

**Town of Kittery  
Planning Board Meeting  
December 14, 2023**

**ITEM 7 – 0 Appledore Island– Shoreland Development Plan Review**

Action: Accept application. Approve plan or continue review: Pursuant to §16.9.3 Shoreland Development Review of the Town of Kittery Land Use and Development Code, Jennifer Miksis-Olds and team, acting on behalf of the University of New Hampshire, requests approval for the installation of a manhole and utility along an existing gravel located on the shore of Appledore Island, Tax Map 70. Lot 17, in the Residential-Rural Conservation, Shoreland Overlay, and Resource Protection Overlay Zones.

**PROCESS SUMMARY**

<b>REQUIRED</b>	<b>ACTION</b>	<b>COMMENTS</b>	<b>STATUS</b>
Yes	Staff Review	12/7/23	Complete
No	Site Visit	Optional	Optional
No	Public Hearing	Optional	Optional
Yes	Final Plan Review	Scheduled for 12/14/23	TBD

**PROJECT INTRODUCTION**

0 Appledore Island is a placeholder name as the project is for a proposed utility crossing along an existing gravel road, rather than development on an existing parcel. The road and proposed development are located on Broad Cove, along the eastern shore of Appledore Island. The proposal is for a utility subsea telecommunications cable on Appledore Island to transmit data from offshore acoustic sensors. The existing and proposed research equipment will facilitate research for the Shoals Marine Laboratory, located on Appledore Island, to collect data to monitor fisheries and climate of the area.

The proposed plan includes digging a trench along the gravel road to install a submarine cable and utility manhole that will connect to an oceanographic sensor platform at the existing Shoals Marine Lab. The trench will not exceed a width of 35 inches nor a depth of 12 inches. All excavation will meet DEP standards to prevent erosion and sediment runoff, and the applicants will make efforts to facilitate sufficient recovery of any disturbed vegetation.

All other state and federal requirements have been met; the planning board is now reviewing the part of the project within their purview. Per **§16.9.3.E.(2)**, planning board review is required for all development within the Resource Protection Overlay Zone. Staff believe the manhole and utility constitute “development” requiring approval from the planning board. Per the maritime and shoreland development ordinance in **§16.9.C**, a survey is not an official submission requirement for a shoreland development project unless explicitly requested by Town Staff. Planning and Code Enforcement Staff agree that due to the minimal scope of the proposed development (further described below), the submitted graphics in this application packet are sufficient.

**APPLICATION & PLAN REVIEW**

Staff reviewed the submitted application and plan and have the following comments:

1. The applicant has provided a cover letter detailing trenching of the cable and the purpose of the cabled observation node.

- 38 2. The applicant has provided confirmation of approval from the Maine Department of Environmental  
39 Protection, Department of Inland Fisheries and Wildlife, and Department of Marine Resources. The  
40 application materials also provide a letter of support from the chief executive officer of the Star  
41 Island Corporation, the owner of Appledore Island.
- 42 3. The Shoreland Overlay Zone Ordinance **§16.4.28.E.(3).(a)**. requires new principal and accessory  
43 structures to be set back at least 100 feet, horizontal distance, from the HAT line of any water  
44 bodies, tributary streams, the upland edge of a coastal wetland, or the upland edge of a freshwater  
45 wetland. The entire proposed development is considered a water-dependent use, which is exempt  
46 from all water-body setback requirements. This provision is not applicable.
- 47 4. General provision **§16.1.8.C.4.(b)**. requires expansion of structures within base zone setback in the  
48 shoreland overlay zone not exceed 30% of the total footprint of structures existing within the  
49 property on January 1, 1989. In regard to this provision, a manhole is not considered a “structure”  
50 per the definition of structure in **§16.3**. Additionally, this provision only applies to development  
51 within a minimum setback area, but there is no setback for a water-dependent use. This provision  
52 is not applicable.
- 53 5. **§16.4.28.E.(2)**. allows 20% of total lot area in the shoreland zoning overlay to be comprised of  
54 non-vegetated surfaces or structures. The proposed development is not part of an existing parcel,  
55 meaning it incorporates the entirety of the Island. Code Enforcement do not believe devegetation  
56 calculations to be necessary, as the development is negligible in terms of the 20% maximum  
57 threshold, and the applicant intends to revegetate disturbed areas.
- 58 6. The applicant has stated in their cover letter the only vegetation in the development area is Sumac.  
59 Sumac has a hardy enough shrub structure that any disturbed area will revegetate if left alone. Staff  
60 believe the cover letter describes adequate detail to ensure revegetation of the disturbed area.

61 **DISCUSSION, NEXT STEPS, AND RECOMMENDATIONS**

---

62 All relevant state requirements have been met for the entirety of this research project. Staff believe the  
63 minimal impact the project has on the shore of Appledore Island means the provided application materials  
64 are sufficient for planning board approval. Staff suggest acceptance of the plan and allowing the application  
65 to move to final plan approval and meet all other permitting requirements. The Planning Board should  
66 discuss the plan and determine if it meets the requirements to accept the plan, and/or direct the applicant to  
67 make any changes that are necessary.

68 **RECOMMENDED MOTIONS**

---

69 Below are motions for the Planning Board’s consideration:

70 ***Motion to accept the application***

71 Move to accept the plan for a shoreland development application from owner/applicants Jennifer Miksis-  
72 Olds and team, on behalf of the University of New Hampshire.

73 ***Motion to approve the application***

74 Move to approve the plan for a shoreland development application from owner/applicants Jennifer Miksis-  
75 Olds and team, on behalf of the University of New Hampshire.

**Kittery Planning Board  
Findings of Fact  
For 0 Appledore Island  
Shoreland Development Plan Review**

**DRAFT  
M 70 L 17**

Note: This approval by the Planning Board constitutes an agreement between the Town and the Developer incorporating the Development plan and supporting documentation, the Findings of Fact, and all waivers and/or conditions approved and required by the Planning Board.

**WHEREAS:** Jennifer Miksis-Olds and team, acting on behalf of the University of New Hampshire, requests approval for the installation of a manhole and shallow trench along an existing gravel road within the base zone setback of the Shoreland Overlay Zone located on the shore of Appledore Island, Tax Map 70. Lot 17, in the Residential-Rural Conservation, Shoreland Overlay, and Resource Protection Overlay Zones.

Pursuant to the Plan Review meetings conducted by the Planning Board as noted in the plan review notes prepared for 12/14/2023.

Shoreland Development Plan Staff Review	12/7/23
Site Walk	None
Public Hearing	None
Approval	12/14/23

Pursuant to the application and plan and other documents considered to be a part of a plan review decision by the Planning Board in this Finding of Fact consisting of the following (hereinafter the “Plan”):

1. Shoreland development plan application received 11/13/2023 from Jennifer Miksis-Olds of the University of New Hampshire.

**NOW THEREFORE,** based on the entire record before the Planning Board and pursuant to the applicable standards in the Land Use and Development Code, the Planning Board makes the following factual findings and conclusions:

**FINDINGS OF FACT**

**Chapter 16.4 LAND USE ZONE REGULATIONS**

**16.4.28.E. Shoreland Overlay Zone**

*(2) The total footprints of the areas devegetated for structures, parking lots and other impervious surfaces, must not exceed twenty (20) percent of the lot area, including existing development, except in the following zones:*

Finding: All disturbed areas containing vegetation will be revegetated after completion of the project.

Conclusion: The requirement appears to be met.

**Vote: \_\_\_ in favor \_\_\_ against \_\_\_ abstaining**

**Chapter 9 MARITIME AND SHORELAND RELATED DEVELOPMENT**

**Article III Planning Board Shoreland Development Review**

**16.9.3.F. Findings of Fact**

*(2) An application will be approved or approved with conditions if the reviewing authority makes a positive finding based on the information presented. It must be demonstrated the proposed use will:*

*(a) Maintain safe and healthful conditions:*

Finding: The proposed development will have no adverse impact on the health and safety of Broad Cove or Appledore Island.

Conclusion: This requirement appears to be met.

**Vote: \_\_\_ in favor \_\_\_ against \_\_\_ abstaining**

*(b) Not result in water pollution, erosion or sedimentation to surface waters:*

Finding: The applicant will ensure all best management practices are met to prevent erosion and sediment runoff into Broad Cove during and after development.

Conclusion: This requirement appears to be met.

**Vote: \_\_\_ in favor \_\_\_ against \_\_\_ abstaining**

*(c) Adequately provide for the disposal of all wastewater:*

Finding: The development proposed would not generate wastewater.

Conclusion: This requirement does not appear applicable.

**Vote: \_\_\_ in favor \_\_\_ against \_\_\_ abstaining**

*(d) Not have an adverse impact on spawning grounds, fish, aquatic life, bird or other wildlife habitat:*

Finding: best management practices for erosion control will ensure no adverse impact on wildlife in Broad Cove. By allowing identified Sumac to revegetate naturally after installation of the underground cable, the proposed development will not have any prolonged impact on the habitat.

Conclusion: The requirement appears to be met.

