



**Agenda**  
**Board of Selectmen's Meeting**  
**Town of Damariscotta, Maine**  
**September 15, 2021; 4:30 PM**  
**Damariscotta Town Hall**

- I. Pledge of Allegiance**
- II. Call to Order**
- III. Minutes**
  - 1. September 1 Meeting
- IV. Financial Reports**
  - 1. Payroll Warrant
  - 2. Accounts Payable Warrants(s)
- V. Presentations**
- VI. Citizen Comments and General Correspondence**
- VII. Town Manager Items**
  - 1. Town Meeting On Amendments to the Town Charter
  - 2. Annual Lincoln County Budget Caucus
  - 3. Public Meeting On Waterfront Improvement Project -September 28
  - 4. Report from Acadia Engineering on Church Street Culvert
- VIII. Official Action Items**
  - 1. Code Enforcement Officer Agreement (tabled)
  - 2. MMA Annual Business Meeting Credentials
  - 3. Request for Proposals for Assessing Services
- IX. Selectmen's Discussion Items**
- X. Adjournment**



# Town Manager Notes for September 15, 2021 Board of Selectmen's Meeting

## Town Manager items:

1. **Town Meeting to Consider Amendments to the Town Charter-** Given that the deadlines for notices and public hearings for a special town meeting/referendum are quickly approaching, it may be difficult to hold a town meeting in November. I am recommending that the Board set the special town meeting to coincide with the annual Town elections and State ballot election in June, 2022.
2. **Annual Lincoln County Budget Caucus (letter from Commissioner Trescot attached)**
3. **Public Meeting on Waterfront Improvement Project -September 28** – The meeting will be held starting at 6 PM at Lincoln Theater. It will include a presentation by project consultants and ample opportunity for public discussion. The meeting will be broadcast live on YouTube.
4. **Report from Acadia Engineering on Church Street Culvert-** See attached report. I will provide a verbal update at Wednesday's meeting.

## Official Action Items

1. **Code Enforcement Officer Agreement- (tabled)** Since July 2018, the Town has shared the Code Enforcement Officer position with the Town of Waldoboro. The agreement, if approved by both Boards of Selectmen, will continue this arrangement through the current fiscal year and will be automatically be renewed each year unless either party wishes to terminate the agreement with a 30-day notice. The Code Enforcement Officer will continue to be an employee of the Town of Waldoboro. Damariscotta's 50 percent share of the salary and benefits will need to be approved as part of each annual budget process.

As of today, I have not received the final draft of this agreement from Waldoboro. If I do not receive it by Wednesday's meeting, I will ask you to continue to table this agenda item.

2. **Maine Municipal Association Conference Voting Credentials-** The attached voting credentials when executed by the Board will allow Damariscotta to participate in the annual MMA business meeting on September 29.



**Recommended Action: Designate a Damariscotta conference attendee as the Town's voting delegate at the September 29 MMA Annual Business Meeting and another as the alternate delegate.**

3. **Request for Proposals for Assessing Services-** Attached is a draft Request for Proposals (RFP) for assessing services that I prepared and had Jim Murphy review. I kept the document brief and wrote it in such a way that will hopefully encourage both assessing services firms and qualified individuals to submit proposals. In addition to posting a notice on professional association websites and the local paper, I will email the RFP to firms located in mid-coast and south-central Maine that are either listed on the State Department of Revenue website or recommended by others in the management and assessing fields.

**Recommended Action: Make any changes that the Selectmen wish to make in the draft document and approve the request for proposals for assessing services.**



OFFICE OF  
LINCOLN COUNTY COMMISSIONERS

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Wiscasset, Maine  
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District One  
Hamilton W. Meserve  
Southport, Maine

District Two  
William B. Blodgett  
Waldoboro, Maine

District Three  
Mary R. Trescot  
Damariscotta, Maine

August 31, 2021

**NOTICE  
TO ALL MUNICIPAL OFFICERS  
REGARDING  
THE LINCOLN COUNTY BUDGET ADVISORY COMMITTEE**

Chapter 718 of the Public Laws of 1989, enacted by the second session of the Legislature (30-A M.R.S.A. Sec. 791 et seq.) requires that each County Commissioner, no later than 100 days before the end of the county's fiscal year, shall notify all municipal officers to caucus by County Commissioner District. The purpose of this year's caucus is to choose one municipal officer from each District to serve a three-year term on the Lincoln County Budget Advisory Committee.

The caucus for municipal officers from Commissioner District Three (**Alna, Damariscotta, Dresden, Jefferson, Newcastle, Somerville and Whitefield**) will be held on **Thursday, September 16, 2021 at 6:00 P.M.** at the Lincoln County Court House in the Multi-Purpose Room. The presence of all selectmen from each town is requested. In response to COVID-19, we request attendees RSVP so we can prepare an appropriate meeting space for the members in attendance. Face coverings will be required of all those attending.

The other two Commissioner Districts will hold a similar caucus, resulting in a nine-member advisory committee. One member of the Legislative Delegation will sit on the committee. The Budget Committee shall choose its own chairperson annually.

The County Commissioners will submit a proposed budget to the committee no later than 90 days before the end of the county's fiscal year. The committee shall make its recommendations to the County Commissioners no later than 45 days before the end of the county's fiscal year.

Please call Michelle Richardson, Finance Director, at 882-6311 to confirm your attendance or if you have any questions. I look forward to seeing you at the caucus and another year of our working closely together in budget preparation for Lincoln County.

Sincerely yours,

A handwritten signature in cursive script that reads 'Mary Trescot'.

Mary R. Trescot  
Lincoln County Commissioner  
District Three





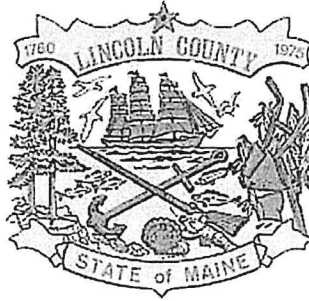
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Damariscotta, Maine

FY-2022 LINCOLN COUNTY BUDGET ADVISORY COMMITTEE  
DISTRICT THREE  
COMMISSIONER WILLIAM B. BLODGETT

**TOWN OF ALNA**

Charlie Culbertson  
Linda Kristan  
Vacant

VOTE/TERM

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**TOWN OF DAMARISCOTTA**

Mark Hagar  
Joshua Pinkham  
Daryl Fraser  
Tom Anderson  
Louis Abbotoni

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\_\_\_\_\_  
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Current Member

**TOWN OF DRESDEN**

John Rzasa  
Allan Moeller, Sr.  
Gerald Lilly

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\_\_\_\_\_  
\_\_\_\_\_

**TOWN OF JEFFERSON**

Gregory Johnston  
Robert E. Clark, Jr  
Pamela Grotton

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**TOWN OF NEWCASTLE**

Karen Paz  
Tor Glendinning  
Joel Lind  
Rob Nelson  
Wanda Wilcox

\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
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**TOWN OF SOMERVILLE**

Chris Johnson (Chair)  
Jarad Greeley  
Don Chase

Current Member

\_\_\_\_\_  
\_\_\_\_\_

**TOWN OF WHITEFIELD**

Bill McKeen  
Keith Sanborn  
Charlene Donahue  
Lise Hanners  
Lester Sheaffer (Chair)

\_\_\_\_\_  
\_\_\_\_\_  
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## Lincoln County Calendar for FY-2022 Budget

<b>CY 2022</b>	
<b>Tuesday July 8</b>	Distribute FY-2022 Budget Request Forms to each Department.
<b>Friday July 16</b>	Notice to Organizations for budget requests with proposed overall budget for FY-2022
<b>Tuesday July 30</b>	Completed Departmental Budget Request Forms and Organization requests returned to the Finance Department.
<b>Friday August 6</b>	Caucus Notification letters mailed to each Town. Letters to Legislative Delegation regarding delegate for BAC.
<b>Friday August 27</b>	Combo ad, Public Hearing, to Lincoln County News, Boothbay Register, Wiscasset Newspaper. Ad to run weeks ending September 10 and 17.
<b>Thursday September 16</b>	6:00 P.M. – Caucus, for election of Budget Committee (Courthouse)
<b>Thursday September 23</b>	Budget Request Summary to Budget Advisory Committee, Department Managers, Non-Profits and Towns, along with a copy of the Budget Calendar.
<b>By Thursday September 23</b>	Mail or deliver FY-2022 Budget Books to Budget Advisory Committee
<b>Thursday September 23</b>	6:00 P.M. – Public Hearing, presentation of FY-2022 budget requests by County Administrator. (LCRPC)
<b>Friday October 8</b>	9:00 A.M. – Budget Advisory Committee, work session (LCRPC)
<b>Thursday November 4</b>	1:00 P.M. – Informational Meeting with the Budget Advisory Committee and Legislative Delegation. (LCRPC)
<b>Tuesday December 21</b>	Statutory deadline for approved FY-2022 Budget by County Commissioners.

Approved 7/20/2021

**LCRPC address: 297 Bath Road, Wiscasset, Maine**

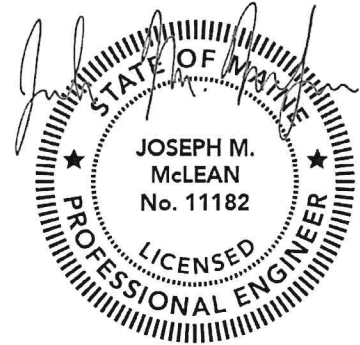




ACADIA CIVIL WORKS  
ENGINEERING DESIGN & CONSULTATION

## MEMO

To: Mr. Matthew J. Lutkus, Town Manager  
From: Joseph M. McLean, PE, Acadia Civil Works  
Date: August 26, 2021  
Subject: Church Street Crossing Assessment at Castner Brook  
Damariscotta, ME



This memorandum has been prepared as a summary of the engineering assessment performed at the Church Street Crossing Assessment at Castner Brook in Damariscotta. Several sketch plans have been attached to supplement this narrative and illustrate recommendations. A site location map has been provided as SK-1 (attached).

### DATA SOURCES

A variety of data sources were utilized in this assessment. The following is a brief description of the most substantive sources.

*LiDAR and GIS* – Existing conditions topography shown on the sketch plans and used in this assessment were produced by Acadia Civil Works via a cloud of LiDAR ground points downloaded from the NOAA Data Access Viewer. Specifically, the LiDAR data utilized is from the 2011 USGS Lidar dataset. Additionally, aerial photography is from the Maine Office of GIS and from flights dated 2013. An existing condition plan reflecting this data is attached as SK-2.

*Sewer Plan* – An existing 8" PVC sewer is located in Church Street at the Crossing of Castner Brook. Acadia Civil Works acquired a plan/profile of the sewer from the Great Salt Bay Sanitary District.

*Geotechnical Evaluations* – The Town of Damariscotta retained Summit Geoenvironmental Services to perform an investigation in the area of the existing culvert at Church Street. The report and subsurface explorations (dated August 5, 2020) were reviewed and considered in this assessment.

