STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

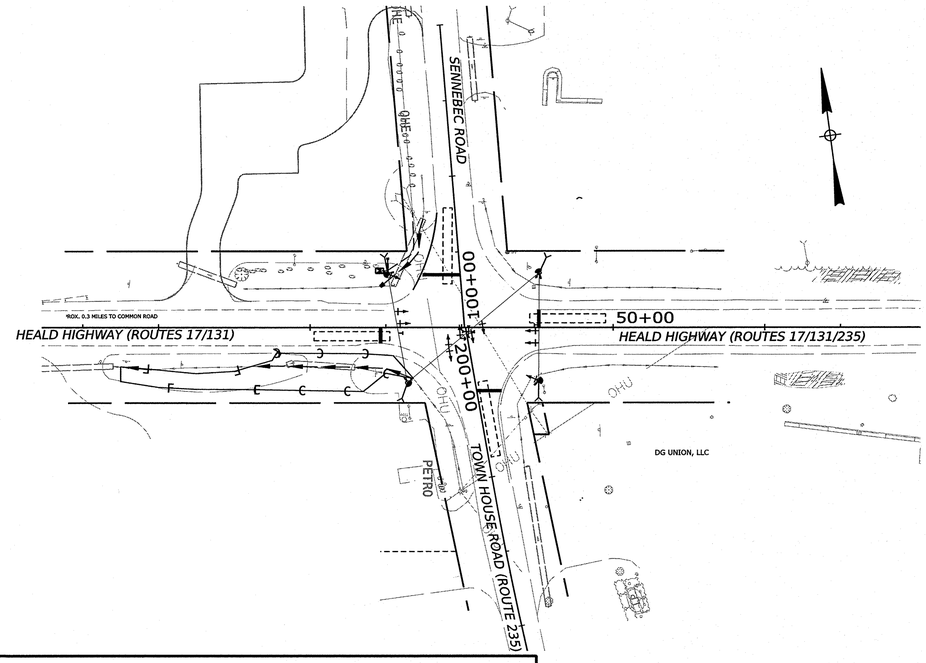
PLAN LEGEND

Town, County, State		Catch Basins	Existing / Proposed
Property Lines		Manholes	Existing / Proposed
R/W Lines-Existing		Proposed Underdrain	
R/W Lines-Proposed		Proposed Ditch	
Culvert-Existing		Existing Ditch	
Culvert Proposed		Utility Poles	Existing / Proposed
Curbing	Existing / Proposed	Fire Hydrants	Existing / Proposed
Type 1		Existing Water Line	W
Type 3		Existing San. Sewer	
Type 5		Existing San. Sewer Manhole	
Outline of Bodies of Water		Guardrail-Existing	
Exposed Bedrock		Guardrail-Proposed	
Buildings		Centerline-Existing	
Trees	Conifer / Deciduous	Centerline-Proposed	10+00
Tree Line		Travelway-Existing	
Clearing Limit Line	CLL	Travelway-Proposed	
Railroad			

Boring HB-XXX-###
Pavement Core PC-#
Test Pit TP-XXX-###

Probe P-#.#X
#.# = Depth
X = W (Weathered Rock)
R (Refusal)
NR (No Refusal)

UNION
KNOX COUNTY
ROUTE 17
FEDERAL PROJECT NO. 2842800



LAYOUT SCALE
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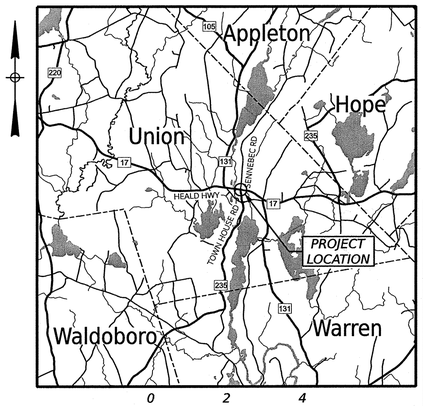
Scale in Feet