**Vote: \_\_\_ in favor \_\_\_ against \_\_\_ abstaining**

*(e) Conserve shore cover and visual, as well as actual, points of access to inland and coastal waters:*

Finding: Shore cover is conserved in accordance with the Code. There are no adverse impacts to visual or actual points of access to waters.

Conclusion: This requirement appears to be met.

**Vote: \_\_\_ in favor \_\_\_ against \_\_\_ abstaining**

*(f) Protect archaeological and historic resources:*

Finding: There appear to be neither archaeological nor historic resources impacted.

Conclusion: This requirement does not appear applicable.

**Vote: \_\_\_ in favor \_\_\_ against \_\_\_ abstaining**

*(g) Not adversely affect existing commercial fishing or maritime activities in a commercial fisheries/maritime activities district:*

**Finding:** The property is not located in the Commercial Fisheries / Maritime Use Zone and will have no adverse effect on commercial fishing nor maritime activities.

**Conclusion:** This requirement is not applicable.

**Vote:** \_\_\_ in favor \_\_\_ against \_\_\_ abstaining

*(h) Avoid problems associated with floodplain development and use:*

**Finding:** All floodplain management requirements will be met to protect the utility line and manhole.

**Conclusion:** This requirement appears to be met.

**Vote:** \_\_\_ in favor \_\_\_ against \_\_\_ abstaining

*(i) Is in conformance with the provisions of this code:*

**Finding:** The proposed project would not increase the nonconformance of Appledore Island. Utility connections are a special exception use in the Resource Protection Overlay Zone, meaning the use is conforming with planning board approval.

**Conclusion:** This requirement appears to be met.

**Vote:** \_\_\_ in favor \_\_\_ against \_\_\_ abstaining

*(j) Be recorded with the York County Registry of Deeds:*

**Finding:** The proposed development does not require a survey and is not required to be recorded at York County Registry of Deeds.

**Conclusion:** This requirement does not appear applicable.

**Vote:** \_\_\_ in favor \_\_\_ against \_\_\_ abstaining

Based on the foregoing Findings, the Planning Board finds the applicant has satisfied each of the review standards for approval and, therefore, the Planning Board approves the Shoreland Development Plan Application subject to any conditions or waivers, as follows:

**Waivers:** None

**Conditions of Approval:**

1. Applicant/contractor will follow Maine DEP *Best Management Practices* for all work associated with site and construction to ensure adequate erosion control and slope stabilization.
2. Incorporate any plan revisions as recommended by Staff, Planning Board or Peer Review Engineer, and submit for Staff review prior to final approval.
3. All Notices to Applicant contained herein (Findings of Fact dated 12/14/2023).

**Notices to Applicant:**

1. Incorporate any plan revisions on the final plan as required by Planning Board and submit for Staff review prior to final approval.
2. Prior to issuance of a building permit, the applicant must pay all outstanding fees associated with the permitting, including, but not limited to, Town Attorney fees, peer review, newspaper advertisements and abutter notification.
3. This approval by the Town Planning Board constitutes an agreement between the Town and the Developer, incorporating as elements the Development Plan and supporting documentation, the Findings of Fact, and any Conditions of Approval.
4. Prior to construction, applicant shall obtain any and all permits required by the code enforcement office to complete proposed work.

The Planning Board authorizes the Planning Board Chair or Vice chair to sign the Final Plan and the Findings of Fact upon confirmation of required plan changes.

**Vote: \_\_\_ in favor \_\_\_ against \_\_\_ abstaining**

APPROVED BY THE KITTERY PLANNING BOARD ON \_\_\_\_\_

\_\_\_\_\_  
Dutch Dunkelberger, Planning Board Chair

Per Title 16.2.12. - An aggrieved party with legal standing may appeal a final decision of the Planning Board to the York County Superior Court in accordance with Maine Rules of Civil Procedures Section 80B, within forty-five (45) days from the date the decision by the Planning Board was rendered.

Chase Engineering Building  
24 Colovos Rd.  
Durham, NH 03824  
603-862-5147

November 29, 2023

Dear Kittery Town Planning Committee:

The University of New Hampshire is excited to be installing a cabled ocean observation node off the coast of Appledore Island. The cabled array will complement existing oceanographic monitoring infrastructure allowing studies to be performed that may reveal significant connections between coastal measurements and the overall Gulf of Maine environment. The cabled system is being designed to synoptically collect acoustic, oceanographic, and biogeochemical measurements. Acoustic signals, as opposed to visual and chemical signals, can propagate long distances in the ocean and provide the most long ranging means for marine life and humans to gain information about the environment. Measurements made with this ocean asset will serve as a baseline for pattern and trend analyses of changing environmental conditions in an area of high productivity, human use, and species diversity. The data will be made publicly available to enable studies connected to climate change, ocean use, and marine life.

The cabled system will be located at the Shoals Marine Laboratory (SML) on Appledore Island. Partnership with SML enables student training including the effects of the observatory on SML's green grid as part of the Sustainability Engineering Internship Program and training engineering students in marine system instrumentation design and maintenance. Public data access will permit researchers and stakeholders at all levels to advance understanding of ocean acoustics and oceanographic processes. It is anticipated that ocean modelers will use the data to study fluctuating Gulf of Maine environmental parameters that affect the ecosystem from phytoplankton growth to right whale feeding and moderate climate including winter Nor-easter' storms and summer hurricanes.

As part of the application process, I have submitted project approvals from Maine DEP, Maine DMR, and Maine DIFW. It is my understanding that the installation is a *water-dependent use* which exempts the installation from water set backs.

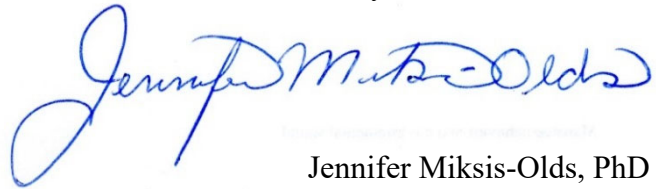
As noted in the application materials, the only vegetation to be disturbed during the installation is sumac. Sumac is a hardy island shrub that will naturally revegetate. All efforts are being made to dig the installation trench outside of vegetation areas, but it is anticipated the sumac will be disturbed along the road edge. The substrate that the sumac grows in is more sand than soil. There is some grass growing in soil along the road to Broad Cove that will not be removed or disturbed which helps in retaining the soil to prevent erosion and sediment run-off.

Beach trenching will be limited to 1-2 days during cable landing operations. The beach is composed of a rocky-gravel material and disturbance will be limited to where possible. Once the

cable landing is completed, the trench will be backfilled with the originally removed material. The south side of the path at the top of the beach, where the sumac will be removed starts approximately 80 meters from the low water mark on the beach. At the head of the path above the beach, silt curtains will be employed, as needed, for erosion control to prevent sediment run-off into the water. These preventative measures are standard procedures for cable trenching operations. It should be noted that due to the terrain, the gradual slope, and the rocky makeup of the area, combined with the short duration the trench will be open, the erosion risk and run-off is considered to be minimal.

Please let me know if you require any additional information. I'm more than happy to provide it.

Sincerely,



Jennifer Miksis-Olds, PhD

Director, Center for Acoustics Research and Education

Research Professor



**DEPARTMENT OF ENVIRONMENTAL PROTECTION  
PERMIT BY RULE NOTIFICATION FORM**  
(For use with DEP Regulation, Natural Resources Protection Act - Permit by Rule Standards, Chapter 305)

APPLICANT INFORMATION (Owner)				AGENT INFORMATION (If Applying on Behalf of Owner)			
Name:				Name:			
Mailing Address:				Mailing Address:			
Mailing Address:				Mailing Address:			
Town/State/Zip:				Town/State/Zip:			
Daytime Phone #:	Ext:			Daytime Phone #:	Ext:		
Email Address:				Email Address:			
PROJECT INFORMATION							
Part of a larger project? (check 1):	<input type="checkbox"/> Yes <input type="checkbox"/> No	After the Fact? (check 1):	<input type="checkbox"/> Yes <input type="checkbox"/> No	Project involves work below mean low water? (check 1):	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name of waterbody:	
Project Town:			Town Email Address:			Map and Lot Number:	
Brief Project Description:							
Project Location & Brief Directions to Site:							

**PERMIT BY RULE (PBR) SECTIONS (Check at least one):** I am filing notice of my intent to carry out work that meets the requirements for Permit-by-Rule (PBR) under DEP Rules, [Chapter 305](#). I and my agent(s), if any, have read and will comply with all of the standards in the Sections checked below.

