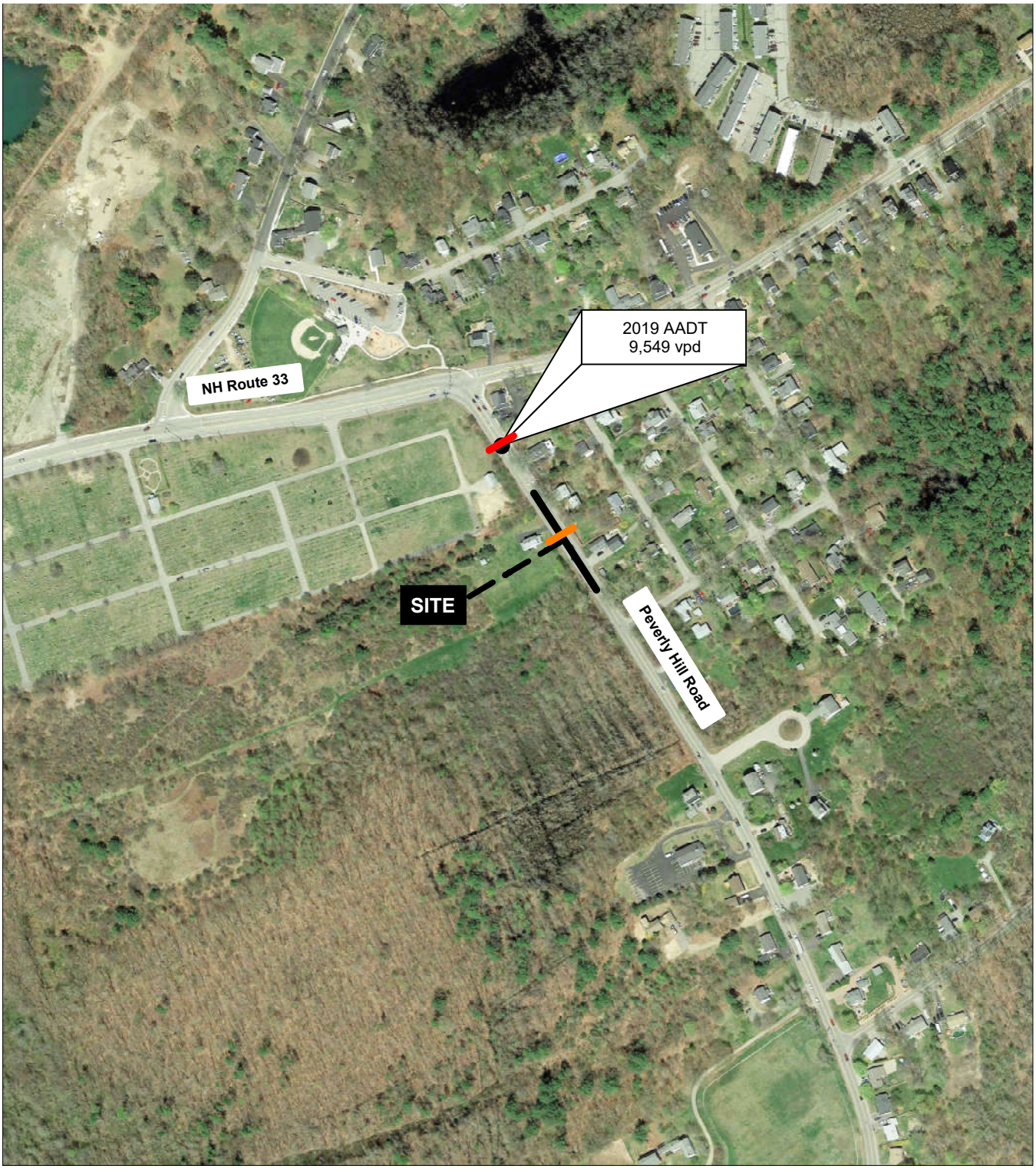
Date: October 6, 2020

As requested, Pernaw & Company, Inc. has conducted this *"Traffic Evaluation"* regarding your proposed residential development project located on the west side of Peverly Hill Road in Portsmouth, New Hampshire. This study evaluates the Peverly Hill Road / Private Road A intersection and in terms of traffic operations, capacity, and safety based on 2032 Build traffic volumes. The purpose of this memorandum is to summarize our research of available traffic count data, our recent traffic counts at the subject site, the trip generation analysis for the proposed development, the post-development traffic projections, and the results of the various technical analyses. This study has determined that this proposed intersection will function safely and adequately as a conventional three-leg T-intersection with one shared general-purpose travel lane on each approach. To summarize:

Proposed Development – The conceptual design plan entitled *"Concept A-PUD Plan,"* prepared by TFM, Inc., Sheet A-02, dated July 28, 2020 shows that the proposed development will create 60 single-family detached residential units along a private roadway system (see Attachment 1). Private Road A is proposed to intersect the west side of Peverly Hill Road approximately 450-feet south of NH33 (Middle Road). The location of the automatic traffic recorders and the subject site with respect to the area roadway system is shown on Figure 1.

Existing Conditions – Peverly Hill Road extends in a general north-south direction along the site frontage and provides access between NH33 and US1. This road provides one travel lane in each direction in the vicinity of the subject site. The pavement width is delineated with a four-inch double yellow centerline and four-inch single white edge lines. Paved, grass and gravel shoulders of variable width are present along both sides of the roadway. The speed limit is posted at 25 mph in each direction in this area.

Existing Traffic Volumes – According to a short-term NHDOT traffic count conducted on Peverly Hill Road (south of NH33) in June 2019, this roadway section carried an estimated Annual Average Daily Traffic (AADT) volume of approximately 9,549 vehicles per day in 2019. The hourly data indicates that weekday volumes typically reached peak levels from 8:00 to 9:00 AM and from 4:00 to 5:00 PM. The diagrams on Page 3 summarize the daily and hourly variations in traffic demand at this location (see Attachments 2 & 3). This information was supplemented by a 24-hour Automatic Traffic Recorder count conducted by our office in September 2020.



= AUTOMATIC TRAFFIC RECORDER LOCATION (NHDOT)

= AUTOMATIC TRAFFIC RECORDER LOCATION (PERNAW & CO., INC.)