LOCATION MAP

TRAFFIC DATA	SECTION 1 IR 396 (E Sennebec Rd) N/O SR 17/31	SECTION 2 SR 17/131/235 (Heald HWY) E/O SR 235	SECTION 3 SR 235 (Town House) S/O SR 17/131 (W JCT)	SECTION 4 (Heald HWY) W/O SR 235
Current (2026) AADT	1750	7450	1400	7660
Future (2046) AADT	1930	8200	1540	8430
DHV - % of AADT	12%	10%	16%	9%
Design Hour Volume	224	854	249	791
% Heavy Trucks (AADT)	3%	6%	3%	6%
% Heavy Trucks (DHV)	3%	3%	3%	3%
Directional Distribution (DHV)	68	61	61	61
18-kip Equivalent P 2.0	12	110	12	111
18-kip Equivalent P 2.5	12	105	11	106
Design Speed (mph)	40	45	25	45
Corridor Priority	5	2	4	2

INDEX OF SHEETS

PROJECT LOCATION:	LOCATED AT THE INTERSECTION OF ROUTE 17/131, ROUTE 235, AND SENNEBEC ROAD
PROGRAM AREA:	MULTIMODAL
SCOPE OF WORK:	INTERSECTION IMPROVEMENTS INCLUDING TRAFFIC SIGNAL INSTALLATION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
APPROVED
COMMISSIONER: DATE 9/8/26
CHIEF ENGINEER: DATE 9-8-2026

STATE OF MAINE JOSEPH R. HOWE NO. 10420 LICENSED PROFESSIONAL ENGINEER

Joseph R. Howe
SIGNATURE
10420
P.E. NUMBER
8/20/2026
DATE

PROJECT INFORMATION	
PROGRAM	MULTIMODAL
PROJECT MANAGER	DAN LORING, PE
DESIGNER	EVAN DREW, PE
CONSULTANT	STANTEC
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

FEDERAL PROJECT NO. 2842800
WIN 028428.00

UNION
ROUTE 17
TITLE SHEET

SHEET NUMBER 1 OF 10

Username: cloukes Date: 8/27/2026

Filename: c:\pw_working\infra03\cloukes\d0178343\TitleSheet.dgn

GENERAL NOTES:

1. SCOPE OF WORK:
TRAFFIC SIGNAL WORK AT THE INTERSECTION OF ROUTE 17, ROUTE 131, AND ROUTE 235 IN UNION CONSISTS OF REPLACING EXISTING FLASHING BEACONS WITH A FULLY ACTUATED TRAFFIC SIGNAL CONTROL SYSTEM. THE WORK INCLUDES BUT IS NOT LIMITED TO:
   - •FURNISHING AND INSTALLING A COMPLETE GROUND-MOUNTED ADVANCED TRAFFIC CONTROLLER (ATC) SIGNAL CABINET AND FOUNDATION,
   - •FIELD MONITORING UNIT (FMU),
   - •MALFUNCTION MONITORING UNIT (MMU),
   - •STOP BAR AND ADVANCED NON-INVASIVE DETECTION,
   - •VEHICULAR SIGNAL HEADS WITH RETROREFLECTIVE BACKPLATES,
   - •OVERHEAD SPAN WIRE MOUNTED SIGNS,
   - •LUMINAIRES

   THIS WORK ALSO INCLUDES ALL NECESSARY WIRING, SIGNAL CABLE, CONDUIT, AND INCIDENTALS FOR A COMPLETELY ACTUATED AND FUNCTIONING SIGNAL SYSTEM. IN ADDITION, THE PROJECT WILL PROVIDE THE MEANS FOR REMOTE COMMUNICATION TO THE TRAFFIC SIGNAL CABINET BY FMU FROM MAINEDOT'S EXISTING CLOUD-BASED CENTRAL MANAGEMENT SYSTEM (CMS) VIA A SECURE VIRTUAL PRIVATE NETWORK (VPN). THE PROJECT ADDITIONALLY PROVIDES FOR CONNECTED VEHICLE INTEGRATED WITH THE ADVANCED TRANSPORTATION CONTROLLER AND MAINEDOT TRAFFIC MANAGEMENT CENTER (TMC). THE CONTRACTOR IS FURTHER RESPONSIBLE FOR SYSTEM START-UP AND SYSTEM LOADING, ACCEPTANCE TESTING, AND TRAINING.