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Sec. (2) Act. Adj. to Prot. Natural Res. | <input type="checkbox"/> Sec. (9) Utility Crossing                 | <input type="checkbox"/> Sec. (16) Coastal Sand Dune Projects       |
| <input type="checkbox"/> Sec. (3) Intake Pipes                    | <input type="checkbox"/> Sec. (10) Stream Crossing                 | <input type="checkbox"/> Sec. (16-A) Beach Nourishment              |
| <input type="checkbox"/> Sec. (4) Replacement of Structures       | <input type="checkbox"/> Sec. (11) State Transportation Facilities | <input type="checkbox"/> Sec. (17) Transfer/Permit Extension        |
| <input type="checkbox"/> Sec. (6) Movement of Rocks or Veg.       | <input type="checkbox"/> Sec. (12) Restoration of Natural Areas    | <input type="checkbox"/> Sec. (18) Maintenance Dredging             |
| <input type="checkbox"/> Sec. (7) Outfall Pipes                   | <input type="checkbox"/> Sec. (13) F&W Creat./Water Qual. Improv.  | <input type="checkbox"/> Sec. (19) Act. Near SVP Habitat            |
| <input type="checkbox"/> Sec. (8) Shoreline Stabilization         | <input type="checkbox"/> Sec. (15) Public Boat Ramps               | <input type="checkbox"/> Sec. (20) Act. Near Waterfowl/Bird Habitat |

**NOTE: Municipal permits also may be required. Contact your local code enforcement office for information. Federal permits may be required for stream crossings and for projects involving wetland fill. Contact the Army Corps of Engineers at the Maine Project Office for information.**

**NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS AND FEE**

- Attach** all required submissions for the PBR Section(s) checked above. The required submissions for each PBR Section are outlined in Chapter 305 and may differ depending on the Section you are submitting under.
- Attach** a location map that clearly identifies the site (U.S.G.S. topo map, Maine Atlas & Gazetteer, or similar).
- Attach Proof of Legal Name** if applicant is a corporation, LLC, or other legal entity. Provide a copy of Secretary of State's registration information (available at <http://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x>). Individuals and municipalities are not required to provide any proof of identity.

**FEE:** Pay by credit card at the [Payment Portal](#). The Permit-by-Rule fee may be found here <https://www.maine.gov/dep/feeschedule.pdf> and is currently \$288.

- Attach** payment confirmation from the Payment Portal when filing this notification form.

**Signature & Certification:**

- I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules.
- I understand that this PBR becomes effective 14 calendar days after receipt by the Department of this completed form, the required submissions, and fee, *unless the Department approves or denies the PBR prior to that date.*

**By signing this Notification Form, I represent that the project meets all applicability requirements and standards in Chapter 305 rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.**

Signature of Agent or Applicant (may be typed):		Date:	
---	--	-------	--

**Keep a copy as a record of permit.** Email this completed form with attachments to DEP at: [DEP.PBRNotification@maine.gov](mailto:DEP.PBRNotification@maine.gov). DEP will send a copy to the Town Office as evidence of DEP's receipt of notification. No further authorization will be issued by DEP after receipt of notice. A PBR is valid for two years, except Section 4, "Replacement of Structures," are valid for three years. **Work carried out in violation of the Natural Resources Protection Act or any provision in Chapter 305 is subject to enforcement.**

### State of Maine DEP Payment Receipt

**Contact Infor**      Jennifer Miksis-Olds - 24 Colovos Rd, Durham, NH, 03824  
 (603) 862-5147  
 j.miksisolds@unh.edu

Product	Reference Number	Customer Number	Payment Amount	Comments
Natural Resources	N/A		\$288.00	

**Receipt ID:** 1992  
**Transaction Date:** 11/10/2023 12:17:50 PM

Transaction Summary	
Payment	\$288.00
Service F	\$2.00
<b>Total</b>	<b>\$290.00</b>

**Thank you for your successful transaction.**

**If you have questions or concerns, please call (207) 287-7688**

**or Email:** Payments.DEP@maine.gov

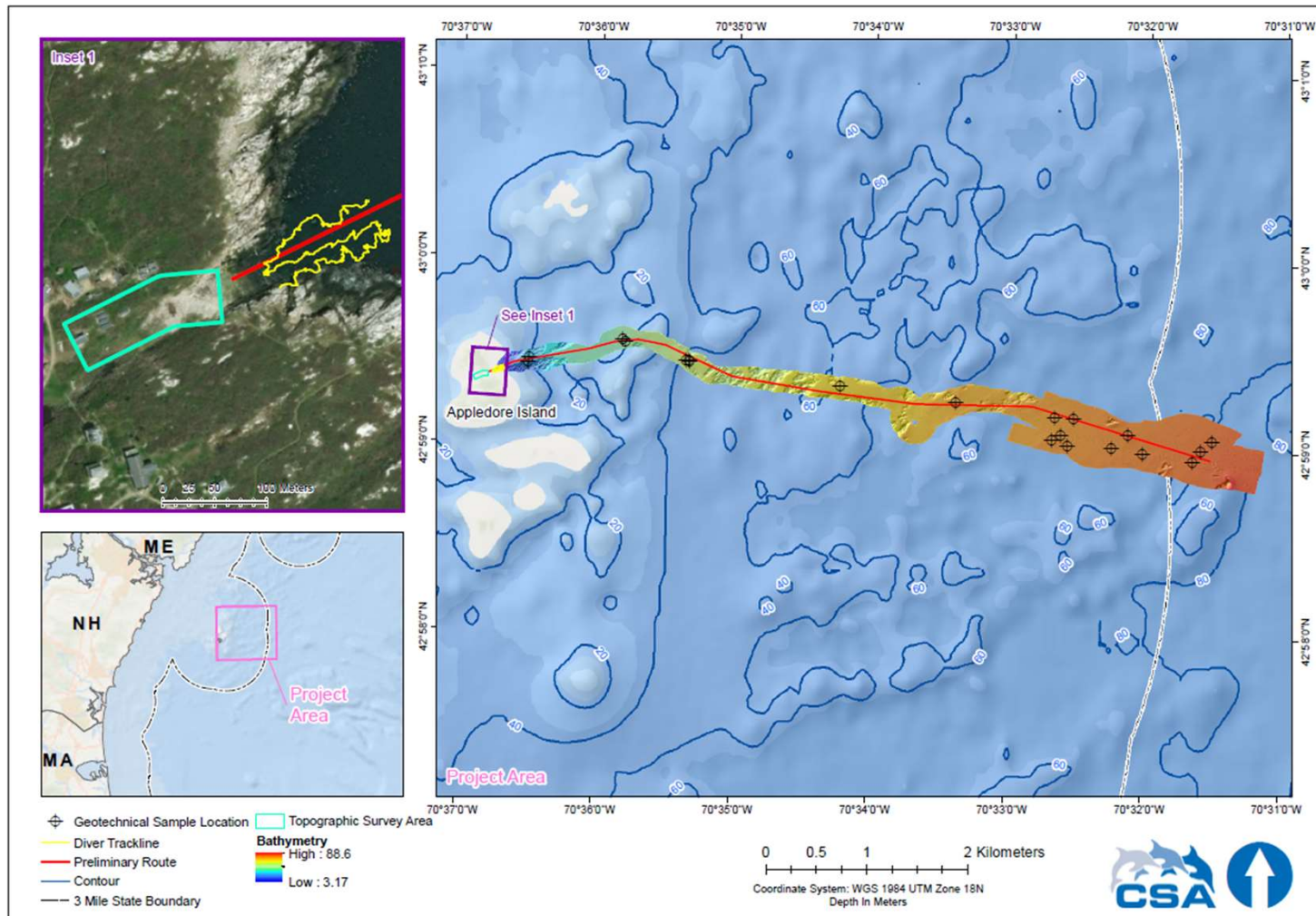
**Print**

UNH Subsea Cable Array:  
Appledore Island Cable Landing  
Plans

# System Overview

UNH plans to install a utility subsea telecommunications cable on Appledore Island in support of an acoustic array. The cable will be used to transmit data from offshore acoustic sensors for climate and fisheries monitoring.