*Tidal Monitoring* – Acadia Civil Works deployed tidal monitoring equipment upstream and downstream of the existing culvert at Church Street to record the local tidal hydrology. More information on this data collection effort are described in later sections of this report.

*Stream Survey* – Acadia Civil Works performed survey of the longitudinal profile of the downstream reach of Castner Brook, as well as the immediate upstream area. The results of this survey are included as SK-3 (attached).



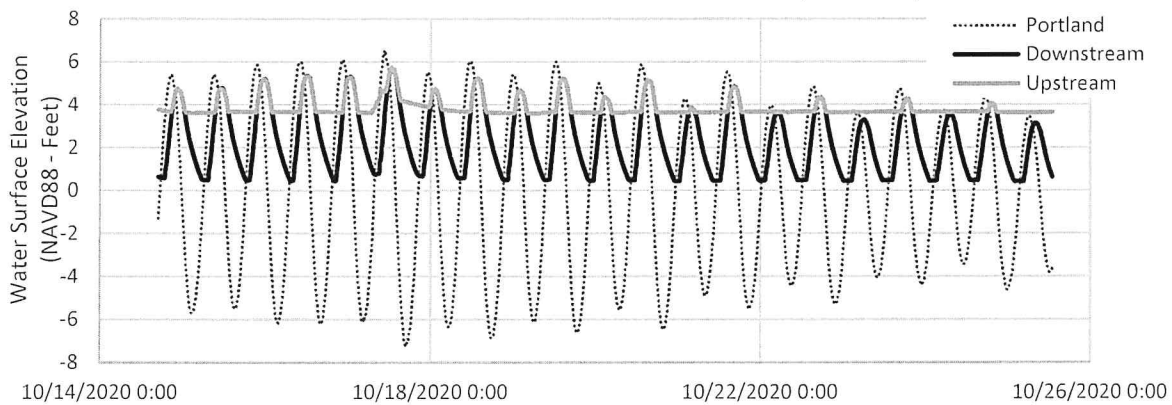
*Vertical Datum* – As part of the tidal monitoring and stream survey work, Acadia Civil Works established a vertical benchmark on a nearby utility pole in reference to NAVD88. This benchmark was established by performing a level loop traverse between the site and an established USGS vertical datum disk set in bedrock adjacent to US. Route 1 (Station: 171, PID: PE1325). The potential error associated with this level loop is approximately 0.2 feet. All vertical elevations referenced in this assessment are in relation to NAVD88, however prior to performing final design a Professional Land Surveyor licensed in the State of Maine should be retained to perform additional work to survey existing conditions at the site and improve the accuracy of the datum adjustments.

**HYDROLOGIC CONDITIONS**

*Tidal Hydrology*

Acadia Civil Works deployed two (2) water data loggers to the site for the period of October 14, 2020 to October 25, 2020. The data loggers utilized were CTD-Divers manufactured by Schlumberger and they recorded real time water levels, conductivity levels, and water temperature at six minute intervals correlated to the NOAA tide gauge in Portland. As these are unvented data loggers, they were adjusted with real time atmospheric data recorded by a BarroDiver (manufactured by Schlumberger) also deployed to the site by Acadia Civil Works. The resulting water level and conductivity data is provided in the following charts (Figures 1 and 2).

**FIGURE 1 – TIDAL DATA COLLECTION IN CASTNER BROOK AT CHURCH STREET  
RECORDED WATER SURFACE ELEVATIONS (NAVD88)**



**FIGURE 2 – TIDAL DATA COLLECTION IN CASTNER BROOK AT CHURCH STREET  
RECORDED CONDUCTIVITY (mS PER CM)**







As shown in Figure 1, there is a noticeable shift in the peak of high tide recorded at the site versus at the Portland Tide Station. This shift is both temporal (high tide occurs later in time at the site), as well as in elevation (the high tide at the site is lower). There is also a notable deviation in the ebb cycle of the tide. While the inflow of the tide curve parallels the Portland Tide gauge to an approximate extent, the ebb cycle of the tide is dramatically extended at this site and shows little correlation to the Portland Tide gauge over the ebb and low tide cycle. This lack of correlation is due to the fundamental difference in hydraulic conditions monitored in a purely tidal environment (as is the case in Portland Harbor) versus the conditions experienced at Castner Brook, which is immediately tributary to the Damariscotta River. In the River, water levels are certainly influenced by the tide, however other significant factors including river flow and other channel structures have significant bearing on how water elevations change over time.

Of particular note is the bridge crossing between Newcastle and Damariscotta. Observation of the ebb and flow of tide at this crossing, particularly at times of high river flow can provide the casual observer with insight in how this physical river structure can impact the ebb and flow of tides in the Damariscotta River. As our recorded data shows (Figure 1), the inflow of water during high tide events causes an immediate and somewhat parallel response to that shown in Portland. However, the tidal volume (as well as freshwater flows) take more time to drain from the river system, resulting in a much more drawn out ebb of the tide (compared to the unrestricted ebb of tide in Portland Harbor and the open Ocean).

Utilizing the locally collected elevation data, Acadia Civil Works created an estimated design tidal curve for the NOAA 99% Exceedance tide (1-year event). In 2018, the 99% exceedance tide at the NOAA Portland Tide Station is reported as 2.03 meters (6.66 feet) in relation to NAVD88. It should be noted that the NOAA Portland Tide Gauge recorded a high tide of 6.51 feet on October 17th, which is very close to the 99% exceedance tide. However, there was also a rainfall event that occurred during this time. As such the local monitoring data in Castner Brook reflects significant influences of this increased freshwater flow.

For this assessment, the Higher-High tide that occurred on October 20<sup>th</sup> (measured at the site in Castner Brook) was adjusted upward linearly by 0.81 feet (difference between 6.66 99% exceedance tide in Portland and 5.85 higher-high tide recorded in Portland on October 20<sup>th</sup>) to approximate the 99% exceedance tide. A plot of this tidal condition is shown below in Figure 3.

#### *Sea Level Rise*

In addition to the understanding current tidal conditions at the site, it is also important to look forward to changes in tidal conditions that are likely to be experienced in the coming years. The US Army Corps of Engineers (Corps) has developed a web-based calculation tool for the prediction of future sea levels at a given site for a range of potential climate change scenarios. The tool is named the "Sea-Level Change Curve Calculator (Version 2019.21)" and is located on the Corps website. This web-tool utilizes localized land subsidence values, as well as local tidal information to determine potential future sea level rise values.

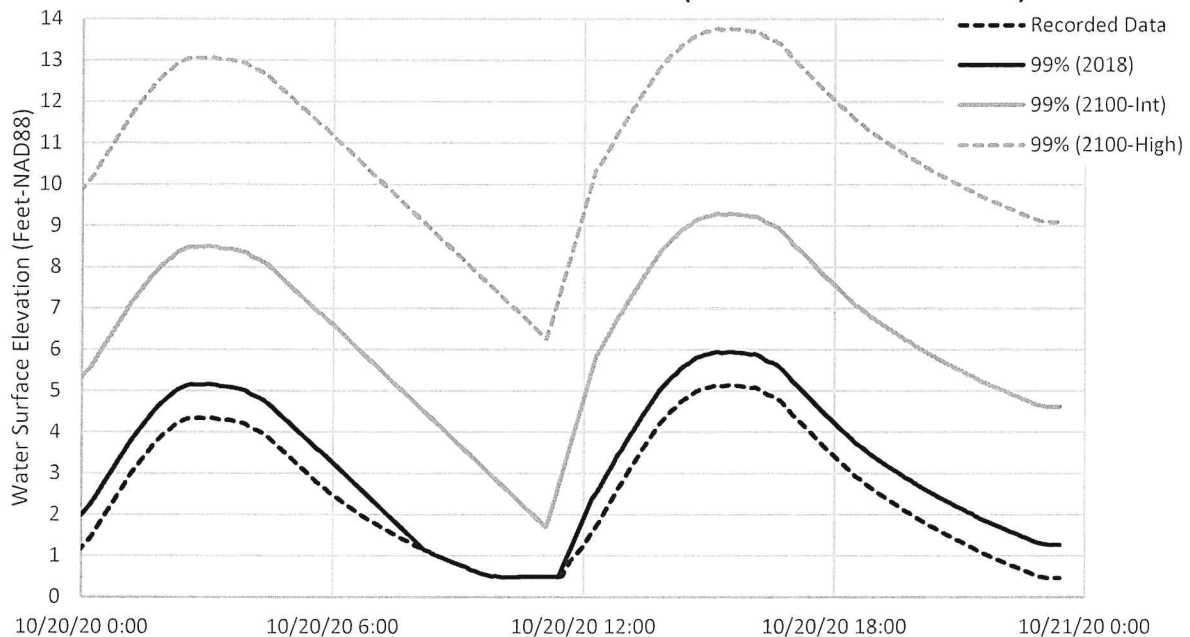
The Corps web tool relies heavily on work of other agencies to evaluate potential sea level rise scenarios. The most recent and comprehensive data related to potential sea level rise scenarios was published in 2017 as NOAA Technical Report NOS CO-OPS 083. This report was a collaboration of several institutional and governmental agencies, including the USGS, US EPA, and Rutgers University. The report provides regional guidelines for several potential sea level rise scenarios that range from "low" to "extreme." The variability in these scenarios are



generally related to their assumptions associated with climate change and future carbon emissions. Refer to the full report for further details associated with these findings.

Using the Corps calculator and the recent NOAA (2017) climate change scenarios, the estimated 99% exceedance tide has been adjusted under two (2) primary conditions. One is the “Intermediate” scenario, which predicts that sea levels will rise by approximately 3.34 feet from the year 2020 to the year 2100. The second adjustment was in accordance to the NOAA 2017 “High” scenario, which predicts 7.91 feet of sea level rise during the same period. Figure 3, below, depicts the current (2018) 99% exceedance tide, along with the anticipated 99% exceedance tide in the year 2100 in the “Intermediate” and “High” sea level rise scenarios.

**FIGURE 3 – ESTIMATED 99% EXCEEDANCE TIDE LEVELS IN CASTNER BROOK IN 2018 AND IN FUTURE SLR SCENARIOS (NOAA 2017 INT and HIGH)**



In addition to the 99% exceedance tide, it is also important to consider extreme tidal events, as well as how they may be increased by Sea Level Rise. The Federal Emergency Management Agency has identified the 100-year flood condition in the Damariscotta River as 10 feet (NAVD88) on the Flood Insurance Rate Map (FIRM) #23015C0267D. The FEMA Flood Insurance Study (FIS) provides further detail on the flood levels at various other recurrence intervals. Table 1, below summarizes these extreme event water surface levels, as well as how they may increase due to sea level rise.