2. TRAFFIC SIGNAL WORK SHALL BE COMPLETED IN A MANNER AND ORDER THAT WILL CAUSE THE MINIMUM DISRUPTION TO TRAFFIC AND THE LEAST AMOUNT OF DOWNTIME TO THE TRAFFIC SIGNAL OPERATION. ALL WORK SHALL BE COMPLETED IN CONFORMANCE WITH THE LATEST REVISIONS OF THE MAINEDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGE, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS FOR THIS CONTRACT: THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES(MUTCD), THE NATIONAL ELECTRIC CODE AND ANY ADDITIONAL UTILITY REQUIREMENTS.

3. "NEW TRAFFIC PATTERN AHEAD" (W23-2) SIGNS SHALL BE INSTALLED IN ADVANCE OF THE INTERSECTION FOR ALL APPROACHES. THESE SHALL BE REMOVED APPROXIMATELY 12 MONTHS AFTER SIGNAL ACCEPTANCE, BY MAINEDOT'S TRAFFIC ENGINEERING DESIGN GROUP.

UTILITY COORDINATION AND ACCESS NOTES

1. LOCATIONS OF ANY EXISTING UNDERGROUND AND OVERHEAD UTILITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE PRESENCE OF ALL UTILITIES PRIOR TO COMMENCING ANY EXCAVATION WORK OR INSTALLATION OF POLES, FOUNDATIONS, CONDUIT, JUNCTION BOXES OR OTHER WORK INVOLVING SUBSURFACE OR OVERHEAD DISTURBANCE.

   THE CONTRACTOR SHALL NOTIFY UTILITIES OF ANY PROPOSED WORK BELOW GROUND IN ACCORDANCE WITH MRSA TITLE 23 SECTION 3360-A, MAINE "DIG SAFE" SYSTEM. CONTRACTOR SHALL CONTACT DIG SAFE AT LEAST THREE WORKING DAYS PRIOR TO THE BEGINNING OF EXCAVATION AND UTILITY COMPANIES AT LEAST TWO WORKING DAYS BEFORE ANY OPERATIONS THAT COULD CONFLICT WITH AERIAL UTILITIES.

2. ALL EXISTING DRIVEWAY AND MAILBOX ACCESS SHALL BE MAINTAINED AT ALL TIMES. IN ADDITION, THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING ALL EXISTING OPERATIONAL BUSINESS DIRECTIONAL SIGNS (OBDS) TO ENSURE THAT THEY ARE VISIBLE TO THE TRAVELING PUBLIC. THIS WORK IS INCIDENTAL TO THE TRAFFIC SIGNAL ITEM (643.80).

3. THE CONTRACTOR SHALL PROVIDE THE RESIDENT AND MAINEDOT WITH A SCHEDULE OF WORK FOR CONSTRUCTING THE TRAFFIC IMPROVEMENTS AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF WORK.

4. THE CONTRACTOR IS RESPONSIBLE FOR ASSESSING THE SITE TO DETERMINE THE VIABILITY OF USING EXISTING POLES AND GUY WIRES FOR THE PROPOSED EQUIPMENT. ANY REPLACEMENT OF POLES OR MODIFICATIONS TO GUY WIRES ARE INCIDENTAL TO ITEM 643.71.

METHOD OF WORK NOTES

1. ANY DAMAGE TO THE SLOPES CAUSED BY THE CONTRACTOR'S EQUIPMENT, PERSONNEL, OR OPERATION SHALL BE REPAIRED TO THE SATISFACTION OF THE RESIDENT. ALL WORK, EQUIPMENT AND MATERIALS REQUIRED TO MAKE REPAIRS SHALL BE AT THE CONTRACTOR'S EXPENSE.

2. FINAL STRIPING FOR THE PROJECT SHALL BE DONE BY THE CONTRACTOR PER THE STRIPING LAYOUT IN THE CONTRACT DOCUMENTS OR AS PROVIDED BY THE DEPARTMENT. PAYMENT SHALL BE MADE UNDER APPROPRIATE CONTRACT ITEMS.

3. THE RESIDENT AND MAINEDOT SHALL HAVE THE RIGHT AND AUTHORITY TO DETERMINE THE ACCEPTABILITY OF WORK AND MATERIALS IN PROGRESS OR COMPLETED AND SHALL HAVE THE RIGHT TO REJECT ANY WORK OR MATERIALS WHICH DO NOT CONFORM, IN ITS SOLE OPINION, TO THE PLANS OR SPECIFICATIONS.