# System Overview Chart

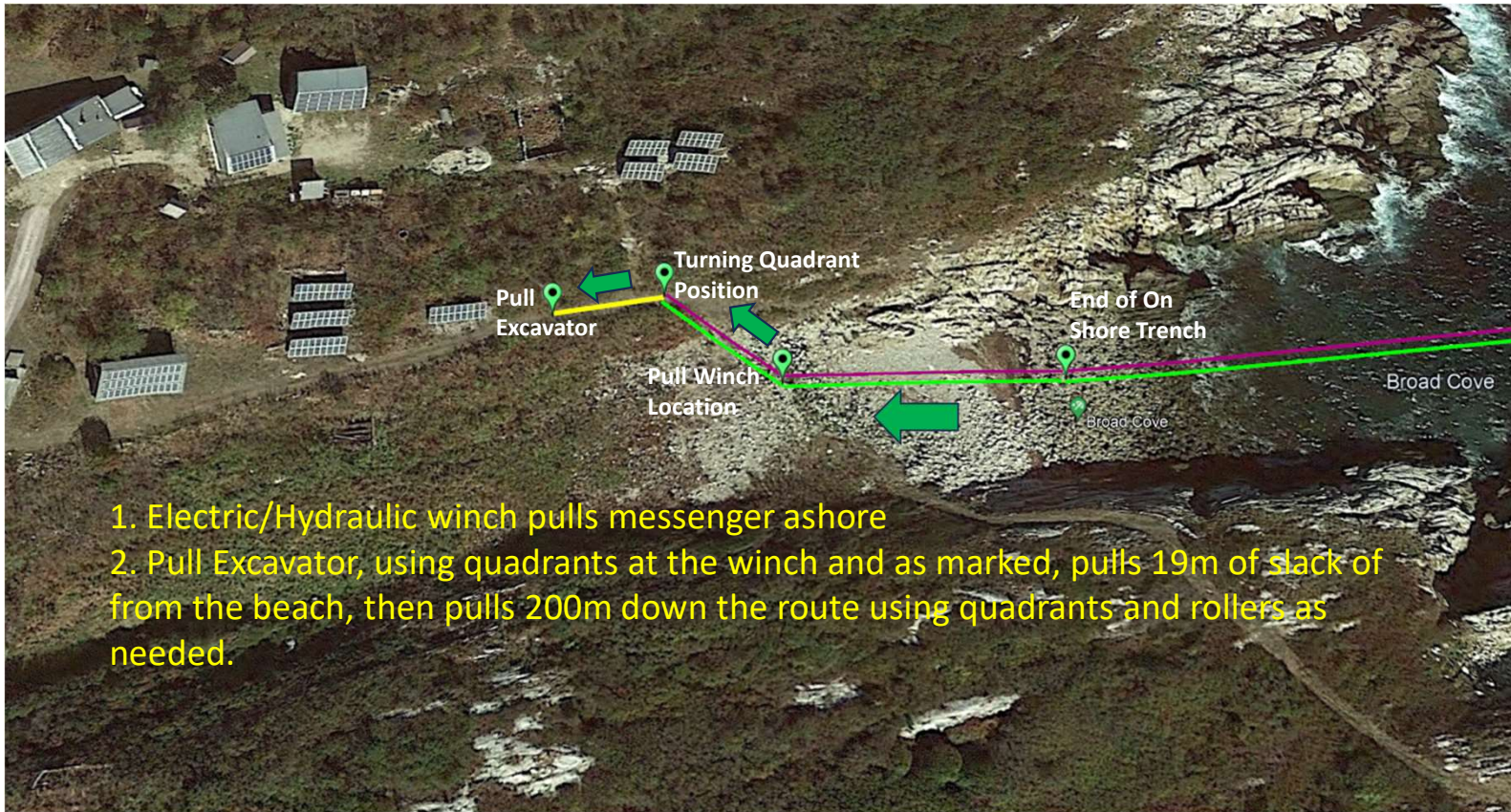


# Cable from Ocean to manhole

## Subsea Cable Pull-in Summary

- Prior to the cable ship arrival, the shore end team will use two excavators (Caterpillar 321 & 314) and trench a path between the low water mark and the recessed manhole location. The trench will be approximately 35" wide and approximately 12" deep where achievable. The area on Broad Cove beach has numerous mobile rocks. The excavators will clear a path for the cable landing then restore the rocks over the cables once the protective articulated pipe is applied. The only vegetation that will be potentially disturbed is sumac. No re-vegetation plan is needed, as sumac has a vine structure that is pervasive and will naturally re-populate.
- The vessel will be positioned approximately 400 meters offshore, well outside of the cove.
- The vessel will send a messenger line connected to the subsea cable ashore.
- The shore end team will use a hydraulic winch on one of the excavators to pull cable ashore. The winch will be positioned as shown in Slide 5.
- After the cable has been pulled past the manhole to the ECB the cable ship will commence cable laying.
- The diver team will install articulated pipe between the recessed manhole into the surf zone along cable route.

# Subsea Cable Pull-in



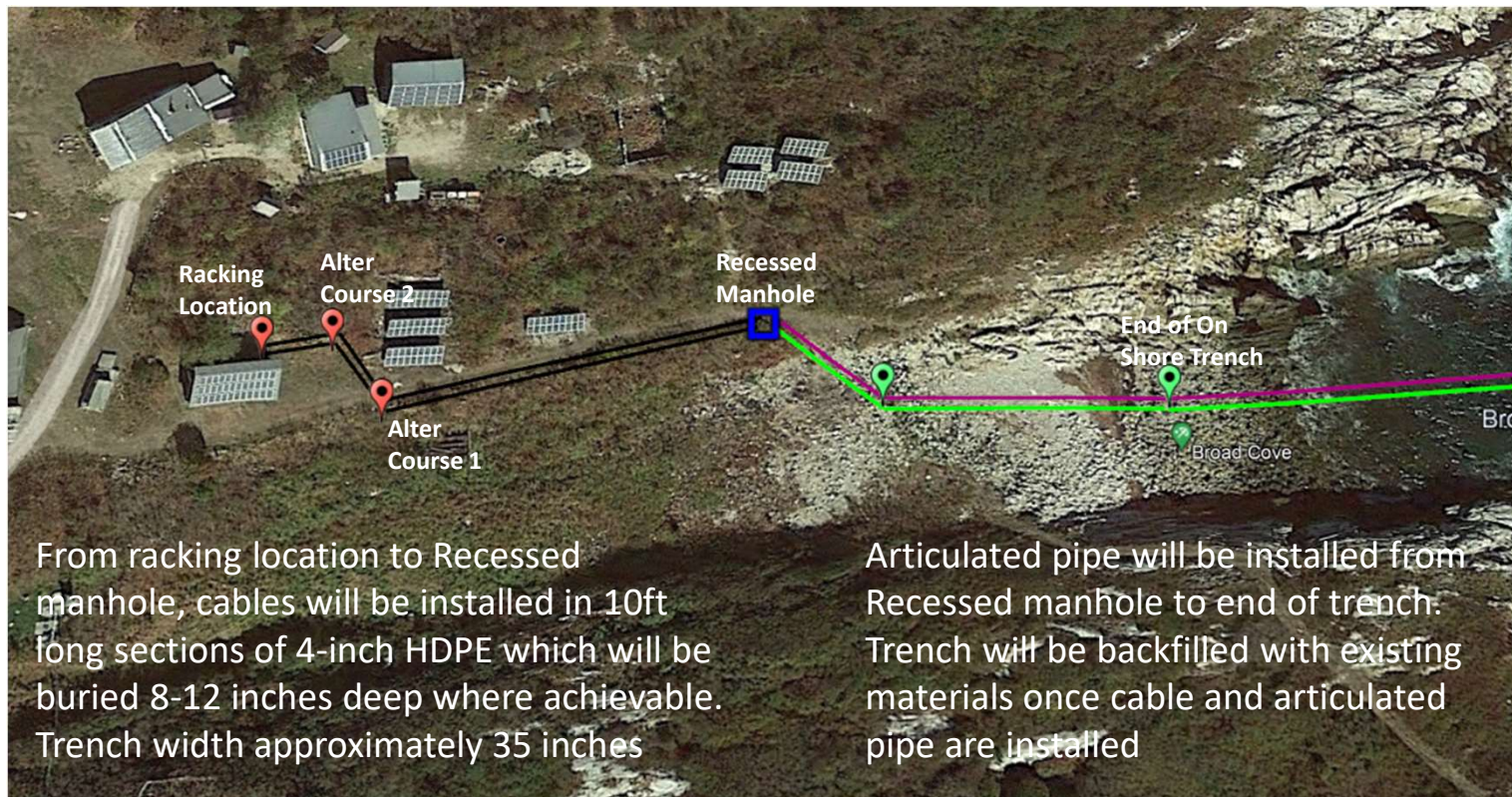
# Cable from Manhole to ECB

## Terrestrial Route Plan

- A single trench will be created for the two cables which will be installed in two ducts between the ECB/Racking Location and the manhole.
- The single trench will be created by the Caterpillar 314 excavator with a 35" wide bucket. The excavator will attempt to achieve 8"-12" trench depth. In areas where burial is not achievable (rock or other hard surface) the cable will be surface laid in the ducts.