**TABLE 1 - ESTIMATED PEAK TIDAL ELEVATIONS (FEET - NAVD88)**

Tide Event	Recurrence	Current (2018)	Potential Future		Data Source
			2100 (Int)	2100 (High)	
1-year	99% Annual	6.0	9.3	13.9	NOAA/ACW
10-year	10% Annual	8.9	12.2	16.8	FEMA/ACW
50-year	2% Annual	9.7	13.0	17.6	FEMA/ACW
100-year	1% Annual	10.2	13.5	18.1	FEMA/ACW
500-year	0.2% Annual	11.5	14.8	19.4	FEMA/ACW



### *Watershed Hydrology*

The Casnter Brook crossing at Church Street has a tributary watershed of approximately 2.4 square miles. Of this area, approximately 0.35 square miles (14.5%) is mapped as wetland area as identified by the National Wetlands Inventory mapping. There are no substantial sand and gravel aquifers mapped in the watershed. Discharges from Castner Brook are directly into the Damariscotta River, which eventually discharges to the Gulf of Maine near Boothbay. There are no site-specific flow monitoring stations or data available within the watershed for this location.

If a person were to observe a stream on any given day, it is most probable that they would be witnessing the median flow condition (or something similar to the median condition). Certainly, periods of drought or periods of intense rainfall will influence those observations. However, statistically speaking, the median result is the one most likely to be experienced. These median flow rates are helpful to gauge the “typical” flow conditions at the site. The median condition for each month of an average year is provided below in Table 2.

**TABLE 2 - ESTIMATED MEDIAN (Q<sub>50</sub>) MONTHLY FLOW RATES**

Month	Median Flow (cfs)
January	2.4
February	2.3
March	9.7
April	8.0
May	2.2
June	1.3
July	0.3
August	0.1
September	0.1
October	0.9
November	4.4
December	4.4

Acadia Civil Works utilized regression techniques via the USGS StreamStats webtool. This methodology follows the equations and procedures established in USGS Scientific Investigations Report 2015-5151 to determine monthly flow rates at the crossing location. This methodology utilizes a number of stream flow gauging stations located around the state with a substantive history of recorded streamflow data to develop predictive equations based upon several explanatory variables. These variables include drainage basin area, areal fraction of the drainage basin underlain by sand and gravel aquifers, distance from the coast to the drainage basin centroid, mean drainage basin annual precipitation, and mean drainage basin winter precipitation.

It should be noted that some of the watershed characteristics are outside of the suggested range of parameters, and therefore these median monthly conditions have been extrapolated. Regardless, this technique provides a simple and relatively accurate means of understanding normal flow rates in the stream throughout the year. If more accurate base flow estimates are required at this site, more advanced hydrologic monitoring of the site will be required.



During heavy rainfall and extreme events, freshwater discharges at the Castner Brook will be much higher than the median conditions. An extreme event is something that doesn't happen very often, such as a hurricane event or a very heavy rain coupled with melting snow or frozen ground. The likelihood of these rare events is often expressed as a "recurrence interval", such as the 100-year storm. Statistically, the 100-year storm will be equaled or exceeded at least once (and perhaps more than once) every 100-years. Another way of thinking about the recurrence interval is as its chance of annual occurrence. For example, a 100-year event has a 1% chance of occurring in any given year. Similarly, the 2-year event has a 50% chance occurring in any given year, and so on. The estimated extreme flow rates for the primary Small Point Road crossing are shown below in Table 3.

**TABLE 3 - ESTIMATED EXTREME FLOW RATES**

Recurrence Interval	Peak Flow (cfs)
1-year	23.9
2-year	78.4
5-year	122
10-year	152
25-year	198
50-year	229
100-year	267
250-year	299
500-year	355

To determine these extreme flow rates, Acadia Civil Works utilized regression techniques via the USGS StreamStats webtool. This methodology follows the equations and procedures established in USGS Scientific Investigations Report (SIR) 2015-5049. Similar to the methodology outlined above for median conditions, this methodology utilizes a number of stream flow gauging stations located around the state with a substantive history of recorded streamflow data to develop predictive equations based upon several explanatory variables. These variables include drainage basin area, as well as the areal fraction of NWI mapped wetland area.

It should be noted that all of the watershed characteristics associated with the Extreme Flow estimates (Table 3) are within the suggested range of parameters, and therefore these flow estimates are within the reported estimation range associated with USGS SIR 2015-5049.

## **HYDRAULIC PERFORMANCE**

### *Tidal Performance*

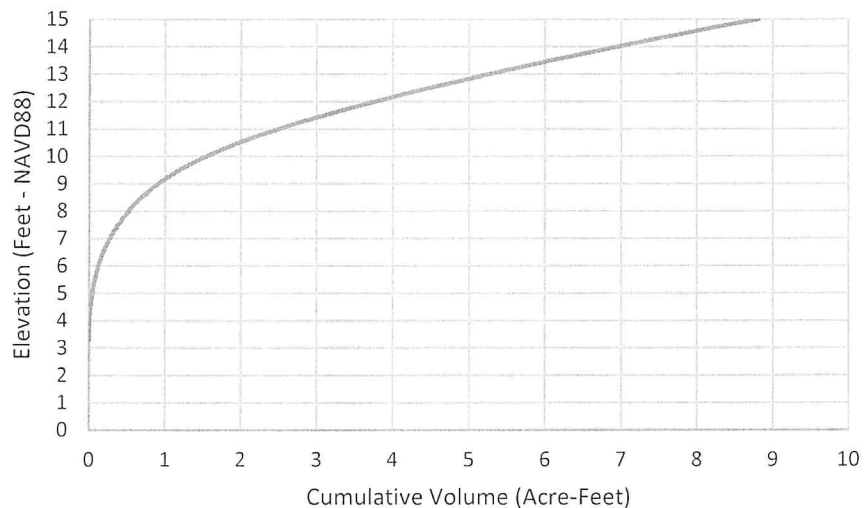
A properly sized tidal stream crossing structure will allow for a reasonably unimpeded ebb and flow of the tide through the structure. The crossing of Castner Brook at Church Street was modeled utilizing HEC-RAS (version 6.0.0) computer software to evaluate a variety of tidal conditions, particularly the 99% exceedance (1-year) tide condition depicted above in Figure 3.





A key aspect when evaluating tidal performance is the tidal prism. This is the volume of tidal water that is exchanged through the crossing structure during the tidal cycle. This is driven in large part by the amount of potential storage volume available upstream of the tidal crossing structure. The 2011 USGS Lidar Dataset was utilized to describe the terrain in this area. From that data, Acadia Civil Works generated a stage-volume relationship that was utilized in the HEC-RAS model. This stage-volume shown below in Figure 4.

**FIGURE 4 – STAGE-VOLUME RELATIONSHIP UPSTREAM OF CHURCH STREET**



**FIGURE 5 – AREA OF POTENTIAL TIDAL INUNDATION UPSTREAM OF CHURCH STREET DURING A 99% EXCEEDANCE TIDAL EVENT IN THE YEAR 2100 (NOAA2017 HIGH SLR)**



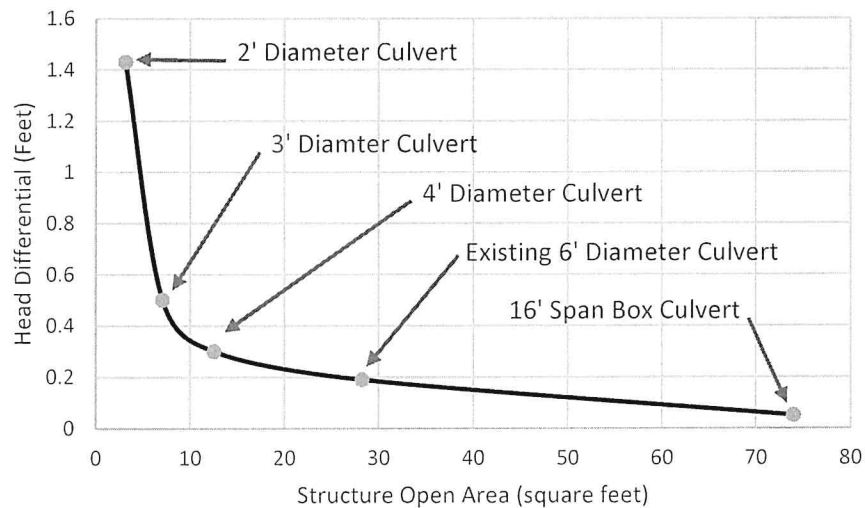


As shown in Figure 5, the potential area of inundation during a future (2100) 99% exceedance tide event (assuming the “High” sea level rise scenario from NOAA 2017) is associated with a 1.8 acre footprint upstream of Church Street. The available volume (potential tidal prism) described in Figure 4 is contained within that footprint.

The primary metric for evaluating the crossing structure used in this analysis is the peak instantaneous differential of hydraulic head across the structure. This is essentially evaluating the water level at any given time during the tidal cycle and comparing the upstream to downstream water surface elevations. The point during the tidal cycle when that difference is greatest, is the peak head differential.

Overall the existing crossing structure performed very well during the current (2018) and future (2100) 99% exceedance (1-year) tides, when considering the “intermediate” NOAA 2017 sea level rise scenario. The head differential did not begin to deviate substantially until the “high” NOAA2107 SLR scenario was considered. Acadia Civil Works evaluated a variety of structure sizes at Church Street under this scenario to generate a sizing curve based on the Head Differential. This sizing curve is shown below in Figure 6.

**FIGURE 6 – CHURCH STREET CROSSING STRUCTURE SIZING CURVE  
CONSIDERING A 99% EXCEEDANCE TIDAL EVENT IN THE YEAR 2100 (NOAA2017 HIGH SLR)**



As shown in Figure 6, the existing 6’ diameter box culvert is sized well for future tidal conditions. The existing structure has a peak head differential of only 0.2 feet.

#### *Storm Event Performance*

In addition to tidal conditions, the crossing structure was also evaluated to determine its performance during the extreme flow events (Table 3). The HEC-RAS model was utilized to evaluate the existing 6’ diameter structure in the 10, 50, 100, and 500-year flow events. These flows were also evaluated during a free discharge (i.e. low tide) condition, as well as during FEMA’s identified 100-year tide elevation (10.2 feet). The results of this modeling exercises is identified below in Table 4.



**TABLE 4 - ESTIMATED PEAK FLOOD FLOW PERFORMANCE  
FOR EXISTING 6' DIAMETER CULVERT AT CHURCH STREET**

Recurrence Interval (Annual Probability)	Flood Flow Rate (cfs)	Peak Tailwater Surface Elev. (Feet-NAVD88)	Peak Upstream Flood Elevation (Feet-NAVD88)	Roadway Freeboard (Feet)
10-year (10%)	152	5.2	7.6	6.6
		10.2	11.0	3.2
50-year (2%)	229	5.8	9.2	5.0
		10.2	12.1	2.1
100-year (1%)	267	6.0	10.0	4.2
		10.2	12.8	1.4
500-year (0.2%)	355	6.2	12.2	2
		10.2	14.5	(-0.3)

As shown in Table 4, the existing 6' diameter has capacity to provide at least foot (1) of free board for all conditions modeled, with the exception of the very extreme 500-year flow event, which would coincide with a 100-year tide. In that rare condition, the roadway would overtop by approximately 0.3 feet.

