Surfside at Bartlett –

Intersection Improvements

Nantucket, Massachusetts

PREPARED FOR

Massachusetts Department of Transportation
Highway Division
Boston, Massachusetts

PREPARED BY

101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

25% Design Submittal

- Submittal Letter
- 25% Design Checklist
- Traffic & Safety Engineering Checklist
- Engineer's Estimate
- CPE Estimate Printout
- Horizontal Alignment Report
- Pavement Design Report
- Early Environmental Coordination Checklist & Documentation

February 4th, 2019

Submittal Letter

www.vhb.com

February 4, 2019

Ref: 14187.00

Ms. Marie J. Rose, P.E.
Director of Project Management
MassDOT - Highway Division
10 Park Plaza
Boston, MA 02116

Attn: Mr. German Nieto - Project Manager

Re: Surfside Road at Bartlett Road – Intersection Improvement Project
Nantucket, Massachusetts
MassDOT File No. 608664
25% Design Submission

Dear Ms. Rose:

The Town of Nantucket, acting through its Department of Public Works & Planning & Economic Development Commission, proposes the reconstruction of the intersection of Surfside Road at Bartlett Road. The project limits extend approximately 200 feet to the south and 200 feet to the north along Surfside Road, as well as 250' to the west along Bartlett Road. A single lane roundabout is proposed at the project location.

The proposed cross section for Surfside Road will consist of two 11-foot travel lanes, 1-foot shoulders a 5-foot sidewalk along the east side of the road and a 9 to 10-foot wide shared use path along the west side of the road. The proposed section for Bartlett Road will consist of an 11-foot westbound travel lane, a 10.5-foot eastbound travel lane, no shoulders and a 9.5 to 10-foot wide shared use path on the south side of the road.

The purpose of the project is to improve roadway conditions, provide bicycle accommodations and improve pedestrian infrastructure & connectivity, to increase driver and pedestrian safety and accessibility to the roadway corridor and the surrounding residences, schools and businesses.

Enclosed please find the 25% Design Submittal for the above referenced project. This submission includes the following materials:

- 25% design plans – full size (4 copies)

Engineers | Scientists | Planners | Designers

101 Walnut Street
PO Box 9151
Watertown, Massachusetts 02471
P 617.924.1770
F 617.924.2286

- 25% design plans – half size (1 copy)
- Preliminary right of way plans – full size (1 copy)
- Color utility plans with cross sections (1 copy)
- 25% submittal CD (1 copy)
    - Submission CD includes:
        - Submission Letter
        - 25% Design Checklists
        - Engineer's Estimate
        - CPE Estimate Printout
        - Horizontal Alignment Report
        - Pavement Design Report
        - Early Environmental Coordination checklist & documentation
        - Functional Design Report
        - CAD submission
        - Design & PROW Plan PDFs

We have also included 8 CDs for use by MassDOT to complete the circulation of Utility Plan Submission to the following utility companies/agencies:

- Electric – National Grid (2)
- Telephone - Verizon (1)
- Cable Television - Comcast (1), Crown Castle (1)
- Water – Wannacomet Water Co. (1)
- Sewer – Nantucket DPW (1)
- Fire Alarm – Nantucket Fire Alarm (1)

If you have any questions, please do not hesitate to contact me at 617-607-2723.

Sincerely,

Stephen Rhoads, PE
Project Manager
srhoads@vhb.com

CC: T. Michael Burns, Robert McNeil - Town of Nantucket
Pamela Haznar, District 5 Projects Development

25% Design Checklist

PROJECT DESCRIPTION: SURFSIDE ROAD & BARTLETT ROAD
25% HIGHWAY DESIGN REVIEW CHECKLIST Submission Date: 2/4/19

PURPOSE

The 25% highway design review is intended to provide MassDOT's Highway Division the opportunity to evaluate the proposed design relative to current design standards, right of way impacts, environmental impacts and other potential community concerns associated with the proposed design, and Incentives/Disincentives (I/Ds) Initialization (if applicable) to be defined by P.M. as a reminder.

GENERAL

This checklist represents the minimum amount of issues that should be considered when reviewing a 25% highway submittal. The information below is not intended to address all aspects of plan preparation. To the extent practical, any comments relative to plan preparation made at the 25% stage will certainly improve the quality of the 75% submittal.

Any question listed below with a No (N) or Not Applicable (NA) answer requires a written comment.

PLANS

	Y	N	NA	0.00 Drawing Files
0.01	X			For projects initiated after January 1, 2012, have the plans been prepared according to and in conformance with the MassDOT Highway Division CAD Standards?
	Comment:			

	Y	N	NA	1.00 Title Sheet
1.01			X	For projects initiated prior to January 1, 2012, is the Title Sheet prepared consistent with Exhibit 18-14?
	Comment: This project was initiated after January 2012.			
1.02	X			Is the DESIGN DESIGNATION table completed?
	Comment:			
1.03	X			Does the Design Speed correlate with Exhibit 3-7, or the design speed identified in the Design Exception Report, if applicable?
	Comment:			
1.04	X			Are the stations and coordinates for the beginning and end of project shown on the locus
	Comment:			
1.05			X	Are bridge numbers shown on the locus map?
	Comment: No bridges in project limits			

PROJECT DESCRIPTION: SURFSIDE ROAD & BARTLETT ROAD
25% HIGHWAY DESIGN REVIEW CHECKLIST Submission Date: 2/4/19

	Y	N	NA	2.00 Typical Sections
2.01	X			Do the proposed lane and shoulder widths shown on the typical sections properly account for the offset dimension?
				Comment:
2.02	X			Are the proposed lane and shoulder widths consistent with Section 5.3.3, or the Design Exception Report, if applicable?
				Comment:
2.03			X	Is the method of banking adequately represented on the Typical Sections in manner consistent with Section 4.2.5?
				Comment: This does not apply to the grading of the roundabout
2.04	X			Is the location of the PGL the most appropriate location for the proposed project?
				Comment:
2.05			X	Does the shoulder break away from travel lanes when the width is greater than 4 feet?
				Comment:
2.06	X			Is the proposed pavement structure appropriate (full depth, reclamation, overlay)?
				Comment:
2.07	X			Are the pavement structure materials labeled consistent with the latest STANDARD NOMENCLATURE AND LIST OF STANDARD ITEMS?
				Comment:
2.08	X			Is the proposed wearing surface compatible with the function of the proposed roadway?
				Comment:
2.09			X	If a narrow (less than 4 feet) box widening is proposed, was Cement Concrete Base Course considered in lieu of full depth pavement?
				Comment: No FDP <4 feet is proposed.
2.10			X	Are the guardrail details consistent with the CONSTRUCTION AND TRAFFIC STANDARD DETAILS?
				Comment: No guardrail is proposed.
2.11	X			Section 5.3 provided general guidance on a variety of cross section elements for each area type. Are the proposed Typical Sections consistent with these figures relative to dimensions, slopes and materials?
				Comment:
2.12			X	If retaining walls are proposed, does the design allow for guardrail to be adequately installed? Guardrail located on top of an existing or proposed stone masonry wall generally requires a moment slab.
				Comment: No guardrail is proposed.

	Y	N	NA	3.00 Construction Drawings
3.01	X			Is the existing Base Plan information plotted consistent with Section 18.2.1.2?
				Comment:
3.02	X			Is the proposed horizontal geometry adequately described? (PC, PT, R, T, DELTA, L)?
				Comment: Additional info provided on Alignment Plans
3.03	X			Is the minimum radius consistent with Exhibits 4-8 & 4-9 based on the Design Speed noted on the Title Sheet?
				Comment:
3.04			X	If compound curves are employed, are they designed in accordance with Section 4.2.1.3?
				Comment: Compound curves are not proposed.

PROJECT DESCRIPTION: SURFSIDE ROAD & BARTLETT ROAD
25% HIGHWAY DESIGN REVIEW CHECKLIST Submission Date: 2/4/19

	Y	N	NA	3.00 Construction Drawings (Cont.)
3.05		X		Are there any features which negatively impact horizontal sight distance as described in Section 4.2.2?
				Comment: Minimum sight distance is provided.
3.06			X	Are cross culverts and drainage outlet locations shown on the plans?
				Comment: Closed drainage system is proposed (Leaching Basins)
3.07	X			Are approximate slope limits shown?
				Comment:
3.08			X	Based on the cross-sections provided and other available information are the proposed guardrail locations appropriate?
				Comment: No guardrail proposed
3.09			X	Have the impacts to existing wetlands and other resource areas been minimized?
				Comment: No wetlands are present within the project limits.
3.10	X			Does the proposed design reasonably accommodate vehicle turning movements based on the turning paths transparencies included in Chapter 6?
				Comment:
3.11			X	If applicable, are storage and deceleration lengths consistent with Section 6.7.3?
				Comment: No storage or deceleration lanes are proposed.
3.12	X			Is the proposed design consistent with ADA and AAB requirements?
				Comment:
3.13	X			Are stations at the beginning and end of project noted?
				Comment:
3.14	X			Is the existing layout information accurately depicted?
				Comment:
3.15	X			Are the approximate limits of proposed takings and easements shown?
				Comment:
3.16		X		Is sufficient right of way available to perform the work?
				Comment: Minor permanent easements needed for shared use paths and sidewalks.
3.17	X			Are all the walks, sidewalks, crosswalks, and curbcut wheelchair ramps meet the requirements listed in Americans with Disabilities Act Accessibility Guidelines (ADAAG) and Public Rights of Way Accessibility Guidelines (PROWAG), which are discussed in the Engineering Directive E12-005)?
				Comment:
			X	If not, have all violations been identified and clearly discussed for MassDOT's review?
				Comment: No violations.
	Y	N	NA	4.00 Profiles
4.01	X			Is the existing base profile information plotted consistent with Section 18.2.1.3? (station equations, cross culverts, bridge structures, sills of structures, high tension lines, bench marks, etc.)
				Comment:
4.02	X			Are the proposed profiles prepared consistent with Exhibit 18-11?
				Comment:
4.03	X			Are all aspects of the vertical geometry noted (Stopping Sight Distance, Passing Sight Distance (if applicable), G1, G2, L, K, station and elevation of the PVC, PVT and PVI)?
				Comment:

PROJECT DESCRIPTION: SURFSIDE ROAD & BARTLETT ROAD
25% HIGHWAY DESIGN REVIEW CHECKLIST Submission Date: 2/4/19

	Y	N	NA	4.00 Profiles (Cont.)
4.04	X			Is the stopping sight distance consistent with the Design Speed noted on the Title Sheet and Exhibit 3-8?
				Comment:
4.05	X			Is the K value consistent with the Design Speed noted on the Title Sheet and Exbihit 4-26 or 4-27?
				Comment:
	Y	N	NA	4.00 Profiles (Cont.)
4.06	X			Is the maximum grade consistent with the Design Speed noted on the Title Sheet and Exhibit 4-21?
				Comment:
4.07	X			Is the minimum grade consistent with Section 4.3.1? If a closed drainage system is proposed it is recommended that a minimum grade of 0.6% be used.
				Comment:
	Y	N	NA	5.00 Traffic Signal Plans
5.01			X	Are signal heads located in the vision cone specified by the MUTCD?
				Comment: Signals are not proposed.
5.02	X			Are pavement markings clearly displayed and labeled?
				Comment:
5.03			X	Does the Phasing Diagram adequately address pedestrian volumes? (pedestrian phases concurrent or actuated)
				Comment: Signals are not proposed.
5.04			X	If appropriate does the Phasing Diagram address emergency preemption?
				Comment: Signals are not proposed.
	Y	N	NA	6.00 Traffic Management Plans (may be 8-1/2 x 11 for simple projects)
6.01	X			Does the TMP provide sufficient information to determine that the proposed project can be constructed without undue inconvenience to the public?
				Comment:
6.02	X			For projects with a detour, is the proposed detour reasonable considering available traffic data?
				Comment:
6.03	X			Does the proposed TMP adequately address bicycle and pedestrian accommodation?
				Comment:
				7.00 Cross Sections (Although only top line sections in critical areas are required according to the PDDG, the latest engineering software makes providing all cross sections a simple matter. The top line information is intended to depict the relationship between the proposed roadway and the existing features only. However to the extent that additional information is provided, it is worthwhile to comment relative to consistency with Section 18.2.2.5.)
	Y	N	NA	
7.01			X	Is the existing cross-section information plotted consistent with Section 18.2.1.4 and Exhibit 18-5? Are walls, hydrants, poles, trees over 8 inches, sills, wells, septic systems, cross culverts, ledge, layout lines, etc. plotted on the cross-sections?
				Comment: This is an intersection project

	Y	N	NA	7.00 Cross Sections (Cont.)
7.02			X	Does the proposed cross-section provide sufficient area to install guardrail where
	Comment:			Guardrail is not proposed
7.03	X			Have the proposed side and back slopes been appropriately chosen to balance impacts with safety and slope stability?
	Comment:			

SPECIAL CONSIDERATIONS

	Y	N	NA	8.00 Projects that include bridge(s)
8.01			X	Is the project subject to the Highway Division's Non-NHS Bridge R&R Policy? (According to Engineering Directive P-92-010 in order for these guidelines to apply the roadway must be classified as either a Minor Arterial, Urban Extension of a Minor Arterial, Collector or Local roadway)
	Comment:			No bridges in project limits
8.02			X	If the project is subject to P-92-010 is the proposed bridge width and approach geometry consistent with the Engineering Directive?
	Comment:			No bridges in project limits
8.03			X	For bridge projects that are not subject to P-92-010 are the proposed bridge dimensions and vertical clearance consistent with Section 4.3.4 and Exhibit 4-28?
	Comment:			No bridges in project limits
8.04			X	Do the construction drawings adequately depict the existing bridge structure including subsurface features?
	Comment:			No bridges in project limits
8.05			X	Do the construction drawings adequately depict the relationship between the existing and the proposed bridge structure?
	Comment:			No bridges in project limits
8.06			X	Does the TMP provide adequate dimensions such that the relationship between the lane configurations and the beam spacing of both the existing and the proposed structure can be evaluated?
	Comment:			No bridges in project limits
8.07			X	Do the plans and cross-sections indicate that sufficient space is available to install approach guardrail?
	Comment:			No bridges in project limits

9.00 Freeways

The review of Freeway designs, particularly those involving grade separated interchanges does not lend itself well to a checklist type review. The design of a grade separated interchange must be evaluated based on the entire contents of Chapter 6. Listed below are some of the key items that should be reviewed.

	Y	N	NA	
9.01			X	Is the proposed cross-section consistent with Section 5.3.4.1?
	Comment:			Project scope does not include freeways
9.02			X	Is the median barrier provided consistent Exhibit 5-33?
	Comment:			Project scope does not include freeways

PROJECT DESCRIPTION: SURFSIDE ROAD & BARTLETT ROAD
25% HIGHWAY DESIGN REVIEW CHECKLIST Submission Date: 2/4/19

	Y	N	NA	9.00 Freeways (Cont.)
9.03			X	Is the ramp spacing consistent with Exhibit 7-12?
				Comment: Project scope does not include freeways
9.04			X	Are the deceleration and acceleration lengths consistent with Exhibits 7-13 & 7-14?
				Comment: Project scope does not include freeways
9.05			X	Are the selected ramp design speeds consistent with Exhibit 7-15?
				Comment: Project scope does not include freeways
9.06			X	Does the minimum radius meet the criteria in Exhibit 7-24?
				Comment: Project scope does not include freeways
9.07			X	Are the ramp cross sections consistent with Section7.7.1.2 and Exhibits 7-22 & 7-23?
				Comment: Project scope does not include freeways
9.08			X	Is the ramp geometry consistent with the guidelines provided in Exhibit 7-30 (a-k)?
				Comment: Project scope does not include freeways

	Y	N	NA	10.00 ESTIMATE
10.01	X			Is sufficient back up information provided to determine if the preliminary estimate is
				Comment:
10.02		X		Does the estimate total qualify for the need to request a 'bottoms-up' estimate at the 75% submission as referenced in Attachment J, Article IV, Section C, Paragraph 1b?
				Comment: The estimate total does not require a bottoms-up estimate.