4. THE MAINTENANCE OF THE PROPOSED TRAFFIC SIGNALS SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR UNTIL FINAL ACCEPTANCE BY MAINEDOT.

TRAFFIC SIGNAL EQUIPMENT NOTES

1. TWO COPIES OF AS-BUILT PLANS, WIRING DIAGRAMS, BOX PRINTS, AND EQUIPMENT MANUALS SHALL BE LEFT IN EACH OF THE CONTROLLER CABINETS.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING RED-LINE AS-BUILT DRAWINGS OF THE FINAL WORK TO THE RESIDENT. THOSE DRAWINGS SHALL BE ON A CLEAN SET OF PLANS SHOWING ALL CHANGES OR MODIFICATIONS TO THE BID PLANS.

3. SPECIFIED LOCATION FOR THE CONTROLLER CABINET AND FOUNDATION IS MEASURED TO THE CENTER OF THE CONTROLLER FOUNDATION. FINAL LOCATION TO BE APPROVED IN THE FIELD BY THE RESIDENT TO PROVIDE OPTIMAL VISIBILITY OF THE INTERSECTION WHILE MAINTAINING SAFE ACCESS FOR FUTURE MAINTENANCE WORK.

4. ALL EQUIPMENT SCHEDULES SHOWN ON THE PLANS ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE THEIR OWN MATERIAL SCHEDULES BASED UPON PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.

ELECTRICAL NOTES

1. CONDUIT FROM THE POWER SOURCE TO THE METER SHALL BE RIGID METAL CONDUIT. OTHER CONDUIT NOT UNDER PAVEMENT SHALL BE 3 INCH PVC SCHEDULE 40. MINIMUM BURIAL DEPTH SHALL BE 36 INCHES.

2. TOP 3 INCHES OF CONDUIT SHALL BE SEALED TO PREVENT ENTRY BY RODENTS. BUSHINGS SHALL BE INSTALLED ON ALL CONDUIT TERMINATION AND PULL WIRE SHALL BE INSTALLED IN ALL CONDUIT. ALL CONDUIT HEADS ARE TO BE REDHEADED.THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE ASSOCIATED CONDUIT ITEM.

3. THERE SHALL BE NO SPLICES OR JUNCTION BOXES EXCEPT AS NOTED ON THE PROJECT PLANS OR APPROVED BY THE RESIDENT. JUNCTION BOXES ARE INTENDED FOR WIRE PULLING ACCESS ONLY. JUNCTION BOX COVERS SHALL BE LABELED TRAFFIC' AND SHALL BE GROUNDED.

VEHICLE DETECTION NOTES

1. DETECTION ZONES SHOWN IN THE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY. FINAL DETECTION ZONES SHALL BE FIELD LOCATED AND APPROVED BY MAINEDOT AND THE RESIDENT.

2. THE CONTRACTOR SHALL FURNISH AND INSTALL STOP VIDEO AND ADVANCED DETECTION AS APPROVED BY MAINEDOT AND THE RESIDENT.

3. THE VEHICLE DETECTORS ARE TO BE CONNECTED TO THE INTERSECTION TRAFFIC CONTROLLER FOR LOCAL VEHICLE DETECTION AND REMOTELY CONNECTED TO THE MAINEDOT TRAFFIC MANAGEMENT CENTER TO ALLOW FOR VISUAL CONFIRMATION AND ADJUSTMENT OF THE DETECTION ZONES AS SHOWN IN THE PLANS. WORK SHALL BE CONSTRUCTED AND PAID FOR AS OUTLINED IN SPECIAL PROVISION 643.

4. THE LOCATION OF THE DEVICES SHOWN IN THE PLANS ARE CONCEPTUAL FOR OPTIMAL APPROACH COVERAGE. ACTUAL NUMBER OF DETECTION DEVICES AND MOUNTING LOCATIONS SHALL BE PROVIDED PER MANUFACTURER'S RECOMMENDATION TO ACHIEVE APPROVED DETECTION AREAS.

5. ADVANCED DETECTION MAY BE MOUNTED TO THE POLE OR SPAN WIRE WITH TETHER IF DETECTION AREAS CAN BE ACHIEVED AND DETECTION IS NOT AFFECTED BY WIND.