It is our understanding that Church Street experienced an overtopping flood event on July 14, 2020. Several video clips of the flooding have been shared with Acadia Civil Works as it was well documented. Several aspects of that event are relevant as follows:

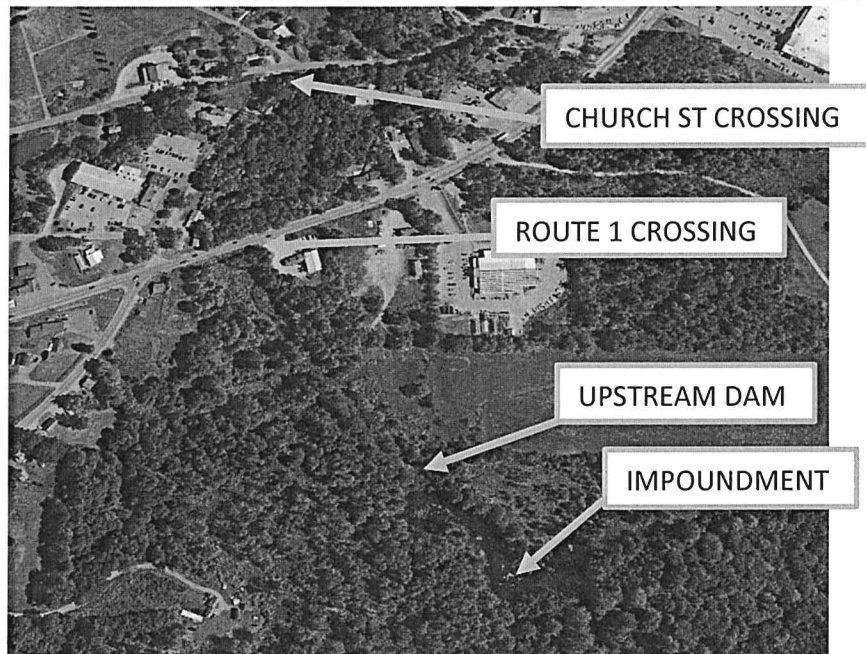
- The July 14, 2020 rain event was documented by several area rain gauges. In evaluating several of them from multiple perspectives (both 24 hour rainfall and short duration intensity) the storm appears to be around a 2-year event.
- Observations of the tide level during this flooding do not appear to be extreme (i.e. no where near a 100-year tide).
- The nearest upstream culvert is at the Maine DOT Crossing of Route 1 is a 5 foot by 5 foot concrete box culvert (open area of 25 square feet). This culvert is similarly sized to the existing 6' diameter crossing structure (28.3 square feet), however the Maine DOT structure has much more freeboard. The additional freeboard can allow higher head pressures to develop (and correspondingly increased flows) without overtopping the State highway.
- There is a dam and impoundment located upstream of the Route 1 crossing. A review of aerial photos depicts that a relatively large impoundment exists in the 2018 aerial photo. However, this impoundment was much less significant in prior years.
- Acadia Civil Works staff visited the dam site in June of 2021. It was clear that a dam breach had occurred in recent history. It is clear that this was a manmade structure at one time. However, the variability of the impoundment over the years (as evidenced by the aerial photo history) may be due to the beaver activity in the area.

Considering these points, it seems plausible that the flooding and overtopping event that occurred at Church Street on July 14, 2021 was the result of a dam breach and the resulting breach wave. The 2-year rainfall event on its own can not explain the flooding, however it may have been enough to fill the upper impoundment and trigger a breach of that dam. The sudden release of water from that breach could certainly have accounted for the surge



of water. It is also notable from the videos of the overtopping event that the water being conveyed is quite turbid (muddy), which indicates it may have also caused substantive erosion upstream of Church Street. This turbidity and erosion may also indicate the dam breach occurred at that time.

**FIGURE 7 – DAM AND IMPOUNDMENT LOCATED UPSTREAM OF ROUTE 1  
PHOTO TAKEN FROM GOOGLE EARTH DEPICTING CONDITIONS IN 2018**



**FIGURE 8 – PHOTO OF BREACHED UPSTREAM DAM  
PHOTO TAKEN BY ACADIA CIVIL WORKS IN JUNE 2021**







## RECOMMENDATIONS

The hydraulic capacity of the existing 6' diameter culvert at Church Street has adequate capacity from many perspectives. The existing culvert should be able to convey large floods as well as accommodate the exchange of tidal waters now and into the future. However, the structure is "hung" above the adjacent stream channel. This "hung" invert is apparent on the stream profile (included on Sk-3, attached).

Current stream crossing regulations prohibit the construction of new "hung culverts". Both the Maine DEP and US Army Corps of Engineers have regulations that require some element of a natural stream bottom through the stream crossing. Additionally, the US Army Corps of Engineers requires that all stream crossings include a structure wide enough to span the channel bank, plus 20% (1.2 times bank width). Acadia Civil Works measured bank widths along Castner Brook in several locations. Finding a representative bank width was challenging due to the influence of the hung culvert, as well as the proximity to tidal influence. However, our determination is that the representative bank width is approximately 13 feet. This bank width results in the need for an improved structure to have a total span of at least 15.6 feet.

Considering the soil conditions (provided in the Summit report) it appears that sound glacial till is located many feet below the existing structure, which makes for a sound foundation material and various depths. However, the presence of the 8" PVC sewer will constrain the height of the proposed structure.

Based upon these factors, Acadia Civil Works is recommending a 16' wide by 7.5' tall concrete box culvert for improvements at this location. This box culvert can be installed to accommodate the necessary bank width, while also having a low profile under the existing sewer. The culvert should be set low (with an invert of approximately negative 0.6 feet (NAVD88) so that two (2) feet of stream bed material can be infilled within the structure. Stream banks should also be constructed with boulders within the culvert to maintain their integrity and provide bank connectivity through the crossing. A cross section of this construction is attached as SK-6.

We also understand that the Town is interested in expanding Church Street to provide a sidewalk. Acadia Civil Works has provided two (2) conceptual plans to accommodate this expansion.

### *Conceptual Plan 'A'*

Concept 'A' has been provided as a concept that limits the encroachment of roadway embankment fills into the adjacent wetland and stream resources. It effectively maintains the existing footprint of the roadway, culvert and headwalls. However, to accomplish the expansion at the surface for the sidewalk, the proposed headwalls will require a more vertical finish than the existing boulder walls. The use of the concrete box culvert in Concept 'A' is particularly effective, as it can be designed to convey loads from the wall directly into the box, and is generally more flexible to accommodate these vertical headwalls and wingwalls.

Plans for Concept 'A' have been included as SK-4 and SK-7, attached.



*Conceptual Plan 'B'*

Conceptual plan 'B' has been prepared to allow the encroachment of roadway fills into the adjacent natural resources. This will extend the existing culvert footprint from its existing approximate 38' length out to 70 feet. The extent of fill footprint will be limited via the use of riprap slope reinforcement at a steepness of 1.5H to 1V. This concept does not include the use of structural headwalls or wingwalls. As such, it may be possible to explore the use of other culvert materials in this scenario, such as the use of a low rise corrugated metal box culvert. However, this decision will hinge significantly on the ability to install and construct this structure around the existing 8" PVC Sewer.

Plans for Concept 'B' have been included as SK-5 and SK-8, attached.

In either concept the 16' wide by 7.5' concrete box culvert will provide significant hydraulic performance improvements. As shown in Figure 6, the 16' box culvert span will further reduce hydraulic head differential during tidal exchange. Additionally, the proposed box culvert will improve performance during flood flows, as shown below in Table 5.

**TABLE 5 - ESTIMATED PEAK FLOOD FLOW PERFORMANCE  
FOR THE PROPOSED 16' X 7.5' BOX CULVERT AT CHURCH STREET**

Recurrence Interval (Annual Probability)	Flood Flow Rate (cfs)	Peak Tailwater Surface Elev. (Feet-NAVD88)	Peak Upstream Flood Elevation (Feet-NAVD88)	Roadway Freeboard (Feet)
10-year (10%)	152	5.2	5.4	8.8
		10.2	10.3	3.9
50-year (2%)	229	5.8	6.1	8.1
		10.2	10.4	3.8
100-year (1%)	267	6.0	6.3	7.9
		10.2	10.5	3.7
500-year (0.2%)	355	6.2	6.8	7.4
		10.2	10.8	3.4

In either concept the Town may also want to consider raising the roadway surface elevation. Currently the roadway surface elevation is approximately 14.2 feet (NAVD88). As sea levels rise, the risk of roadway overtopping will increase. By the year 2100, it appears the NOAA 2017 intermediate SLR scenario places the 100-year tidal event nearly even with the edge of roadway. The NOAA 2017 'High' SLR scenario reflects that the 100-year tide will reach the roadway surface decades earlier (in the year 2080). From an engineering perspective, Acadia Civil Works recommends that this type of roadway (non arterial with low volume and not critical for emergencies) maintain one (1) foot of freeboard above the 50-year tide, considering the NOAA2017 'intermediate' SLR scenario. This would require the roadway to be at least 14 feet in elevation, which the roadway already achieves. Depending on the Town of Damariscotta's level of risk and preferences for SLR planning, it may warrant raising the roadway slightly during these improvements to achieve 100-year storm (or at least more robust) serviceability for the life of the proposed infrastructure.



## ESTIMATES OF COST

Based upon the conceptual designs described above and on the attached Sketch Plans, an order of magnitude construction cost estimate has been prepared as follows:

Concept 'A' - \$797,640

Concept 'B' - \$691,800

The basis for these estimates has been outlined on the attached itemized cost worksheets. There is significant contingency included in each estimate due to the conceptual nature of these designs. Additionally, a conservative approach to several of the estimated items has been taken to ensure the project was not being undervalued. That said, many items, including the cost of precast structure, paving, earthwork, riprap, and several other items has been taken from recent (2021) bids received by the Maine DOT for similar box culvert road crossing projects. Inflation in many of these items over the past year or two is notable.

As the design process moves forward, there are several items that may be considered that may reduce some of these costs as follows:

- The use of a structural aluminum plate arch culvert may be more cost effective for Concept 'B'. The native glacial till at the crossing site will likely allow for traditional spread footing foundations on each bank to support the arch culvert. The materials for this option are certainly cheaper (compared to the precast concrete box), however there is significantly more labor when using structural plate arches.
- These estimates assume that the existing 8" pvc sewer will be cut and bypassed during culvert installation. It may be possible to allow the sewer to remain (with appropriate supporting structures in place while it is exposed). If the sewer remains in place, it is likely possible to carefully perform the work around the existing pipe (particularly if a precast concrete structure is utilized).
- For Concept 'A' the concrete head/wing/retaining walls may be constructed with precast concrete blocks, or potentially a hybrid of precast block and cast-in-place concrete. There is likely room for refinement of this element that may ultimately reduce the costs estimated in this report.
- Consultation with bidding contractors is recommended. Since several elements of this project may vary in price based upon individual contractor's means and methods, it could be beneficial to provide options during the bidding process to determine if there is significant value in one of these modifications.



