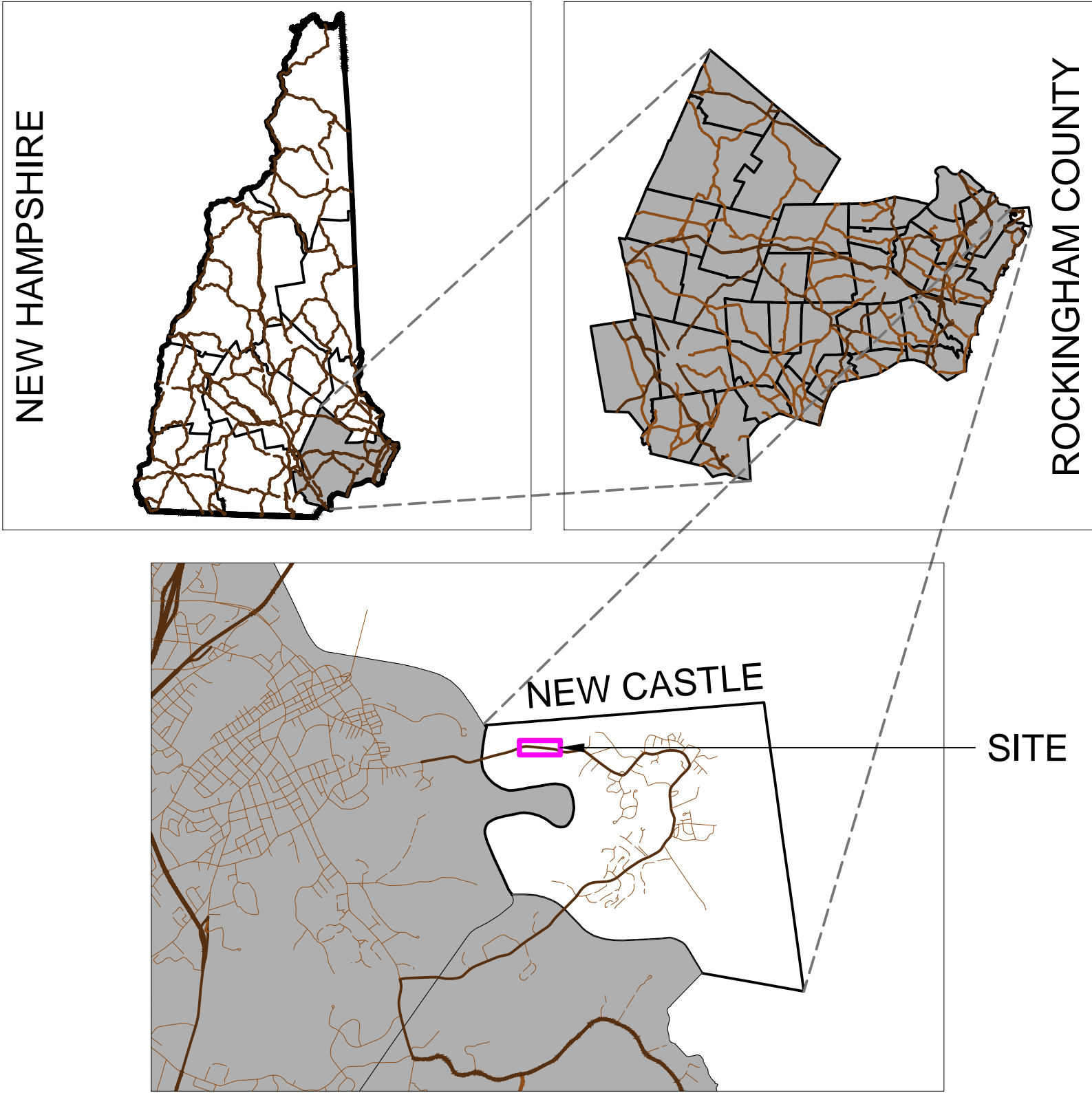


ROUTE 1B COASTAL RESILIENCE PROJECT

CONCEPTUAL DESIGN OPTIONS

ROUTE 1B NEAR GOAT ISLAND, BETWEEN PORTSMOUTH AND NEW CASTLE, NEW HAMPSHIRE



VICINITY MAP
NOT TO SCALE



SITE MAP
NOT TO SCALE

LIST OF SHEETS

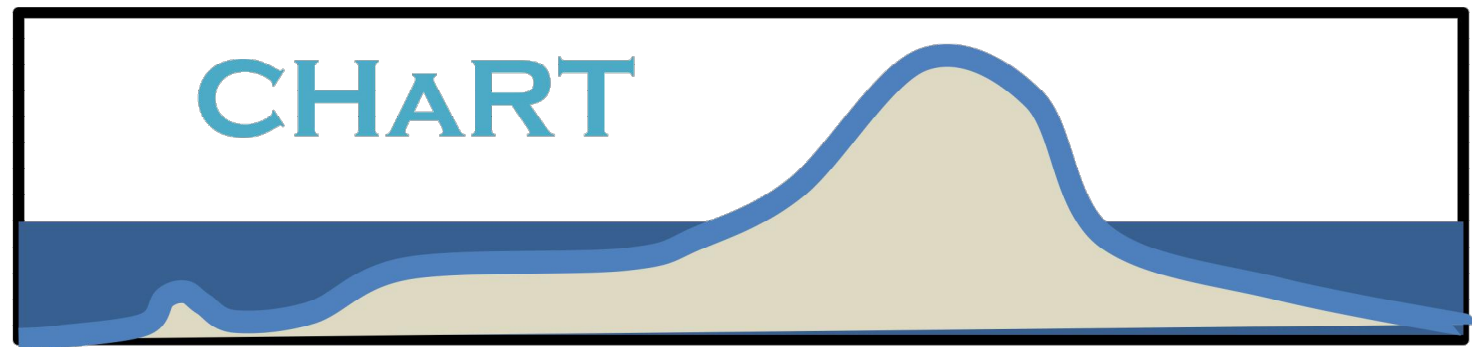
NO	SHEET ID	SHEET TITLE
1.	X-OVIEW	SITE OVERVIEW
2.	P-OVIEW	CONCEPTUAL SITE OVERVIEW
3.	P-AERIAL	SITE OVERVIEW WITH AERIAL
4.	XS800a	CONCEPTUAL DESIGN SECTION 8+00 a
5.	XS800b	CONCEPTUAL DESIGN SECTION 8+00 b
6.	XS1100a	CONCEPTUAL DESIGN SECTION 11+00 a
7.	XS1100b	CONCEPTUAL DESIGN SECTION 11+00 b



University of
New Hampshire

University of New Hampshire

CHART



Coastal Habitat Restoration Team

NOTES

1. THESE ARE CONCEPTUAL DRAWINGS, AND ARE NOT TO BE USED FOR ANY OTHER PURPOSE.
2. ALL TIDAL ELEVATIONS SHOWN ARE ESTIMATED FROM NOAA STATION 8423898 - FORT POINT NH, WHICH IS LOCATED 1 MILE EAST OF THE SITE, IN NEW CASTLE AND ON THE PISCATAQUA RIVER, AND ARE REFERENCED TO THE NAVD88 DATUM.