6. THE RESIDENT RESERVES THE RIGHT TO DIRECT THE CONTRACTOR TO ADJUST DETECTOR MOUNTING HEIGHT OR LOCATION FOR LOCAL CONDITIONS IDENTIFIED DURING OR AFTER INSTALLATION AT NO ADDITIONAL COST FOR INSTALLATION OR WIRING. THIS WORK WILL BE INCIDENTAL TO THE STOP BAR DETECTION.

7. IF A 360 DEGREE/FISHEYE VIDEO BASED DETECTION CAMERA IS TO BE INSTALLED,TWO CAMERAS SHALL BE REQUIRED.

8. THE CONTRACTOR SHALL RE-INSPECT EACH SIGNALIZED INTERSECTION DURING THE ACCEPTANCE TESTING PERIOD AND CERTIFY DETECTORS ARE FUNCTIONING PROPERLY BEFORE FINAL ACCEPTANCE IS GRANTED.

SIGNAL HEAD NOTES

1. ALL NEW SIGNAL HEADS SHALL BE MOUNTED TO WOOD POLES OR SPAN WIRE AS INDICATED ON PLANS.

2. ALL NEW VEHICULAR SIGNAL HEADS SHALL BE EQUIPPED WITH NEW LED LENSES 12 INCHES IN DIAMETER AND EQUIPPED WITH NEW 5-INCH LOWERED BACK PLATES. INCLUDING 3' RETRO REFLECTIVE BORDERS.

3. THE BOTTOM OF THE HOUSING OF ANY NEW SIGNAL FACES SHALL BE AT LEAST I7 FEET BUT NOT MORE THAN 19 FEET ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY. FOR POLE MOUNTED SIGNAL HEADS.THE BOTTOM OF THE HOUSING SHALL BE MOUNTED AT LEAST 8 FEET BUT NO MORE THAN 19 FEET ABOVE THE PAVEMENT GRADE AT THE HIGH POINT OF THE ROAD.

4. ASSEMBLIES SHALL HAVE DOUBLE SPAN WIRE SUPPORT. SIGNAL ASSEMBLIES AND SIGNAGE ATTACHED TO SPAN WIRES SHALL BE STABILIZED WITH A BOTTOM TETHER. THE CONTRACTOR SHALL REVIEW THE SIGNAL HEAD LOCATIONS AND COMPLETE ANY ADJUSTMENTS NECESSARY OR AS DIRECTED BY THE THE RESIDENT TO MAINTAIN CLEAR SIGHT LINES TO THE SIGNAL HEADS ON ALL APPROACHES.

ROADSIDE UNIT (RSU) NOTES

1. THE CONTRACTOR MAY MOUNT THE RSU ON ANY SIGNAL POLE PROVIDED THE ANTENNA HAVE A CLEAR LINE OF SIGHT FOR ALL APPROACHES.THIS PROVISION IS TO BETTER ASSIST THE CONTRACTOR WITH COMMUNICATIONS LIMITATIONS.

COMMUNICATIONS NOTES

1. THE SYSTEM SHALL SUPPORT COMMUNICATIONS TO ADVANCED TRAFFIC CONTROLLERS, ASSOCIATED EQUIPMENT, AND VEHICLE DETECTION AS SHOWN IN THE PLANS. ALL CONNECTIONS TO THE CLOUD-BASED CENTRAL MANAGEMENT SYSTEM SHALL BE VIA A SECURE VPN NETWORK. COMMUNICATIONS FROM THE CLOUD-BASED SYSTEM TO THE ON-STREET TRAFFIC SIGNAL CONTROLLERS SHALL BE MADE THROUGH THE FMU.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING WHICH COMPATIBLE CELLULAR PROVIDER CAN PROVIDE THE BEST NETWORK COVERAGE TO THE FMU FOR REMOTE COMMUNICATIONS AND PROVIDE THE PROPER SIM CARD.