NORTH

2047A

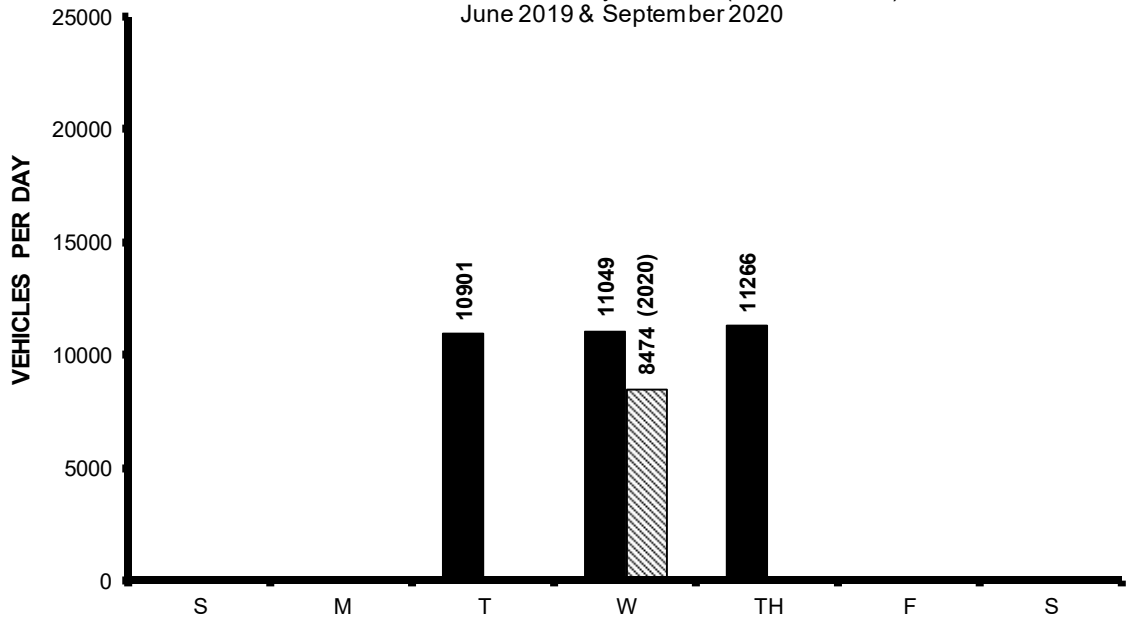
Figure 1

Site Location

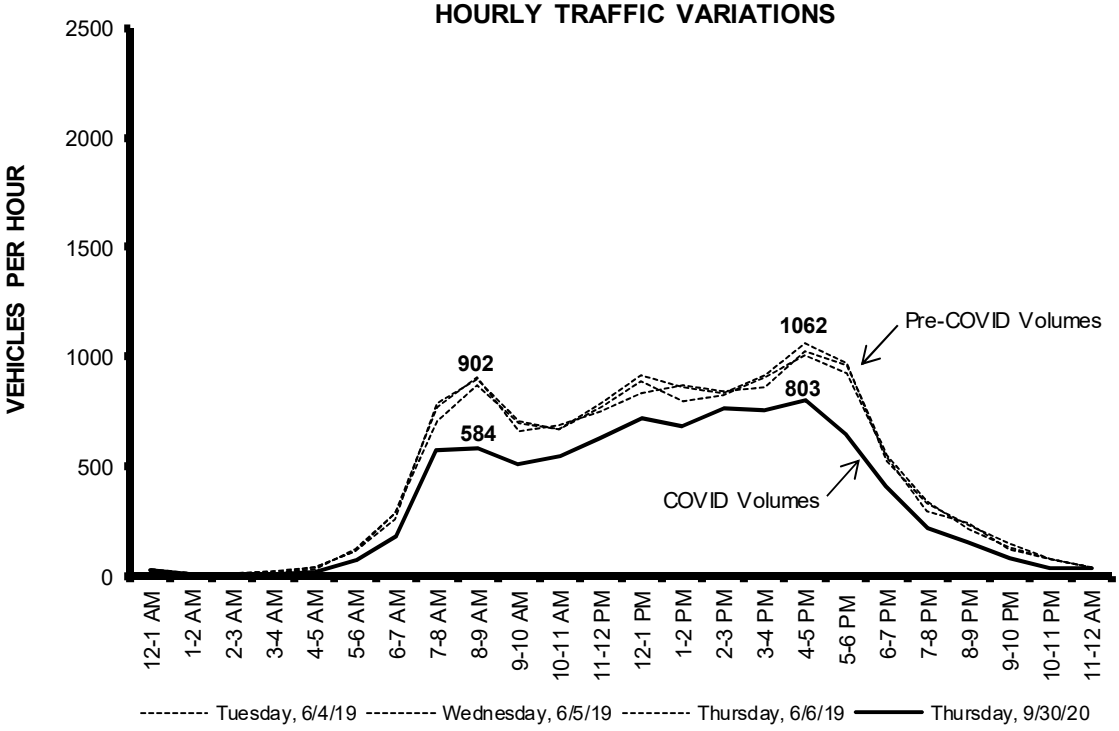
Traffic Evaluation, Proposed Residential Development, Portsmouth, New Hampshire

DAILY TRAFFIC VARIATIONS

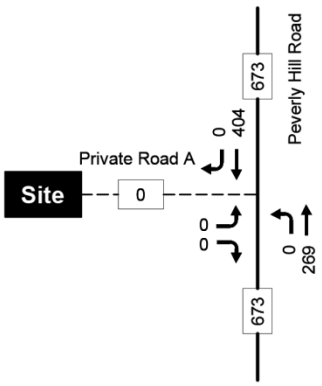
Portsmouth, NH - Peverly Hill Road (South of NH33)
June 2019 & September 2020



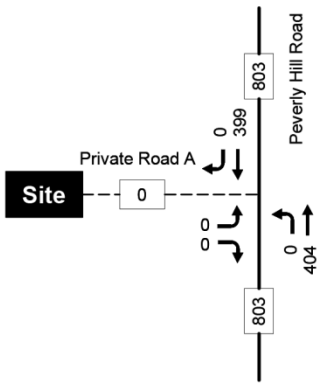
HOURLY TRAFFIC VARIATIONS



The raw 2020 directional traffic volume data on Peverly Hill Road are summarized in the diagrams below. This data shows that travel in the southbound direction is predominant during the morning peak hour, and this reverses to northbound during the evening peak hour. This pattern is indicative of the employment opportunities in the city, and the proximity of Interstate Route 95.



AM PEAK HOUR
Wednesday, September 30, 2020
7:30 to 8:30 AM



PM PEAK HOUR
Wednesday, September 30, 2020
4:00 to 5:00 PM

When compared with the 2019 NHDOT count data, it is obvious that the current traffic levels on Peverly Hill Road have been affected by the COVID-19 pandemic. For this reason, the subsequent post-development traffic volumes contained herein reflect the use of a separate COVID adjustment factor. The raw traffic count data is attached (see Attachment 4).

Trip Generation - To estimate the quantity of vehicle-trips that will be produced by the proposed residential development, the standard trip generation rates and equations published by the Institute of Transportation Engineers[1] (ITE) were considered. Both Land Use Code 210 and 220 are somewhat applicable, for different reasons. LUC 210 applies to single-family detached dwellings; however, the proposed units are condominiums and are much smaller in size than is found in a conventional residential subdivision. LUC 220 applies to condominiums, apartments, and townhouses; however, with multiple units in the same building. Consequently, the trip rates per person for LUC 210 and the trip rates per dwelling unit for LUC 220 were considered; and the higher of the two results were utilized for traffic projection and analysis purposes. According to Green & Company's experience with similar development projects, there are approximately two persons per unit in this type of housing.

[1] Institute of Transportation Engineers, *Trip Generation*, 10th Edition (Washington, D.C., 2017)

Table 1 — Trip Generation Summary

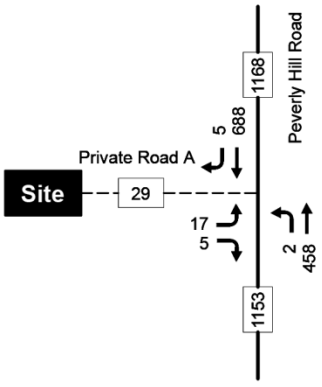
	Estimate A LUC 210 120 Residents [1]	Estimate B LUC 220 60 Units [2]
Weekday AM Peak Hour		
Entering	8 veh	**7 veh**
Exiting	17 veh	**22 veh**
Total	25 trips	**29 trips**
Weekday PM Peak Hour		
Entering	**28 veh**	23 veh
Exiting	**14 veh**	14 veh
Total	**42 trips**	37 trips
Weekday Total (24-hours)		
Entering	198 veh	207 veh
Exiting	198 veh	207 veh
Total	396 trips	414 trips

[1] ITE Land Use Code 210 - Single-Family Detached Housing (Use 2 persons per unit, Trip Equation Method)

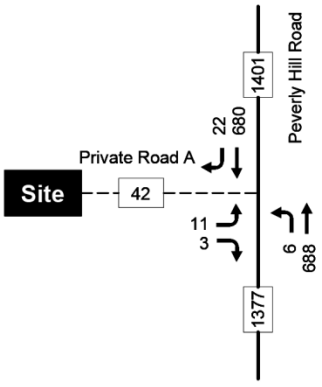
[2] ITE Land Use Code 220 - Multifamily Housing - Low-Rise (60 Dwelling Units, Trip Equation Method)

Based upon ITE Land Use Code 210 (Single-Family Detached Housing) and ITE Land Use Code 220 (Multifamily Housing – Low Rise), the overall development is expected to generate approximately 29 vehicle-trips (7 arrivals, 22 departures) during the AM peak hour, and 42 vehicle-trips (28 arrivals, 14 departures) during the PM peak hour, on an average weekday basis (see Attachment 5).