3. THE ONLY TOPOGRAPHIC DATA AVAILABLE DURING THE DEVELOPMENT OF THESE PLANS IS 2-FOOT LiDAR CONTOUR DATA, REFERENCED TO NAVD88 AND NH83F (NEW HAMPSHIRE STATE PLANE, US FEET) DATUMS. THE CONTOURS DO NOT GO BELOW ELEVATION 0.0'.
4. PENDING A SITE SURVEY, ALL TOPOGRAPHIC DATA IS ESTIMATED FROM THE LiDAR CONTOURS, AND THE DESIGNS OPTIONS ARE SET BASED OFF THIS DATA. DESIGNS MAY BE ALTERED SLIGHTLY WHEN BETTER DATA IS OBTAINED.
5. USE OF SHEET PILES MAY BE PREFERRED OVER 3:1 SLOPE DIMENSIONS OR RESTORATION QUANTITIES WOULD REQUIRE APPROPRIATE ADJUSTMENT TO THE AREAS AS DEPICTED ON THIS PLAN.

NOTE: A SEWER LINE EXISTS IN THE CAUSEWAY, BUT IS NOT SHOWN AND SHOULD NOT BE AFFECTED BY PROJECT. ALL DATA SHOWN, OTHER THAN THE LIDAR SURFACE WAS PROVIDED BY NHDOT IN THE FORM OF MICROSTATION UNDERLAYS. THIS INFORMATION IS SHOWN FOR REFERENCE ONLY.