Estimate of Construction Costs

Church Street Crossing Improvements - Plan 'A'

Damariscotta, ME - August 17, 2021



ACADIA CIVIL WORKS  
ENGINEERING DESIGN & CONSULTATION

Item Description	Unit	Quantity	Unit Price	Subtotal
Common Fill	CY	500	\$30	\$15,000
Common Excavation	CY	700	\$20	\$14,000
Pavement Demo	SY	230	\$35	\$8,050
Heavy Riprap	CY	210	\$125	\$26,250
Type D Gravel Base	CY	125	\$45	\$5,625
Type A Gravel Base	CY	40	\$45	\$1,800
Base Pavement	TN	35	\$300	\$10,500
Surface Pavement	TN	20	\$325	\$6,500
Guardrail	LF	250	\$35	\$8,750
Bridge Rail	LF	75	\$100	\$7,500
Structural Backfill	CY	225	\$45	\$10,125
Structural Concrete (CIP)	CY	180	\$1,000	\$180,000
6" Underdrain	LF	140	\$40	\$5,600
Crane Rental	HR	25	\$360	\$9,000
Box Culvert (Materials and Install)	LS	1	\$180,000	\$180,000
Waterproofing Membrane	LS	1	\$7,500	\$7,500
Boulder Stream Bank Construction	CY	90	\$250	\$22,500
Stream Earthwork	CY	150	\$150	\$22,500
Dewatering	LS	1	\$40,000	\$40,000
Mobilization/Demobilization	LS	1	\$10,000	\$10,000
Traffic Control	LS	1	\$15,000	\$15,000
Clearing/Stump/Grub	LS	1	\$6,000	\$6,000
Sewer Bypass	LS	1	\$35,000	\$35,000
8" PVC Sewer	LF	50	\$150	\$7,500
Erosion and Sediment Control	LS	1	\$10,000	\$10,000

Contingency (20%) \$132,940

**CONSTRUCTION COST ESTIMATE \$797,640**





Estimate of Construction Costs

Church Street Crossing Improvements - Plan 'B'

Damariscotta, ME - August 17, 2021



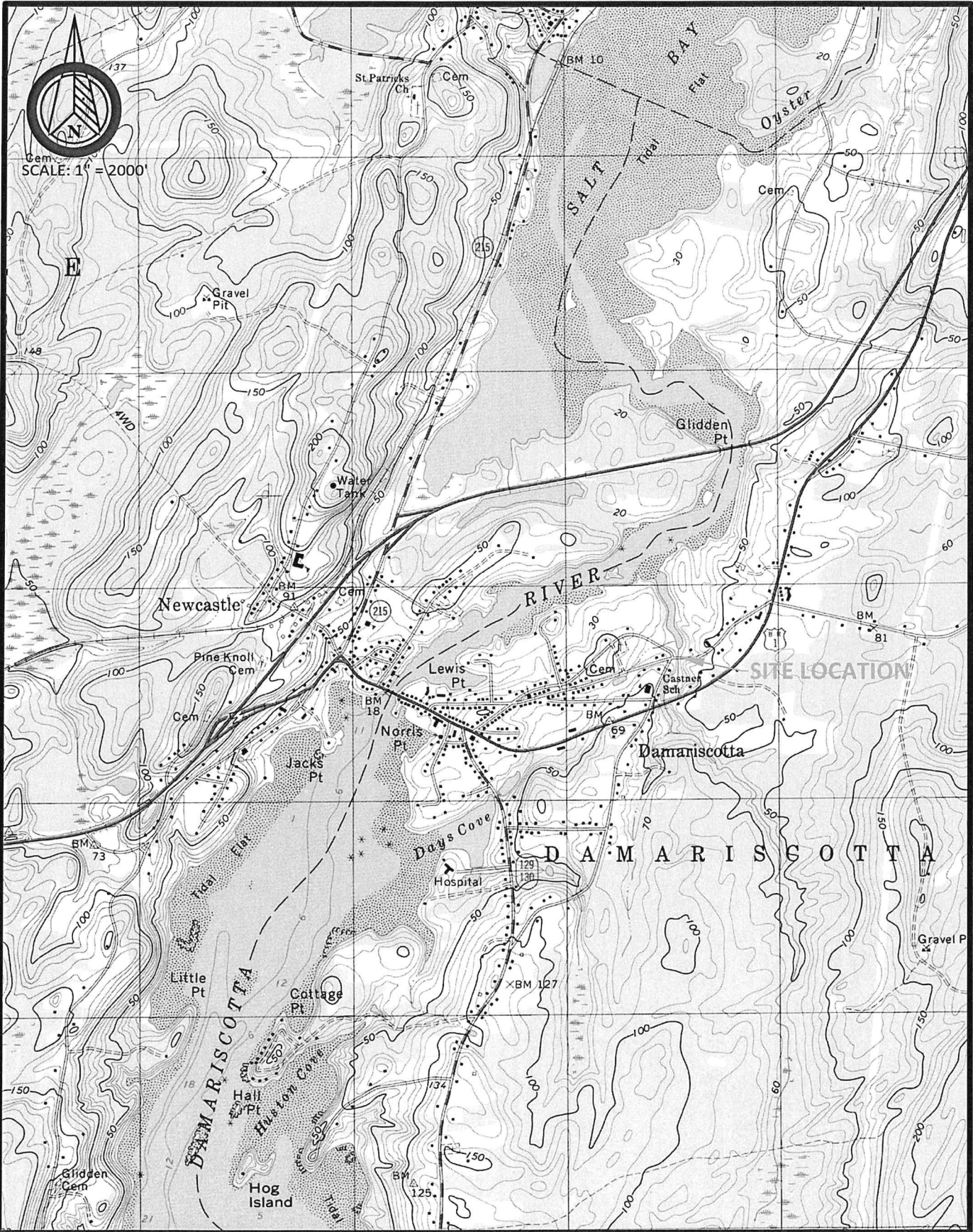
ACADIA CIVIL WORKS  
ENGINEERING DESIGN & CONSULTATION

Item Description	Unit	Quantity	Unit Price	Subtotal
Common Fill	CY	1,000	\$30	\$30,000
Common Excavation	CY	700	\$20	\$14,000
Pavement Demo	SY	230	\$35	\$8,050
Heavy Riprap	CY	210	\$125	\$26,250
Type D Gravel Base	CY	125	\$45	\$5,625
Type A Gravel Base	CY	40	\$45	\$1,800
Base Pavement	TN	35	\$300	\$10,500
Surface Pavement	TN	20	\$325	\$6,500
Guardrail	LF	325	\$35	\$11,375
Crane Rental	HR	40	\$360	\$14,400
Box Culvert (Materials and Install)	LS	1	\$260,000	\$260,000
Waterproofing Membrane	LS	1	\$10,000	\$10,000
Boulder Stream Bank Construction	CY	200	\$250	\$50,000
Stream Earthwork	CY	120	\$150	\$18,000
Dewatering	LS	1	\$40,000	\$40,000
Mobilization/Demobilization	LS	1	\$10,000	\$10,000
Traffic Control	LS	1	\$5,000	\$5,000
Clearing/Stump/Grub	LS	1	\$2,500	\$2,500
Sewer Bypass	LS	1	\$35,000	\$35,000
8" PVC Sewer	LF	50	\$150	\$7,500
Erosion and Sediment Control	LS	1	\$10,000	\$10,000

Contingency (20%) \$115,300

**CONSTRUCTION COST ESTIMATE \$691,800**





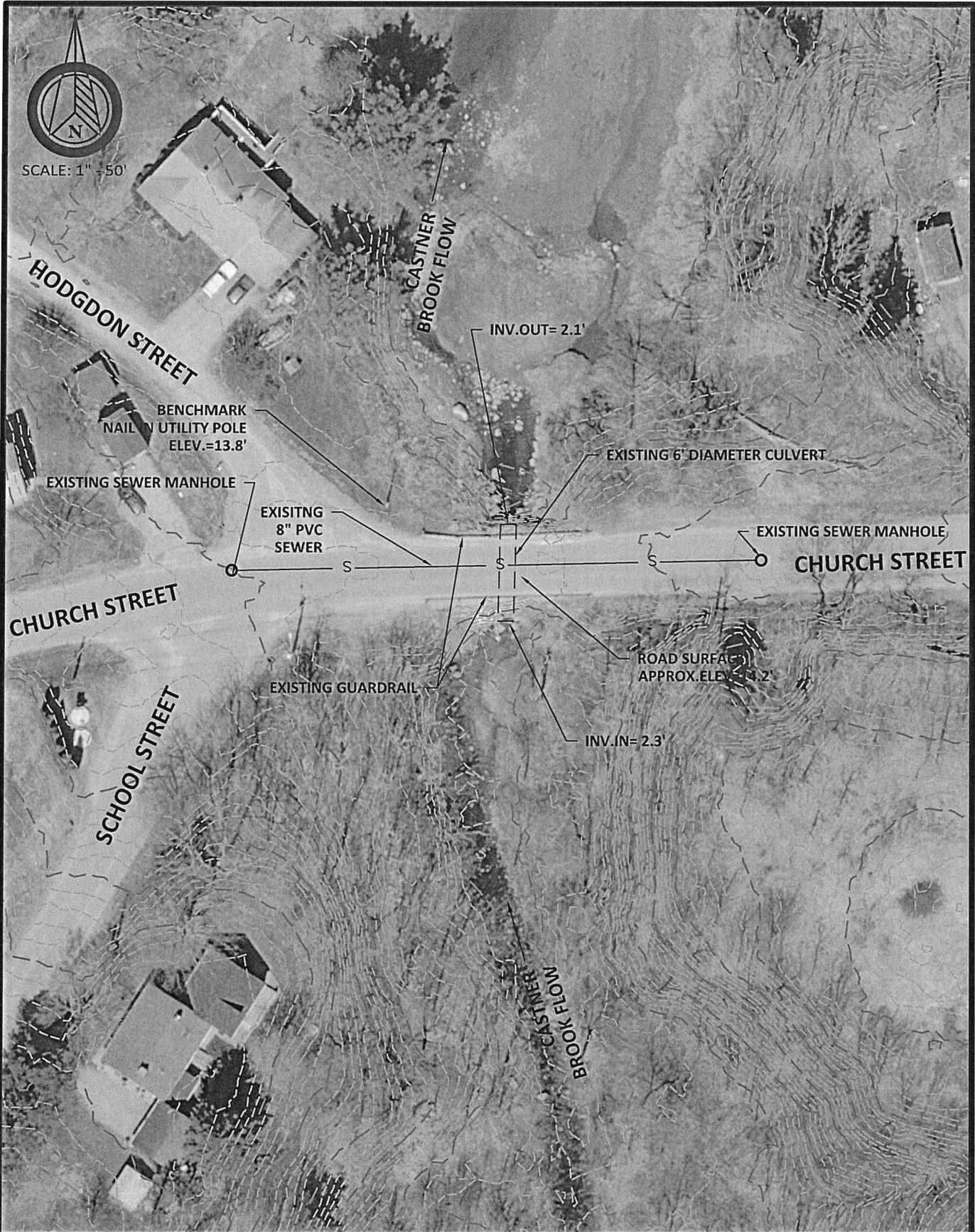
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SITE LOCATION MAP  
CHURCH STREET CROSSING AT CASTNER BK  
DAMARISCOTTA, ME | AUGUST 2021