Future Build Traffic Projections – The diagrams below summarize the Build traffic projections for the 2032 horizon year. These projections are based on the September 2020 traffic count data, a peak-month seasonal adjustment factor of 1.05 (see Attachment 6), a 2.0% background traffic growth rate, compounded annually (see Attachment 7), and a COVID-19 adjustment factor of 1.28 (see Attachment 8). The trip distribution analysis (see Attachment 9) indicates that the majority of site traffic (78%) will travel to/from points north on Peverly Hill Road.



2032 AM Build



2032 PM Build

Intersection Capacity and Level of Service - The long-range (2032) traffic projections form the basis for assessing traffic operations at the Peverly Hill Road / Private Road A intersection from a capacity and delay standpoint. This intersection was analyzed according to the methodologies of the *Highway Capacity Manual 2010*[2] as replicated by the latest edition of the *Synchro Signal Timing Software (Version 10),* which is capable of analyzing unsignalized intersections as well.

Capacity and Level of Service (LOS) calculations pertaining to unsignalized intersections address the quality of service for those vehicles turning into and out of the intersecting side street or driveway. The availability of adequate gaps in the traffic stream on the major street actually controls the potential capacity for vehicle movements to and from the minor approaches, in terms of vehicles per hour.

The results of the analysis for the subject intersection show that all applicable turning movements will operate well below capacity through 2032 with the proposed development fully occupied. Nevertheless, departures from the Private Road A approach to Peverly Hill Road can be expected to encounter moderate delays during the peak hour periods in 2032: Level of Service E during the morning peak hour; Level of Service D during the evening peak hour (see Attachments 10 & 11).

Auxiliary Turn Lane Warrants Analysis

Left-Turn Treatment - The type of treatment needed to accommodate left-turning vehicles from any street or highway to an intersecting side street (or driveway) can range from no treatment, where turning volumes are low; to the provision of a bypass lane for through traffic to travel around left-turning vehicles; to the addition of a formal center turn lane used exclusively by left-turning vehicles for deceleration and storage while waiting to complete their maneuvers.

Analysis of the 2032 traffic volumes using NCHRP 457 guidelines confirmed that no special treatment is needed for left-turn arrivals from Peverly Hill Road. The results of the analysis are summarized on Table 2. This finding means that the northbound through lane on Peverly Hill Road will function safely and adequately as a shared through-left lane (see Attachments 12 & 13).

Right-Turn Treatment - The type of treatment needed to accommodate right-turning vehicles from any street or highway to any intersecting side street (or driveway) can range from a radius only, where turning volumes are low; to the provision of a short 10:1 right-turn taper; to the addition of an exclusive right-turn lane, where turning volumes and through traffic volumes are significant.

Analysis of the 2032 traffic volumes contained herein using NCHRP 457 guidelines confirmed that right-turn treatment is not warranted at the subject intersection. The results of these analyses are summarized on Table 2 and the computations are attached (Attachments 14 & 15).

Minor Road Approach Treatment - The type of treatment needed to accommodate exiting vehicles from the minor-road approach at a stop-controlled intersection can range from a single lane (shared left-right lane) in low-volume conditions, to two exit lanes (exclusive left-turn lane and exclusive right-turn lane) where turning volumes and through traffic volumes are significant,

[2] Transportation Research Board, *Highway Capacity Manual* (Washington, D.C., 2010).

to multiple exit lanes in extreme cases. The analysis is summarized on Table 2 and shows that a single departure lane on the Private Road A approach to Peverly Hill Road is sufficient (see Attachments 16 & 17).

Table 2 — Auxiliary Turn Lane Warrants Analysis Peverly Hill Road / Private Road A

	2032 AM Build Volumes	2032 PM Build Volumes
I. LEFT-TURN LANE WARRANTS ANALYSIS		
Peak Hour Inputs:		
Left-Turn Volume (NB)	2	6
Advancing Volume (NB)	460	694
Opposing Volume (SB)	693	702
Percent Lefts	0.4%	0.9%
Speed (mph)	25	25
Limiting Advancing Volume (veh/h)	>1000	>1000
Left-Turn Treatment Warranted?	**NO**	**NO**
II. RIGHT-TURN LANE WARRANTS ANALYSIS		
Peak Hour Inputs:		
Right-Turn Volume (SB)	5	22
Approach Volume (SB)	693	702
Speed (mph)	25	25
Limiting Right-Turn Volume (veh/h)	225	208
Add Right-Turn Bay?	**NO**	**NO**
III. MINOR-ROAD APPROACH GEOMETRY ANALYSIS		
Peak Hour Inputs:		
Major-Road Volume (NB-SB)	1153	1396
% Right-Turns on Minor (EB)	23	21
Minor-Road Approach Volume	22	14
Limiting Minor-Road Volume (veh/h)	132	95
Consider TWO Approach Lanes?	**NO**	**NO**

Findings & Conclusions

1. The September 2020 traffic count conducted on Peverly Hill Road at the subject site revealed that this section of roadway carried approximately 8,500 vehicles on a typical weekday, with 673 vehicles observed passing the site during the AM peak hour (7:30 to 8:30 AM) and 803 vehicles observed during the PM peak hour (4:00 to 5:00 PM). The predominant travel direction was southbound during the AM, and northbound during the PM.

2. The proposed residential development is expected to generate approximately 29 (AM) and 42 (PM) vehicle-trips during the peak hour periods. The majority (78%) are expected to travel to/from points north on Peverly Hill Road (via NH33).

3. Site traffic is expected to increase the two-way traffic volume on Peverly Hill Road by +2% north of the site, and +1% south of the site by 2032.

4. The intersection capacity and Level of Service analysis indicates that all applicable traffic movements at this intersection will operate well below capacity through 2032 with the development fully occupied. By 2032, departures from the site are expected to operate at Level of Service E during the morning peak hour, and at Level of Service D during the PM peak hour. Left-turn arrivals (from Peverly Hill Road northbound) will operate at Level of Service B, or higher, during all hours of the day through 2032. Vehicle queuing on the Private Road A approach to Peverly Hill Road is expected to be minimal.

5. The 2032 Build traffic volumes do not satisfy the NCHRP guidelines for left-turn treatment or right-turn treatment at the Private Road A intersection on Peverly Hill Road. The subject intersection will function safely and efficiently with one shared travel lane on each approach to the subject intersection.

From a traffic operations and safety standpoint, providing ample sight distances looking left and right from the Proposed Road A approach to Peverly Hill Road is an important safety consideration. This new access road should operate under stop sign control, and be delineated with a 18-inch white stop line and a short section of 4-inch double-yellow centerline to separate inbound and outbound vehicles.