EXISTING SURFACE TOPOGRAPHY BUILT FROM LIDAR DATA OBTAINED FROM NHGRANIT

ROUTE 1B
PORTSMOUTH AVE

EXISTING WATER MAIN

Curve No. 3
 PVI = 109+32.23
 W = 209738.54
 E = 1234509.10
 C = 13°~35'~29.8" RT
 T = 77.46'
 R = 650.00'
 L = 154.19'
 E = 4.60'

Stationing: 103, 104, 105, 106, 107, 108, 109, 110, 111

APPROX EXIST FLOW

PINN FAMILY REALTY HOLDING TRUST, PHILIP T. PINN, TRUSTEE

TOWN OF RIVERSIDE

420/234
2.4 AC.B

= Approx. Loc. 1926 Layout

NOTE: A SEWER LINE EXISTS IN THE CAUSEWAY, BUT IS NOT SHOWN AND SHOULD NOT BE AFFECTED BY PROJECT. ALL DATA SHOWN, OTHER THAN THE LIDAR SURFACE WAS PROVIDED BY NHDOT IN THE FORM OF MICROSTATION UNDERLAYS. THIS INFORMATION IS SHOWN FOR REFERENCE ONLY.

EXISTING SURFACE TOPOGRAPHY BUILT FROM LIDAR DATA OBTAINED FROM NHGRANIT

CURVE NO. 3

Pt=	109+32.23
N =	208736.54
E =	1234509.10
C =	13°~35'~29.8" RT
T =	77.46'
R =	650.00'
L =	154.19'
E =	4.60'

ROUTE 1 B
PORTSMOUTH AVE

EXISTING WATER MAIN

Stationing: 103, 104, 105, 106, 107, 108, 109, 110, 111

Survey Points:
 +16.32
 +16.72
 +16.42
 +16.52
 +16.52
 +16.52

Other labels: "APPROX EXIST P.C.", "P.C. INTERSECTION", "FINN FAMILY REALTY HOLDING TRUST, PHILIP T FINN, TRUSTEE", "TOWN OF RIVERSIDE", "420/234 2.4 AC.B"

 = Approx. Loc. 1926 Layout

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EXISTING SURFACE TOPOGRAPHY BUILT FROM LIDAR DATA OBTAINED FROM NHGRANIT

ROUTE 1B
PORTSMOUTH AVE

EXISTING WATER MAIN

PINN FAMILY REALTY HOLDING TRUST, PHILIP T. PINN, TRUSTEE

TOWN OF RIVERSIDE

420/234
2.4 AC.B

Curve No. 3
PVI = 109+32.23
W = 208726.54
E = 1234509.10
C = 13°-35'-29.8" RT
T = 77.46'
R = 650.00'
L = 154.19'
E = 4.60'

= Approx. Loc. 1926 Layout

NOTE: A SEWER LINE EXISTS IN THE CAUSEWAY, BUT IS NOT SHOWN AND SHOULD NOT BE AFFECTED BY PROJECT. ALL DATA SHOWN, OTHER THAN THE LIDAR SURFACE WAS PROVIDED BY NHDOT IN THE FORM OF MICROSTATION UNDERLAYS. THIS INFORMATION IS SHOWN FOR REFERENCE ONLY.

EXISTING SURFACE TOPOGRAPHY BUILT FROM LIDAR DATA OBTAINED FROM NHGRANIT

ROUTE 1B
PORTSMOUTH AVE

EXISTING WATER MAIN

Curve No. 3
 PVI = 109+32.23
 W = 209738.54
 E = 1234509.10
 C = 13°~35'~29.8" RT
 T = 77.46'
 R = 650.00'
 L = 154.19'
 E = 4.60'

Stationing: 103, 104, 105, 106, 107, 108, 109, 110, 111

APPROX EXIST FLOW

PINN FAMILY REALTY HOLDING TRUST, PHILIP T. PINN, TRUSTEE

TOWN OF RIVERSIDE

420/234
2.4 AC.B

= Approx. Loc. 1926 Layout

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EXISTING SURFACE TOPOGRAPHY BUILT FROM LIDAR DATA OBTAINED FROM NHGRANIT

Curve No. 3
 PIV = 109+32.23
 W = 209738.54
 E = 1234509.10
 C = 13°-35'-29.8" RT
 T = 77.46'
 R = 850.00'
 L = 154.19'
 E = 4.60'

ROUTE 1B PORTSMOUTH AVE

EXISTING WATER MAIN

PINN FAMILY REALTY HOLDING TRUST, PHILIP T. PINN, TRUSTEE

TOWN OF RIVERSIDE

420/234 2.4 AC.B

= Approx. Loc. 1926 Layout

NOTE: A SEWER LINE EXISTS IN THE CAUSEWAY, BUT IS NOT SHOWN AND SHOULD NOT BE AFFECTED BY PROJECT. ALL DATA SHOWN, OTHER THAN THE LIDAR SURFACE WAS PROVIDED BY NHDOT IN THE FORM OF MICROSTATION UNDERLAYS. THIS INFORMATION IS SHOWN FOR REFERENCE ONLY.