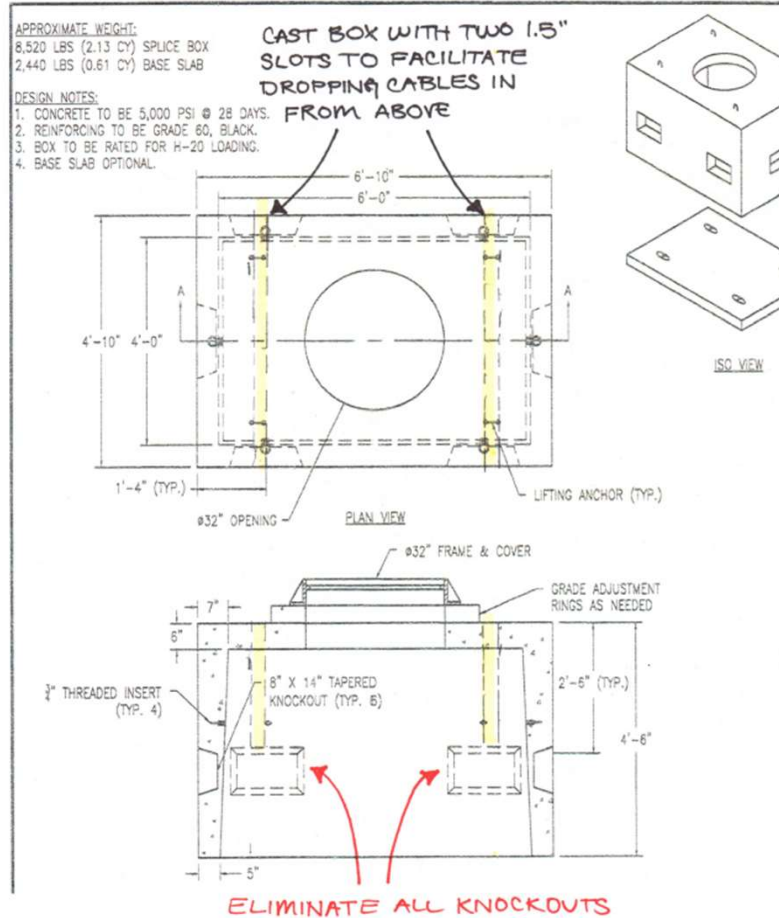
# Terrestrial Route – post install



# Key GPS coordinates

Key point description	GPS coordinates
Seaward End of Trench	42°59'21.60"N, 70°36'47.46"W
Landward End of Trench	42°59'21.36"N, 70°36'49.50"W
Electro-Hydraulic Pull Winch location	42°59'21.18"N, 70°36'49.20"W
Recessed Manhole location	42°59'21.31"N, 70°36'50.18"W
Alter Course 1	42°59'20.64"N, 70°36'51.96"W
Alter Course 2	42°59'20.52"N, 70°36'53.10"W
Racking Location	42°59'20.36"N, 70°36'53.71"W

# Manhole Design



# Articulated Pipe Specification



Protectorshell Articulated Pipe has been developed to provide shallow water abrasion and impact protection for submarine cables.

Protectorshell is unique in that it clips together, avoiding the nuts and bolts of traditional articulated pipe. This clip together feature allows quick real time application during laying and a much simplified diver installation onto pre-laid cables.

The Protectorshell system comprises two different cast segments which are identified as uppers and lowers. Each successive pair of segments clips over and retains the end of the preceding pair.

A wide range of adaptors and attachments are available for use with Protectorshell Articulated Pipe. These adaptors and attachments allow the reversal of application direction and interfacing with other cable protection measures such as directionally drilled pipes, pipe flanges and concrete abutments.



## PS055GIII/500/09

Specifications	
Segment Length - Overall	538mm
Effective Installed Length/segment pair	500mm
Minimum Internal Diameter	55mm - for cables up to 47mm Dia
Maximum External Diameter	144mm
Wall Thickness	9mm
Material	Ductile Iron to AS1831 / ISO 1083
Tensile Strength / Elongation	400MPa / 15%
Impact Resistance	12m Drop test or 26kg
Minimum Bend Diameter	4.0m
Weight per Segment	8.56kg
Weight per installed metre (air)	17.12kg
Weight per installed metre (water)	14.60kg
Fasteners	M12x50 Bolts and M12 Nyloc Nuts – Material: Stainless Steel G316/A4 Recommended usage: 1 pair per 10 metres of installed pipe



## STAR ISLAND CORPORATION

---

December 21, 2022

Office of Naval Research  
One Liberty Center  
875 N. Randolph St., Suite 1425  
Arlington, VA 22203-1995

Dear Program Director,

This letter is to confirm the Star Island Corporation's support for the proposal entitled "Cabled Acoustic Array in the Gulf of Maine" that was recently awarded by the Office of Naval Research.

Star Island Corporation owns Appledore Island and maintains a long-term lease with Shoals Marine Laboratory that allows the lab to operate their research and teaching programs on the island. As one of the collaborators on the acoustic array project, Shoals Marine Laboratory has Star Island Corporation's permission to install the necessary electrical and data management infrastructure required to support the cabled acoustic system.

Sincerely,

Joseph W. Watts, IV  
Chief Executive Officer

**REQUEST FOR APPROVAL  
OF ACTIVITY  
(DIF&W)**

This form is for use in obtaining approval from the **Department of Inland Fisheries and Wildlife (DIF&W)** for the timing/location of certain projects in accordance with Chapter 305 Permit by Rule Standards.

**To be filled out by applicant:** (Instructions are on the back of this form)

1. **Applicant's name:** Jennifer Miksis-Olds (Technical Point of Contact) Marian McCord (University Contact)

**Address:** University of New Hampshire

Durham, NH 03824

**telephone:** Miksis-Olds: 603 862-5147; McCord: 603 862-0549

j.miksisolds@unh.edu

2. I plan to perform the following activity (please check the appropriate box):

- Sec. 9 Utility crossings** (if performed between Oct. 2 and July 14)
- Sec. 10 Stream crossings** (if performed between Oct. 2 and July 14)
- Sec. 15 Public boat ramps** (any location)
- Sec. 16 Activities in coastal sand dunes** (moving sand between April 1 and September 1)
- Sec. 20 Activities in existing developed areas located in/on/over high or moderate value inland waterfowl & wading bird habitat or shorebird nesting, feeding and staging areas if:**
  - cutting or removing vegetation in a shorebird roosting area
  - an activity in any shorebird area is performed between July 15 and September 15
  - a new activity in a moderate value inland waterfowl and wading bird habitat is performed between April 15 and July 31

3. **Brief description of project:** [please include the name of the stream or waterbody, if known]

This project is to land a submarine cable connecting an oceanographic sensor platform to Shoals Marine Lab on Appledore Island at Broad Cove. The cable will be installed in a shallow trench along the gravel road (see attached maps and diagrams) and connect to a low profile manhole.

The approvals being sought are for installation of the shallow trench and manhole. The installation would occur in March 2024.

The only vegetation that will be disturbed is sumac along the road.

4. I plan to perform this activity between the dates of 01 March 2024 and 14 April 2024  
(start date) (end date)

5. I have included a map showing the location of my project.

**\*[Please note that if no location map is provided, no approval will be granted by DIF&W]**

6. Send completed form to the appropriate regional office of the Department of Inland Fisheries and Wildlife. A map of the regions and the regional office addresses has been attached to this form.

**For agency use only:**

The Department has reviewed the proposed timing of the activity identified above and:

- approves of the project's timing/location as proposed.
- requires that the project's timing be changed to occur between \_\_\_\_\_ and \_\_\_\_\_ (start date) (end date)
- requires that the project's location be changed as shown on the plan (Section 20 Activity Only)

(Only)