Attachments

A T T A C H M E N T S

PUD SITE DATA

DIMENSIONAL REQUIREMENTS (PROPOSED PUD USE)

	REQUIRED:	PROVIDED:
MINIMUM LOT DIMENSIONS:		
MINIMUM LOT SIZE	10 AC	100± AC
FRONTAGE	100 FT OR (2) @ 50'	865± FT
BASE RESIDENTIAL DENSITY:	74 RESIDENCES	60 RESIDENCES
MINIMUM INTERNAL SETBACKS:		
FRONT	20 FT	20 FT
SIDE	25 FT	TBD
REAR	25 FT	25 FT
BETWEEN BUILDINGS	30 FT	30 FT
MINIMUM OPEN SPACE	25%	TBD
MINIMUM PERIMETER BUFFER:		
FRONT	100 FT	>100 FT
SIDE	50 FT	>50 FT
REAR	50 FT	>50 FT

BASE RESIDENTIAL DENSITY CALCULATIONS

REQUIRED BASE RESIDENTIAL DENSITY:

SRA:
DEVELOPABLE AREA = TOTAL AREA − WETLANDS − 15% SLOPES
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TOTAL = 74 RESIDENCES

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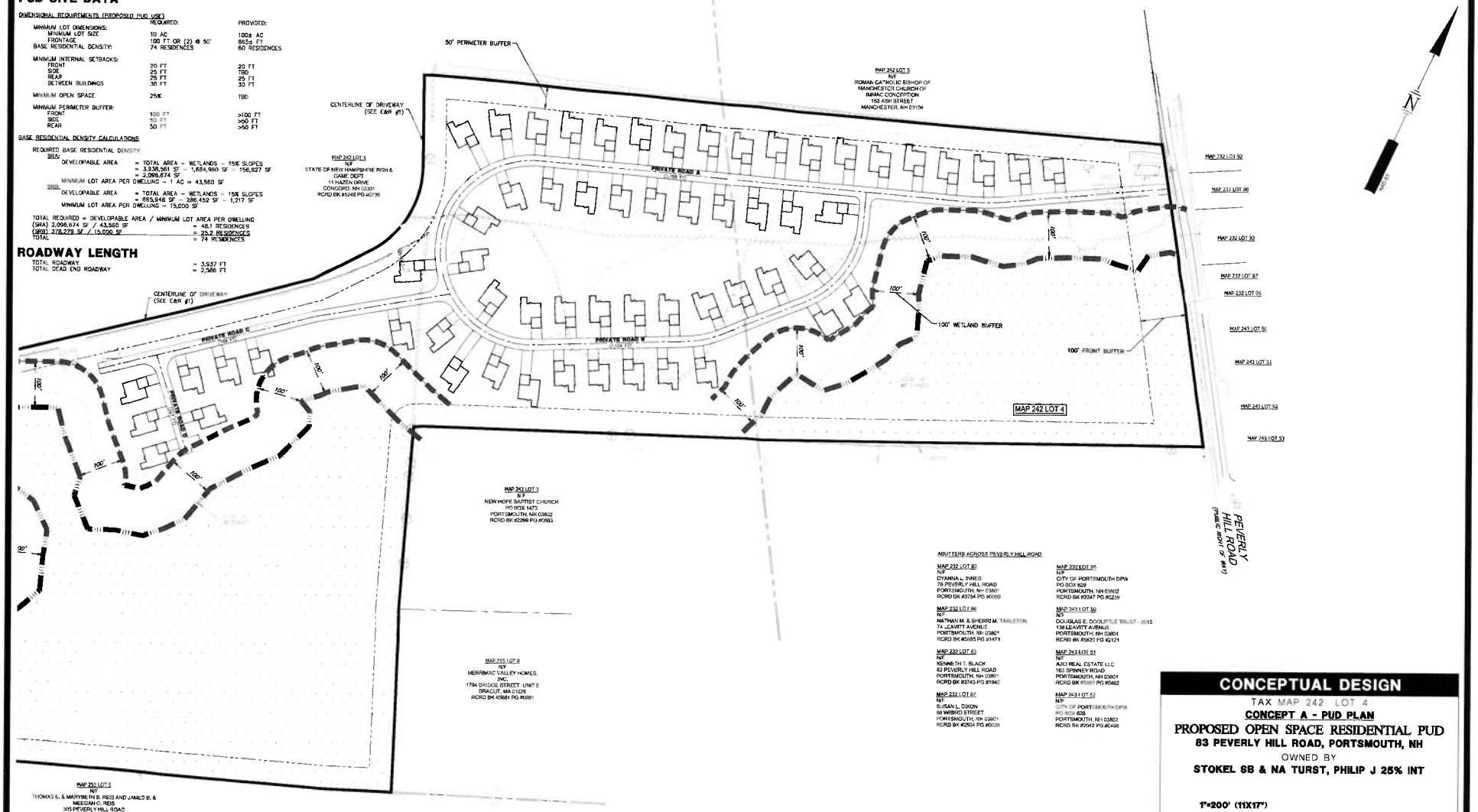
TOTAL ROADWAY = 3,937 FT
TOTAL DEAD END ROADWAY = 2,586 FT



ABUTTERS ACROSS PEVERLY HILL ROAD

MAP 232 LOT 87
N/F
DYANNA L. INNES
78 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
RCRD BK 45704 PG 00359

MAP 232 LOT 88
N/F
NATHAN M. & SHERRI M. TARLETON
74 JEWETT AVENUE
PORTSMOUTH, NH 03801
RCRD BK 05685 PG 01471

MAP 232 LOT 93
N/F
KENNETH T. BLACK
82 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
RCRD BK 03743 PG 01942

MAP 232 LOT 87
N/F
SUSAN L. DIXON
88 WIBIRD STREET
PORTSMOUTH, NH 03801
RCRD BK 02504 PG 00039

MAP 232 LOT 95
N/F
CITY OF PORTSMOUTH DPW
PO BOX 628
PORTSMOUTH, NH 03802
RCRD BK 02347 PG 02239

MAP 243 LOT 50
N/F
DOUGLAS E. DOUCETTE TRUST - 2015
136 JEWETT AVENUE
PORTSMOUTH, NH 03801
RCRD BK 05630 PG 02121

MAP 243 LOT 51
N/F
AJKI REAL ESTATE LLC
165 SPINNEY ROAD
PORTSMOUTH, NH 03801
RCRD BK 05881 PG 00463

MAP 243 LOT 52
N/F
CITY OF PORTSMOUTH DPW
PO BOX 628
PORTSMOUTH, NH 03802
RCRD BK 02042 PG 00498

CONCEPTUAL DESIGN

TAX MAP 242 LOT 4

CONCEPT A - PUD PLAN

PROPOSED OPEN SPACE RESIDENTIAL PUD

83 PEVERLY HILL ROAD, PORTSMOUTH, NH

OWNED BY

STOKEL SB & NA TURST, PHILIP J 25% INT

1"=200' (11X17")
SCALE: 1"=100' (22"X34")

JULY 28, 2020

THIS PLAN IS A PRELIMINARY CONCEPTUAL DESIGN FOR SITE LOCATION FEASIBILITY AND DISCUSSION PURPOSES ONLY. ADDITIONAL PERMITS, WAIVERS, AND VARIANCE MAY BE REQUIRED UPON FURTHER DESIGN, REVIEW, AND COORDINATION WITH THE TOWN.

HORIZONTAL SCALE 1"=100'
100 50 0 100

REV.	DATE	DESCRIPTION	DR	CK

TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
ScientSists
48 Constitution Drive
Bedford, NH 03110
Phone (603) 472-4488
Fax (603) 472-9747
www.tfmoran.com

FILE	47388.11	DR: MEG	TB	-
		CK: MEG	CADFILE: 47388-10 CONCEPT A	A-02

Attachment 1

New Hampshire DOT Department of Transportation

MS2 Transportation Data Management System

List View | All DIRs

Record 1 of 1 Goto Record go

Location ID	82379124	MPO ID	
Type	SPOT	HPMS ID	
On NHS	No	On HPMS	Yes
LRS ID	L3790080__	LRS Loc Pt.	
SF Group	04	Route Type	
AF Group	04	Route	
GF Group	E	Active	Yes
Class Dist Grp	Default	Category	3
Seas Clss Grp	Default		
WIM Group	Default		
QC Group	Default		
Fnct'l Class	Major Collector	Milepost	
Located On	Peverly Hill Rd		
Loc On Alias	PEVERLY HILL RD SOUTH OF NH 33		

More Detail

STATION DATA

Directions: 2-WAY

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2019	9,549	1,062	11		8,748 (92%)	801 (8%)	
2018	10,823[3]		11		9,978 (92%)	845 (8%)	Grown from 2017
2017	10,611[3]		11		9,847 (93%)	764 (7%)	Grown from 2016
2016	10,403	1,150	11		9,487 (91%)	916 (9%)	
2015	10,527[3]						Grown from 2014