EXISTING SURFACE TOPOGRAPHY BUILT FROM LIDAR DATA OBTAINED FROM NHGRANT

ROUTE 1B
PORTSMOUTH AVE

EXISTING WATER MAIN

Approx. Loc. 1926 Layout





Curve No. 3
 PVI = 108+32.23
 W = 209738.54
 E = 1234509.10
 C = 13°~35'~29.8" RT
 T = 77.46'
 R = 650.00'
 L = 154.19'
 E = 4.60'





PINN FAMILY REALTY HOLDING TRUST, PHILIP T. PINN, TRUSTEE





TOWN OF RIVERSIDE





420/234
2.4 AC.B





[illegible]





 University of New Hampshire  Coastal Habitat Restoration Team	DESIGNED BY:	JCB, TPB
	DRAWN BY:	JCB
	CHECKED BY:	TPB
	DATE:	10 OCT 2017
NOTES:		
REVISION #	DATE	
SHEET TITLE: SITE OVERVIEW		
SHEET SET: CONCEPTUAL DESIGN OPTIONS		
PROJECT NAME: ROUTE 1B COASTAL RESILIENCE PROJECT		
PROJECT LOCATION: ROUTE 1B NEAR GOAT ISLAND IN NEW CASTLE, NH		
<div style="text-align: center;">  <p>SCALE: 1" = 30'</p>  <p>0 15 30 45</p> </div>		
SHEET ID: X-OVIEW		
SHEET NUMBER: 01 OF 07		





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SHEET ID: X-OVIEW		
SHEET NUMBER: 01 OF 07		

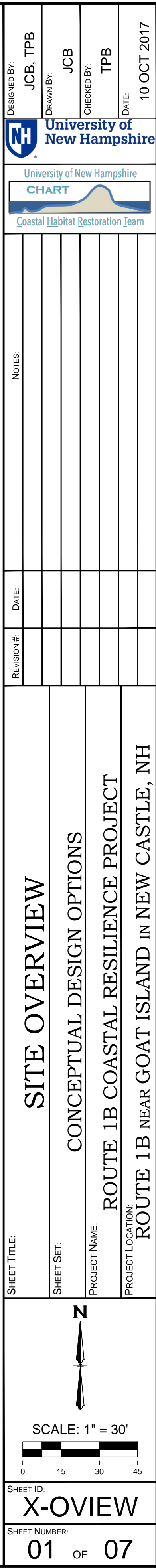
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SHEET ID: X-OVIEW		
SHEET NUMBER: 01 OF 07		

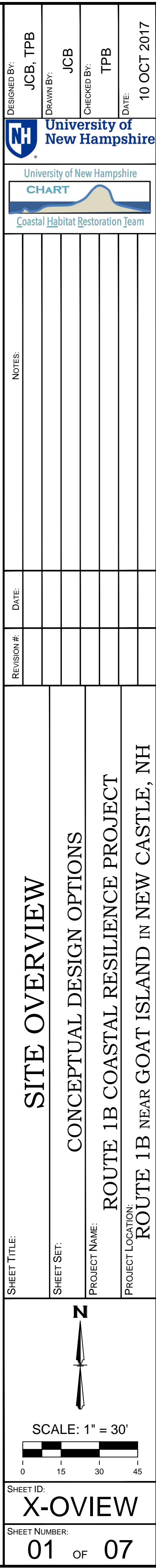
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	DATE:	10 OCT 2017
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<div style="text-align: center;">  <p>SCALE: 1" = 30'</p>  </div>		
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 University of New Hampshire  Coastal Habitat Restoration Team	DESIGNED BY:	JCB, TPB
	DRAWN BY:	JCB
	CHECKED BY:	TPB
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<div style="text-align: center;">  <p>SCALE: 1" = 30'</p>  <p>0 15 30 45</p> </div>		
SHEET ID: X-OVIEW		
SHEET NUMBER: 01 OF 07		

NOTE: A SEWER LINE EXISTS IN THE CAUSEWAY, BUT IS NOT SHOWN AND SHOULD NOT BE AFFECTED BY PROJECT.