SK-1

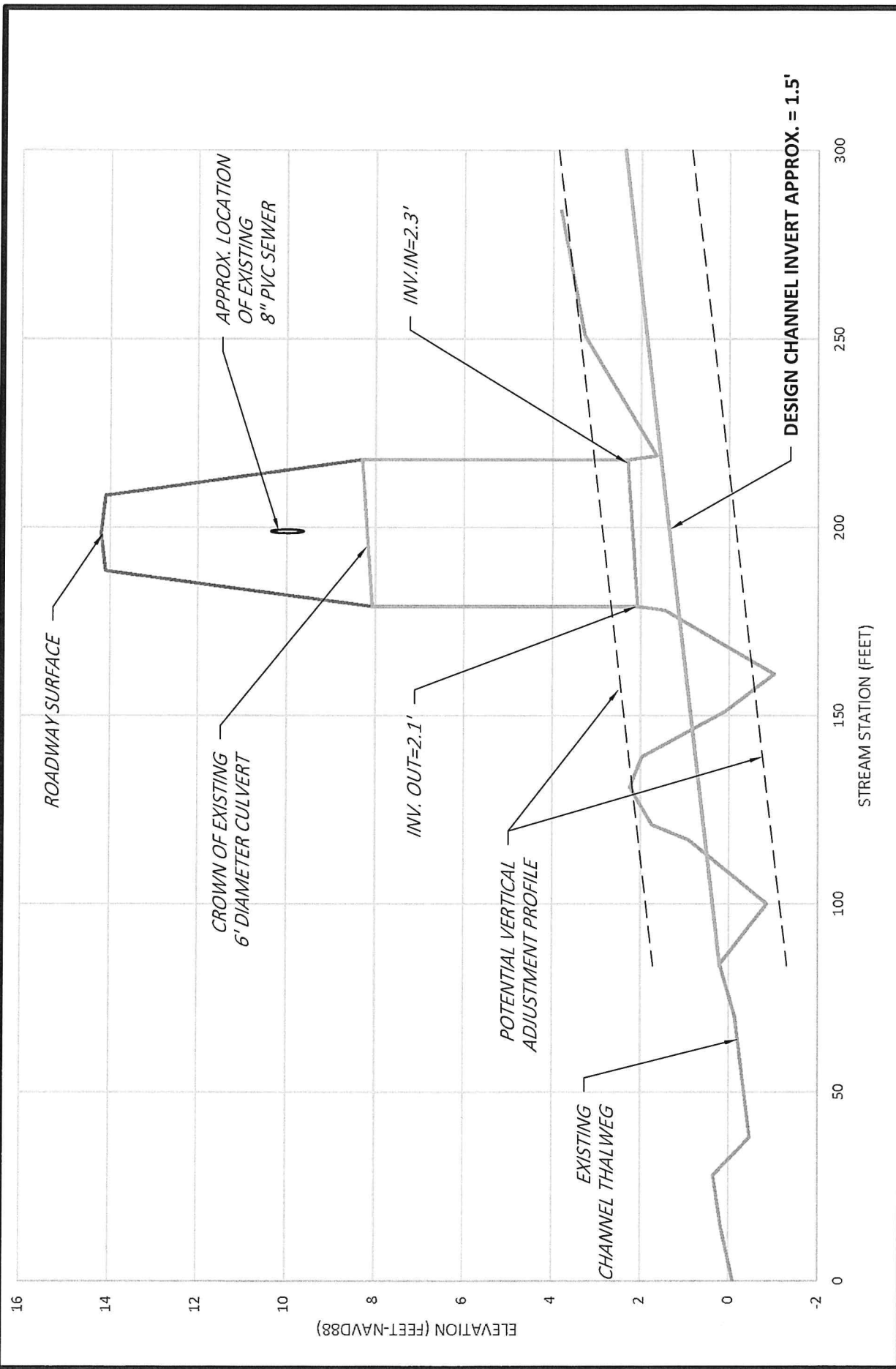




EXISTING CONDITIONS PLAN  
CHURCH STREET CROSSING AT CASTNER BK  
DAMARISCOTTA, ME | AUGUST 2021

SK-2





**SK-3**

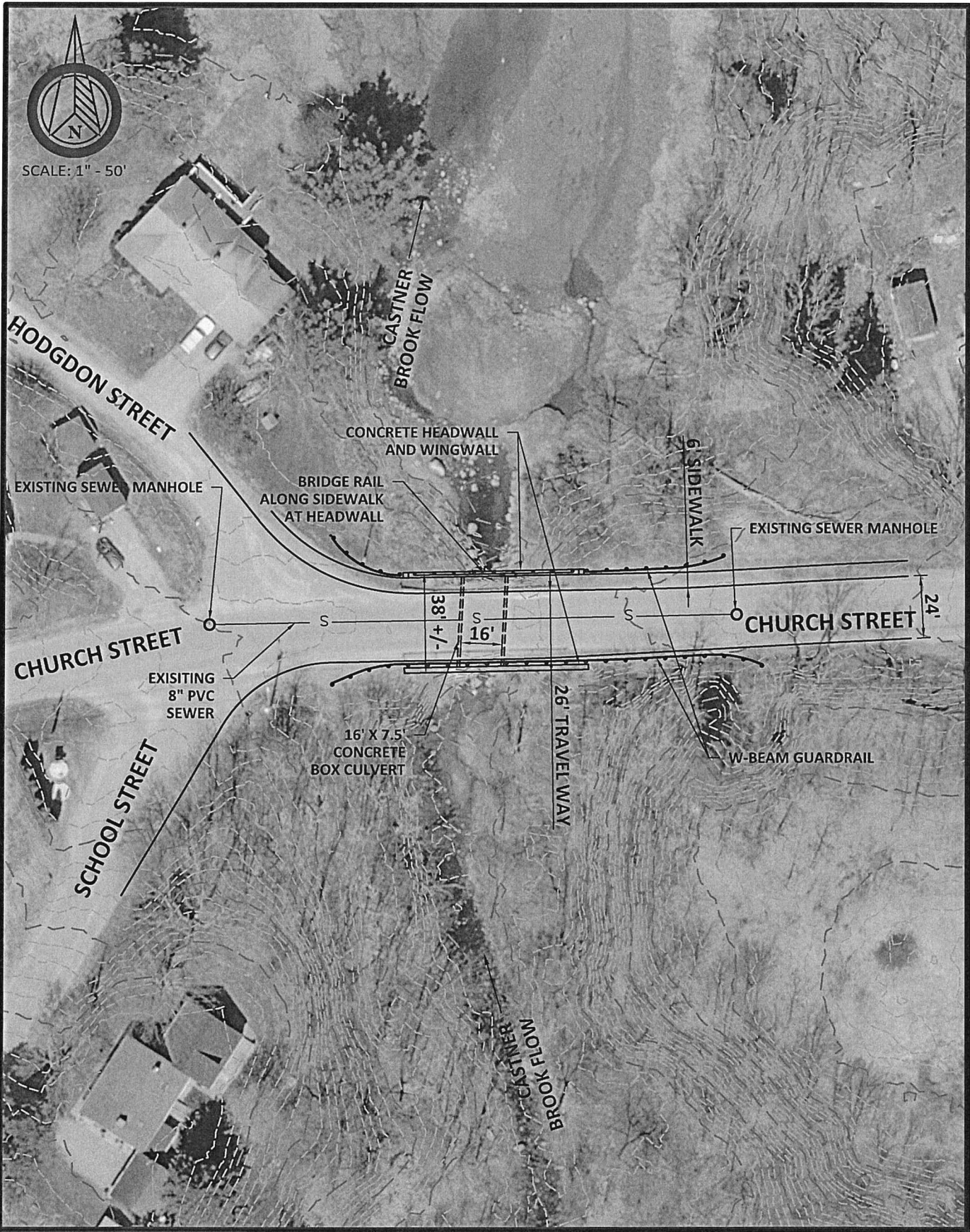
**CASTNER BROOK PROFILE  
CHURCH STREET CROSSING AT CASTNER BROOK  
DAMARISCOTTA, ME | AUGUST 2021**

**ACW**  
ACADIA CIVIL WORKS  
ENGINEERING DESIGN & CONSULTING

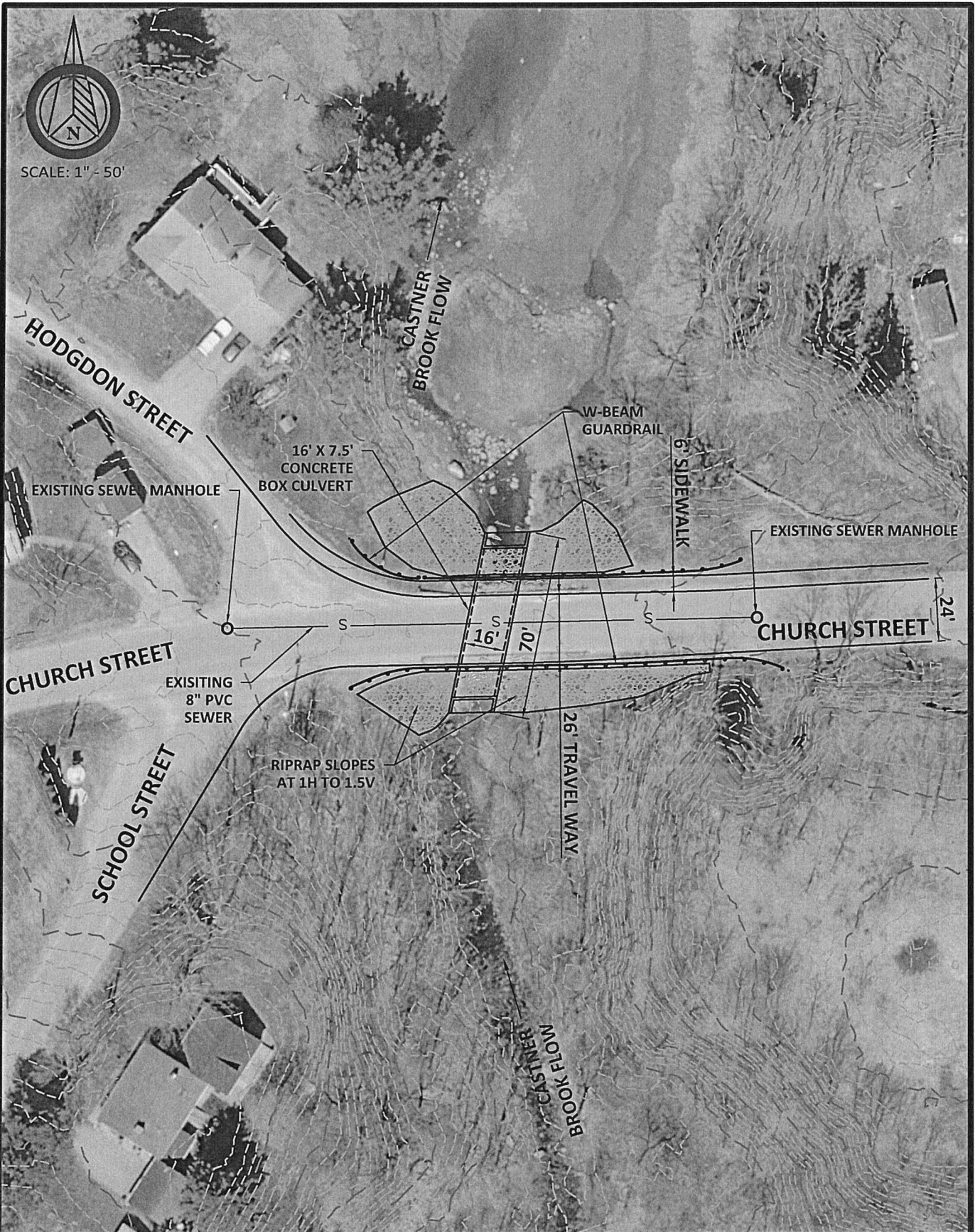
(207) 212-9350  
PO Box 212  
Leeds, Maine  
acadiacivilworks.com