11.00 INCENTIVE/DISINCENTIVE (I/D)
Refer to Incentive/Disincentive Daily Rate Work Sheet.

11.01			X	Has the Incentive/Disincentive (I/D) Work Sheet been completed? If I/Ds are required has the amount (3-5% budget) been entered into CAPE as initial budget?
				Comment: Incentive/Disincentive work sheet is not required.

12.00 FUNCTIONAL DESIGN REPORT

Refer to the Traffic & Safety Engineering Checklist.

13.00 DESIGN EXCEPTION REPORT

Refer to Chapter 2 of the Project Development and Design Guide and the Design Exception Report Checklist.

PROJECT DESCRIPTION: SURFSIDE ROAD & BARTLETT ROAD
25% HIGHWAY DESIGN REVIEW CHECKLIST Submission Date: 2/4/19

	Y	N	NA	13.00 CONCLUSIONS
13.01	[X]	[ ]	[ ]	Is the scope of work consistent with the scope approved by PRC?

Comment:

13.02	[ ]	[ ]	[X]	Is the estimated total construction cost consistent with the STIP?

Comment: The Nantucket Planning & Economic Development Commission will need to review the estimated project cost and available funding with MassDOT to determine project funding phasing.

13.03	[X]	[ ]	[ ]	Does the project address known geometric and safety concerns?

Comment:

13.04	[X]	[ ]	[ ]	Do the plans represent a project that is reasonable from a constructability standpoint with respect to construction techniques and available right of way?

Comment:

	Y	N	NA	
13.05	[X]	[ ]	[ ]	Is a letter of support and all correspondence with local historic commissions included?

Comment: Correspondence letters are included in the EEC package. Response to the correspondence is pending the historic commission review.

13.06	[X]	[ ]	[ ]	Are the plans suitable for conducting a Design Public Hearing?

Comment:

Designer Certification

Y

Consultant Firm Principal

February 4, 2019
Date

Traffic & Safety Engineering Checklist

PROJECT/DESCRIPTION Surfside Road at Bartlett Road

25%TRAFFIC ENGINEERING REVIEW CHECKLIST Submission Date: 2/1/19

PURPOSE

The 25% Traffic Engineering Review is intended to provide MassDOT the opportunity to evaluate the proposed design and Functional Design Report relative to current design standards, operation impacts, safety impacts and other potential community concerns associated with the proposed design.

GENERAL

This checklist represents the minimum amount of issues that should be considered when reviewing a 25% traffic submittal. The information below is not intended to address all aspects of report or plan preparation. To the extent practical, any comments relative to plan preparation made at the 25% stage will certainly improve the quality of the 75% submittal.

Any question listed below with a No or N/A answer requires a written comment.

I. Functional Design Report

	Yes	No	N/A	A. Existing Conditions	
1	X			Is a description of the project study area included?	
				Comment:	
2	X			Is the project location (locus) map included?	
				Comment:	
3	X			Is a discussion of existing deficiencies and an evaluation of the existing signs, signals and markings	
				Comment:	

	Yes	No	N/A	B. Traffic Volumes	
4	X			Is the traffic count data less than 2 years old from the date of FDR submission?	
				Comment:	
5			X	Are the Automatic Traffic Recorder (ATR) Counts included for the minor street approach for signalized intersections?	
				Comment:	The project intersection is not signalized.
6	X			Are Manual Turn Movement Counts (TMC): Peak hour data for all study intersections included?	
				Comment:	
7	X			Are Peak Hour Factors (PHF) identified?	
				Comment:	
8	X			Are heavy vehicle, bicycle, and pedestrian count data included in the TMC?	
				Comment:	
9	X			Do the base year volumes represent an average month during the year the FDR is submitted or no more than 2 years for MEPA permitted projects?	
				Comment:	
10	X			Have seasonal factors been reviewed and applied as necessary?	
				Comment:	
11	X			Do the future year volumes represent a minimum of 7 years from the base year?	
				Comment:	
12	X			Do the future year volumes include background growth and site development as necessary?	
				Comment:	
13			X	Are trip generation/distribution data for private development trips schematically displayed on the network?	
				Comment:	
14	X			Are base year and future year traffic volume networks provided?	
				Comment:	

	Yes	No	N/A	C. Safety Analysis
15	X			Are three years of Crash Data analyzed for project locations? (5 years is preferred)
				Comment:
16	X			Are crash rate calculations included for all study area intersections and segments?
				Comment:
17			X	Are collision diagrams provided for all study area intersections with more than 3 crashes per year?
				Comment: Crash rate for the project intersection is 2.6 crashes per year.
18			X	Is a collision map provided for all study area segments?
				Comment: Project is an isolated intersection, therefore, a collision map is not provided.
19			X	Was the Safety Review Prompt List utilized during a site visit?
				Comment:
20	X			Is discussion regarding the Safety Review Prompt List included?
				Comment:

	Yes	No	N/A	D. MUTCD Signal Warrants
21	X			Is traffic count data provided for a minimum of the 8 highest hours for the major streets and minor street?
				Comment:
22	X			Was the minor street count data collected by a manual turning movement count method?
				Comment:
23			X	Does the signal warrant analysis follow procedures from MUTCD?
				Comment: Signals are not allowed on the island of Nantucket.
24			X	Do proposed signal installations meet an 8-hour volume warrant?
				Comment:

	Yes	No	N/A	E. Operational Analysis
25	X			Are the intersection approaches evaluated using observed/appropriate peak hour factors?
				Comment:
26	X			Are heavy vehicle percentages used in the analyses?
				Comment:
27	X			Are pedestrian volumes and phasing incorporated into the analyses?
				Comment:
28	X			Are capacity analyses completed for all the required analysis scenarios?
				Comment:
29	X			Do capacity analyses reflect the existing and proposed geometry conditions?
				Comment:
30			X	Are coordinated signals/closely spaced intersections evaluated under a systems analysis?
				Comment: No signals exist on the island of Nantucket.
31	X			Are the 50th and 95th percentile vehicle queues documented?
				Comment:

	Yes	No	N/A	F. Proposed Design
32	X			Is a description of the proposed geometric changes and/or alternative designs included?
				Comment:
33	X			Is a narrative describing the pedestrian and bicycle accomodation improvments included?
				Comment:
34	X			Is discussion included of how the proposed design will alter the traffic control conditions?
				Comment:
35	X			Was a roundabout design an alternative considered?
				Comment:
36			X	Are the Section 61 Findings attached for the Private Development projects?
				Comment:
37	X			Do all traffic calming design treatments (where allowed) follow the Traffic Calming Guidelines?
				Comment:
38	X			Do all study area intersections include corrective design measures?
				Comment:

	Yes	No	N/A	
39	X			Has "work to be done by others" been factored into schedule/design?
				Comment:

	Yes	No	N/A	G. Traffic Management
40	X			Is a Construction Management Outline included?
				Comment:
41	X			Are the appropriate traffic counts and capacity analyses included?
				Comment:

II. 25% Design Plans

	Yes	No	N/A	A. Basic Design Plan Set
42	X			Does the plan set follow the preparation guidelines specified in the current Project Development and Design Guidebook?
				Comment:
43	X			Do the plans provide linework and details of the existing conditions for use in reference to the proposed
				Comment:
44	X			Do the proposed roadway cross-sections conform to current standards?
				Comment:
45	X			Are provisions made for bicycle accommodation where applicable?
				Comment:
46	X			Do pedestrian facilities meet the Massachuesetts Architectural Access Board (MAAB) standards?
				Comment:

	Yes	No	N/A	B. Traffic Signal Plans
47			X	Do the plans indicate the proper placement of the signal heads?
				Comment: There are no signals in the proposed design.
48			X	Are the signal head configurations in conformance with the MUTCD standards?
				Comment: There are no signals in the proposed design.
49	X			Do the signal layout plans show the proposed lane assignments and stop lines?
				Comment: The proposed traffic plans show lane assignments and stop lines.
50			X	Is the Sequence and Timing Chart provided on the plans?
				Comment: There are no signals in the proposed design.
51			X	Is the Preferential Phasing Diagram, including pedestrian phases, shown on the signal plan?
				Comment: There are no signals in the proposed design.
52			X	Is a Time-Space Diagram for the interconnected signals included?
				Comment: There are no signals in the proposed design.
53			X	Is signal detector type and location included on the signal plans?
				Comment: There are no signals in the proposed design.

	Yes	No	N/A	C. Traffic Management Plans (TMP)
54	X			Are preliminary Temporary Traffic Control Plans provided?
				Comment:
55	X			Do the typical layouts follow MassDOT's Standard Details and Drawings for the Development of TMP's?
				Comment:
56	X			If required, have the detour routes been clearly defined?
				Comment:
57	X			Is pedestrian and bicycle accommodation maintained during construction?
				Comment:

Engineer's Estimate

Construction Cost Estimate

Date: 2/1/2018

Project: Surfside Bartlett

Proj. Number: 608664

Location: Nantucket, MA

% Complete: 25%

* Special Provision Will Be Required

** Special Provision Will Be Provided

	Item Number	Unit	Description	Unit Price	Qty	Amount
*	100.	LS	SCHEDULE OF OPERATIONS	$13,000.00	1	$13,000.00
	101.	A	CLEARING AND GRUBBING	$51,000.00	0.5	$25,500.00
	102.1	FT	TREE TRIMMING	$42.50	35	$1,487.50
*	102.51	EA	INDIVIDUAL TREE PROTECTION	$459.00	8	$3,672.00
*	102.52	FT	TEMPORARY TREE PROTECTION FENCE	$15.30	360	$5,508.00
	120.1	CY	UNCLASSIFIED EXCAVATION	$100.00	1,400	$140,000.00
	141.1	CY	TEST PIT FOR EXPLORATION	$400.00	40	$16,000.00
	146.	EA	DRAINAGE STRUCTURE REMOVED	$1,190.00	1	$1,190.00
	150.	CY	ORDINARY BORROW	$51.00	2,160	$110,160.00
	151.	CY	GRAVEL BORROW	$85.00	1,500	$127,500.00
	151.01	CY	GRAVEL BORROW - TYPE C	$110.50	140	$15,470.00
	156.	TON	CRUSHED STONE	$85.00	15	$1,275.00
	170.	SY	FINE GRADING AND COMPACTING	$11.90	4,000	$47,600.00
	201.	EA	CATCH BASIN	$5,950.00	5	$29,750.00
	202.	EA	MANHOLE	$6,800.00	4	$27,200.00
	204.	EA	GUTTER INLET	$3,400.00	1	$3,400.00
	205.	EA	LEACHING BASIN	$8,500.00	7	$59,500.00
*	205.1	EA	LEACHING GALLEY	$8,500.00	1	$8,500.00
	220.	EA	DRAINAGE STRUCTURE ADJUSTED	$680.00	20	$13,600.00
	220.7	EA	SANITARY STRUCTURE ADJUSTED	$680.00	2	$1,360.00
	220.8	EA	SANITARY STRUCTURE REMODELED	$1,700.00	2	$3,400.00
*	222.3	EA	FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD	$1,445.00	18	$26,010.00
	223.2	EA	FRAME AND GRATE (OR COVER) REMOVED AND DISCARDED	$170.00	1	$170.00
	227.3	CY	REMOVAL OF DRAINAGE STRUCTURE SEDIMENT	$382.50	5	$1,912.50
	244.12	FT	12 INCH REINFORCED CONCRETE PIPE CLASS V	$230.00	290	$66,700.00
	358.	EA	GATE BOX ADJUSTED	$425.00	5	$2,125.00
	381.3	EA	SERVICE BOX ADJUSTED	$314.50	6	$1,887.00
*	415.	SY	PAVEMENT MICROMILLING	$20.40	300	$6,120.00
	443.	MGL	WATER FOR ROADWAY DUST CONTROL	$102.00	10	$1,020.00
	450.22	TON	SUPERPAVE SURFACE COURSE - 9.5 (SSC - 9.5)	$390.00	280	$109,200.00

Construction Cost Estimate

Date: 2/1/2018
Project: Surfside Bartlett
Proj. Number: 608664
Location: Nantucket, MA
% Complete: 25%

* Special Provision Will Be Required
** Special Provision Will Be Provided

	Item Number	Unit	Description	Unit Price	Qty	Amount
	450.31	TON	SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC - 12.5)	$450.00	425	$191,250.00
	450.41	TON	SUPERPAVE BASE COURSE 25.0 (SBC - 25.0)	$450.00	700	$315,000.00
	451.	TON	HMA FOR PATCHING	$382.50	11	$4,207.50
	452.	GAL	ASPHALT EMULSION FOR TACK COAT	$25.50	310	$7,905.00
	453.	FT	HMA JOINT SEALANT	$1.70	4,100	$6,970.00
*	470.2	FT	HOT MIX ASPHALT BERM, TYPE A - MODIFIED	$17.00	90	$1,530.00
	472.	TON	HOT MIX ASPHALT FOR MISCELLANEOUS WORK	$340.00	313	$106,420.00
*	487.	SY	BELGIAN BLOCK TRUCK APRON	$340.00	220	$74,800.00
	504.	FT	GRANITE CURB TYPE VA4 - STRAIGHT	$90.00	600	$54,000.00
	504.1	FT	GRANITE CURB TYPE VA4 - CURVED	$100.00	430	$43,000.00
*	507.1	FT	GRANITE CURB TYPE T100	$150.00	220	$33,000.00
	509.	FT	GRANITE TRANSITION CURB FOR WHEELCHAIR RAMPS - STRAIGHT	$110.00	100	$11,000.00
	509.1	FT	GRANITE TRANSITION CURB FOR WHEELCHAIR RAMPS - CURVED	$120.00	90	$10,800.00
	514.	EA	GRANITE CURB INLET - STRAIGHT	$800.00	1	$800.00
	515.	EA	GRANITE CURB INLET - CURVED	$900.00	2	$1,800.00
	516.	EA	GRANITE CURB CORNER TYPE A	$500.00	15	$7,500.00
	580.	FT	CURB REMOVED AND RESET	$51.00	190	$9,690.00
	594.	FT	CURB REMOVED AND DISCARDED	$17.00	50	$850.00
*	655.	FT	CEDAR RAIL FENCE	$60.00	780	$46,800.00
*	655.3	FT	WOOD RAILING	$51.00	120	$6,120.00
	669.	FT	FENCE REMOVED AND STACKED	$51.00	545	$27,795.00
	685.	CY	STONE MASONRY WALL IN CEMENT MORTAR	$1,062.50	50	$53,125.00
*	697.1	EA	SILT SACK	$340.00	26	$8,840.00
	701.2	SY	CEMENT CONCRETE WHEELCHAIR RAMP	$400.00	30	$12,000.00
	702.	TON	HOT MIX ASPHALT WALK SURFACE	$475.00	200	$95,000.00
	703.	TON	HOT MIX ASPHALT DRIVEWAY	$500.00	110	$55,000.00
	715.	EA	RURAL MAIL BOX REMOVED AND RESET	$340.00	3	$1,020.00