*Jessy Robinson*  
DIF & W representative

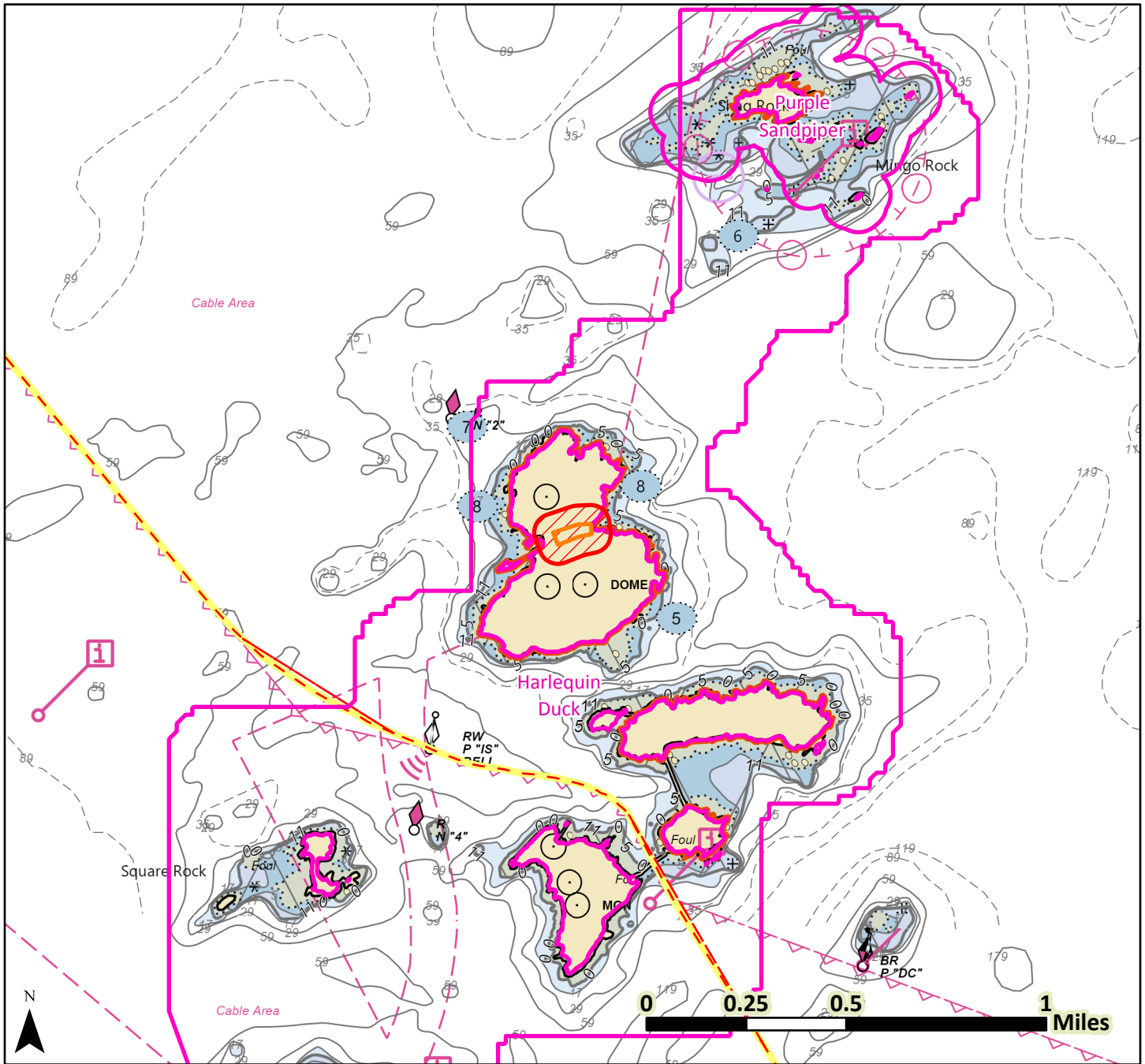
*Environmental Liaison*  
Position

*11/07/2023*  
Date



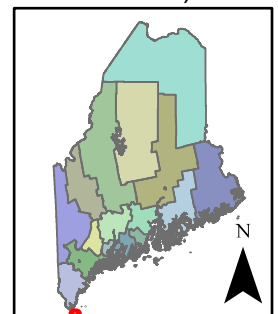
Maine Department of Inland Fisheries and Wildlife  
 Environmental Review of Fish and Wildlife Observations and Priority Habitats

Appledore Island, RAA, Broad Cove



- County Boundary
- Township Boundary
- Project Footprint
- Search Area
- E, T, & SC Species
- Seabird Nesting Island

Date: 10/20/2023  
 Projection:  
 UTM Zone 19N, NAD83



Legend only lists resources visible in the map; see response letter for all resources that were evaluated.

**REQUEST FOR APPROVAL  
OF TIMING OF ACTIVITY  
(DMR)**

This form is for use in obtaining approval from the **Department of Marine Resources (DMR)** for the timing of certain projects in accordance with Chapter 305 Permit by Rule Standards.

**To be filled out by applicant:** (Instructions are on the back of this form)

1. **Applicant's name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**telephone:** \_\_\_\_\_

2. I plan to perform the following activity (please check the appropriate box):

**Sec. 3 Intake pipes** (tidal waters only)

**Sec. 4 Replacement of structures** (tidal waters only)

**Sec. 7 Outfall pipes** (tidal waters only)

**Sec. 9 Utility crossings** (any location if performed between Oct. 2 and July 14)

**Sec. 12 Restoration of natural areas** (tidal waters only)

**Sec. 15 Public boat ramps** (tidal waters only)

**Sec. 18 Maintenance dredging** (tidal waters only)

3. Brief description of project: [please include the name of the stream or waterbody, if known]

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. I plan to perform this activity between the dates of \_\_\_\_\_ and \_\_\_\_\_.  
(start date) (end date)

5. I have included a map showing the location of my project.

**\*[Please note that if no location map is provided, no approval will be granted by DMR]**

6. Send completed form to: DMR Environmental Coordinator  
P. O. Box 8, West Boothbay Harbor, ME 04575-008

**For agency use only:**

The Department has reviewed the proposed timing of the activity identified above and:

approves of the project's timing as proposed.

requires that the project's timing be changed to occur between \_\_\_\_\_ and \_\_\_\_\_.  
(start date) (end date)

Other comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

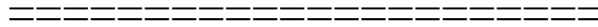
*Katie Miller*

DMR Environmental Coordinator

Date



# Getting Approval



## 1. When do I need to get approval from the Department of Marine Resources (DMR) before filing a Permit by Rule Notification Form with the DEP?

You need to get DMR approval for the timing of your project if it involves:

- installing an intake or outfall pipe in tidal waters (Sections 3 & 7 of PBR),
- replacing a structure in tidal waters (Section 4 of PBR),
- constructing a submerged utility crossing between October 2 and July 14 (Sections 9 of PBR)
- restoring a natural area (fill or structure removal) in tidal waters (see Section 12 of PBR),
- constructing a boat ramp in tidal waters (Section 15 of PBR), or
- maintenance dredging in tidal waters (Section 18 of PBR),

## 2. Why does the DMR care about when I construct my project?

DMR is responsible for managing Maine's marine resources including species that spend part of their life cycle in fresh water (anadromous fish; alewives, blueback herring, shad, rainbow smelt, striped bass, sea-run trout, sturgeon, salmon, and catadromous eels). As part of that responsibility, DMR is also concerned with the habitat utilized by those species. Adverse impacts to marine resources can be minimized by appropriate timing of projects.

## 3. How do I get DMR approval?

Simply fill out the applicant section of the form: write your name and address; check the box in front of the activity you are proposing; write a brief description of what your project involves; and fill in the dates when you plan to do the work. Then mail this form to the address shown along with a location map. **[Without a location map, DMR cannot properly review your project and it will be returned to you unapproved.]** Once received, a DMR biologist will check the location of your project. If there are concerns about your project's impact on fish or other aquatic species during the time you propose to construct your project, DMR will recommend an alternative time to construct the project. If there are no concerns, DMR will simply check off the form and return it to you: no change in plans will be required of you.

## 4. How long will it take to get DMR approval?

The DEP has asked that DMR staff review the "Request for Approval" within 2 weeks of receiving it. Once reviewed, DMR will return the form directly to you. You then submit the form to the department along with the PBR Notification Form.

## 5. What if DMR doesn't approve the timing of my project?

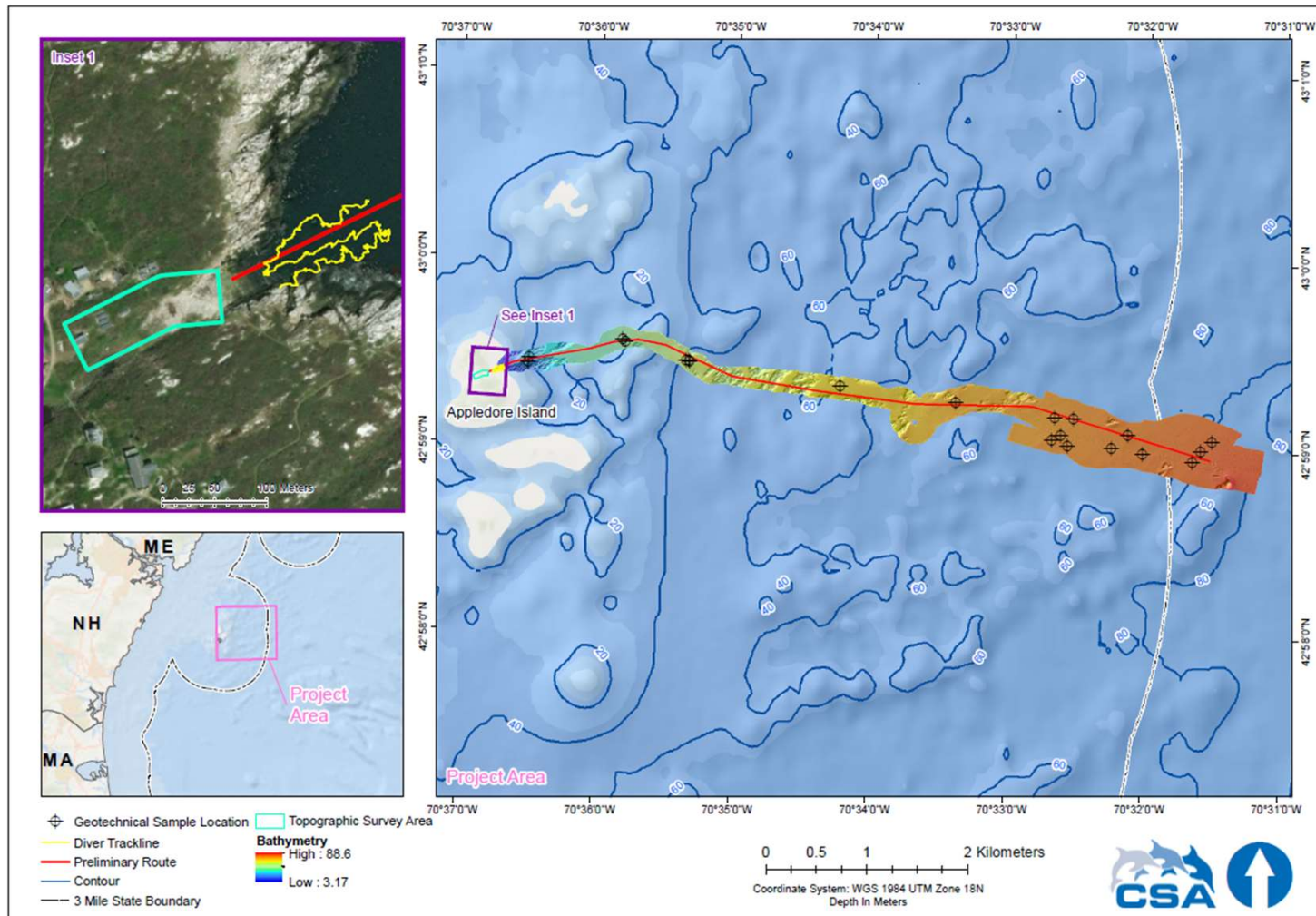
If the dates you propose for construction are not approved, DMR will recommend another time frame when the work can take place. If you do not feel you can construct your project during the new time frame recommended by DMR, you will need to contact the Environmental Coordinator at DMR at (207) 624-6550. It may be possible for you and the DMR to agree on a different time frame if certain aspects of your project are changed.