3. CONTRACTOR SHALL PROCURE A HIGH GAIN ANTENNA IN LIEU OF THE STANDARD FMU PETRI DISH ANTENNA.

TRAFFIC SYSTEM STARTUP AND SYSTEM LOADING NOTES

1. THE SIGNAL SHALL BE INSTALLED IN FLASH TWO WEEKS PRIOR TO ACTIVATION MATCHING THE EXISTING PATTERN. PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE LOCATED ON ALL APPROACHES PRIOR TO THE INTERSECTION FOR TWO WEEKS PRIOR TO STARTUP THROUGH ACCEPTANCE WITH THE FOLLOWING MESSAGES AS APPLICABLE:

   NEW SIGNAL SYSTEM ACTIVE XX/XX/XXXX
   NEW SIGNAL SYSTEM AHEAD

2. WHEN FULL SIGNAL OPERATION IS ACTIVATED, REMOVE ALL EXISTING STOP SIGNS AND INTERSECTION WARNING SIGNS.

3. THE SYSTEM SUPPLIER SHALL INITIATE COMPLETE SYSTEM OPERATION INCLUDING ATC, CMS, SPM, SBVD, ADVANCED VEHICLE DETECTION SYSTEM, CONNECTED VEHICLE SYSTEM, HOSTED CLOUD BASED SYSTEMS, FMU COMMUNICATIONS, REMOTE MONITORING, AND CONTROL OF OPERATIONS AS SHOWN ON THE PLANS AND/OR DIRECTED BY MAINEDOT AND THE RESIDENT.

4. AFTER THE SUPPLIER HAS INITIATED SYSTEM OPERATION ON SITE,THE SYSTEM SHALL BE RUN FOR A CONTINUOUS 7-DAY INITIAL TESTING PERIOD.THE SUPPLIER SHALL ADVISE MAINEDOT AND/OR THE RESIDENT THAT THE SYSTEM IS READY FOR START-UP PHASE.

5. ANY MAJOR SYSTEM MALFUNCTION ENCOUNTERED DURING THE START-UP PHASE SHALL BE CORRECTED BY THE SUPPLIER, AND THE TEST RESTARTED. DURING THIS PERIOD MAINEDOT AND/OR THE RESIDENT MAY MAKE MODIFICATION TO THE SYSTEM TIMING PARAMETERS, BUT THIS WILL NOT CAUSE RESTARTING OF THE TESTING PERIOD. AT THE COMPLETION OF THE TESTING PERIOD, THE SYSTEM WILL BE DEEMED READY FOR FINAL ACCEPTANCE TESTING AS DESCRIBED IN ACCEPTANCE TESTING NOTES.

TRAFFIC SIGNAL SYSTEM ACCEPTANCE TESTING NOTES

1. UPON COMPLETION OF THE 7-DAY STARTUP PERIOD, MAINEDOT AND/OR THE RESIDENT SHALL EVALUATE SYSTEM OPERATIONS. IT IS EXPECTED THAT THE COMPLETE SYSTEM SHALL OPERATE FULLY FUNCTIONAL FOR A PERIOD OF 30 CONSECUTIVE DAYS WITHOUT MALFUNCTION, MINOR MALFUNCTIONS OF INOPERABILITY NOT THE FAULT OF THE CONTRACTOR, AS JUDGED BY MAINEDOT AND/OR THE RESIDENT, ARE NOT INCLUDED IN THE 30-DAY PERIOD.

   IF THE SYSTEM FAILS TO OPERATE AS INTENDED BY THIS SPECIFICATION THE MALFUNCTION SHALL BE CORRECTED BY THE CONTRACTOR AT ITS COST AND A NEW 30-DAY TESTING PERIOD SHALL BEGIN. THIS PROCESS SHALL CONTINUE UNTIL A COMPLETELY OPERABLE SYSTEM IS DEMONSTRATED FOR A CONSECUTIVE 30-DAY PERIOD.

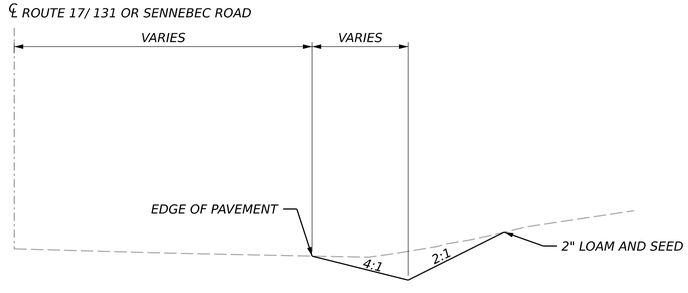
2. ACCEPTANCE TESTING MUST DEMONSTRATE TO MAINEDOT AND/OR THE RESIDENT A REASONABLE SATISFACTION THAT THE HARDWARE AND LICENSED SOFTWARE FUNCTION IN ACCORDANCE WITH THE SPECIFICATIONS, REQUIREMENTS, FUNCTIONALITIES, PERFORMANCE CRITERIA OR OTHER BENEFITS STATED IN DOCUMENTATION, PROPOSALS AND/OR DEMONSTRATIONS GIVEN TO MAINEDOT.