Construction Cost Estimate

Date: 2/1/2018

Project: Surfside Bartlett
Location: Nantucket, MA

Proj. Number: 608664
% Complete: 25%

* Special Provision Will Be Required
** Special Provision Will Be Provided

	Item Number	Unit	Description	Unit Price	Qty	Amount
*	740.	MO	ENGINEERS FIELD OFFICE AND EQUIPMENT (TYPE A)	$5,100.00	18	$91,800.00
	748.	LS	MOBILIZATION	$128,719.00	1	$128,719.00
	751.	CY	LOAM BORROW	$102.00	230	$23,460.00
*	756.	LS	NPDES STORMWATER POLLUTION PREVENTION PLAN	$8,500.00	1	$8,500.00
	765.	SY	SEEDING	$4.25	1,750	$7,437.50
*	767.121	FT	SEDIMENT CONTROL BARRIER	$8.50	1,510	$12,835.00
	771.	LS	LANDSCAPING	$17,000.00	1	$17,000.00
	804.2	FT	2 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC (UL)	$51.00	630	$32,130.00
*	811.27	EA	ELECTRIC HANDHOLE - (MUNICIPAL STANDARD)	$2,720.00	10	$27,200.00
*	812.09	EA	LIGHT STANDARD FOUNDATION PRECAST	$2,550.00	8	$20,400.00
	812.20	EA	LIGHTING LOAD CENTER FOUNDATION	$10,030.00	1	$10,030.00
	813.31	FT	WIRE TYPE 7 NO. 8 GENERAL PURPOSE	$2.81	1,900	$5,339.00
	813.81	LS	SERVICE CONNECTION (UNDERGROUND)	$7,140.00	1	$7,140.00
	823.15	EA	AREA LIGHTING LUMINAIRE 175 WATT	$7,650.00	8	$61,200.00
	823.60	LS	HIGHWAY LIGHTING LOAD CENTER	$13,600.00	1	$13,600.00
	832.	SF	WARNING-REGULATORY AND ROUTE MARKER - ALUM. PANEL (TYPE A)	$20.00	145	$2,900.00
	847.1	EA	SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY POST ASSEMBLY - STEEL	$200.00	23	$4,600.00
	852.	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT	$34.00	1,160	$39,440.00
	852.11	FT	TEMORARY PEDESTRIAN BARRICADE	$68.00	350	$23,800.00
	852.12	EA	TEMPORARY PEDESTRIAN CURB RAMP	$6,800.00	2	$13,600.00
	853.1	EA	PORTABLE BREAKAWAY BARRICADE TYPE III	$250.00	18	$4,500.00
	854.016	FT	TEMPORARY PAVING MARKINGS - 6 INCH (PAINTED)	$2.00	2,350	$4,700.00
	854.1	SF	PAVEMENT MARKING REMOVAL	$3.40	775	$2,635.00

Construction Cost Estimate

Date: 2/1/2018

Project: Surfside Bartlett
Location: Nantucket, MA

Proj. Number: 608664
% Complete: 25%

* Special Provision Will Be Required
** Special Provision Will Be Provided

	Item Number	Unit	Description	Unit Price	Qty	Amount
	856.	DAY	ARROW BOARD	$15.00	190	$2,850.00
	856.12	DAY	PORTABLE CHANGEABLE MESSAGE SIGN	$30.00	75	$2,250.00
	859.	DAY	REFLECTORIZED DRUM	$1.00	56,900	$56,900.00
	859.1	DAY	REFLECTORIZED DRUM WITH SEQUENTIAL FLASHING WARNING LIGHTS	$35.00	100	$3,500.00
	864.04	SF	PAVEMENT ARROWS AND LEGENDS REFL. WHITE (THERMOPLASTIC)	$10.00	40	$400.00
	866.106	FT	6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)	$5.00	1,000	$5,000.00
	866.112	FT	12 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)	$25.00	180	$4,500.00
	867.106	FT	6 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC)	$5.00	1,400	$7,000.00
	874.	EA	STREET NAME SIGN	$300.00	2	$600.00
*	874.4	EA	TRAFFIC SIGN REMOVED AND STACKED	$100.00	7	$700.00
				Subtotal:		$2,703,105.00

Contingency (15%)	$405,465.75
Police Detail (4%):	$121,639.73
MassDOT Construction Engineering:	$282,474.47
(10% of construction items subtotal + traffic police)	
Utility Relocation (DOT portion of 50% cost split):	$50,000.00
Total Federal Participating Construction Cost:	**$3,562,684.95**

CPE Estimate Printout

Project Preliminary Design Estimate

Measure System: E

Date: Friday, February 01, 2019

Description: NANTUCKET- INTERSECTION IMPROVEMENTS AT SURFSIDE ROAD AND BARTLETT ROAD

District: 5

Extended Description: This project is intended to address an intersection that has a history of safety problems and exhibits congestion at peak periods. The proposal involves reconfiguring the skewed 3-legged intersection into a modern roundabout. It is also proposed to widen the existing shared use paths on the West side of Surfside Road and the South side of Bartlett Road to 10 feet.

Other proposed work includes updating pavement markings and drainage, constructing ADA/AAB compliant grades, slopes and crossings at Bartlett Road and connections to the existing adjacent paths, incorporation of granite curbing to define the roundabout and channelized islands, along with consideration for incorporating ornamental landscaping and green spaces.

Project: 608664

Item #	Description	Units	Type	Unit Price	Congestion Mitigation / Air Quality	Total
100.	SCHEDULE OF OPERATIONS - FIXED PRICE $_____	LS	*	$13,000.000	1.000	$13,000.00
101.	CLEARING AND GRUBBING	A		$51,000.000	0.500	$25,500.00
102.1	TREE TRIMMING	FT		$42.500	35.000	$1,487.50
102.51	INDIVIDUAL TREE PROTECTION	EA	*	$459.000	8.000	$3,672.00
102.52	TEMPORARY TREE PROTECTION FENCE	FT	*	$15.300	360.000	$5,508.00
120.1	UNCLASSIFIED EXCAVATION	CY		$100.000	1400.000	$140,000.00
141.1	TEST PIT FOR EXPLORATION	CY		$400.000	40.000	$16,000.00
146.	DRAINAGE STRUCTURE REMOVED	EA		$1,190.000	1.000	$1,190.00
150.	ORDINARY BORROW	CY		$51.000	2160.000	$110,160.00
151.	GRAVEL BORROW	CY		$85.000	1500.000	$127,500.00
151.01	GRAVEL BORROW - TYPE C	CY		$110.500	140.000	$15,470.00
156.	CRUSHED STONE	TON		$85.000	15.000	$1,275.00
170.	FINE GRADING AND COMPACTING - SUBGRADE AREA	SY		$11.900	4000.000	$47,600.00

Project Preliminary Design Estimate

Item #	Description	Units	Type	Unit Price	Congestion Mitigation / Air Quality	Total
201.	CATCH BASIN	EA		$5,950.000	5.000	$29,750.00
202.	MANHOLE	EA		$6,800.000	4.000	$27,200.00
204.	GUTTER INLET	EA		$3,400.000	1.000	$3,400.00
205.	LEACHING BASIN	EA		$8,500.000	7.000	$59,500.00
205.1	LEACHING GALLEY	EA	*	$8,500.000	1.000	$8,500.00
220.	DRAINAGE STRUCTURE ADJUSTED	EA		$680.000	20.000	$13,600.00
220.7	SANITARY STRUCTURE ADJUSTED	EA		$680.000	2.000	$1,360.00
220.8	SANITARY STRUCTURE REMODELED	EA	*	$1,700.000	2.000	$3,400.00
222.3	FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD	EA	*	$1,445.000	18.000	$26,010.00
223.2	FRAME AND GRATE (OR COVER) REMOVED AND DISCARDED	EA		$170.000	1.000	$170.00
227.3	REMOVAL OF DRAINAGE STRUCTURE SEDIMENT	CY		$382.500	5.000	$1,912.50
244.12	12 INCH REINFORCED CONCRETE PIPE CLASS V	FT		$230.000	290.000	$66,700.00
358.	GATE BOX ADJUSTED	EA		$425.000	5.000	$2,125.00
381.3	SERVICE BOX ADJUSTED	EA		$314.500	6.000	$1,887.00
415.	PAVEMENT MICROMILLING	SY	*	$20.400	300.000	$6,120.00
443.	WATER FOR ROADWAY DUST CONTROL	MGL		$102.000	10.000	$1,020.00
450.22	SUPERPAVE SURFACE COURSE – 9.5 (SSC – 9.5)	TON		$390.000	280.000	$109,200.00
450.31	SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC -12.5)	TON		$450.000	425.000	$191,250.00

Project Preliminary Design Estimate

Item #	Description	Units	Type	Unit Price	Congestion Mitigation / Air Quality	Total
450.41	SUPERPAVE BASE COURSE - 25.0 (SBC - 25.0)	TON		$450.000	700.000	$315,000.00
451.	HMA FOR PATCHING	TON		$382.500	11.000	$4,207.50
452.	ASPHALT EMULSION FOR TACK COAT	GAL		$25.500	310.000	$7,905.00
453.	HMA JOINT SEALANT	FT		$1.700	4100.000	$6,970.00
470.2	HOT MIX ASPHALT BERM, TYPE A - MODIFIED	FT	*	$17.000	90.000	$1,530.00
472.	HOT MIX ASPHALT FOR MISCELLANEOUS WORK	TON		$340.000	313.000	$106,420.00
487.	BELGIAN BLOCK TRUCK APRON	SY	*	$340.000	220.000	$74,800.00
504.	GRANITE CURB TYPE VA4 - STRAIGHT	FT		$90.000	600.000	$54,000.00
504.1	GRANITE CURB TYPE VA4 - CURVED	FT		$100.000	430.000	$43,000.00
507.1	GRANITE CURB TYPE T100	FT	*	$150.000	220.000	$33,000.00
509.	GRANITE TRANSITION CURB FOR WHEELCHAIR RAMPS - STRAIGHT	FT		$110.000	100.000	$11,000.00
509.1	GRANITE TRANSITION CURB FOR WHEELCHAIR RAMPS - CURVED	FT		$120.000	90.000	$10,800.00
514.	GRANITE CURB INLET - STRAIGHT	EA		$800.000	1.000	$800.00
515.	GRANITE CURB INLET - CURVED	EA		$900.000	2.000	$1,800.00
516.	GRANITE CURB CORNER TYPE A	EA		$500.000	15.000	$7,500.00
580.	CURB REMOVED AND RESET	FT		$51.000	190.000	$9,690.00
594.	CURB REMOVED AND DISCARDED	FT		$17.000	50.000	$850.00

Project Preliminary Design Estimate

Item #	Description	Units	Type	Unit Price	Congestion Mitigation / Air Quality	Total
655.	CEDAR RAIL FENCE	FT	*	$60.000	780.000	$46,800.00
655.3	WOOD RAILING	FT	*	$51.000	120.000	$6,120.00
669.	FENCE REMOVED AND STACKED	FT		$51.000	545.000	$27,795.00
685.	STONE MASONRY WALL IN CEMENT MORTAR	CY		$1,062.500	50.000	$53,125.00
697.1	SILT SACK	EA	*	$340.000	26.000	$8,840.00
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY		$400.000	30.000	$12,000.00
702.	HOT MIX ASPHALT WALK SURFACE	TON		$475.000	200.000	$95,000.00
703.	HOT MIX ASPHALT DRIVEWAY	TON		$500.000	110.000	$55,000.00
715.	RURAL MAIL BOX REMOVED AND RESET	EA		$340.000	3.000	$1,020.00
740.	ENGINEERS FIELD OFFICE AND EQUIPMENT (TYPE A)	MO	*	$5,100.000	18.000	$91,800.00
748.	MOBILIZATION	LS		$128,719.000	1.000	$128,719.00
751.	LOAM BORROW	CY		$102.000	230.000	$23,460.00
756.	NPDES STORMWATER POLLUTION PREVENTION PLAN	LS	*	$8,500.000	1.000	$8,500.00
765.	SEEDING	SY		$4.250	1750.000	$7,437.50
767.121	SEDIMENT CONTROL BARRIER	FT	*	$8.500	1510.000	$12,835.00
771.	LANDSCAPING	LS	*	$17,000.000	1.000	$17,000.00
804.2	2 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC (UL)	FT		$51.000	630.000	$32,130.00
811.27	ELECTRIC HANDHOLE - (MUNICIPAL STANDARD)	EA	*	$2,720.000	10.000	$27,200.00

Project Preliminary Design Estimate

Item #	Description	Units	Type	Unit Price	Congestion Mitigation / Air Quality	Total
812.09	LIGHT STANDARD FOUNDATION PRECAST	EA	*	$2,550.000	8.000	$20,400.00
812.20	LIGHTING LOAD CENTER FOUNDATION	EA		$10,030.000	1.000	$10,030.00
813.31	WIRE TYPE 7 NO. 8 GENERAL PURPOSE	FT		$2.810	1900.000	$5,339.00
813.81	SERVICE CONNECTION (UNDERGROUND)	LS		$7,140.000	1.000	$7,140.00
823.15	AREA LIGHTING LUMINAIRE 175 WATT	EA		$7,650.000	8.000	$61,200.00
823.60	HIGHWAY LIGHTING LOAD CENTER	LS		$13,600.000	1.000	$13,600.00
832.	WARNING-REGULATORY AND ROUTE MARKER - ALUMINUM PANEL (TYPE A)	SF		$20.000	145.000	$2,900.00
847.1	SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY POST ASSEMBLY - STEEL	EA		$200.000	23.000	$4,600.00
852.	SAFETY SIGNING FOR TRAFFIC MANAGEMENT	SF		$34.000	1160.000	$39,440.00
852.11	TEMPORARY PEDESTRIAN BARRICADE	FT	*	$68.000	350.000	$23,800.00
852.12	TEMPORARY PEDESTRIAN CURB RAMP	EA	*	$6,800.000	2.000	$13,600.00
853.1	PORTABLE BREAKAWAY BARRICADE TYPE III	EA		$250.000	18.000	$4,500.00
854.016	TEMPORARY PAVING MARKINGS - 6 INCH (PAINTED)	FT		$2.000	2350.000	$4,700.00
854.1	PAVEMENT MARKING REMOVAL	SF		$3.400	775.000	$2,635.00
856.	ARROW BOARD	DAY		$15.000	190.000	$2,850.00

Project Preliminary Design Estimate

Item #	Description	Units	Type	Unit Price	Congestion Mitigation / Air Quality	Total
856.12	PORTABLE CHANGEABLE MESSAGE SIGN	DAY		$30.000	75.000	$2,250.00
859.	REFLECTORIZED DRUM	DAY		$1.000	56900.000	$56,900.00
859.1	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS	DAY	*	$35.000	100.000	$3,500.00
864.04	PAVEMENT ARROWS AND LEGENDS REFLECTORIZED WHITE (THERMOPLASTIC)	SF		$10.000	40.000	$400.00
866.106	6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)	FT		$5.000	1000.000	$5,000.00
866.112	12 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)	FT		$25.000	180.000	$4,500.00
867.106	6 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC)	FT		$5.000	1400.000	$7,000.00
874.	STREET NAME SIGN	EA		$300.000	2.000	$600.00
874.4	TRAFFIC SIGN REMOVED AND STACKED	EA	*	$100.000	7.000	$700.00
Total Amount					$2,703,105.00	**$2,703,105.00**

Horizontal Alignment Report

Surfside Road and Bartlett Road

Nantucket, MA

Alignment Report

Alignment Station and Curve Report

Client: Town of Nantucket

Project Name: \\vhb\proj\Wat-TE\14187.00 Surfside Bartlett Prelim\cad\te\608664\DWG\HD\XREFS\608664_HD(PR).dwg

Project Description: Proposed Roundabout

Report Date: 1/21/2019 11:51:00 AM

Prepared by: VHB

Alignment: Bartlett Road

Tangent Data

Description	PT Station	Northing	Easting
Start:	46+00.00	97959.167	1749982.049
End:	48+18.88	98035.410	1750187.224

Tangent Data

Parameter	Value	Parameter	Value
Length:	218.88	Course:	N 69° 36' 53.73" E

Curve Point Data

Description	Station	Northing	Easting
PC:	48+18.88	98035.410	1750187.224
RP:		97801.067	1750274.306
PT:	49+64.07	98044.768	1750330.069

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	33° 16' 25.13"	Type:	RIGHT
Radius:	250.00		
Length:	145.18	Tangent:	74.70
Mid-Ord:	10.47	External:	10.92
Chord:	143.15	Course:	N 86° 15' 06.30" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+64.07	98044.768	1750330.069
End:	50+00.00	98036.753	1750365.098

Tangent Data

Parameter	Value	Parameter	Value
Length:	35.93	Course:	S 77° 06' 41.14" E

Alignment: Surfside Road

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+00.00	97679.954	1750337.399
End:	11+47.27	97824.857	1750363.706