UNH Subsea Cable Array:  
Appledore Island Cable Landing  
Plans

# System Overview

UNH plans to install a utility subsea telecommunications cable on Appledore Island in support of an acoustic array. The cable will be used to transmit data from offshore acoustic sensors for climate and fisheries monitoring.

# System Overview Chart

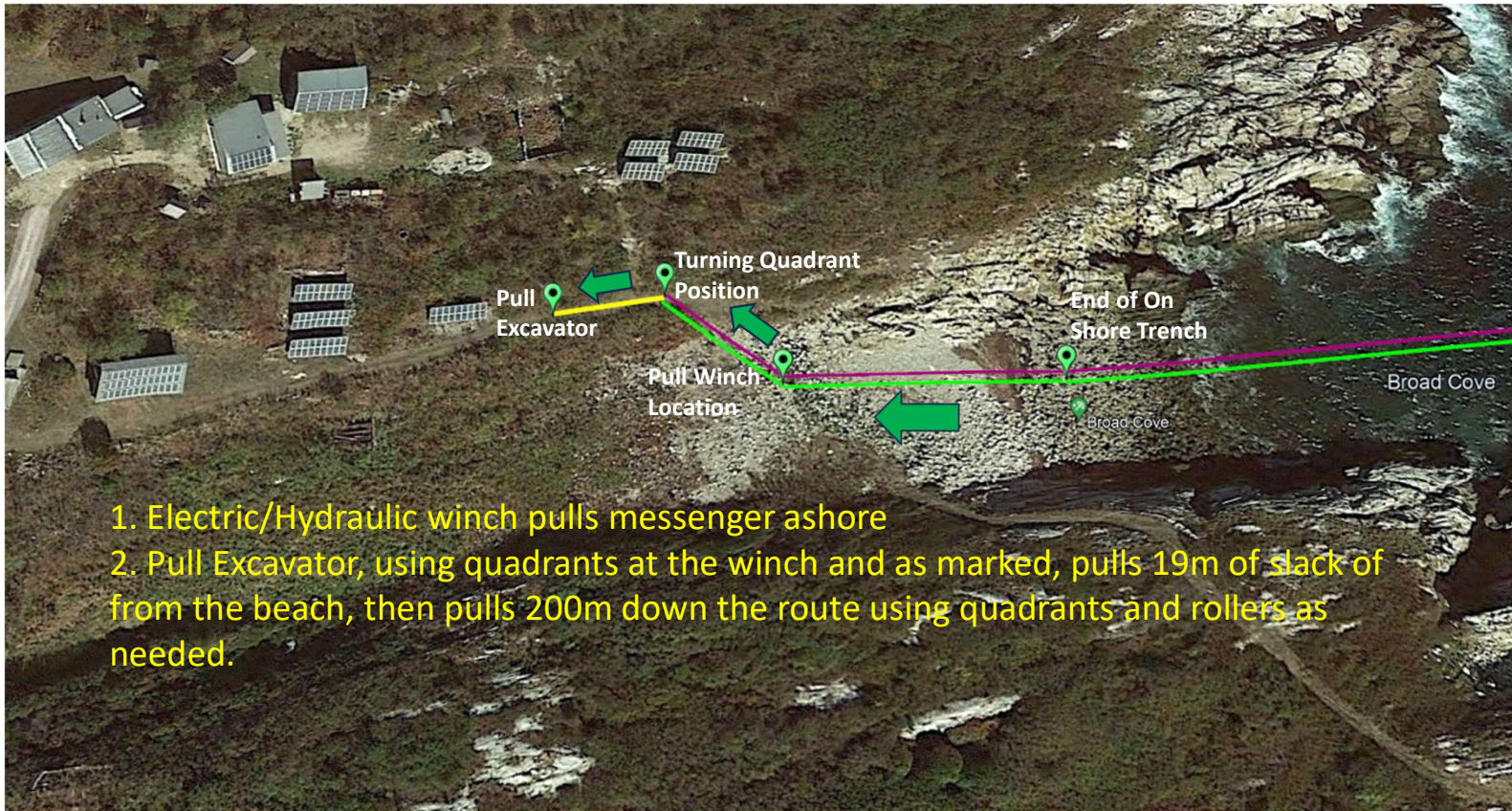


# Cable from Ocean to manhole

## Subsea Cable Pull-in Summary

- Prior to the cable ship arrival, the shore end team will use two excavators (Caterpillar 321 & 314) and trench a path between the low water mark and the recessed manhole location. The trench will be approximately 35" wide and approximately 12" deep where achievable. The area on Broad Cove beach has numerous mobile rocks. The excavators will clear a path for the cable landing then restore the rocks over the cables once the protective articulated pipe is applied. The only vegetation that will be potentially disturbed is sumac. No re-vegetation plan is needed, as sumac has a vine structure that is pervasive and will naturally re-populate.
- The vessel will be positioned approximately 400 meters offshore, well outside of the cove.
- The vessel will send a messenger line connected to the subsea cable ashore.
- The shore end team will use a hydraulic winch on one of the excavators to pull cable ashore. The winch will be positioned as shown in Slide 5.
- After the cable has been pulled past the manhole to the ECB the cable ship will commence cable laying.
- The diver team will install articulated pipe between the recessed manhole into the surf zone along cable route.

# Subsea Cable Pull-in

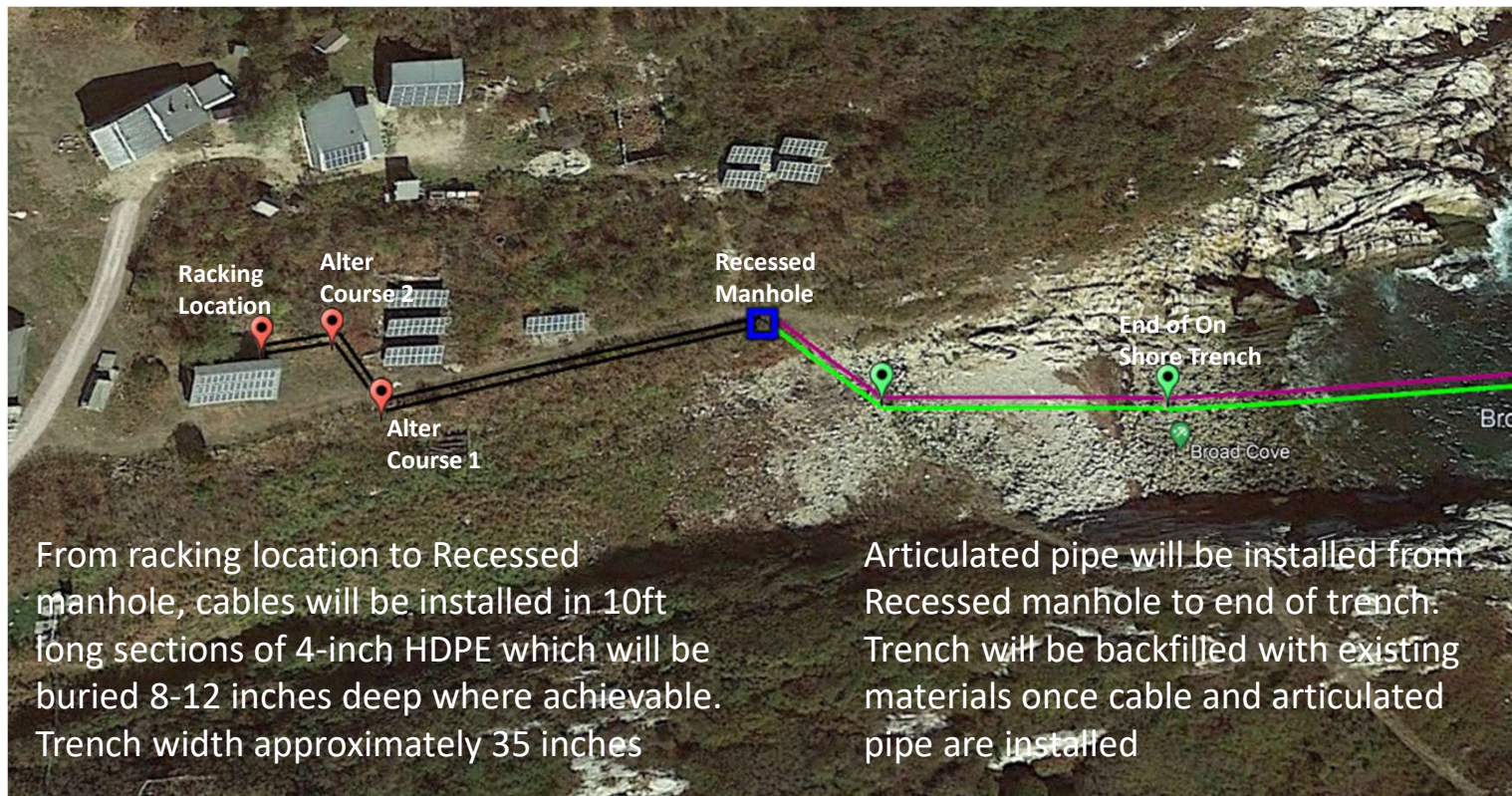


# Cable from Manhole to ECB

## Terrestrial Route Plan

- A single trench will be created for the two cables which will be installed in two ducts between the ECB/Racking Location and the manhole.
- The single trench will be created by the Caterpillar 314 excavator with a 35" wide bucket. The excavator will attempt to achieve 8"-12" trench depth. In areas where burial is not achievable (rock or other hard surface) the cable will be surface laid in the ducts.