STATIONS AND ALIGNMENT RELATIVE
TO THE RESTORATION SECTION OF
THE PROJECT; NOT THE SAME
STATIONING AS DOT DRAWING FILES

EXISTING SURFACE TOPOGRAPHY
- BUILT FROM LIDAR DATA OBTAINED
FROM NHGRANIT

CONCEPTUAL CROSS SECTION AT
- STATION 8+00; SEE SHEET XS800
FOR MORE DETAIL

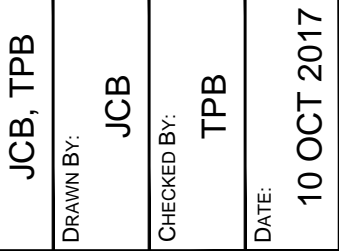
BUILD OUT SALT MARSH 40 FEET
FROM TOP OF EXISTING BANK;
APPROXIMATE LINEAR LENGTH OF
600 FEET

CONCEPTUAL CROSS SECTION AT
— STATION 11+00; SEE SHEET
XS1100 FOR MORE DETAIL

$PI = 109 + 32.23$
 $N = 209736.34$
 $E = 1234509.10$
 $Q = 13^\circ - 35' - 29.8''$ RT
 $T = 77.46'$
 $R = 650.00'$
 $L = 154.19'$
 $E = 4.60'$

EXCAVATE FOR SEA GRASS - GRASS MUST
BE AT LEAST 2' BELOW MLLW; USE
EXCAVATED MATERIAL FOR SALT MARSH FILL

EXCAVATE FOR SEA GRASS - GRASS MUST
BE AT LEAST 2' BELOW MLLW; USE
EXCAVATED MATERIAL FOR SALT MARSH FILL

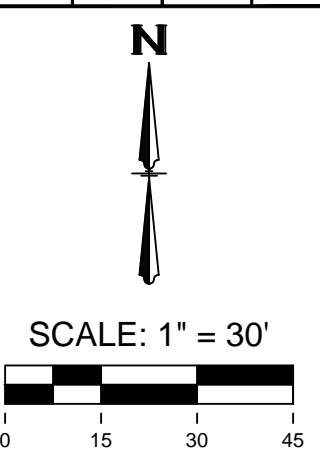
[illegible]

CONCEPTUAL SITE OVERVIEW

CONCEPTUAL DESIGN OPTIONS

ROUTE 1B COASTAL RESILIENCE PROJECT

ROUTE 1B NEAR GOAT ISLAND IN NEW CASTLE, NH



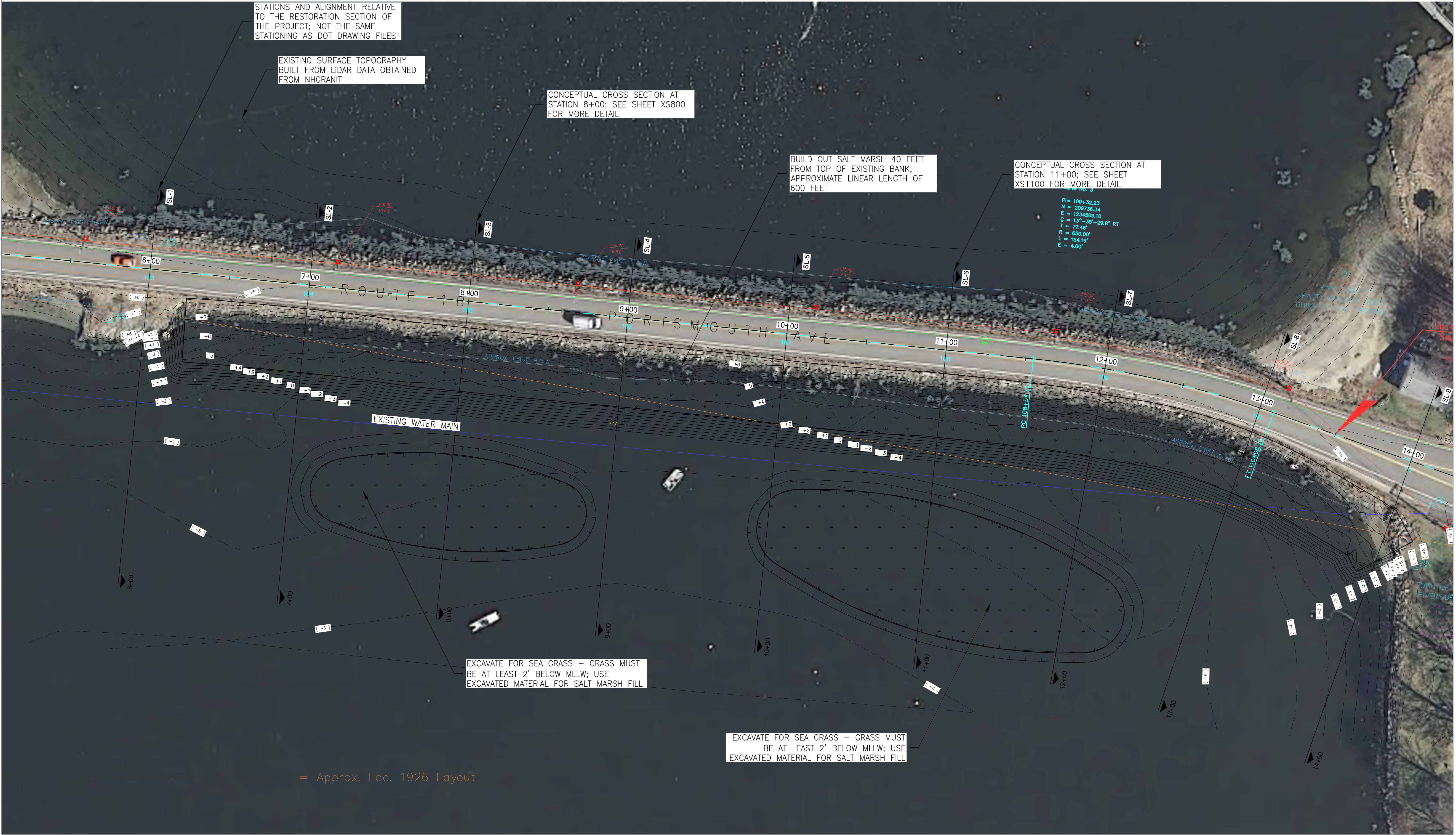
HEET ID:

P-OVIEW

HEET NUMBER:

02 OF 07

NOTE: A SEWER LINE EXISTS IN THE CAUSEWAY, BUT IS NOT SHOWN AND SHOULD NOT BE AFFECTED BY PROJECT.



DESIGNED BY:	JCB, TPB
DRAWN BY:	JCB
CHECKED BY:	TPB
DATE:	10 OCT 2017

University of New Hampshire
CHART
Coastal Habitat Restoration Team

NOTES:	
DATE:	
REVISION #:	

SHEET TITLE: PROPOSED OVERVIEW WITH AERIAL

SHEET SET: CONCEPTUAL DESIGN OPTIONS

PROJECT NAME: ROUTE 1B COASTAL RESILIENCE PROJECT

PROJECT LOCATION: ROUTE 1B NEAR GOAT ISLAND IN NEW CASTLE, NH

SCALE: 1" = 30'

SHEET ID: P-AERIAL

SHEET NUMBER: 03 OF 07

NOTE: FOR PLANNING PURPOSES,
MID-CENTURY SLR = 1.3', AND
END-OF-CENTURY SLR = 3.9'

8+00.00

EXISTING ROAD SURFACE FROM LiDAR DATA

SEED TIDAL BUFFER FLAT (ABOVE MHW) WITH LOW PROFILE, NATIVE, RIPARIAN SPECIES

FROM EDGE OF BANK (TOP OF RIP RAP), GRADE SLOPE DOWN AT 8%

40'

18" DIAMETER COIR LOG ROLLS BURIED 6" TO PROVIDE STEPS SO THAT 8% SLOPE IS MAINTAINED IN EACH MARSH SECTION

SEED LOWER MARSH FLAT (BELOW MHW) WITH TIDAL MARSH SPECIES

EACH OF THE THREE MARSH SECTIONS SHALL HAVE 8% SLOPE, WITH MARSH EDGE ELEVATION SET AT 2.0' NAVD88

EXISTING RIP RAP

USE EXISTING RIP RAP TO ARMOR END OF CONSTRUCTED SALT MARSH; SLOPE DOWN AT 1.5:1

EXCAVATE DOWN AND SEED WITH SEA GRASS; USE EXCAVATED MATERIAL FOR BACKFILL IN CONSTRUCTED SALT MARSH

HOT: 7.28'

SLR 50HIGHEST MHHW: 6.39'

SLR 50HIGH MHHW: 5.69'

SLR 50LOW MHHW: 4.99'


MHHW: 4.39'

MHW: 3.97'

MT: -0.35'

MLW: -4.66'

MLLW: -5.00'

 **University of
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University of New Hampshire
CHART


Coastal Habitat Restoration Team

[illegible]

SHEET TITLE:	CONCEPTUAL DESIGN SECTION 8+00 a
SHEET SET:	CONCEPTUAL DESIGN OPTIONS
PROJECT NAME:	ROUTE 1B COASTAL RESILIENCE PROJECT
PROJECT LOCATION:	ROUTE 1B NEAR GOAT ISLAND IN NEW CASTLE, NH