Tangent Data

Parameter	Value	Parameter	Value
Length:	147.27	Course:	N 10° 17' 23.73" E

Curve Point Data

Description	Station	Northing	Easting
PC:	11+47.27	97824.857	1750363.706
RP:		97888.270	1750014.415
PCC:	12+66.77	97943.781	1750365.048

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	19° 17' 09.89"	Type:	LEFT
Radius:	355.00		
Length:	119.49	Tangent:	60.32
Mid-Ord:	5.02	External:	5.09
Chord:	118.93	Course:	N 00° 38' 48.78" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	12+66.77	97943.781	1750365.048
RP:		97982.873	1750611.973
PT:	13+23.25	98000.094	1750362.567

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	12° 56' 45.54"	Type:	RIGHT
Radius:	250.00		
Length:	56.49	Tangent:	28.36
Mid-Ord:	1.59	External:	1.60
Chord:	56.37	Course:	N 02° 31' 23.39" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	13+23.25	98000.094	1750362.567
End:	13+60.00	98036.753	1750365.098

Tangent Data

Parameter	Value	Parameter	Value
Length:	36.75	Course:	N 03° 56' 59.38" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	13+60.00	98036.753	1750365.098
End:	13+99.07	98071.322	1750383.301

Tangent Data

Parameter	Value	Parameter	Value
Length:	39.07	Course:	N 27° 46' 13.12" E

Curve Point Data

Description	Station	Northing	Easting
PC:	13+99.07	98071.322	1750383.301
RP:		98155.189	1750224.033
PCC:	14+62.29	98131.234	1750402.432

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	20° 07' 21.19"	Type:	LEFT
Radius:	180.00		
Length:	63.22	Tangent:	31.94
Mid-Ord:	2.77	External:	2.81
Chord:	62.89	Course:	N 17° 42' 32.53" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	14+62.29	98131.234	1750402.432
RP:		98204.429	1749857.324
PT:	15+63.10	98231.816	1750406.642

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	10° 30' 06.93"	Type:	LEFT
Radius:	550.00		
Length:	100.81	Tangent:	50.55
Mid-Ord:	2.31	External:	2.32

Chord:	100.67	Course:	N 02° 23' 48.47" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	15+63.10	98231.816	1750406.642
End:	17+00.00	98368.549	1750399.825

Tangent Data

Parameter	Value	Parameter	Value
Length:	136.90	Course:	N 02° 51' 14.99" W

End of Report

Pavement Design Report

COMMONWEALTH OF MASSACHUSETTS
MassHighway

PAVEMENT DESIGN
NEW AND RECONSTRUCTED PAVEMENTS

City/Town	Nantucket		
Route No.	Surfside Road	**Highway System**	
From Station	11+40	**To Station**	15+36
No. of Lanes	2		
Date Pavement Designed	12-20-18	**Pavement Designer**	JDB

RECOMMENDED PAVEMENT STRUCTURE

Surface Course:	1.5" SUPERPAVE SURFACE COURSE (SSC-9.5)
Intermediate Course	2" SUPERPAVE INTERMEDIATE COURSE (SIC-12.5)
Base Course:	4" SUPERPAVE BASE COURSE (SBC-25.0)
Sub-base:	12" Gravel Borrow type b
Sub-grade:	Subgrade is assumed to be AASHTO Soil Classification A-3 "Fine Sand"

NEW AND RECONSTRUCTED PAVEMENTS

DATA SHEET 1: PAVEMENT STRUCTURAL DESIGN DATA

City/Town	Nantucket	**Route No.**	
From Station	11+40	**To Station**	15+36
No. of Lanes	2 **Highway System**	Surfside Rd	**Date** 12-20-18
Current ADT	9,349		

Terminal Serviceability Index (T.S.I) = 2.5

(a) Day of Opening A.D.T. (Date year)[1]	9,349 (2018)
(b) Future A.D.T. (Date (a) + 20 years)[2]	9,827 (2028)
(c) Mean A.D.T. = [(a) + (b)] / 2	9,588
(d) Mean A.D.T. in One Direction = (c) / 2	4,794
(e) A.D.T. Truck Percentage ("T" A.D.T.)	2.9%
(f) Mean Truck A.D.T. In One Direction (d) x (e)	139
(g) ESAL Application per 1000 Trucks and Combinations Exhibit 9-2	660
(h) Number of ESALs Per Day in One Direction (f) X (g) / 1000 (T_{18})	92

Comments:

1 Anticipated traffic when facility is opened to travel.
2 Under certain conditions this may change to a larger or shorter period.

NEW AND RECONSTRUCTED PAVEMENTS

DATA SHEET 2: DETERMINATION OF STRUCTURAL MUMBER (SN)

Design Lane ESAL Applications (T_{18})

For 2-Lane Undivided Highway

Design Lane T_{18} = 1.00 x Total T_{18}* = 1.00 x ……... = 92

For 4 (Total Lanes) Lane Divided Highway

Design Lane T_{18} = 0.90 x Total T_{18}* = 0.90 x ……... = -

Design 6 or More (Total Lanes) Divided Highway

Design Lane T_{18} = 0.80 x Total T_{18}* = 0.80 x ……..= -

Design DBR + SSV Exhibits 9-4, 9-5 & 9-7, Sections 9.3 & 9.4

Subbase	Gravel Borrow	DBR =	40	SSV =	7.8
Subgrade	A-3	DBR =	10	SSV =	4.4

Design Structural Number (SN)

Apply Design SSV and Design Lane T_{18} from above to Design Nomograph (Exhibit 9-8)

	From Exhibit 9-8	+15%
Above Subbase ……=	1.9	2.2
Above Sugrade …….. =	3.1	3.6

*From Line (h) of Data Sheet 1.

NEW AND RECONSTRUCTED PAVEMENTS

DATA SHEET 3: PAVEMENT STRUCTURAL NUMBER (SN)

$$SN = D_1^{a_1} + D_2^{a_2} + D_3^{a_3} + D_4^{a_4} + D_5^{a_5}$$

Surface Course

Material: 1.5" $D_1^{a_1}$= 0.66

Intermediate Course

Material: 2" $D_2^{a_2}$= 0.88

Base Course

Material: 4" $D_3^{a_3}$= 1.36

Total SN Above Sub-base = 2.9 (2.2 required)

Sub-base (Foundation)

Material: 12" $D_4^{a_4}$= 1.32

$D_5^{a_5}$=

Total SN Above Sub-grade = 4.22 (3.6 required)

Where: D_1 = Surface Course Thickness, inches

D_2 = Intermediate Course Thickness, inches

D_3 = Base Course Thickness, inches

D_4 = Sub-base Course Thickness, inches

D_5 = Sub-base Course Thickness, inches

a_1 = Coefficient of Relative Strength, Surface Course

a_2 = Coefficient of Relative Strength, Intermediate Course

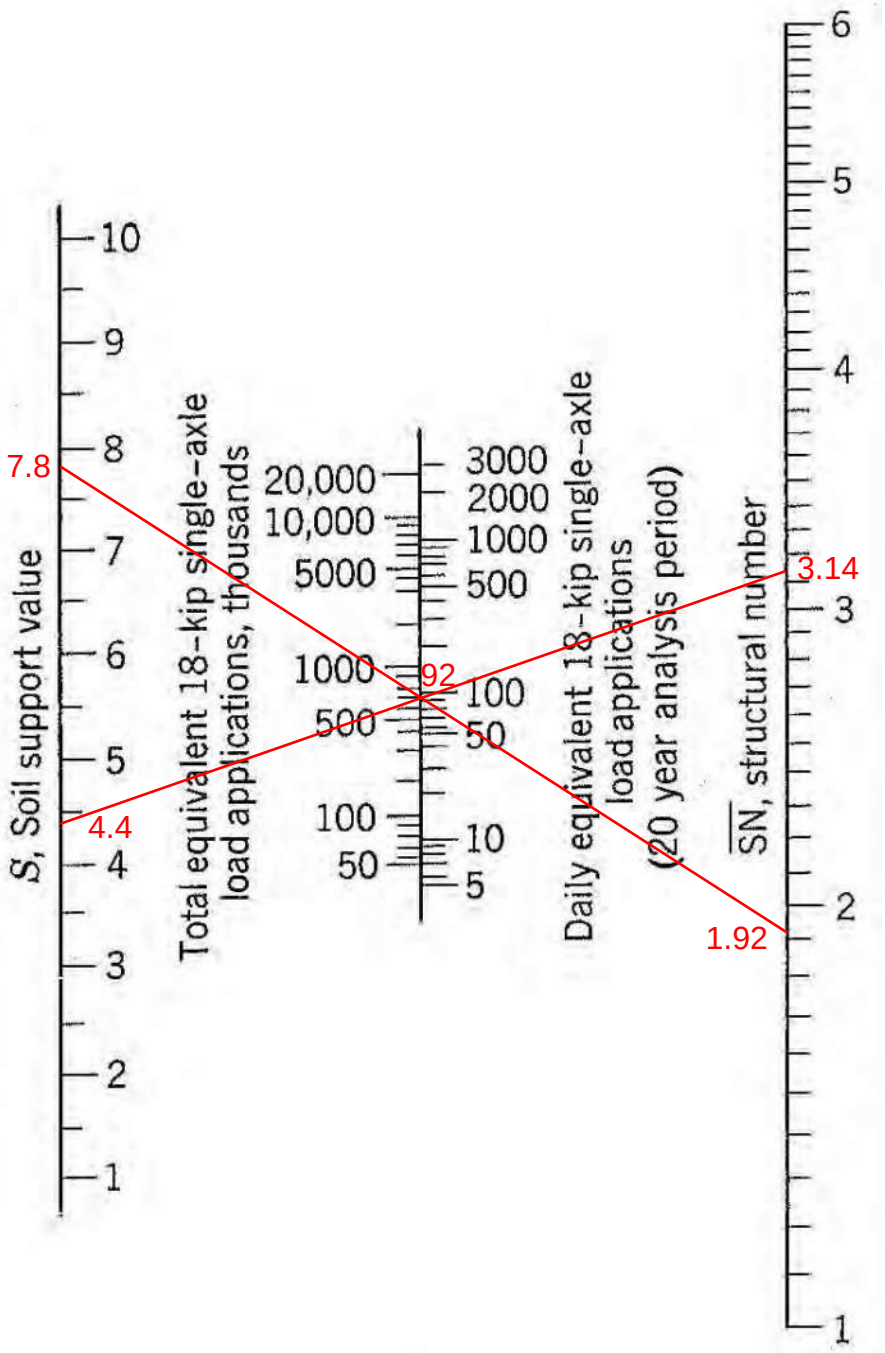
a_3 = Coefficient of Relative Strength, Base Course

a_4 = Coefficient of Relative Strength, Sub-base Course

a_5 = Coefficient of Relative Strength, Sub-base Course

Comments:

Exhibit 9-8
Structural Number Nomograph (For Flexible Pavements P=2.5)



Note: The right side of the vertical line in the center provides the daily equivalent 18-kip single-axle load. It is only good for a 20-year analysis period. The left side provides the total load application and it can be used for any design analysis period.

Source: Interim Guide for Pavement Structures. AASHTO. 1972.

Early Environmental Coordination Checklist & Documentation

25% Design Submission Checklist
Early Environmental Coordination for Design Projects

The Designer shall complete and submit this form electronically with backup information and explanations of how each item has been addressed or documented. Completion of this checklist and its requirements is necessary for the project to obtain approval from Environmental Services to proceed with a 25% Design Public Hearing.

Note: In an attempt to reduce paper consumption, Environmental Services requests that only one (1) paper copy of the 25% Design is submitted for Environmental review. All Early Environmental Coordination documentation should be submitted only in an electronic format (.pdf, .doc, .xls, etc) wherever possible. Documentation should be submitted to the MassDOT project manager for routing to Environmental Services.

	PUBLIC COORDINATION	**Instructions**	**Addressed?**
1	Coordinate with local boards, commissions & officials to identify specific issues or concerns regarding the project purpose and need and general scope of work. Attach all written correspondence.	Click Here	See Response
2	If the proponent has presented the project in a public meeting setting, provide information regarding the meeting including the name of the public board/commission, the date and location, public comments and any formal meeting minutes.		See Response
3	Send a letter to the Local Historical Commission (LHC) with a project description and location map, seeking comments. Provide a hardcopy (with a scope of work and locus) to the State Historic Preservation Officer (SHPO) and an electronic copy to MassDOT Highway Division Environmental Services Cultural Resources Unit (CRU). The Designer will no longer be responsible for sending notification letters to any of the three federally recognized tribes in Massachusetts. MassDOT CRU staff will assume responsibility for submitting early notification letters and accompanying materials to the three federally recognized tribes in Massachusetts for all projects.	Click Here	Letter Sent to Nantucket Historical Commission
4	Submit a Navigability Survey to the Municipal Harbor Master where work will occur on bridges over U.S. Coast Guard (USCG) regulated navigable waterways. Attach the completed survey.	Click Here	N/A
5	Where work will occur within or adjacent to a Wild and Scenic River, submit a letter to the National Park Service with a project description and location map to initiate early coordination. Attach all written correspondence.	Click Here	N/A
	REGULATORY FRAMEWORK AND REQUIRED DELIVERABLES		
6	Complete and submit an editable (MS Word format .doc or other), electronic Categorical Exclusion (CE) checklist for review and processing by Environmental Services. The draft CE should include a thorough project description and responses to checklist questions.	Click Here	To be completed follwing DPH
7	Evaluate the project in light of MEPA Review Thresholds. Provide documentation that the project does/does not exceed thresholds. If thresholds are exceeded, an editable (MS Word format .doc or other) draft ENF should be prepared and submitted once the 25% Design Public Hearing has been completed. This does not apply to projects which are exempt from MEPA review under the Bridge Exemption.	Click Here	Thresholds Not Exceeded
8	Electronically complete and submit the 25% Design portion of the Water Quality Data Form to determine the impairment status of waterbodies receiving highway runoff.	Click Here	Attached
9	If the project will impact wetland resource areas (BVW, Bank, LUW, etc), determine if the project is subject to permitting under Sections 401 and 404 of the Clean Water Act and the Massachusetts Wetlands Protection Act. Provide explanations for each determination of applicability. Ensure that permitting timelines are included in the project schedule.		No Wetlands Present
	PROJECT CONTEXT/SETTING AND FIELD RECONNAISSANCE		
10	Identify the dominant land uses within the project area, its general context characteristics, and ownership. Identify any publicly-owned open space (Section 4(f) or Article 97 protected property - parks, recreational areas, conservation land and wildlife refuges) within the project area and describe its designated and current use. This information should be included within the project description attached to the CE Checklist.	Click Here	See Response
11	Determine if the project occurs within or adjacent to sensitive environmental resources: Outstanding Resource Waters, stormwater "critical areas", Areas of Critical Environmental Concern (ACECs), NHESP designated endangered species habitat and certified/potential vernal pools, impaired waterbodies, regulated wetland resources, FEMA delineated floodways, Wild & Scenic Rivers, ACOE Special Aquatic Sites (salt marsh, tidal flats, vegetated shallows, etc), Essential Fish Habitat and/or high quality streams.	Click Here	See Response
12	Identify known cultural and historical resources in the project area. These include properties or structures listed on the National/State Register(s) of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth.	Click Here	See Response
13	Identify all existing or proposed material within the project limits which may require handling as hazardous waste or be subject to other environmental handling regulations upon disposal. These materials include suspected treated timber, asbestos, lead-based paint, mercury switches, PCB-containing materials, etc.	Click Here	See Response
14	List locations of known oil and hazardous materials releases in proximity to the project limits. For projects involving excavation work, provide all available relevant soil, sediment, and groundwater sampling results along with maps indicating sample locations.	Click Here	See Response
15	Provide a copy of all activity use limitation (AUL) deed restrictions including the map depicting an outline of the AUL area for all AULs located on property within or adjacent to the project limits.		See Response
16	Conduct field reconnaissance to verify existing conditions. See Instructions for list of conditions to verify.	Click Here	See Response
17	Provide photographic documentation of field conditions and features. See Instructions for list of conditions and features to photograph.	Click Here	Attached
	PLAN REQUIREMENTS		
18	Show property lines, plus footprints, ownership, and street addresses of all buildings and parcels adjacent to the project.		See Response
19	If the project requires Right-of-Way acquisition (takings, rights-of-entries, temporary/permanent easements, DCR permit, etc.), submit Preliminary Right-of-Way Plans.	Click Here	See Response
20	Show all bridges and culverts and label with MassDOT Highway Division BDEPT # (if structure has one). Label the waterway, RR line, street or other feature intersected by the bridge/culvert.		N/A
21	Show and label the existing and proposed edge of roadway and limits of grading.		See Response
22	Show and label all existing and proposed guardrail.		N/A
23	Show and label all walls and fences.		See Response
24	Show and label all public shade trees 14" or more at breast height in the project area.	Click Here	See Response
25	Show and label all roadway monuments, historical markers, highway bounds, etc., and show future locations if any are proposed to be removed and/or relocated.		N/A
26	Show and label all publicly owned parks, recreational areas, and wildlife refuges.	Click Here	See Response
27	Show and label any proposed landscape improvements.		See Response
28	Show the location of all existing and proposed drainage structures and discharge points.		See Response
29	Show all wetland boundaries within 100-ft of the project limits, including Bordering and Isolated Vegetated Wetlands, Bank, Land Under Water, Bordering Land Subject to Flooding and Ordinary High Water (i.e., 1-yr flood).		N/A
30	For projects requiring a Section 401 Water Quality Certificate (WQC), complete the 401 WQC Plan Requirements Checklist and update plans to meet its requirements.	Click Here	N/A
31	Show and label all 100-ft wetland buffer zones and Riverfront Areas.		N/A
32	Show the location of potential wetland replacement areas.	Click Here	N/A
33	Provide details of any proposed ornamental elements, such as street lighting.		See Response

25% Design Submission Checklist Responses.