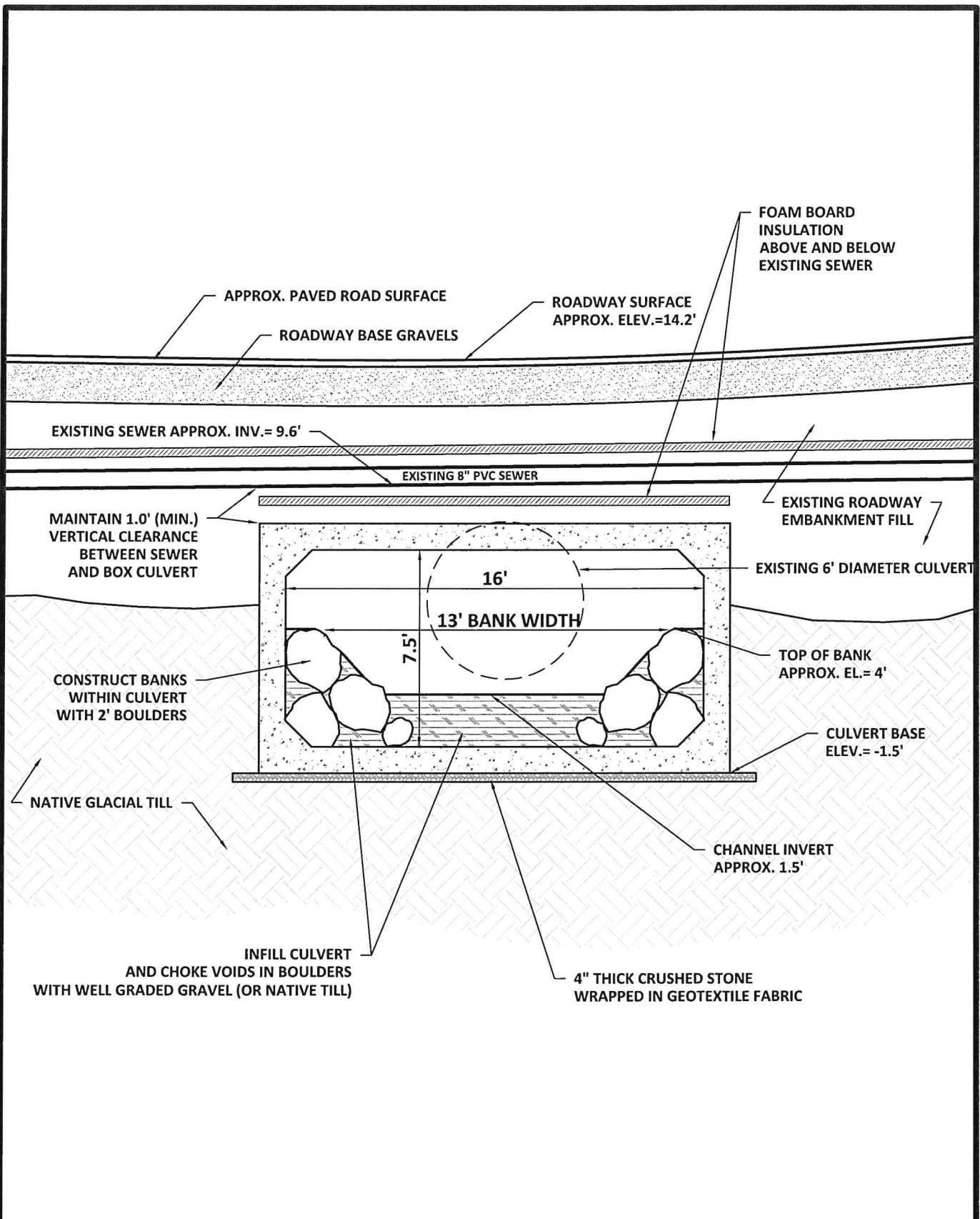
SCALE: 1" = 50'



CONCEPTUAL IMPROVEMENTS PLAN 'B'  
CHURCH STREET CROSSING AT CASTNER BK  
DAMARISCOTTA, ME | AUGUST 2021

SK-5





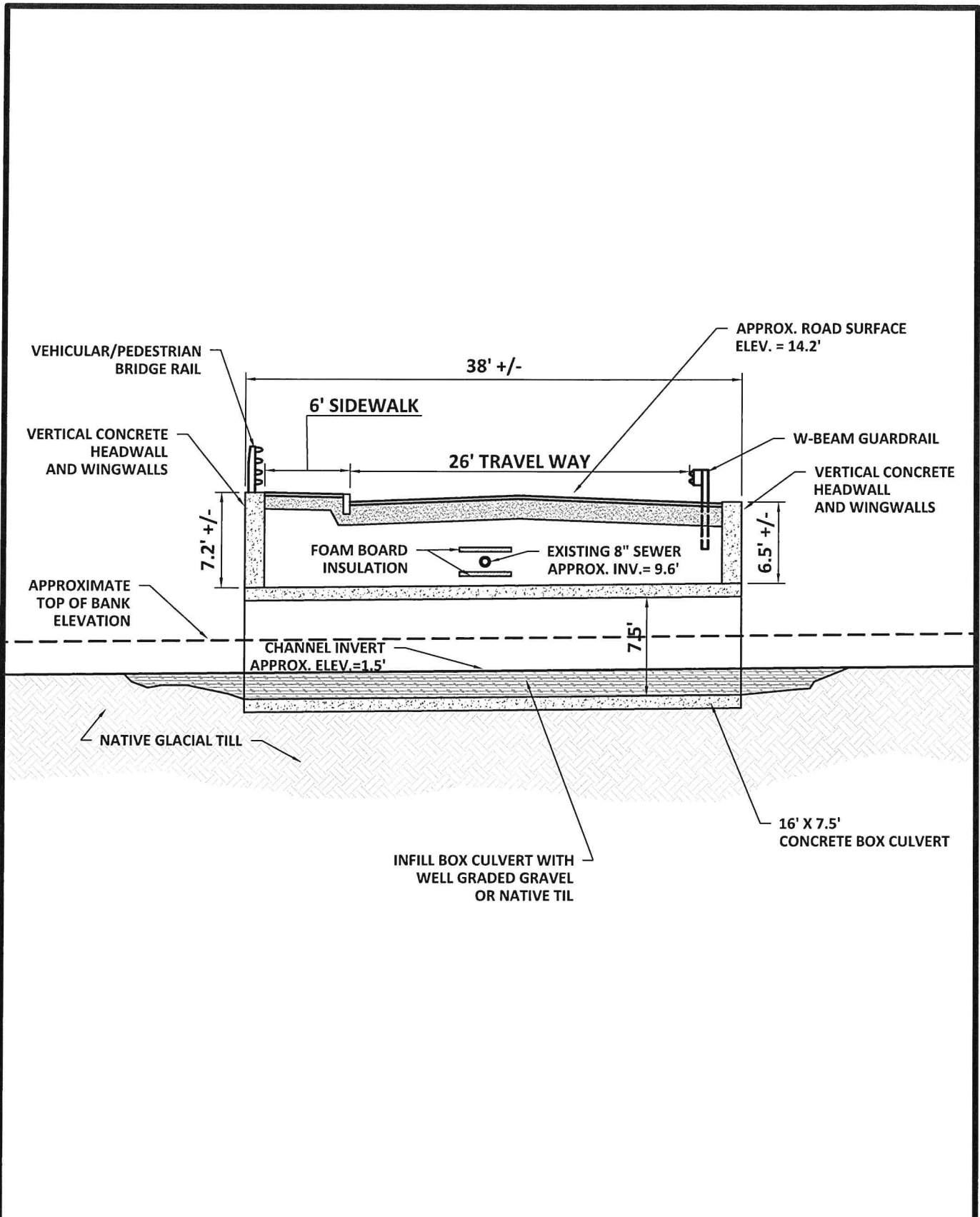
SCALE: 1" - 5'



CONCEPTUAL CULVERT SECTION  
 CHURCH STREET CROSSING AT CASTNER BK  
 DAMARISCOTTA, ME | AUGUST 2021

SK-6





SCALE: 1" = 10'