# Terrestrial Route – post install



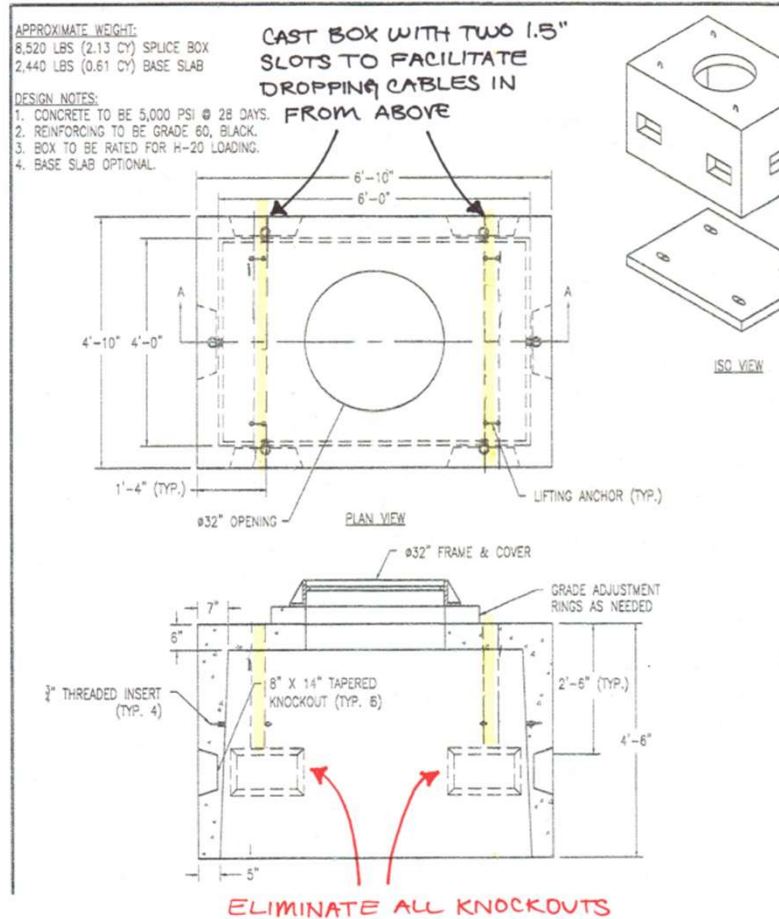
The only vegetation that will be disturbed is sumac along the road.



# Key GPS coordinates

Key point description	GPS coordinates
Seaward End of Trench	42°59'21.60"N, 70°36'47.46"W
Landward End of Trench	42°59'21.36"N, 70°36'49.50"W
Electro-Hydraulic Pull Winch location	42°59'21.18"N, 70°36'49.20"W
Recessed Manhole location	42°59'21.31"N, 70°36'50.18"W
Alter Course 1	42°59'20.64"N, 70°36'51.96"W
Alter Course 2	42°59'20.52"N, 70°36'53.10"W
Racking Location	42°59'20.36"N, 70°36'53.71"W

# Manhole Design



# Articulated Pipe Specification



Protectorshell Articulated Pipe has been developed to provide shallow water abrasion and impact protection for submarine cables.

Protectorshell is unique in that it clips together, avoiding the nuts and bolts of traditional articulated pipe. This clip together feature allows quick real time application during laying and a much simplified diver installation onto pre-laid cables.

The Protectorshell system comprises two different cast segments which are identified as uppers and lowers. Each successive pair of segments clips over and retains the end of the preceding pair.

A wide range of adaptors and attachments are available for use with Protectorshell Articulated Pipe. These adaptors and attachments allow the reversal of application direction and interfacing with other cable protection measures such as directionally drilled pipes, pipe flanges and concrete abutments.



## PS055GIII/500/09

Specifications	
Segment Length - Overall	538mm
Effective Installed Length/segment pair	500mm
Minimum Internal Diameter	55mm - for cables up to 47mm Dia
Maximum External Diameter	144mm
Wall Thickness	9mm
Material	Ductile Iron to AS1831 / ISO 1083
Tensile Strength / Elongation	400MPa / 15%
Impact Resistance	12m Drop test or 26kg
Minimum Bend Diameter	4.0m
Weight per Segment	8.56kg
Weight per installed metre (air)	17.12kg
Weight per installed metre (water)	14.60kg
Fasteners	M12x50 Bolts and M12 Nyloc Nuts – Material: Stainless Steel G316/A4 Recommended usage: 1 pair per 10 metres of installed pipe



## STAR ISLAND CORPORATION

---

December 21, 2022

Office of Naval Research  
One Liberty Center  
875 N. Randolph St., Suite 1425  
Arlington, VA 22203-1995

Dear Program Director,

This letter is to confirm the Star Island Corporation's support for the proposal entitled "Cabled Acoustic Array in the Gulf of Maine" that was recently awarded by the Office of Naval Research.

Star Island Corporation owns Appledore Island and maintains a long-term lease with Shoals Marine Laboratory that allows the lab to operate their research and teaching programs on the island. As one of the collaborators on the acoustic array project, Shoals Marine Laboratory has Star Island Corporation's permission to install the necessary electrical and data management infrastructure required to support the cabled acoustic system.

Sincerely,

Joseph W. Watts, IV  
Chief Executive Officer



**STATE OF MAINE**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
**Permit-by-Rule & Notice of Intent Review Form**

**Natural Resources Protection Act**  
**Stormwater Management Law**  
**Maine Construction General Permit**

**PBR # 78261**  
**PBR #**  
**NOI #**

**Applicant:** University of New Hampshire  
**Project Address:** Appledore Island

**Town:** Kittery  
**Tax Map/Lot #:** N/A

**NRPA PBR Sections – Ch. 305**

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Sec. 2 Act. Adj. to Prot. Natural Res. | <input checked="" type="checkbox"/> Sec. 9 Utility Crossing  | <input type="checkbox"/> Sec. 16 Coastal Sand Dune Project                   |
| <input type="checkbox"/> Sec. 3 Intake Pipes                    | <input type="checkbox"/> Sec. 10 Stream Crossing             | <input type="checkbox"/> Sec. 17 Transfer/Permit Extension                   |
| <input type="checkbox"/> Sec. 4 Replacement of Structures       | <input type="checkbox"/> Sec. 11 State Transport. Facilities | <input type="checkbox"/> Sec. 18 Maintenance Dredging                        |
| <input type="checkbox"/> Sec. 6 Movement of Rocks or Veg.       | <input type="checkbox"/> Sec. 12 Restoration Natural Areas   | <input type="checkbox"/> Sec. 19 Act. Near SVP Habitat                       |
| <input type="checkbox"/> Sec. 7 Outfall Pipes                   | <input type="checkbox"/> Sec. 13 F&W Creat./Water Quality    | <input checked="" type="checkbox"/> Sec. 20 Act. Near Waterfowl/Bird Habitat |
| <input type="checkbox"/> Sec. 8 Shoreline Stabilization         | <input type="checkbox"/> Sec. 15 Public Boat Ramps           |  |

**Notes:**

11/27/2023

**Description:**

Cable installation on Appledore Island at the Shoals Marine Lab. Received the required maps/photos, Maine DMR approval, Maine DIFW approval, and Star Island Corporation approval letter. This land installation of a submarine cable is component of a larger project that will install a cabled ocean acoustic observatory off Appledore Island in the Gulf of Maine. Also obtaining USACE and other required approvals/permits.

**Additional notes:**

Wheeled or tracked equipment may not operate in the water. Equipment operating on the shore may reach into the water with a bucket or similar extension. Equipment may cross streams on rock, gravel or ledge bottom.

All wheeled or tracked equipment that must travel or work in a vegetated wetland must travel and work on mats or platforms in order to protect wetland vegetation.

Accepted as presented.

**Reviewer:**  
**Reviewer:** Anna Smith

**Deficient Date:**  NRPA  SW  NOI  
**Accepted Date:** 11/27/2023  NRPA  SW  NOI