> >>| 1-5 of 20

Travel Demand Model

	Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV

VOLUME COUNT

	Date	Int	Total
	Thu 6/6/2019	60	11,266
	Wed 6/5/2019	60	11,049
	Tue 6/4/2019	60	10,901
	Tue 7/19/2016	60	12,808
	Mon 7/18/2016	60	12,033
	Sun 7/17/2016	60	6,806
	Fri 9/13/2013	60	11,838
	Thu 9/12/2013	60	11,713
	Wed 9/11/2013	60	11,902
	Tue 9/10/2013	60	11,404

VOLUME TREND

Year	Annual Growth
2019	-12%
2018	2%
2017	2%
2016	-1%
2015	3%
2014	2%
2013	4%
2010	-7%
2007	-10%

New Hampshire DOT
Department of Transportation

MS2
Transportation Data Management System

Excel Version

Weekly Volume Report

Location ID:	82379124	**Type:**	SPOT
Located On:	Peverly Hill Rd	:	
Direction:	2-WAY		
Community:	PORTSMOUTH	**Period:**	Mon 6/3/2019 - Sun 6/9/2019
AADT:	9549		

Start Time	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Avg	Graph
12:00 AM		14	28	24				22	0.2%
1:00 AM		11	18	12				14	0.1%
2:00 AM		16	13	13				14	0.1%
3:00 AM		13	17	20				17	0.2%
4:00 AM		35	39	40				38	0.3%
5:00 AM		125	113	115				118	1.1%
6:00 AM		286	290	263				280	2.5%
7:00 AM		710	771	786				756	6.8%
8:00 AM		867	906	902				892	8.1%
9:00 AM		700	664	707				690	6.2%
10:00 AM		666	688	674				676	6.1%
11:00 AM		773	751	792				772	7.0%
12:00 PM		893	835	916				881	8.0%
1:00 PM		802	872	858				844	7.6%
2:00 PM		828	840	830				833	7.5%
3:00 PM		904	861	916				894	8.1%
4:00 PM		1004	1025	1062				1,030	9.3%
5:00 PM		926	963	973				954	8.6%
6:00 PM		543	548	524				538	4.9%
7:00 PM		299	340	336				325	2.9%
8:00 PM		246	216	237				233	2.1%
9:00 PM		124	133	148				135	1.2%
10:00 PM		74	78	79				77	0.7%
11:00 PM		42	40	39				40	0.4%
Total	**0**	**10,901**	**11,049**	**11,266**	**0**	**0**	**0**		
24hr Total		10901	11049	11266				11,072	
AM Pk Hr		8:00	8:00	8:00					
AM Peak		867	906	902				892	
PM Pk Hr		4:00	4:00	4:00					
PM Peak		1004	1025	1062				1,030	
% Pk Hr		9.21%	9.28%	9.43%				9.31%	

Stephen G. Pernaw & Company, Inc.

Automatic Traffic Recorder Count - Peverly Hill Road, Portsmouth, NH (South of NH Route 33)

Wednesday, September 30, 2020

Period Beginning	CARS SB	CARS NB	TRUCKS SB	TRUCKS NB	TOTAL SB	TOTAL NB	TOT	
12:00 AM	6	3	0	0	6	3	9	
12:15 AM	5	2	0	0	5	2	7	
12:30 AM	4	1	0	0	4	1	5	
12:45 AM	2	2	0	0	2	2	4	25
1:00 AM	0	1	0	0	0	1	1	17
1:15 AM	2	0	0	0	2	0	2	12
1:30 AM	1	1	0	0	1	1	2	9
1:45 AM	1	1	0	1	1	2	3	8
2:00 AM	1	0	1	0	2	0	2	9
2:15 AM	1	1	0	0	1	1	2	9
2:30 AM	1	0	0	0	1	0	1	8
2:45 AM	1	1	0	0	1	1	2	7
3:00 AM	1	2	0	1	1	3	4	9
3:15 AM	0	0	0	0	0	0	0	7
3:30 AM	0	0	0	1	0	1	1	7
3:45 AM	3	0	0	0	3	0	3	8
4:00 AM	1	1	0	0	1	1	2	6
4:15 AM	1	2	0	0	1	2	3	9
4:30 AM	1	0	0	0	1	0	1	9
4:45 AM	4	4	1	0	5	4	9	15
5:00 AM	6	2	1	0	7	2	9	22
5:15 AM	17	4	0	0	17	4	21	40
5:30 AM	9	10	1	0	10	10	20	59
5:45 AM	20	3	1	1	21	4	25	75
6:00 AM	13	13	3	1	16	14	30	96
6:15 AM	17	7	0	0	17	7	24	99
6:30 AM	26	11	3	2	29	13	42	121
6:45 AM	63	22	4	1	67	23	90	186
7:00 AM	50	27	5	0	55	27	82	238
7:15 AM	76	33	4	3	80	36	116	330
7:30 AM	91	41	2	7	93	48	141	429
7:45 AM	150	73	8	6	158	79	237	576
8:00 AM	76	72	4	6	80	78	158	652
8:15 AM	69	61	4	3	73	64	137	673
8:30 AM	71	36	2	7	73	43	116	648
8:45 AM	91	72	3	7	94	79	173	584
9:00 AM	71	54	1	2	72	56	128	554
9:15 AM	68	43	7	2	75	45	120	537
9:30 AM	65	50	4	7	69	57	126	547
9:45 AM	86	45	1	2	87	47	134	508
10:00 AM	80	44	7	0	87	44	131	511
10:15 AM	79	60	8	6	87	66	153	544
10:30 AM	64	51	2	1	66	52	118	536
10:45 AM	85	53	7	3	92	56	148	550
11:00 AM	79	51	7	3	86	54	140	559
11:15 AM	77	60	7	4	84	64	148	554
11:30 AM	81	61	6	9	87	70	157	593
11:45 AM	93	71	7	9	100	80	180	625
					1920	1247	3167	
7:30 - 8:30 AM Peak Hour					404	269	673	

Period Beginning	CARS SB	CARS NB	TRUCKS SB	TRUCKS NB	TOTAL SB	TOTAL NB	TOT	
12:00 PM	98	80	10	10	108	90	198	683
12:15 PM	88	86	3	2	91	88	179	714
12:30 PM	92	81	8	2	100	83	183	740
12:45 PM	88	66	2	3	90	69	159	719
1:00 PM	75	81	4	2	79	83	162	683
1:15 PM	79	74	4	3	83	77	160	664
1:30 PM	79	76	8	6	87	82	169	650
1:45 PM	100	80	3	8	103	88	191	682
2:00 PM	94	68	8	6	102	74	176	696
2:15 PM	92	79	6	6	98	85	183	719
2:30 PM	107	68	5	5	112	73	185	735
2:45 PM	110	102	3	7	113	109	222	766
3:00 PM	113	90	7	2	120	92	212	802
3:15 PM	89	81	3	5	92	86	178	797
3:30 PM	91	91	8	6	99	97	196	808
3:45 PM	94	68	3	2	97	70	167	753
4:00 PM	93	110	0	3	93	113	206	747
4:15 PM	99	111	2	1	101	112	213	782
4:30 PM	86	92	5	0	91	92	183	769
4:45 PM	110	82	4	5	114	87	201	803
5:00 PM	89	100	2	0	91	100	191	788
5:15 PM	100	71	2	0	102	71	173	748
5:30 PM	79	76	1	1	80	77	157	722
5:45 PM	76	48	0	0	76	48	124	645
6:00 PM	72	55	0	0	72	55	127	581
6:15 PM	60	40	0	0	60	40	100	508
6:30 PM	49	40	0	1	49	41	90	441
6:45 PM	58	32	0	0	58	32	90	407
7:00 PM	31	43	0	0	31	43	74	354
7:15 PM	33	25	0	0	33	25	58	312
7:30 PM	29	21	0	0	29	21	50	272
7:45 PM	20	19	0	1	20	20	40	222
8:00 PM	21	23	0	0	21	23	44	192
8:15 PM	16	19	0	0	16	19	35	169
8:30 PM	17	23	0	0	17	23	40	159
8:45 PM	20	13	0	0	20	13	33	152
9:00 PM	15	9	1	0	16	9	25	133
9:15 PM	11	6	0	0	11	6	17	115
9:30 PM	6	9	0	0	6	9	15	90
9:45 PM	12	11	2	0	14	11	25	82
10:00 PM	3	11	0	0	3	11	14	71
10:15 PM	5	7	0	0	5	7	12	66
10:30 PM	1	1	0	0	1	1	2	53
10:45 PM	2	7	0	0	2	7	9	37
11:00 PM	5	5	0	0	5	5	10	33
11:15 PM	2	5	0	0	2	5	7	28
11:30 PM	9	4	0	0	9	4	13	39
11:45 PM	2	7	0	0	2	7	9	39
					2824	2483	5307	
4:00 - 5:00 PM Peak Hour					399	404	803	