Early Environmental Coordination Checklist for Design Projects

INTERSECTION IMPROVEMENTS SURFSIDE ROAD AT BARTLETT ROAD
NANTUCKET, MASSACHUSETTS
MASSDOT PROJECT NO. 608664

Public Coordination

1. Coordination with local boards and commissions is anticipated to continue as the project advances. A design public hearing (DPH) for the project will be held following the 25% submission.
2. See above.
3. Addressed. The attached letter has been sent to the Nantucket Historical Commission.
4. N/A. The project is outside of regulated navigable waterways, therefore Navigability Survey not needed.
5. Addressed. The project is not located within ¼ mile of a segment of a Wild and Scenic River. Coordination with the National Park Service will not be required.

Regulatory Framework and Required Deliverables

6. Addressed. The Categorical Exclusion Checklist will be submitted to MassDOT Environmental Services at a later design submission.
7. Addressed. The Project in its current design does not appear to exceed any MEPA Review thresholds necessitating the preparation of an ENF. (See Attached documentation).
8. Addressed. 25% WQDF Draft completed. The project is located within the Nantucket Harbor Watershed (Segment ID: MA97-01). Nantucket Harbor is an impaired waterbody for Fecal Coliform, Nutrient and Eutrophication Biological Indicators. The proposed storm water system will direct the runoff collected within the circulatory roadway to a series of seven (7) leaching basins within the center island of the roundabout. The leaching basins will provide water quality treatment through infiltration for the roundabout and the southerly leg of the intersection. Runoff within the northerly approach will be collected by a new gutter inlet and deep sump manhole at the corner of Surfside Road and Larrabee Lane and will infiltrate locally within a leaching galley system. The westerly approach will be treated by the existing catch basin system at the low point of Bartlett Road.
9. Addressed. The project will not result in alteration of wetland resource areas regulated as a Water of the U.S. subject to jurisdiction under Sections 401 and/or 404 of the Clean Water Act or occur in areas which are subject to jurisdiction under the Massachusetts Wetlands Protection Act (WPA). No wetland resource areas are located in the vicinity of the project limits.

Project Context/Settings and Field Reconnaissance

10. Addressed. The area in the vicinity of project area consists of parcels containing multi-family medium-density residential and commercial development as well as town-owned land containing the Nantucket Elementary School. Two locations subject to Section 4(f) Protection, Surfside Bike Path and Miacomet Bike Path are located within the vicinity of the project area. No impacts to these Section 4(f) resources are anticipated to occur as a result of the Project.
11. Addressed. The project is not located within NHESP mapped Priority Habitat and Estimated Habitat of Rare Species or Wildlife, or within mapped 100-Year FEMA Floodplain. No portion of the project area is located within an Area of Critical Environmental Concern (ACEC) or an Outstanding Resource Water (ORW) the entirety of the Project limits are located within a Zone II wellhead protection area (See Attached Figure 3: NHESP Map, Figure 4: FEMA Map, and Figure 5: Critical Resources Map).
12. Addressed. According to the Massachusetts Cultural Resource Information System (MACRIS) MAPS 2.0 *beta*, Massachusetts Historical Commission, one Inventoried property is located in the vicinity of the proposed project (See Figure 7: Historic Resources Map). Coordination with the Nantucket Historical Commission will be initiated and further review by MassDOT Highway Division's Environmental Services Cultural Resource Unit (CRU) is required to determine compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966.
13. Addressed. No disposal sites are known to existing within 500 feet of the Project site based on a MassDEP data review. However, due to the suburban nature of the Project area, there is the potential for undocumented releases of oil and/or hazardous materials (OHM) to be present, which may require special handling and management during construction. The Site may also contain non-native urban fill. Urban fill can be impacted with residual OHM, including metals, pesticides, and petroleum constituents such as polycyclic aromatic hydrocarbons (PAHs), as well as debris such as coal, coal ash, and coal slag.
14. Addressed. Based on a review of the Massachusetts Department of Environmental Protection (MassDEP) Bureau of Waste Site Cleanup (BWSC) online database on December 10, 2018, no state-listed disposal sites were identified in the vicinity (i.e. 500-foot radius) of the proposed Project limits. The 500-foot search radius was used for preliminary screening purposes to identify potential disposal sites using only the address/location aid field in the MassDEP database. A detailed summary of the review can be found in the attached memorandum.
15. Addressed. According to the latest available data from MassDEP no activity use limitation (AUL) deed restrictions are located within parcels adjacent to the project limits.
16. Addressed. A several site visits have been conducted in to verify existing conditions within the project limits. At this time, no further site visits are required to take inventory or verify existing conditions.
17. Addressed. Photographic log documenting field conditions is attached.

Plan Requirements

18. Addressed. Shown on 25% Design Submission Plans.
19. Addressed. Right-of-Way acquisitions are required for the project. The parcels required for easements are detailed in the 25% Right-of-Way plan set.
20. Not Applicable to this Project
21. Addressed. Shown on 25% Design Submission Plans.

22. Not Applicable to this Project
23. Addressed. Existing and Proposed Fences and Walls are shown on 25% Design Submission Plans.
24. Addressed. Trees in the Project Limits are Shown on 25% Design Submission Plans with diameter at breast height labeled in inches.
25. Not Applicable to this Project
26. Addressed Shown on 25% Design Submission Plans
27. Addressed Landscaping areas are shown in the proposed roundabout and areas requiring loam and seed are shown on the 25% design submission plans. Any additional features will be included on later design submissions once they have been confirmed
28. Addressed. Shown on 25% Design Submission Plans
29. Not Applicable to this project.
30. The project will not require the filing of a Section 401 Water Quality Certificate.
31. Not Applicable to this project. No Wetland resource areas are located in the vicinity of the project area.
32. No impacts to wetland resource areas are proposed, therefore wetland replication areas will not be required.
33. Addressed Shown on 25% Design Submission Plans

INTERSECTION IMPROVEMENTS SURFSIDE AT BARTLETT
NANTUCKET, MASSACHUSETTS
MASSDOT PROJECT NO. 608664

Project Description

The Town of Nantucket in conjunction with the Massachusetts Department of Transportation (MassDOT) is proposing intersection improvements at Surfside Road and Bartlett Road, and implementation of complete streets concepts to improve pedestrian and bicycle accommodations and safety within the project limits. The current Project is planned to be funded through the Transportation Improvement Program for the Nantucket Metropolitan Planning Organization.

Purpose and Need

The purpose of the project is to improve roadway and pedestrian safety at the intersection of Surfside Road at Bartlett Road. The intersection has experienced a crash rate of 0.77 accidents per million entering vehicles (acc/mev) from 2007 to 2009. This was higher than the district wide (0.59 acc/mev) and statewide (0.66 acc/mev) averages for unsignalized intersections, and therefore may be indicative of a safety problem. Based on a 2010 evaluation of traffic control operation alternatives and a 2013 evaluation of a revised modern roundabout alternative, the NP&EDC has included a roundabout in the Regional Transportation Plan as the preferred long-term option for this intersection.

Project Location and Existing Conditions

The intersection of Surfside Road and Bartlett Road is located in the central portion of the island of Nantucket, Massachusetts. This 3-way unsignalized intersection serves as the north/south connection between the mid-island commercial area and the residential and recreational areas south of mid-island.

The project area includes a T-type intersection with Bartlett Road being the minor street approach under stop control. Surfside Road is a major collection with a free movement through the intersection. Both Surfside Road and Bartlett Road are two-way single lane roadways with +/-11-foot-wide travel lanes. Surfside Road and Bartlett Road also have bike paths parallel to the roadways. The Surfside Bike path is along the west side of the roadway and is approximately 8-feet wide. The Bartlett path is along the south side of the roadway and varies in width between 6-8 feet. The Surfside bike path crossing of Bartlett Road experience a lot of bike and pedestrian traffic in the summer months, but also during the school year due to the close proximity to the Nantucket Public Schools.

Proposed Work

The Town is proposing to reconstruct the Surfside Road intersection. The project limits extend approximately 130 feet to the north and approximately 315 feet to the south along Surfside Road, as well as 325 feet to the west along Bartlett Road. The roadway improvements for this project will include full depth pavement, curbing, sidewalks, signing, striping, street lighting, drainage and utility pole relocation.

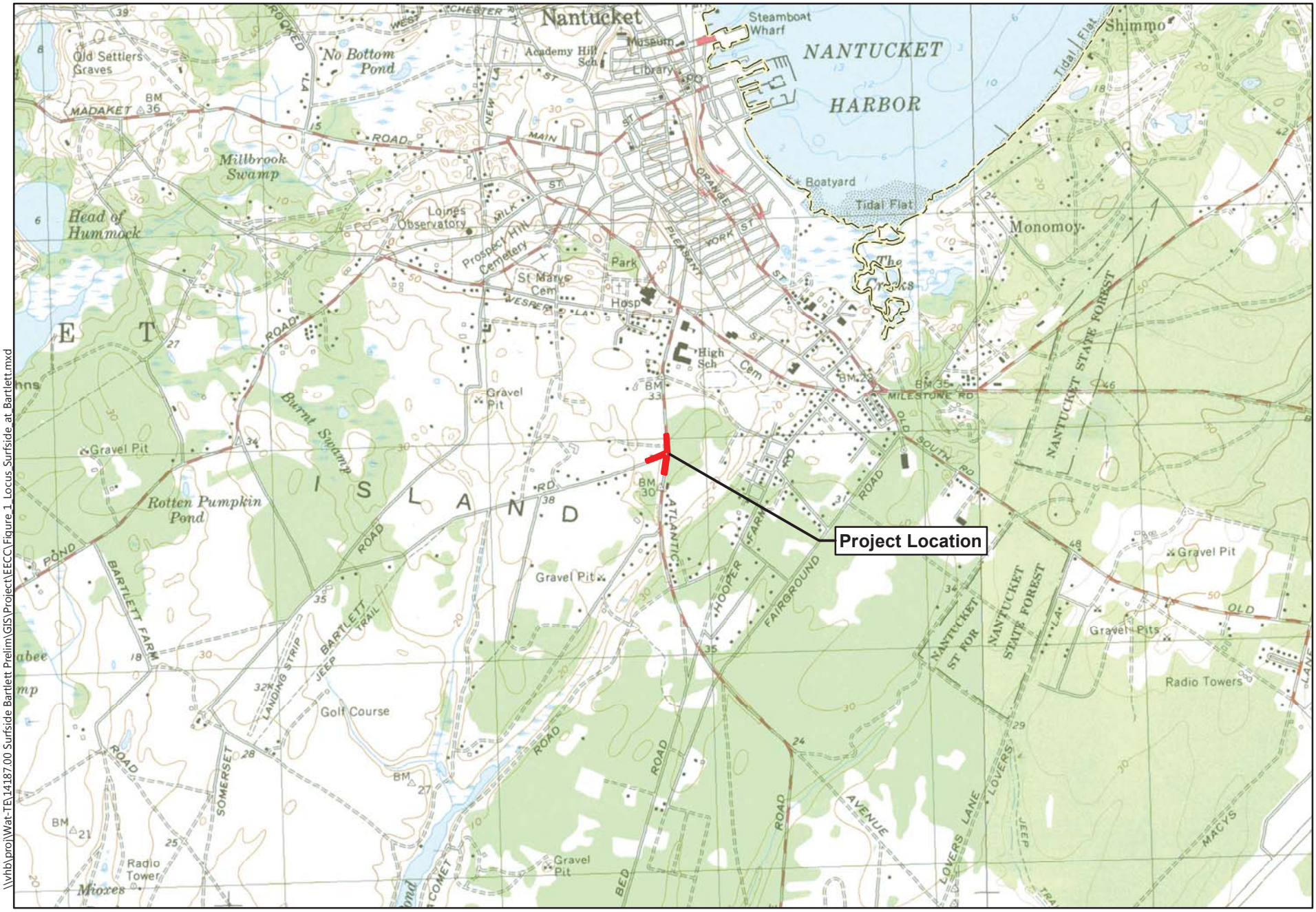
A single lane roundabout is proposed at the project location. The proposed cross section for Surfside Road will consist of two 11-foot travel lanes, 1-foot shoulders, 5-foot sidewalk along the east side of the roadway, and an 8 to 10-foot bike bath along the west side of the roadway. The proposed cross sections for Bartlett Road will consist of an 11-foot westbound travel lane, a 10.5-foot eastbound travel lane, no shoulders, and a 9.5 to 10-foot bike path along the south side of the roadway

Figures and Attachments

Figure No.	Description
1	Locus Map
2	Aerial Map
3	NHESP Map
4	FEMA Map
5	Critical Resources Map
6	Openspace and Historic Resources Map

EECC No.	Attachment Item
3.	Section 106 Nantucket Historical Commission letter
7.	MEPA Thresholds Checklist
8.	25% Water Quality Data Form (25%WQDF)
14.	Summary of MassDEP Disposal Sites Memorandum
17.	EEC Checklist Photographic Log