SALVAGE RIGHT NOTES

1. MAINEDOT SHALL HAVE FIRST RIGHTS TO ALL EQUIPMENT REMOVED OR REPLACED BY THE PROJECT. CONTACT:BROOKE.GLIDDEN@MAINEDOT.GOV.

2. THE CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ALL EQUIPMENT CLAIMED BY EITHER MAINEDOT OR THE MUNICIPALITY. THE STORAGE AREA SHALL BE SECURE. ALL CONTROL EQUIPMENT REMOVED THAT HAS COMPUTER CHIP TECHNOLOGY SHALL BE STORED IN AN INTERIOR CLIMATE CONTROLLED ENVIRONMENT.

3. ANY EQUIPMENT NOT CLAIMED BY EITHER MAINEDOT OR THE MUNICIPALITY FOR SALVAGE SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF IN A MANNER ACCEPTABLE TO THE RESIDENT.



TYPICAL SECTION - DITCH

STA. 47+50 TO STA. 48+62 RT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2842800

WIN
028428.00

HIGHWAY PLANS

STATE OF MAINE · JOSEPH R. HOWE · NO. 10420 · REGISTERED PROFESSIONAL ENGINEER

Joseph R. Howe

	BY	DATE
PROJ. MANAGER	DAN LORING,PE	
DESIGN-DETAILED	CHL	JULY 2026
CHECKED-REVIEWED	EGD	JULY 2026
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE
10420
P.E. NUMBER
8/20/2026
DATE