DAILY TRAFFIC VOLUME = 8,474 vehicles per day

Trip Generation Summary

Alternative: Alternative 1
Phase:
Project: 2047A Gen

Open Date: 10/5/2020
Analysis Date: 10/5/2020

ITE	Land Use		Weekday Average Daily Trips *	Enter	Exit	Total	Weekday AM Peak Hour of Adjacent Street Traffic *	Enter	Exit	Total	Weekday PM Peak Hour of Adjacent Street Traffic *	Enter	Exit	Total
210	SFHOUSE 1			198	198	396		8	17	25		28	14	42
	120	Residents												
220	LOW-RISE 1			207	206	413		7	22	29		23	14	37
	60	Dwelling Units												
Unadjusted Volume				405	404	809		15	39	54		51	28	79
Internal Capture Trips				0	0	0		0	0	0		0	0	0
Pass-By Trips				0	0	0		0	0	0		0	0	0
Volume Added to Adjacent Streets				405	404	809		15	39	54		51	28	79

Total Weekday Average Daily Trips Internal Capture = 0 Percent
Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent
Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition
TRIP GENERATION 10, TRAFFICWARE, LLC

Seasonal Adjustment Factors
NHDOT Group 4 (Urban Highways)

Stephen G. Pernaw & Company, Inc.

Year 2019 Monthly Data - Urban

		Adjustment to	
Month	ADT	Average	Peak
Jan	11,431	1.12	1.23
Feb	11,848	1.08	1.18
Mar	12,141	1.06	1.15
Apr	12,860	1.00	1.09
May	13,551	0.95	1.03
Jun	13,785	0.93	1.02
Jul	13,942	0.92	1.01
Aug	14,016	0.92	1.00
Sep	13,379	0.96	1.05
Oct	13,339	0.96	1.05
Nov	12,265	1.05	1.14
Dec	11,496	1.12	1.22

Year 2018 Monthly Data - Urban

		Adjustment to	
Month	ADT	Average	Peak
Jan	11,282	1.13	1.24
Feb	11,848	1.08	1.18
Mar	11,828	1.08	1.18
Apr	12,491	1.02	1.12
May	13,587	0.94	1.03
Jun	13,911	0.92	1.00
Jul	13,765	0.93	1.01
Aug	13,945	0.92	1.00
Sep	13,168	0.97	1.06
Oct	13,367	0.96	1.04
Nov	12,215	1.05	1.14
Dec	11,963	1.07	1.17

Year 2017 Monthly Data - Urban

		Adjustment to	
Month	ADT	Average	Peak
Jan	12254	1.21	1.33
Feb	13494	1.10	1.21
Mar	14335	1.03	1.14
Apr	15004	0.99	1.09
May	15547	0.95	1.05
Jun	16310	0.91	1.00
Jul	15523	0.95	1.05
Aug	15974	0.93	1.02
Sep	15546	0.95	1.05
Oct	15104	0.98	1.08
Nov	14544	1.02	1.12
Dec	14151	1.05	1.15

September to Peak-Month Factor = 1.05

Stephen G. Pernaw & Company, Inc.

STEPHEN G. PERNAW & COMPANY, INC.
PROJECT: Proposed Residential Development, Portsmouth New Hampshire
NUMBER: 2047A
COUNT STATION: 82379124

HISTORICAL GROWTH CALCULATIONS

LOCATION : Peverly Hill Road (S. of NH33)
CASE : AADT

ARITHMETIC PROJECTIONS

YEAR	AADT
2015	10527
2016	10403
2017	10611
2018	10823

Regression Output:

Constant	-210417.4
Std Err of Y Est	129.62099
R Squared	0.6412368
No. of Observations	4
Degrees of Freedom	2
X Coefficient	109.6
Std Err of Coef.	57.968267

PROJECTIONS

2020	10975
2021	11084
2022	11194
2023	11303
2024	11413
2025	11523
2026	11632
2027	11742
2028	11851
2029	11961
2030	12071

RATE = 110 VPD/YEAR

GEOMETRIC PROJECTIONS

YEAR	AADT	Ln AADT
2015	10527	9.26170
2016	10403	9.24985
2017	10611	9.26965
2018	10823	9.28943

Regression Output:

Constant	-11.49974
Std Err of Y Est	0.0122527
R Squared	0.6384951
No. of Observations	4
Degrees of Freedom	2
X Coefficient	0.0102987
Std Err of Coef.	0.0054796

PROJECTIONS

2020	10979
2021	11092
2022	11207
2023	11323
2024	11440
2025	11559
2026	11678
2027	11799
2028	11921
2029	12045
2030	12170

RATE = 1.0 % / YEAR

Use 2.0%

Stephen G. Pernaw & Company, Inc.

CALCULATION SHEET

Attachment 8

Project:	Portsmouth - Res.	Job Number:	2047A
Calculated By:	SGP	Date:	10/5/2020
Checked By:	CA	Date:	10/5/2020
Sheet No:	1	Of:	1
Subject:	COVID-19 Adjustment Factor		

I. Given:

1. NHDOT traffic count on Peverly Hill Road (south of NH33) in June 2019 (Pre-covid conditions)
   - Average AM peak hour = 892 veh.
   - Average PM peak hour = 1,030 veh.
   - Average weekday = 11,072 veh.
2. SGP ATR count on Wednesday, September 30, 2020
   - AM peak hour = 673 veh.
   - PM peak hour = 803 veh.
   - Weekday = 8,474 veh.
3. NHDOT Group 4 (Urban Highways) seasonal adjustment factors
   - September to peak month = 1.05 (average of 2017, 2018 & 2019)
   - June to peak month = 1.01 (average of 2017, 2018 & 2019)
4. Background growth rate = 1.0/year; use 2.0% to account for other unknown development projects

II. Calculate 2020 peak month volumes using NHDOT June 2019 data (pre-covid conditions)

1. AM = 892 x 1.02 x 1.01 = 919 veh
2. PM = 1,030 X 1.02 x 1.01 = 1,061 veh
3. Weekday = 11,072 x 1.02 x 1.01 = 11,406 veh

III. Calculate 2020 peak month volumes using SGP September 2020 data (during covid)

1. AM = 673 x 1.05 = 707 veh
2. PM = 803 X 1.05 = 843 veh
3. Weekday = 8,474 x 1.05 = 8,898 veh

IV. Calculate individual COVID-19 factors

1. AM = 919 / 707 = 1.30
2. PM = 1,061 / 843 = 1.26
3. Weekday = 11,406 / 8,898 = 1.28

V. Calculate average COVID-19 factor

Average covid factor = (1.30 + 1.26 + 1.28) / 3 = 1.28

Stephen G. Pernaw & Company, Inc.