Figures



Feet
0 1,000 2,000 4,000

Project Location

Surfside at Bartlett | Nantucket, MA

Figure 1 - Project Locus Map

Source Info: USGS, MassGIS

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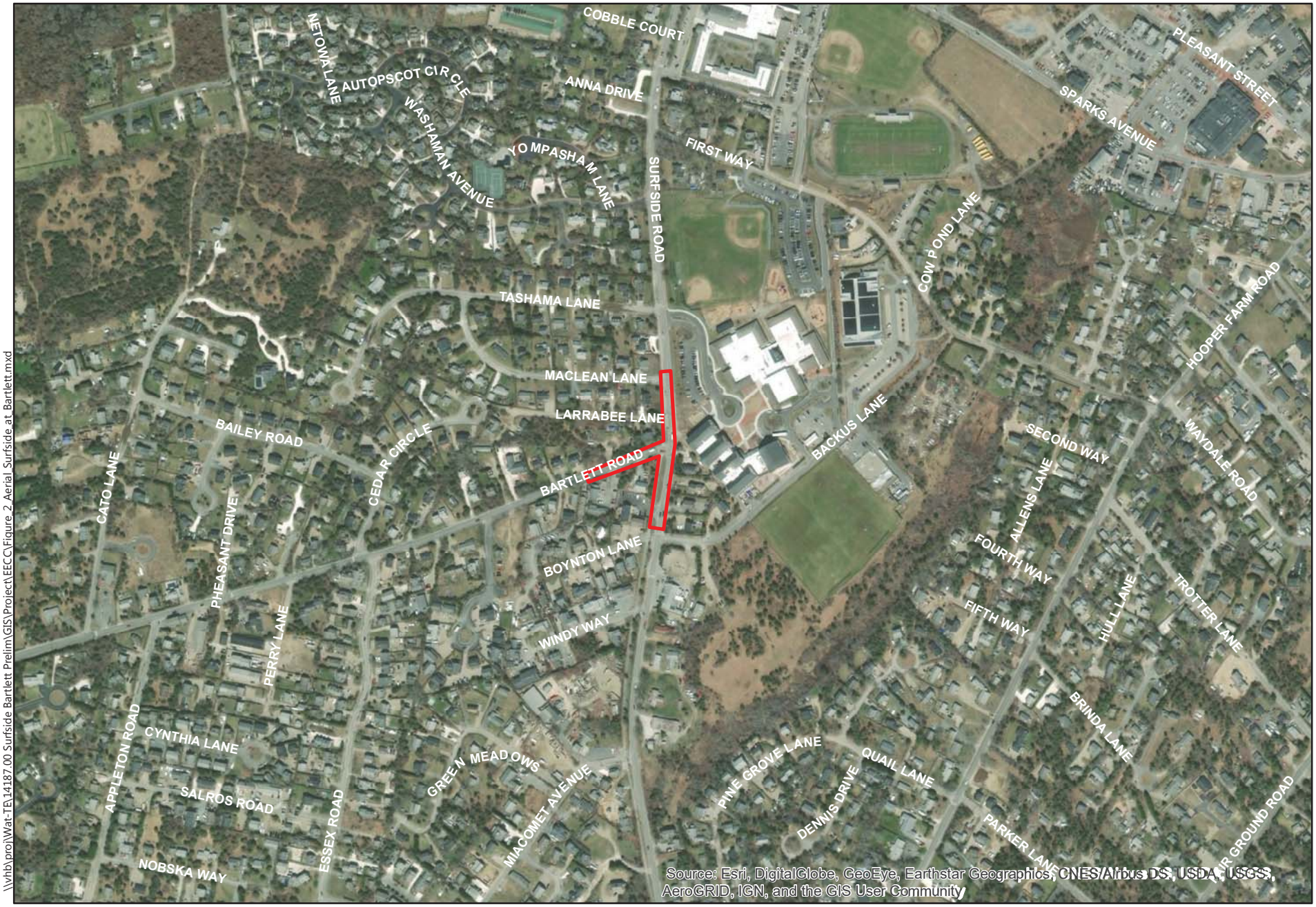

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0 250 500 1,000 Feet

Project Location

Surfside at Bartlett | Nantucket, MA

Figure 2 - Aerial Map

Source Info: USGS, MassGIS

\\vhb\proj\Wat-TE\14187.00 Surfside Bartlett Prelim\GIS\Project\EECC\Figure 3_NHESP_Surfside_at_Bartlett.mxd

Feet

0 1,000 2,000 4,000

Project Location

NHESP Priority Habitats of Rare Species

NHESP Estimated Habitats of Rare Wildlife

Surfside at Bartlett | Nantucket, MA

Figure 3 - NHESP Map

Source Info: USGS, MassGIS

National Flood Hazard Layer FIRMette

FEMA

41°16'20.25"N

70°6'18.35"W

70°5'40.89"W

41°15'53.20"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

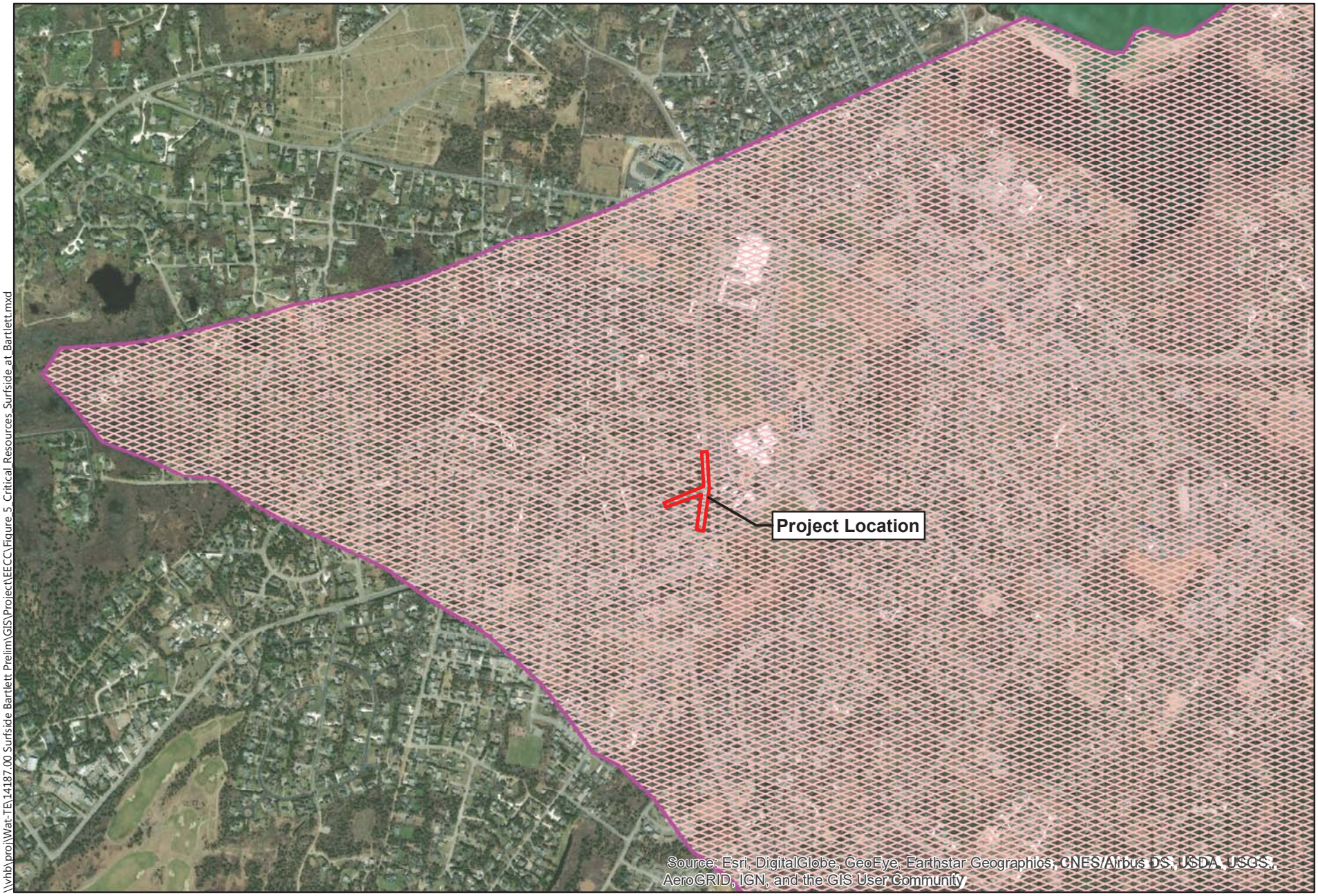
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/15/2018 at 2:47:17 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



\\vhb\proj\Wat-TE\14187.00 Surfside Bartlett Prelim\GIS\Project\EECC\Figure_5_Critical_Resources_Surfside_at_Bartlett.mxd

Feet
0 500 1,000 2,000

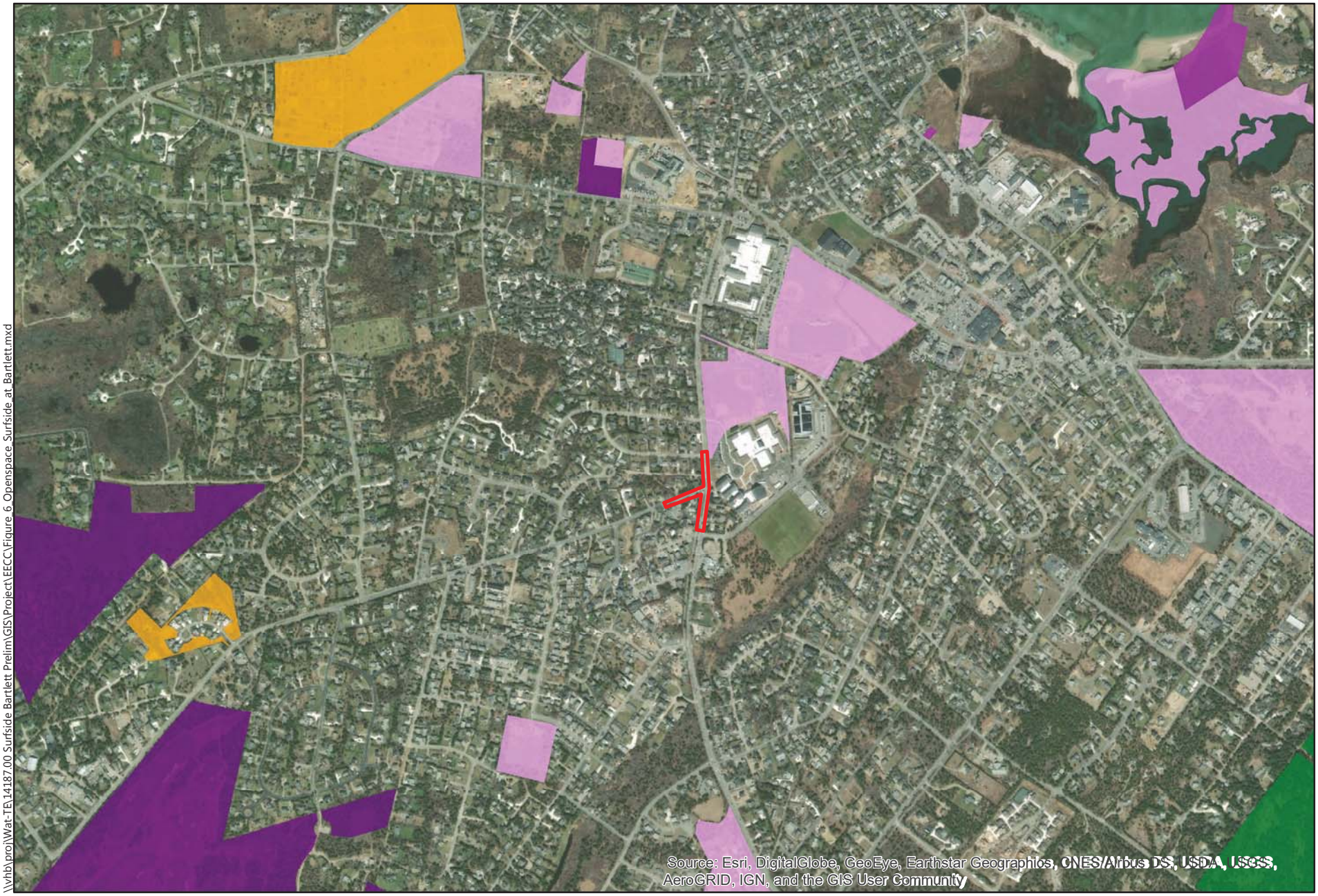
Project Location

Zone II DEP Wellhead Protection Areas

Surfside at Bartlett | Nantucket, MA

****Resources Absent from Vicinity of Project Location:**
-Outsanding Resource Waters (ORW)
-Areas of Critical Environmental Concern

Figure 5 - Critical Resources Map**
Source Info: USGS, MassGIS



\\vhb\proj\Wat-TE\14187.00 Surfside Bartlett Prelim\GIS\Project\EECC\Figure_6_Openspace_Surfside_at_Bartlett.mxd

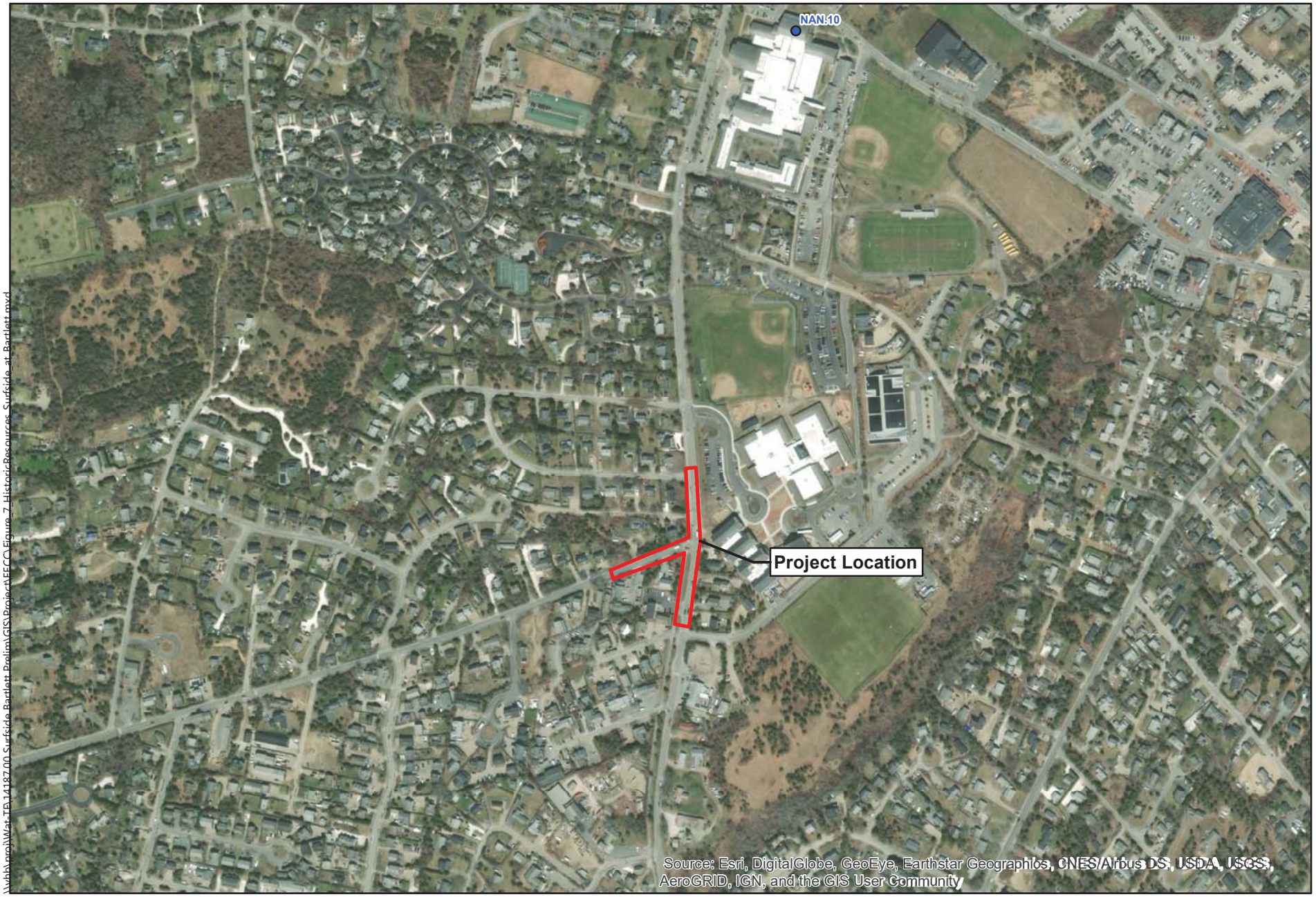
0 500 1,000 2,000 Feet

Project Location
DCR-State Parks & Recreation
Municipal Open Space
Public Non-Profit
Land Trust
Private Openspace

Surfside at Bartlett | Nantucket, MA

Figure 6 - Openspace Map

Source Info: USGS, MassGIS



0 500 1,000 Feet

Project Location

MHC Historic Inventory Points

Surfside at Bartlett | Nantucket, MA

Figure 7 - Historic Resources Map

Source Info: USGS, MassGIS

Attachments

www.vhb.com

February 1, 2019

Ref: 14187.00

RE: INTERSECTION IMPROVEMENTS SURFSIDE ROAD AT BARTLETT ROAD
NANTUCKET, MASSACHUSETTS
MassDOT Project Number: 608664
Section 106 Review — Early Environmental Coordination

Ms. Diane Holdgate, Chairperson
Nantucket Historical Commission
16 Broad Street
Nantucket, MA 02554

Dear Commission Members:

The Town of Nantucket in conjunction with the Massachusetts Department of Transportation (MassDOT) proposes roadway intersection improvements on Surfside Road at Bartlett Road in Nantucket, MA. This project will be supported in part with federal funds dispersed through the MassDOT. The project, therefore, will require review under Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800). The enclosed project information is provided to the Agawam Conservation Commission to initiate consultation with appropriate representatives of local government in compliance with the regulations governing Section 106.