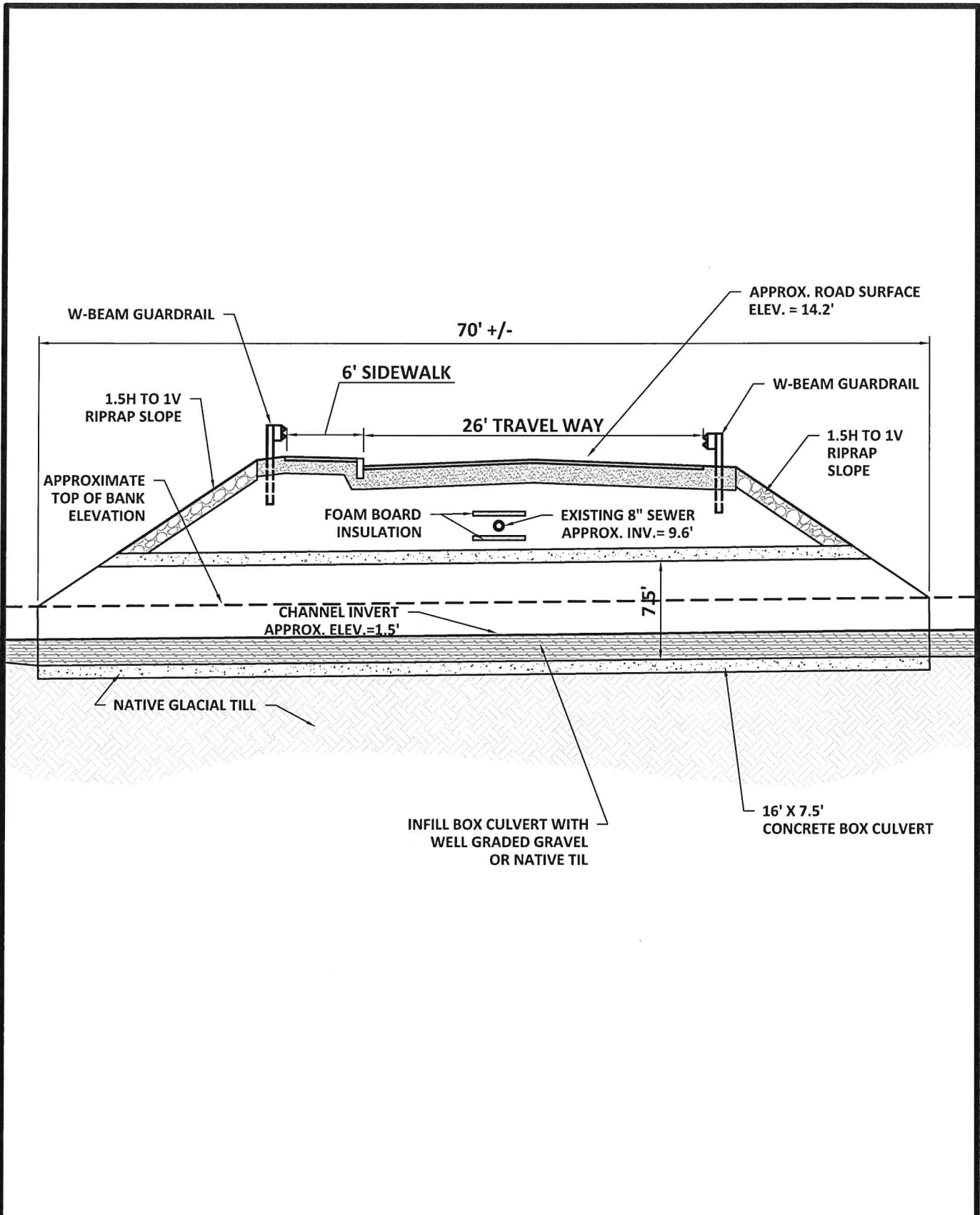


CONCEPTUAL ROAD SECTION - PLAN 'A'  
 CHURCH STREET CROSSING AT CASTNER BK  
 DAMARISCOTTA, ME | AUGUST 2021

SK-7







SCALE: 1" = 10'



CONCEPTUAL ROAD SECTION - PLAN 'B'  
 CHURCH STREET CROSSING AT CASTNER BK  
 DAMARISCOTTA, ME AUGUST 2021

SK-8





Maine Municipal  
Association

60 COMMUNITY DRIVE  
AUGUSTA, MAINE 04330-9486  
(207) 623-8428  
[www.memun.org](http://www.memun.org)

**To: Key Municipal Officials of MMA Member Cities, Towns and Plantations**  
**From: Catherine Conlow, MMA Executive Director**  
**Date: August 30, 2021**  
**Re: Announcement of MMA Annual Business Meeting & Voting Credentials**

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The Maine Municipal Association Annual Business Meeting is being held in conjunction with the MMA Annual Convention and will take place on **Thursday, September 30, 2021, at 1:45 p.m.** The meeting will be held in person in the 2<sup>nd</sup> Floor, North Wing of the Augusta Civic Center as well as live streamed to the MMA website.

Following please find the ***MMA Voting Delegates Credential Form*** on which the municipal officers may designate their municipality's voting representative and alternate in addition to the proposed agenda for the MMA Annual Business Meeting. If you plan to be at the MMA Annual Convention and would like to have a Voting Delegate represent your municipality, please complete the form and return to our office by **Wednesday, September 29, 2021.**

Please note that the MMA Executive Committee is not recommending any proposed amendments to the MMA bylaws this year. The current MMA Bylaws as adopted in 2013 may be viewed on the MMA website at:

<http://www.memun.org/public/MMA/Gov/bylaws.pdf>

We have a great line up of speakers and workshops at this year's convention. Please refer to the Convention Program in the August-September issue of the Maine Town & City or at [www.memun.org](http://www.memun.org). If you have any questions on this information, please contact Rebecca Lambert at 1-800-452-8786 or 623-8428 ext. 2307 or by email [rlambert@memun.org](mailto:rlambert@memun.org).

We look forward to your participation in MMA's Annual Convention and Business Meeting.



**Maine Municipal Association  
Annual Business Meeting  
Thursday, September 30, 2021  
1:45 p.m. – 2:45 p.m.  
2<sup>nd</sup> Floor, North Wing, Augusta Civic Center  
and Via Live Stream on MMA Website**

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**AGENDA**

1. **Introductions and Welcoming Remarks** – MMA President Jim Gardner  
(Town Manager, Town of Easton)
2. **Approval of 2020 MMA Annual Business Meeting Minutes** – Jim Gardner
3. **Introduction of New Executive Committee Members** – Jim Gardner
4. **MMA President's Report** – Jim Gardner
5. **Executive Director's Report** – Catherine Conlow, MMA Executive Director
6. **Other Business** (*comments from the floor*)
7. **Adjournment**



**MAINE MUNICIPAL ASSOCIATION**  
**Voting Delegate Credentials**

\_\_\_\_\_ is hereby designated as the official Voting Delegate and  
(name)

\_\_\_\_\_ as the alternate voting delegate for \_\_\_\_\_  
(name) (municipality)

at the Maine Municipal Association Annual Business Meeting which is scheduled to be held, **Thursday, September 30, 2021, 1:45 p.m., at the Augusta Civic Center, 2<sup>nd</sup> Floor, North Wing, Augusta, Maine.**  
The Annual Business meeting will also be available via live stream on the MMA website.

*The Voting Delegate Credentials may be cast by a majority of the municipal officers, or by a municipal official designated by a majority of the municipal officers of each Municipal member.*

Date: \_\_\_\_\_ Municipality: \_\_\_\_\_

\*\*\*\*\*

**Signature of a Municipal Official designated by a majority of Municipal Officers:**

Name: \_\_\_\_\_ Position: \_\_\_\_\_

**\*OR\***

**Signature of a Majority of Municipal Officers:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Please return this form no later than **Wednesday, September 29, 2021.**

To return the form, please send by email to [rlambert@memun.org](mailto:rlambert@memun.org). If sending by mail or fax, please send to:

**MMA Annual Business Meeting**  
**Maine Municipal Association**  
**60 Community Drive**  
**Augusta, Maine 04330**  
**FAX: 207-626-3358**





**MAINE MUNICIPAL ASSOCIATION  
ANNUAL BUSINESS MEETING  
WEDNESDAY, OCTOBER 7, 2020  
11:00 a.m.  
Via Zoom Webinar**

**MINUTES**

**Introduction and Welcoming Remarks** - MMA President Christine Landes, Manager, City of Gardiner, welcomed delegates to the Maine Municipal Association Annual Business Meeting, called the meeting to order at 11:00 a.m. and provided an overview of the agenda.

**Minutes of 2019 MMA Annual Business Meeting** – President Landes called for approval of the minutes of the 2019 MMA Annual Business Meeting as presented. **A MOTION was made that the general membership of the Maine Municipal Association approve the minutes of the October 2, 2019 Annual Business Meeting as presented. The motion was seconded and passed unanimously.**

**Announcement of Election Results for MMA Executive Committee and Introduction of New Executive Committee Members** – President Landes reported that the newly elected Committee members would officially begin their terms in office on January 1, 2021. She noted the new members’ participation in the strategic planning meeting of the Executive Committee in September. She also noted that over the next few months they would be attending the fall governance meetings to become familiar with the operations and finances of the Association. President Landes announced the election results:

- MMA Vice President – Jim Bennett, Manager, City of Biddeford; to a one-year term;
- Robert Butler, Selectboard, Town of Waldoboro, to a full three-year term;
- Terry Helms, Selectboard, Town of Grand Isle, to a full three-year term;
- Diane Hines, Manager, Town of Ludlow and Reed Plantation, to a full three-year term.

**MMA President’s Report** – President Landes provided an overview of the year noting that COVID has forced everyone to make changes to the way they conduct business. She reported to the membership on MMA’s response to the pandemic and what the organization has done to assist members. Christine then presented MMA Executive Director Steve Gove with a certificate honoring the 40 years he has been employed at MMA as well as a painting by a Maine artist Liz Hoag.

**Executive Director Report** – MMA Executive Director Steve Gove welcomed everyone and thanked municipal officials for attending the MMA Annual Business Meeting and Convention. Steve provided an overview of 2020 noting that progress has been made with communication between MMA and the Governor’s office, increased member outreach and provided updates on various other programs. He noted that the pandemic brought things to a halt but that MMA was able to pivot to working remotely without skipping a beat.

Steve thanked Governor Mills and Hannah Pingree for reaching out with municipal concerns regarding COVID. Staff reviewed the Executive Orders as they came out to be sure that the needs of municipalities were met.

The primary focus for 2021 is the safety of staff and members and continuing to deliver programs and services. Another project that MMA has taken on is to develop an inventory of training programs for all aspects of municipalities. There is nothing similar that exists currently but would be an asset to all municipal departments and Affiliate Groups once developed.

**Other Business** – President Landes called for any questions or comments from the membership.



## REQUEST FOR PROPOSALS

RFP # FIN-1

Town of Damariscotta Assessing Services (Assessors' Agent)

September 8, 2021

The Town of Damariscotta is seeking proposals from Assessing Services firms and individuals experienced in providing contracted municipal valuation services in a community with a wide range of business and residential valuation factors. Work hours will vary depending on the workload, however, firms and individuals submitting proposals should base their submittals on an average work week of 20 hours.

The Town has a current assessed valuation of \$343,564,200 and a non-seasonal population of 2,158 (2020 census).

The services to be provided are as follows: Ongoing updating of property records, preliminary mapping, performing inspections, preparing all state forms and returns, preparing the tax commitment, completing all duties and functions typical of the office of Assessor under the laws of the State of Maine. All duties and obligations are to be completed and submitted to the State agency requesting such documents by the legal date due.

### **Proposal Requirements:**

Each proposal should contain the following:

- cover letter with contact information;
- itemized fee schedule including reimbursables;
- list of individuals who will be assigned to this contract, a description of the role that they will provide and experience relevant to their role; and,
- description of previous assessing services provided by the firm/individual, and references regarding those experiences.

The Board of Assessors and Town staff will evaluate the proposals based on the following criteria:

- quality and completeness of proposal;
- experience, including the experience of staff to be assigned to the contract the engagements of similar scope and complexity;
- Cost to the Town;
- ability to perform the work within the timeframes required

All interested parties are encouraged to submit proposals by 4 PM, October 13 by email to [townmanager@damariscottame.com](mailto:townmanager@damariscottame.com). The subject line should include the words "Damariscotta Assessing Services Proposal".

Any questions on this RFP should be directed to Town Manager Matt Lutkus at [townmanager@damariscottame.com](mailto:townmanager@damariscottame.com).

*The Board of Selectmen reserves the right to accept or reject and or all bids.*