Location: Portsmouth, New Hampshire
Job Number: 2047A

TRIP DISTRIBUTION ANALYSIS

Work Destination Report - Where Workers are Employed Who Live in the Selection Area - by County Subdivisions

Total All Jobs

Jobs Counts by County Subdivisions Where Workers are Employed - All Jobs	Count	Gateway % A	Gateway % B	Gateway % C		Gateway Allocation A	Gateway Allocation B	Gateway Allocation C	
Portsmouth city (Rockingham, NH)	4,355	0.40	0.40	0.20	1.00	1742	1742	871	4355
Dover city (Strafford, NH)	604	0.50		0.50	1.00	302	0	302	604
Exeter town (Rockingham, NH)	423	1.00			1.00	423	0	0	423
Manchester city (Hillsborough, NH)	399	1.00			1.00	399	0	0	399
Boston city (Suffolk, MA)	371	1.00			1.00	371	0	0	371
Newington town (Rockingham, NH)	343	0.50		0.50	1.00	172	0	172	344
Hampton town (Rockingham, NH)	266	0.70		0.30	1.00	186	0	80	266
Durham town (Strafford, NH)	266	0.30		0.70	1.00	80	0	186	266
Nashua city (Hillsborough, NH)	249	1.00			1.00	249	0	0	249
Salem town (Rockingham, NH)	193	1.00			1.00	193	0	0	193
	7469					4117	1742	1611	7470
						55.1%	23.3%	21.6%	100%
					USE	55	23	22	100

KEY

A=To/From Points West via NH Route 33
B=To/From Points East via NH Route 33
C=To/From Points South via Peverly Hill Road

Attachment 9

HCM 2010 TWSC
3: Peverly Hill Road & Proposed Site Driveway

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	5	2	458	688	5
Future Vol, veh/h	17	5	2	458	688	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	85	85	64	64
Heavy Vehicles, %	0	0	0	8	5	0
Mvmt Flow	19	6	2	539	1075	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1622	1079	1083	0	-	0
Stage 1	1079	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	114	268	652	-	-	-
Stage 1	329	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	114	268	652	-	-	-
Mov Cap-2 Maneuver	114	-	-	-	-	-
Stage 1	328	-	-	-	-	-
Stage 2	586	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	38.7	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	652	-	131	-	-
HCM Lane V/C Ratio	0.004	-	0.187	-	-
HCM Control Delay (s)	10.5	0	38.7	-	-
HCM Lane LOS	B	A	E	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

HCM 2010 TWSC
3: Peverly Hill Road & Proposed Site Driveway

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	3	6	688	680	22
Future Vol, veh/h	11	3	6	688	680	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	89	89	88	88
Heavy Vehicles, %	0	0	0	2	3	0
Mvmt Flow	12	3	7	773	773	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1573	786	798	0	-	0
Stage 1	786	-	-	-	-	-
Stage 2	787	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	123	395	833	-	-	-
Stage 1	453	-	-	-	-	-
Stage 2	452	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	121	395	833	-	-	-
Mov Cap-2 Maneuver	121	-	-	-	-	-
Stage 1	446	-	-	-	-	-
Stage 2	452	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	33.4	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	833	-	142	-	-
HCM Lane V/C Ratio	0.008	-	0.11	-	-
HCM Control Delay (s)	9.4	0	33.4	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Stephen G. Pernaw & Company, Inc.

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

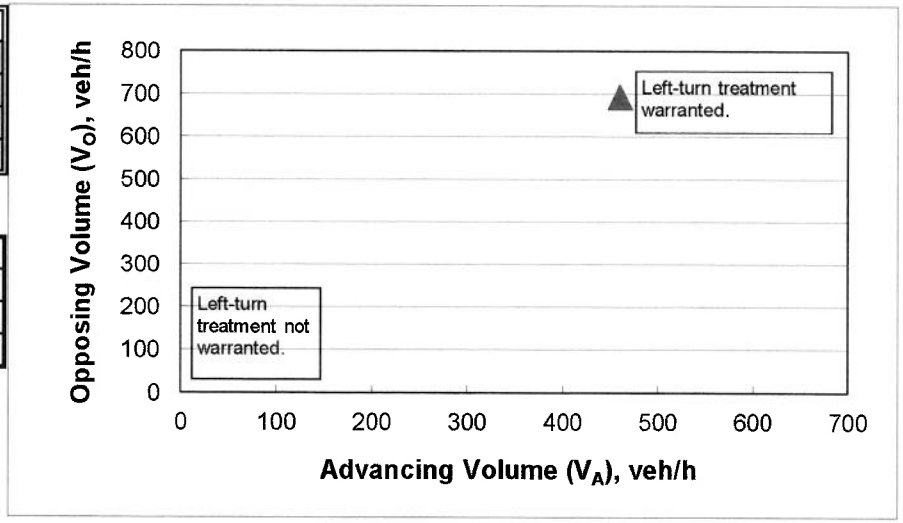
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	25
Percent of left-turns in advancing volume (V_A), %:	0%
Advancing volume (V_A), veh/h:	460
Opposing volume (V_O), veh/h:	693

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1456
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

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Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

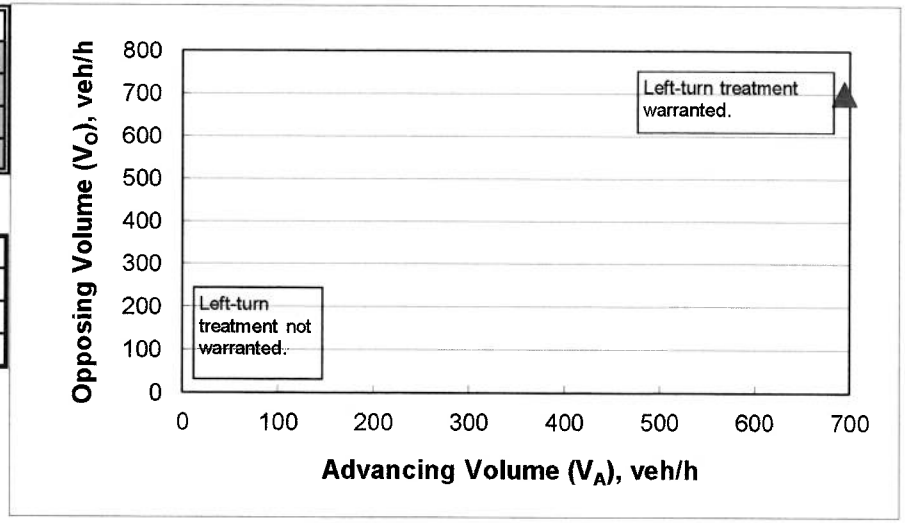
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	25
Percent of left-turns in advancing volume (V_A), %:	1%
Advancing volume (V_A), veh/h:	694
Opposing volume (V_O), veh/h:	702

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1023
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Stephen G. Pernaw & Company, Inc.