The proposed improvements will be within approximately 300 feet of the intersection of Surfside Road and Bartlett Road, and will consist of reconstructing the intersection to form a modern roundabout while preserving the existing shared use paths along the west side of Surfside Road and south side of Bartlett Road. The roundabout configuration will improve intersection operations by reducing delays created by turning conflicts and the uncontrolled approaches of Surfside Road.

The shared use path crossing of Bartlett Road will be improved by introducing a refuge area within the Bartlett Road approach to the roundabout where a delta island will serve to deflect the eastbound traffic approach, as well as provide a safe zone for bicyclists and pedestrians within the crossing that would not conflict with vehicle flow.

MassDOT and the Town of Nantucket requests that the Nantucket Historical Commission review the enclosed materials at their earliest convenience and solicits any comments regarding historic properties that may be within or adjacent to the project area. Please submit written comments to: Patricia A. Leavenworth, P.E., Chief Engineer, Massachusetts Department of Transportation, Highway Division, 10 Park Plaza, Boston, MA 02116, Attn: Jeffrey Shrimpton, Room 4260. Comments also may be submitted by e-mail to jeffrey.shrimpton@state.ma.us. Please include the six-digit MassDOT project number on all correspondence.

101 Walnut Street
PO Box 9151
Watertown, Massachusetts 02471
P 617.924.1770
F 617.924.2286

Please feel free to contact Jeffrey Shrimpton (857-368-8824) of MassDOT Highway Division's Cultural Resources Unit if you have any questions concerning this project or the Section 106 review process,

Sincerely,

Gene Crouch
Senior Environmental Scientist
gcrouch@vhb.com

atts: Locus Map and Project Plans

ccs: Brona Simon, Massachusetts Historical Commission, with atts. (by mail)
Jeffrey Shrimpton, MassDOT Highway Division, with atts. (by email)

Feet
0 1,000 2,000 4,000

Project Location

Surfside at Bartlett | Nantucket, MA

Figure 1 - Project Locus Map

Source Info: USGS, MassGIS

\\vhb\proj\Wat-TE\14187.00 Surfside Bartlett Prelim\GIS\Project\EECC\Figure 1 Locus Surfside at Bartlett.mxd

MEPA Action Determination

Project: Surfside at Bartlett Intersection Improvements, Nantucket, MA MassDOT No. 608664

Step 1 – Is there a State Agency Action:	Step 2 – Does the Project exceed any Review Thresholds
☒ State Funding	Determine if review thresholds are exceeded:
☐ State Permit	☐ Threshold Exceeded
☐ Transfer of State Land	
☐ No State Agency Action	☒ No Thresholds Exceeded

MEPA action required if both Step 1 and Step 2 are met.

MEPA Action Required: ☐ ENF ☐ EIR ☒ None

Threshold	ENF	EIR
Land		
Direct alteration of 50 acres or more of land		
Creation of 10 or more acres of impervious		
Direct alteration of 25 acres or more of land		
Creation of 5 or more acres of impervious		
Conversion of Article 97 land		
Conversion of land in active agricultural use to non-agricultural use		
Release of interest in land held for conservation, preservation, agricultural or watershed protection		
Approval in accordance with MGL c. 121A of a New urban redevelopment project		
Approval in accordance with MGL c. 121B of a New urban renewal plan or modification of existing		
State Listed Species under MGL 131A		
Alteration of significant habitat		
Alteration of 2 acres of designated priority habitat that results in a take of a state-listed endangered, threatened species or species of special concern		
Wetlands, Waterways and Tidelands		
Alteration of one or more acres of salt marsh or BVW		
Alteration of 10 or more acres of any other wetland		
Alteration requiring a Variance of the WPA		
Construction of a new dam		
Alteration of a dam that causes an expansion of 20% or any decrease in impoundment capacity		
If Chapter 91 License required, new non-water dependent use or expansion of non-water dependent use that occupies one or more acres of waterways or tidelands		
Alteration of a coastal dune, barrier beach, or coastal bank		
Alteration of 500 or more feet of fish run or inland bank		
Alteration of 1,000 SF or more of salt marsh or ORW		
Alteration of 5,000 SF or more of BVW or IVW		
New fill or structure or expansion of fill or structure in velocity zone or regulatory floodway		
Alteration of one half acre or more of other wetlands		
Construction of new road or bridge for access to a barrier beach or a new utility line for service to a structure on a barrier beach		
Dredging of 10,000 cy or more of material		
Disposal of 10,000 cy or more of dredged material unless at a designated in-water disposal site		
If Chapter 91 License required, new or existing unlicensed non-water dependent use of waterways or tidelands, unless is an overhead utility, a structure with an area of 1,000 sf or less accessory to a single-family house, temporary use in a designated Port area, or existing unlicensed structure in use prior to January 1, 1984		

Threshold	ENF	EIR
Construction, reconstruction of expansion of and existing solid fill structure of 1,000 sf or more or pile supported or bottom anchored structure of 2,000 sf or more occupying flowed tidelands or other waterways, except seasonal floats		
Water		
New withdrawal or expansion of 2,500,000 gpd from a surface source or 1,500,000 gpd from a groundwater source		
New interbasin transfer of 1,000,000 or more gpd or any amount determined significant by the water resources commission		
Construction of one or more new water mains 10 or more miles in length		
Provided that the Project is undertaken by an Agency, New water service to a municipality or water district across a municipal boundary through New or existing pipelines, unless a disruption of service emergency is declared in accordance with applicable statutes and regulations.		
New withdrawal or Expansion in withdrawal of 100,000 or more gpd from a water source that requires New construction for the withdrawal.		
New withdrawal or Expansion in withdrawal of 500,000 or more gpd from a water supply system above the lesser of current system-wide authorized withdrawal volume or three-years' average system-wide actual withdrawal volume.		
Construction of one or more New water mains five or more miles in length.		
Construction of a New drinking water treatment plant with a Capacity of 1,000,000 or more gpd.		
Expansion of an existing drinking water treatment plant by the greater of 1,000,000 gpd or 10% of existing Capacity.		
Alteration requiring a variance in accordance with the Watershed Protection Act, unless the Project consists solely of one single family dwelling.		
Non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking water supply for purpose of forest harvesting activities.		
Wastewater		
Construction of a New wastewater treatment and/or disposal facility with a Capacity of 2,500,000 or more gpd.		
New interbasin transfer of wastewater of 1,000,000 or more gpd or any amount determined significant by the Water Resource Commission.		
Construction of one or more New sewer mains ten or more miles in length.		
Provided that the Project is undertaken by an Agency, New sewer service to a municipality or sewer district across a municipal boundary through New or existing pipelines, unless an emergency is declared in accordance with applicable statutes and regulations.		
New discharge or Expansion in discharge of any amount of sewage, industrial waste water or untreated stormwater directly to an outstanding resource water.		
New Capacity or Expansion in Capacity for storage, treatment, processing, combustion or disposal of 150 or more wet tpd of sewage sludge, sludge ash, grit, screenings, or other sewage sludge residual materials, unless the Project is an Expansion of an existing facility within an area that has already been sited for the proposed use in accordance with M.G.L. c. 21 or M.G.L. c. 83, section 6.		
Construction of a New wastewater treatment and/or disposal facility with a Capacity of 100,000 or more gpd.		
Expansion of an existing wastewater treatment and/or disposal facility by the greater of 100,000 gpd or 10% of existing Capacity.		
Construction of one or more New sewer mains: a. that will result in an Expansion in the flow to a wastewater treatment and/or disposal facility by 10% of existing Capacity; b. five or more miles in length; or c. 1/2 or more miles in length, provided the sewer mains are not located in the right of way of existing roadways.		
New discharge or Expansion in discharge: a. to a sewer system of 100,000 or more gpd of sewage, industrial waste water or untreated stormwater; b. to a surface water of:		

Threshold	ENF	EIR
i. 100,000 or more gpd of sewage; ii. 20,000 or more gpd of industrial waste water; or iii. any amount of sewage, industrial waste water or untreated stormwater requiring a variance from applicable water quality regulations; or c. to groundwater of: i. 10,000 or more gpd of sewage within an area, zone or district established, delineated or identified as necessary or appropriate to protect a public drinking water supply, an area established to protect a nitrogen sensitive embayment, an area within 200 feet of a tributary to a public surface drinking water supply, or an area within 400 feet of a public surface drinking water supply; ii. 50,000 or more gpd of sewage within any other area; iii. 20,000 or more gpd of industrial waste water; or iv. any amount of sewage, industrial waste water or untreated stormwater requiring approval by the Department of Environmental Protection of a variance from Title 5 of the State Environmental Code for New construction.		
New Capacity or Expansion in Capacity for: a. combustion or disposal of any amount of sewage sludge, sludge ash, grit, screenings, or other sewage sludge residual materials; or b. storage, treatment, or processing of 50 or more wet tpd of sewage sludge or sewage sludge residual materials.		
(1) Transportation		
Unless the Project consists solely of an internal or on-site roadway or is located entirely on the site of a non-roadway Project: a. construction of a New roadway two or more miles in length; or b. widening of an existing roadway by one or more travel lanes for two or more miles.		
New interchange on a completed limited access highway		
Construction of a New airport.		
Construction of a New runway or terminal at an existing airport.		
Construction of a New rail or rapid transit line along a New, unused or abandoned right-of-way for transportation of passengers or freight (not including sidings, spurs or other lines not leading to an ultimate destination).		
Generation of 3,000 or more New adt on roadways providing access to a single location.		
Construction of 1,000 or more New parking spaces at a single location		
Unless the Project consists solely of an internal or on-site roadway or is located entirely on the site of a non-roadway Project: a. construction of a New roadway one-quarter or more miles in length; or b. widening of an existing roadway by four or more feet for one-half or more miles.		
Construction, widening or maintenance of a roadway or its right-of-way that will: a. alter the bank or terrain located ten more feet from the existing roadway for one-half or more miles, unless necessary to install a structure or equipment; b. cut five or more living public shade trees of 14 or more inches in diameter at breast height; or c. eliminate 300 or more feet of stone wall.		
Expansion of an existing runway at an airport.		
Construction of a New taxiway at an airport.		
Expansion of an existing taxiway at Logan Airport.		
Expansion of an existing terminal at Logan Airport by 100,000 or more sf.		
Expansion of an existing terminal at any other airport by 25,000 or more sf.		
Construction of New or Expansion of existing air cargo buildings at an airport by 100,000 or more sf.		
Conversion of a military airport to a non-military airport.		
Construction of a New rail or rapid transit line for transportation of passengers or freight.		
Discontinuation of passenger or freight service along a rail or rapid transit line.		
Abandonment of a substantially intact rail or rapid transit right-of-way.		
Generation of 2,000 or more New adt on roadways providing access to a single location.		
Generation of 1,000 or more New adt on roadways providing access to a single location and construction of 150 or more New parking spaces at a single location.		

Threshold	ENF	EIR
Construction of 300 or more New parking spaces at a single location.		
Energy		
Construction of a New electric generating facility with a Capacity of 100 or more MW.		
Expansion of an existing electric generating facility by 100 or more MW.		
Construction of a New fuel pipeline ten or more miles in length		
Construction of electric transmission lines with a Capacity of 230 or more kv, provided the transmission lines are five or more miles in length along New, unused or abandoned right of way.		
Construction of a New electric generating facility with a Capacity of 25 or more MW.		
Expansion of an existing electric generating facility by 25 or more MW.		
Construction of a New fuel pipeline five or more miles in length.		
Construction of electric transmission lines with a Capacity of 69 or more kv, provided the transmission lines are one or more miles in length along New, unused or abandoned right of way.		
Air		
Construction of a New major stationary source with federal potential emissions, after construction and the imposition of required controls, of: 250 tpy of any criteria air pollutant; 40 tpy of any HAP; or 100 tpy of any combination of HAPs.		
Construction of a New major stationary source with federal potential emissions, after construction and the imposition of required controls, of: 100 tpy of PM as PM10, CO, lead or SO2; 50 tpy of VOC or NOx; 10 tpy of any HAP; or 25 tpy of any combination of HAPs.		
Modification of an existing major stationary source resulting in a "significant net increase" in actual emissions, provided that the stationary source or facility is major for the pollutant, emission of which is increased by: 15 tpy of PM as PM10; 100 tpy of CO; 40 tpy of SO2; 25 tpy of VOC or NOx; 0.6 tpy of lead.		
Solid and Hazardous Waste		
New Capacity or Expansion in Capacity of 150 or more tpd for storage, treatment, processing, combustion or disposal of solid waste, unless the Project is a transfer station, is an Expansion of an existing facility within a validly site assigned area for the proposed use, or is exempt from site assignment requirements.		
New Capacity or Expansion in Capacity for combustion or disposal of any quantity of solid waste, or storage, treatment or processing of 50 or more tpd of solid waste, unless the Project is exempt from site assignment requirements.		
Provided that a Permit is required in accordance with M.G.L. c. 21D, New Capacity or Expansion in Capacity for the storage, recycling, treatment or disposal of hazardous waste.		
Historical and Archaeological Resources		
Unless the Project is subject to a Determination of No Adverse Effect by the Massachusetts Historical Commission or is consistent with a Memorandum of Agreement with the Massachusetts Historical Commission that has been the subject of public notice and comment: 1. demolition of all or any exterior part of any Historic Structure listed in or located in any Historic District listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth; or 2. destruction of all or any part of any Archaeological Site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth.		
Areas of Critical Environmental Concern		
Any Project within a designated ACEC, unless the Project consists solely of one single family dwelling.		
Regulations		
Promulgation of New or revised regulations, of which a primary purpose is protecting against Damage to the Environment, that significantly reduce: 1. standards for environmental protection; 2. opportunities for public participation in permitting or other review processes; or 3. public access to information generated or provided in accordance with the regulations.		

25% Design Water Quality Data Form

v. 08/2014

Project Information

The following questions should be filled out at the 25% design stage.

WARNING: Do not attempt to cut and paste cells. Form will malfunction.

1. Have you downloaded the most recent version of the Water Quality Data Form?

Yes

For questions 2-5, please use MassDOT's Project Information Look-Up Website to populate the yellow fields.

2. Project Number (From Project Info Website):

608664

3. Project Type (From Project Info Website):

Intersection

4. Project Name (From Project Info Website):

Intersection Improvements: Surfside Road at Bartlett Road

5. Location of Project (From Project Info Website):

Project Road(s): Surfside Road, Bartlett Road

Cities and/or Towns: Nantucket

District Number: 5

6. Project Designer:

Design Firm: VHB

Contact Person for Follow-Up: Gene Crouch

Email Address for Follow-Up: gcrouch@vhb.com

Phone Number for Follow-Up: 617-607-2783 **Extension:**

7. Who will have final ownership of the road or bridge this project is addressing?

Municipality

Receiving Water Body Information

8. Does any runoff from the site enter a separate storm sewer system (MS4) operated by an organization other than MassDOT, such as a municipality?

9a. Is the project located in a watershed with one or more Draft or Final pollutant Total Maximum Daily Load(s) (TMDL)?

Yes

9b. Which Draft and/or Final pollutant TMDL(s) apply to the watershed?