VERTICAL
EXAGGERATION:
5V:1H

SCALE: 1" = 10'

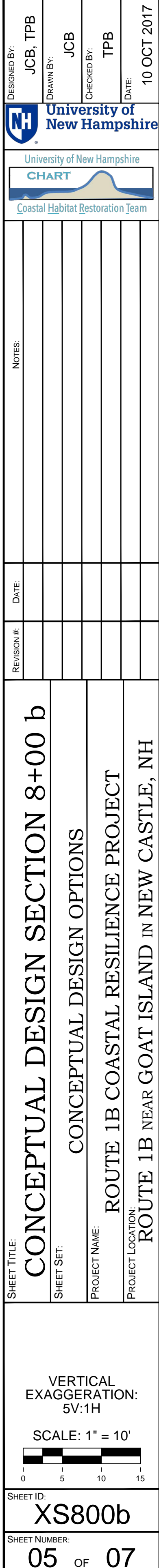


0 5 10 15

SHEET ID:
XS800a

SHEET NUMBER:
04 OF **07**

NOTE: XS 8+00 b IS THE SAME AS XS 8+00 a,
BUT SHOWING THE EXISTING ROAD RAISED UP 2.0',
FOLLOWING THE EXISTING SLOPE OF THE
EMBANKMENT TO THE NORTH SIDE OF THE ROAD,
AND TYING INTO THE MARSH. THE MARSH MAY BE
CONSTRUCTED FIRST IN THIS OPTION, WITH THE ROAD
OPTION BUILT IN THE FUTURE.



NOTE: FOR PLANNING PURPOSES,
MID-CENTURY SLR = 1.3', AND
END-OF-CENTURY SLR = 3.9'

11+00.00

EXISTING ROAD SURFACE FROM LIDAR DATA

SEED TIDAL BUFFER FLAT (ABOVE MHW) WITH LOW PROFILE, NATIVE, RIPARIAN SPECIES

FIRST TWO SECTIONS SHALL HAVE A MARSH SLOPE OF 10%, SEPARATED BY A COIR LOG STEP

18" DIAMETER COIR LOG ROLL BURIED 9", PROVIDING 9" OF ELEVATION GAIN, SEPARATING THE STEEPER 10% UPPER MARSH FROM THE FLATTER 7% MARSH

SECOND TWO SECTIONS SHALL HAVE A MARSH SLOPE OF 7%, SEPARATED BY A COIR LOG STEP

SEED LOWER MARSH FLAT (BELOW MHW) WITH TIDAL MARSH SPECIES

18" COIR LOG ROLL BURIED 12" DEEP TO PROVIDE 6" GAIN IN ELEVATION

EXISTING RIP RAP

18" COIR LOG ROLL BURIED 12" DEEP TO PROVIDE 6" GAIN IN ELEVATION

USE EXISTING RIP RAP TO ARMOR END OF CONSTRUCTED SALT MARSH; SLOPE DOWN AT 1.5:1

EXCAVATE DOWN AND SEED WITH SEA GRASS; USE EXCAVATED MATERIAL FOR BACKFILL IN CONSTRUCTED SALT MARSH

HOT: 7.28'

SLR 50HIGHEST MHHW: 6.39'

SLR 50HIGH MHHW: 5.69'

SLR 50LOW MHHW: 4.99'

MHHW: 4.39'

MHW: 3.97'


MT: -0.35'

MLW: -4.66'


MLLW: -5.00'

Elevation

Elevation

 **University of
New Hampshire**

University of New Hampshire
CHART




Coastal Habitat Restoration Team

[illegible]

SHEET TITLE:	CONCEPTUAL DESIGN SECTION 11+00 a
SHEET SET:	CONCEPTUAL DESIGN OPTIONS
PROJECT NAME:	ROUTE 1B COASTAL RESILIENCE PROJECT
PROJECT LOCATION:	ROUTE 1B NEAR GOAT ISLAND IN NEW CASTLE, NH

VERTICAL
EXAGGERATION:
5V:1H

SCALE: 1" = 10'