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

2-lane roadway

Variable	Value
Major-road speed, mph:	25
Major-road volume (one direction), veh/h:	693
Right-turn volume, veh/h:	5

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	225
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	

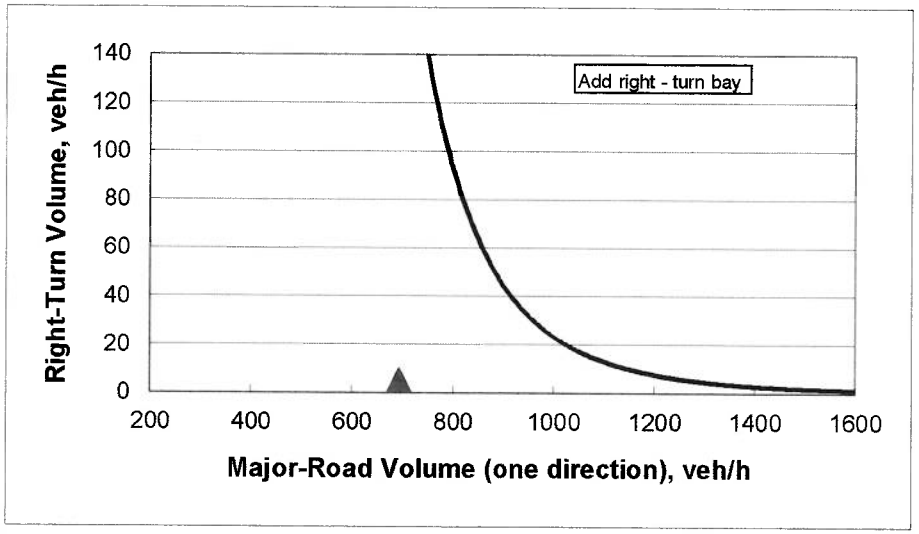


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Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

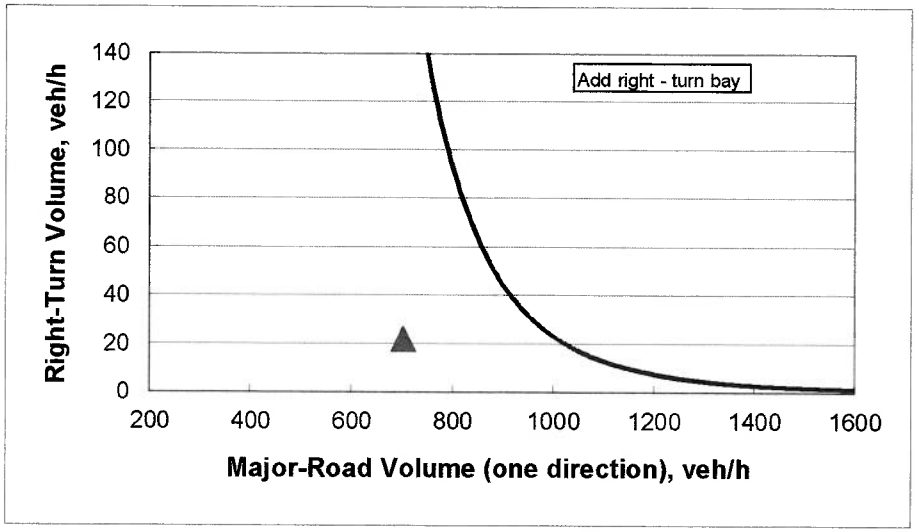
INPUT

2-lane roadway

Variable	Value
Major-road speed, mph:	25
Major-road volume (one direction), veh/h:	702
Right-turn volume, veh/h:	22

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	208
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



Attachment 15

Stephen G. Pernaw & Company, Inc.

Figure 2 - 4. Guideline for determining minor-road approach geometry at two-way stop-controlled intersections.

INPUT

Variable	Value
Major-road volume (total of both directions), veh/h:	1153
Percentage of right-turns on minor road, %:	23%
Minor-road volume (one direction), veh/h:	22

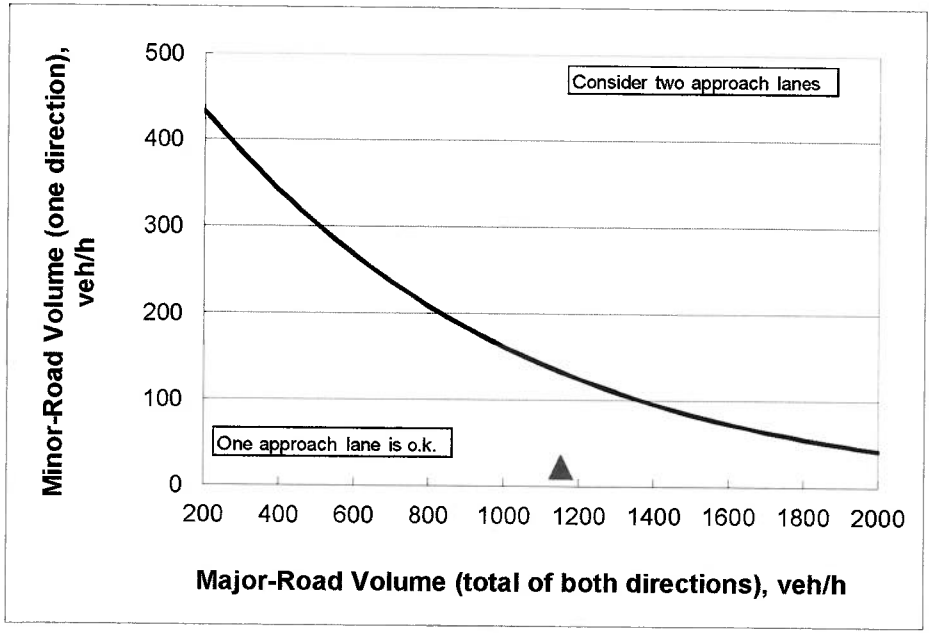
OUTPUT

Variable	Value
Limiting minor-road volume (one direction), veh/h:	132
Guidance for determining minor-road approach geometry:	
ONE approach lane is o.k.	

CALIBRATION CONSTANTS

Minor Road	Critical gap, s:	Follow-up gap, s:
Right-turn capacity, veh/h:	6.2	3.3
Left-turn and through capacity, veh/h:	6.5	4.0

* according to Table 17 - 5 of the HCM



Attachment 16

Stephen G. Pernaw & Company, Inc.

Figure 2 - 4. Guideline for determining minor-road approach geometry at two-way stop-controlled intersections.

INPUT

Variable	Value
Major-road volume (total of both directions), veh/h:	1396
Percentage of right-turns on minor road, %:	21%
Minor-road volume (one direction), veh/h:	14

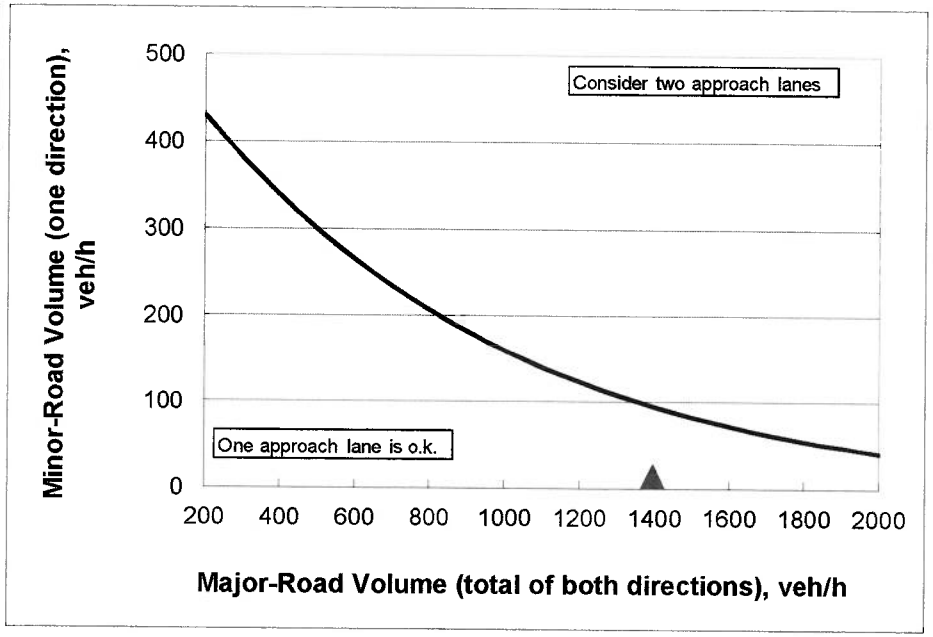
OUTPUT

Variable	Value
Limiting minor-road volume (one direction), veh/h:	95
Guidance for determining minor-road approach geometry:	
ONE approach lane is o.k.	

CALIBRATION CONSTANTS

Minor Road	Critical gap, s:	Follow-up gap, s:
Right-turn capacity, veh/h:	6.2	3.3
Left-turn and through capacity, veh/h:	6.5	4.0

* according to Table 17 - 5 of the HCM



Attachment 17