- [x] **Bacteria/Pathogens**
- [x] **Nitrogen**
- [ ] **Stormwater**
- [ ] **Phosphorus**

10. How many water bodies on MassDEP's *Year 2012 Integrated List of Waters* receive stormwater runoff from the area impacted by this project (via any combination of piped or over land flow)?

1

Water Body #1

11. Segment ID of the receiving listed water body:

MA97-01

Name of the receiving listed water body:

Nantucket Harbor

Receiving water body status:

Impaired

Receiving water body impairments:

Fecal Coliform, Nutrient/Eutrophication Biological Indicators

Final TMDLs for receiving water body:

Bacteria/Pathogens, Nitrogen

12. Notes about conceptual BMPs that are planned to treat stormwater flowing to Water Body #1 (Nantucket Harbor):

The proposed Stormwater system will include a series of seven leaching basins within the center island of the roundabout. A new gutter inlet and deep sump manhole will be constructed at the corner of Surfside Road and Larrabee Lane and will infiltrate locally within a leaching galley system.

Recommendations and Requirements for BMPs Based on Status of Water Body #1

Ensure that any BMPs are recorded on the Water Quality Data Form for the 75% design stage. See the section of this form titled **Project Specific BMP Recommendations** for project-wide recommendations and contact information for MassDOT.

Recommendations Based on Receiving Water Body Impairment Status

BMPs must be implemented to ensure that stormwater discharging from this site does not contribute to the water quality impairments of this receiving water body. Water bodies impaired for nitrogen benefit from BMPs with bio-uptake capabilities, such as bioretention basins. Water bodies with most other impairments related to stormwater runoff (such as phosphorus, turbidity, excess algal growth, dissolved oxygen, etc.) benefit from infiltration or bioretention BMPs. Water bodies impaired for chlorides benefit mostly from non-structural BMPs, such as source control, so BMPs proposed for sites adjacent to these types of water bodies should be discussed with MassDOT.

Recommendations Applicable to Receiving Water Bodies with TMDL(s)

BMPs must be implemented to ensure that stormwater discharge is consistent with any applicable Waste Load Allocation (WLA) for the TMDL(s) covering this receiving water body. Nitrogen is most effectively removed using BMPs that utilize bio-uptake. Consider proposing bioretention basins as part of the project.

Project Specific BMP Recommendations

Reference the MassDEP Storm Water Handbook for more detailed guidance on selecting BMPs.

Recommendations for Projects Located within TMDL Watershed(s)
BMPs must be implemented to ensure that stormwater discharge is consistent with any applicable Waste Load Allocation (WLA) for the TMDL(s) covering this watershed. Nitrogen is most effectively removed using BMPs that utilize bio-uptake. Consider proposing bioretention basins as part of the project.

Recommendations for Projects with a Listed Receiving Water Body
When weighing the need for BMPs versus the feasibility of design and construction, consider the proximity of receiving water bodies on MassDEP's Year 2012 Integrated List of Waters. For example, if stormwater runoff from the project area flows through an expansive wetland or ephemeral stream prior to entering a water body on the list, take into account that many stormwater pollutants will be naturally treated. In such instances, pollutant-specific BMPs are suggested but not required under the Impaired Waters Program. It is more important to retain the integrity of the wetland or ephemeral stream and only implement additional BMPs to the maximum extent practicable in accordance with the Massachusetts Stormwater Standards.

At the other extreme, if stormwater runoff from the site is piped directly into a water body listed on the Year 2012 Integrated List of Waters, no pollutants are removed from stormwater prior to discharge, and it is more likely that stormwater runoff will negatively impact water quality. In this case, pollutant-specific BMPs need to be incorporated into the project. Consider all possibilities to overcome site limitations. This shall be a project by project determination.

Recommendations for Intersection Projects
Consider reconstructing existing outfalls so as to maximize the length of the flow path between the outfall and the receiving water body. This may involve moving the outfall further away from the receiving water body and/or positioning the outfall to discharge runoff at an angle. New outfalls should also incorporate protection against erosive discharge velocities. If land is available, consider incorporating an infiltration-style BMP at the new outfall. Otherwise, investigate the feasibility of re-routing stormwater to an area with more available space, such as within roadway interchanges and ramp systems. Leaching catch basins are also a good option for infiltrating in constrained spaces.

For project areas discharging to a cold water fishery, consider implementing infiltration BMPs to reduce the likelihood that the temperature of the stormwater will negatively impact the fishery habitat.

Consider reducing the amount of existing impervious cover in the project area while remaining in compliance with applicable safety standards.

Consider replacing concrete-lined swales and eroded ditches with vegetated swales. Vegetated swales should include check dams where possible to slow stormwater velocities, reduce erosion, and promote infiltration. Consideration should be given to the use of suitable subgrade materials, a geotextile liner, suitable vegetation, and/or an underdrain, depending on the characteristics of a site.

Consider using the highway median as an infiltration swale with check dams. In some instances, existing stormwater infrastructure can be re-routed to discharge to the median with an overflow outlet to a water body or the edge of the SHLO. In other instances, an existing trunk line may be day-lighted and retrofitted with an infiltration swale.

For parking lots, rest areas, and other similar areas, consider the use of porous or permeable pavements. Designs that include porous or permeable pavements should also incorporate suitable subgrade layers.

Recommendations for Non-Structural BMPs
Consider implementing as many of the following non-structural BMPs as possible:

- Preserve as much of the pre-development vegetation as possible
- Preserve natural drainage patterns and riparian buffers
- Minimize disturbance to wetland resource areas
- Reduce or eliminate curbing in well-vegetated areas that gently slope downward and away from the road
- Use shallow, grassed roadside swales and parking lot islands with check dams instead of curb and gutter storm drainage systems
- Reduce existing impervious cover or minimize the construction of additional impervious cover

Contact Bryan Cordeiro in the Environmental Section of MassDOT for guidance selecting appropriate BMPs.
He can be reached at 857-368-8813 or at Bryan.Cordeiro@state.ma.us

Form Submission

13. Submittal Type:

Name of MassDOT Reviewer:
(For internal use only)

14. Date Submitted to MassDOT:
(mm/dd/yyyy)

☐ **Check box once all entries have been filled out. Form can be submitted once box has been successfully checked.**
FORM INCOMPLETE

Memorandum

To: Gene Crouch, VHB

Date: December 11, 2018

Project #: 14187.00

From: Peter Brennan, VHB
Katherine Kudzma, VHB

Re: Summary of MassDEP Disposal Sites
Surfside at Bartlett Intersection Improvements
Nantucket, Massachusetts

Summary of Review Activities

The Town of Nantucket in conjunction with the Massachusetts Department of Transportation (MassDOT) is proposing roadway intersection improvements on Surfside Road at Bartlett Road in Nantucket, MA (hereinafter referred to as "the Project"). The proposed improvements will be within approximately 300 feet of the intersection of Surfside Road and Bartlett Road (the "Project Area") and will consist of reconstructing the intersection to form a modern roundabout while preserving the existing shared use paths along the west side of Surfside Road and south side of Bartlett Road.

As part of early coordination, MassDOT requested that VHB review the Massachusetts Department of Environmental Protection (MassDEP) Bureau of Waste Site Cleanup (BWSC) online database of disposal sites to identify oil and/or hazardous materials (OHM) concerns prior to construction. The presence of a state-listed disposal site indicates that a release of OHM has been reported to the MassDEP. VHB has reviewed the disposal site information using the methodology described below and provided an opinion as to the likelihood of encountering OHM from these disposal sites during construction of the Project.

Findings

Based on a review of the MassDEP's database on December 10, 2018, it is VHB's opinion that no MassDEP disposal sites were identified in the vicinity (i.e. 500-foot radius) of the Project Area. Disposal site location information was determined using the MassDEP database and online mapping services, which may not always be accurate.

Based on the developed nature of the Project Area, VHB provides the following general best practices for the Client and their contractor:

- Should any OHM be encountered during project excavations that requires management or export it must be handled under appropriate documentation such as Material Shipping Records (MSRs), Bills of Lading (BOLs), or manifests.
- Due to the developed nature of the Project Area, non-native urban fill may be present within the Project area. Urban fill can be impacted with residual OHM, including metals, pesticides, and petroleum constituents such as polycyclic aromatic hydrocarbons (PAHs), as well as debris such as coal, coal ash, and coal slag. The presence of these contaminants may increase soil disposal costs and necessitate appropriate soil management procedures.
- Lead-based paint chips from structures and the residual emissions from leaded fuels along roadways can also result in lead impacts to soil. In certain cases, soil impacted with lead may require treatment to stabilize leachable lead prior to off-Site disposal. The need for lead stabilization is typically determined using the Toxicity Characteristic Leaching Procedure (TCLP) analysis. Although releases of OHM from these sources may be

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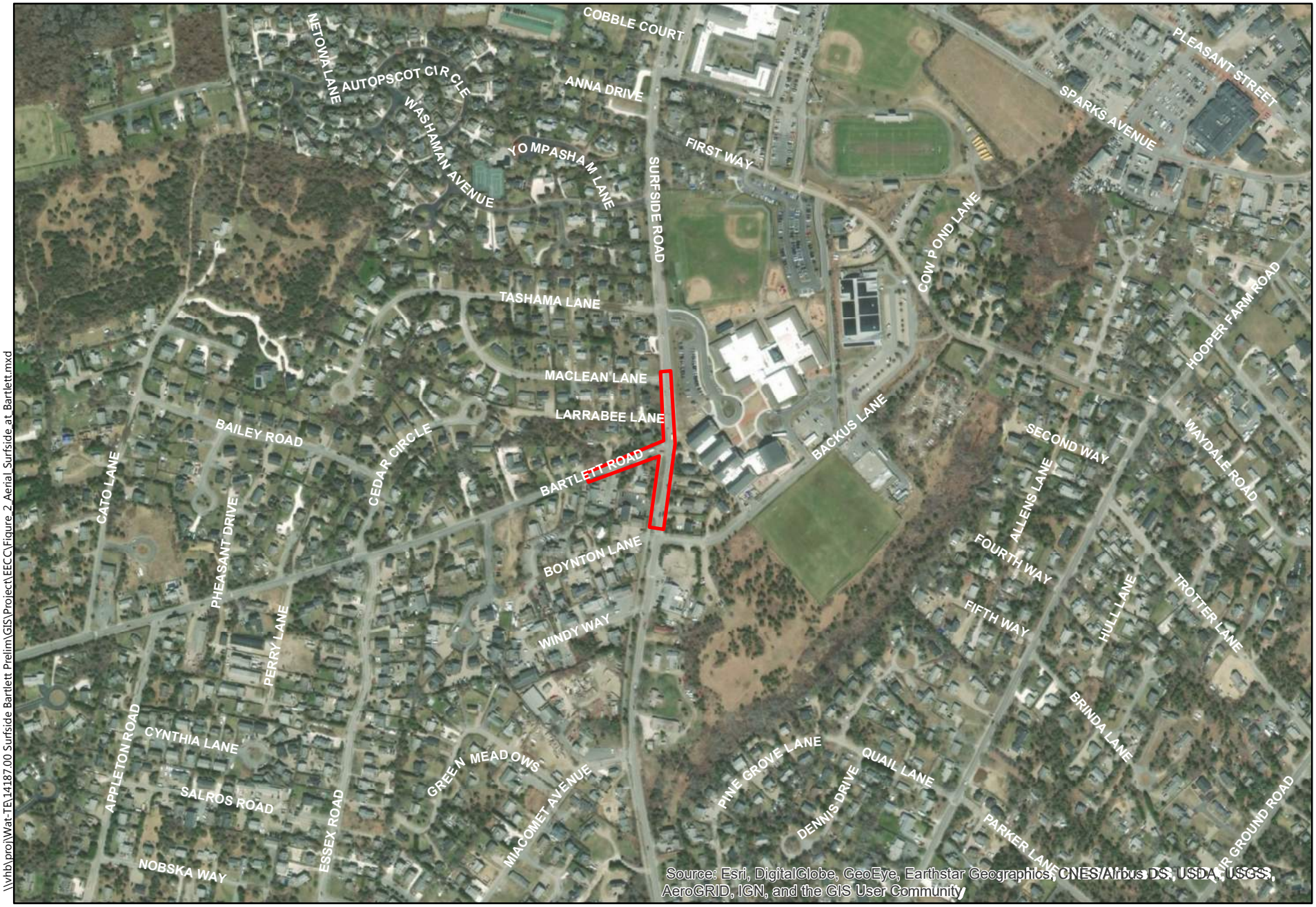
Watertown, MA 02472-4026
P 617.924.1770

considered exempt under the Massachusetts Contingency Plan (MCP, 310 CMR 40.0000), the presence of contaminants in the soil can increase soil disposal costs and necessitate appropriate soil management procedures.

- The client should also be aware that there is the potential for undocumented releases of OHM to be present, which may require special handling and management during construction. This review also did not include a search of USTs, aboveground storage tanks (ASTs), gasoline filling stations, drycleaners, automotive repair shops, or other potential point sources. Therefore, these other potential sources of OHM contamination should be considered and potentially inventoried as part of future reviews.

Attachments: Figure 1 – Aerial Map



\\vhb\proj\Wat-TE\14187.00 Surfside Bartlett Prelim\GIS\Project\EECC\Figure_2_Aerial_Surfside_at_Bartlett.mxd

Feet
0 250 500 1,000

Project Location

Surfside at Bartlett | Nantucket, MA

Figure 1 - Aerial Map

Source Info: USGS, MassGIS

massDOT Massachusetts Department of Transportation Highway Division	**MassDOT Project No:** 608664	**EEC Checklist Photographic Log**

Project Title: NANTUCKET- INTERSECTION IMPROVEMENTS SURFSIDE ROAD AT BARTLETT ROAD

Photo No. 1 **Date:** 07/10/2018

Site Description:

Aerial view of the project intersection at Surfside Road and Bartlett Road.

massDOT Massachusetts Department of Transportation Highway Division	**MassDOT Project No:** 608664	**EEC Checklist Photographic Log**

Project Title: NANTUCKET- INTERSECTION IMPROVEMENTS SURFSIDE ROAD AT BARTLETT ROAD

Photo No. 2 **Date:** 08/14/2018

Site Description:

Intersection of Surfside Road and Bartlett Road.

Proposed Improvements:

The horizontal roadway alignment at the project intersection will be altered to accommodate a proposed single lane, three approach modern roundabout.

massDOT Massachusetts Department of Transportation Highway Division	**MassDOT Project No:** 608664	**EEC Checklist Photographic Log**

Project Title: NANTUCKET- INTERSECTION IMPROVEMENTS SURFSIDE ROAD AT BARTLETT ROAD

Photo No. 3 **Date:** 11/16/2016

Site Description:

View looking north along Surfside Bike Path which runs on the west side of Surfside Road.

Proposed Improvements:

An 8 to 10-foot bike bath will be constructed along the west side of the roadway.

massDOT Massachusetts Department of Transportation Highway Division	**MassDOT Project No:** 608664	**EEC Checklist Photographic Log**

Project Title: NANTUCKET- INTERSECTION IMPROVEMENTS SURFSIDE ROAD AT BARTLETT ROAD

Photo No. 4 **Date:** 08/14/2018

Site Description:

Currently Surfside Road consists of two 11-foot travel lanes (one in each direction) with 1-foot shoulders to the north of the project intersection and 0.5-foot shoulder to the south of the project intersection.

Proposed Improvements:

The proposed cross section of Surfside Road will consist of two 11-foot travel lanes (one in each direction) with 1-foot paved shoulders and granite curb.

massDOT Massachusetts Department of Transportation Highway Division	**MassDOT Project No:** 608664	**EEC Checklist Photographic Log**

Project Title: NANTUCKET- INTERSECTION IMPROVEMENTS SURFSIDE ROAD AT BARTLETT ROAD

Photo No. 5 **Date:** 08/14/2018

Site Description:

Section of Surfside Road near the Project intersection. Pedestrian features do not currently extend through the entire project area.

Proposed Improvements:

A 5-foot HMA sidewalk will be constructed along the east side of Surfside Road