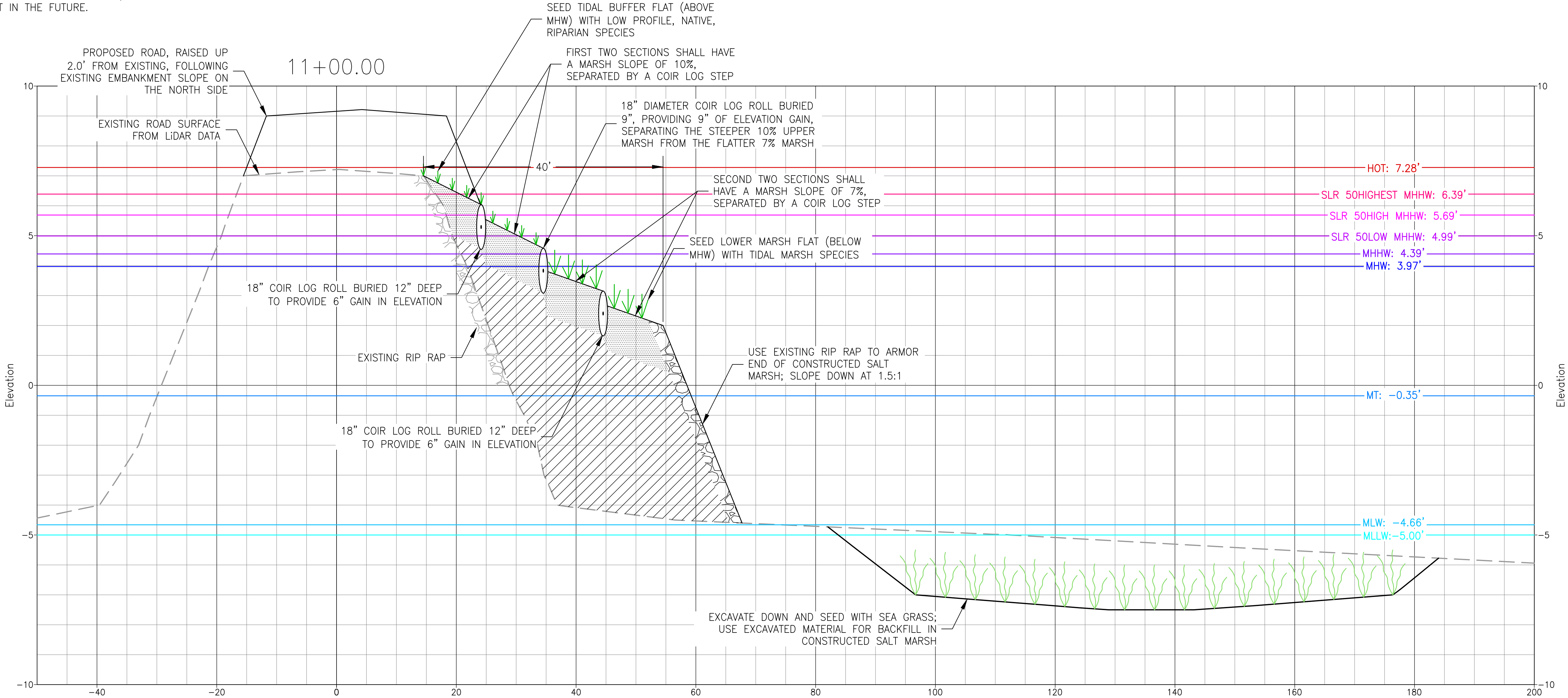


SHEET ID:
XS1100a

SHEET NUMBER:
06 OF **07**

NOTE: FOR PLANNING PURPOSES,
MID-CENTURY SLR = 1.3', AND
END-OF-CENTURY SLR = 3.9'

NOTE: XS 11+00 b IS THE SAME AS XS 11+00 a,
BUT SHOWING THE EXISTING ROAD RAISED UP 2.0',
FOLLOWING THE EXISTING SLOPE OF THE
EMBANKMENT TO THE NORTH SIDE OF THE ROAD,
AND TYING INTO THE MARSH. THE MARSH MAY BE
CONSTRUCTED FIRST IN THIS OPTION, WITH THE ROAD
OPTION BUILT IN THE FUTURE.



DESIGNED BY:	JCB, TPB	 University of New Hampshire CHART Coastal Habitat Restoration Team
DRAWN BY:	JCB	
CHECKED BY:	TPB	
DATE:	10 OCT 2017	
NOTES:		
DATE:		
REVISION #:		
SHEET TITLE:		CONCEPTUAL DESIGN SECTION 11+00 b
SHEET SET:		CONCEPTUAL DESIGN OPTIONS
PROJECT NAME:		ROUTE 1B COASTAL RESILIENCE PROJECT
PROJECT LOCATION:		ROUTE 1B NEAR GOAT ISLAND IN NEW CASTLE, NH
VERTICAL EXAGGERATION: 5V:1H		
SCALE: 1" = 10'		
SHEET ID:		
XS1100b		
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