UNION
ROUTE 17

GENERAL NOTES
AND TYPICAL SECTIONS

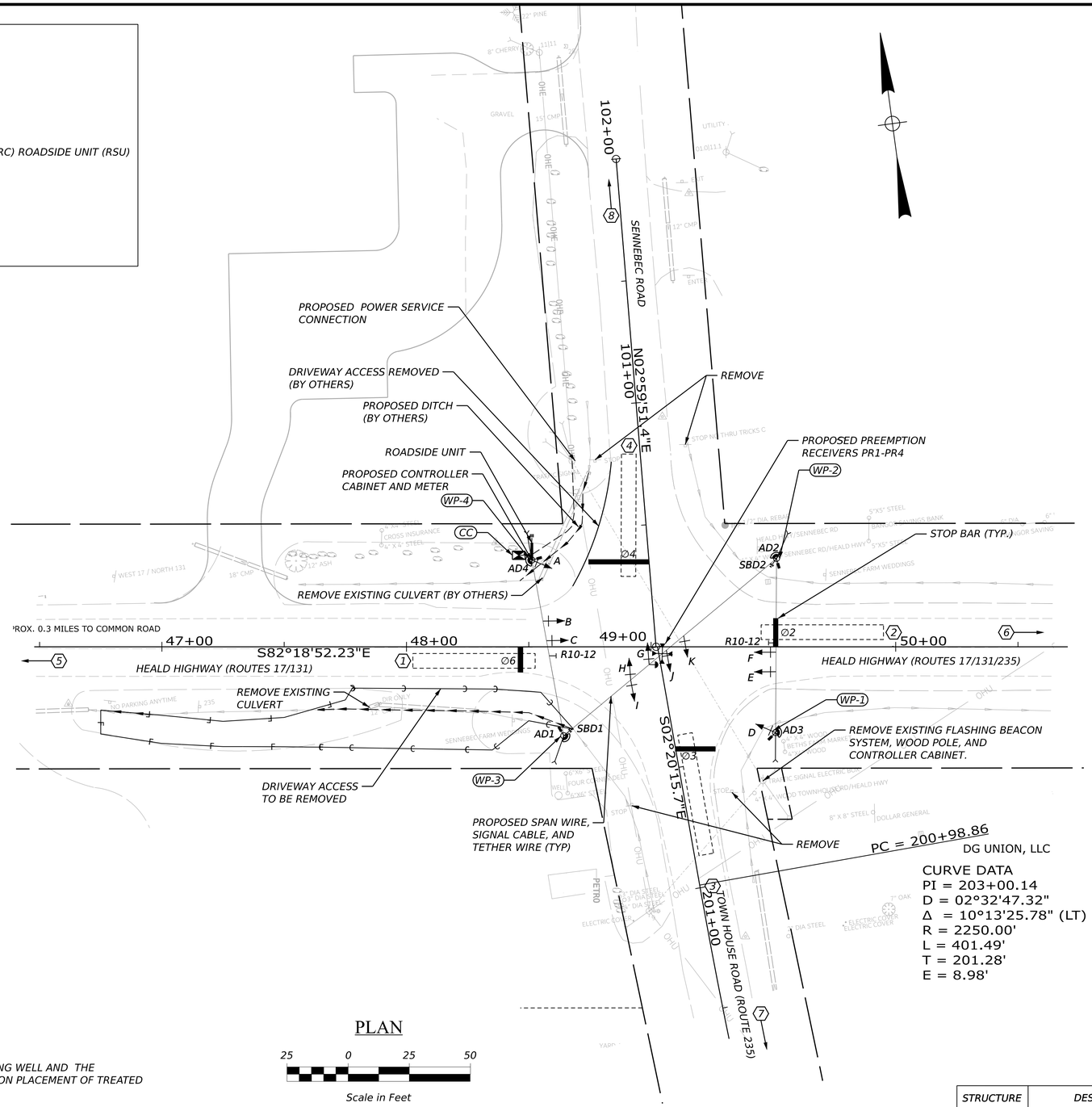
SHEET NUMBER
2
OF 10

Date: 8/20/2026
Username: cloukes

Filename: c:\pw_working\infra03\ascudder\d0178343\Typical.dgn

LEGEND

- CABINET WITH SIGNAL EQUIPMENT
- VEHICULAR SIGNAL HEAD
- SIGN (MOUNTED TO SPAN WIRE)
- VEHICLE DETECTION CAMERA
- VEHICLE DETECTION CAMERA (360°)
- ADVANCE DETECTION UNIT
- DEDICATED SHORT RANGE COMMUNICATIONS (DSRC) ROADSIDE UNIT (RSU)
- EMERGENCY PREEMPTION RECEIVER
- PREEMPTION CONFIRMATION STROBE
- OHU — OVERHEAD UTILITY LINE
- DETECTION ZONE
- WOOD SIGNAL POLE
- SIGNAL CONDUIT
- UTILITY GUY WIRE

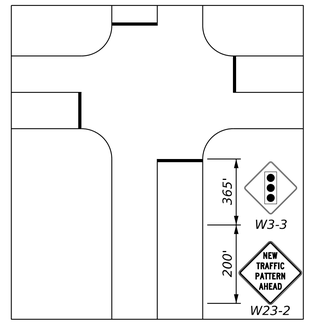


CURVE DATA
PI = 203+00.14
D = 02°32'47.32"
Δ = 10°13'25.78" (LT)
R = 2250.00'
L = 401.49'
T = 201.28'
E = 8.98'

PLAN

25 0 25 50

Scale in Feet



ADVANCED SIGNING

(ALL APPROACHES)

NOTES:

1. SIGNAL POLE AT STA. 48+65 RT. IS CLOSE TO AN EXISTING WELL AND THE CONTRACTOR SHALL BE AWARE OF ANY RESTRICTIONS ON PLACEMENT OF TREATED WOOD POLES.
2. REMOVE EXISTING STOP AHEAD SIGN ON SENNEBEC ROAD. DEMOUNT STOP AHEAD SIGN ON ROUTE 235 AND INSTALL W3-3 ON EXISTING POST.
3. REMOVE EXISTING INTERSECTION AHEAD SIGNS AND SUPPLEMENTAL PLAQUES ON ROUTE 17.
4. NEW TRAFFIC PATTERN AHEAD SIGNS SHALL BE REMOVED BY THE DEPARTMENT NO MORE THAN 12 MONTHS AFTER ACTIVATION OF PROPOSED TRAFFIC SIGNAL SYSTEM.
5. ALL SIGNALS SHALL INCLUDE REINFORCING PLATES TO REINFORCE THE HOUSINGS AT THE POINT OF ATTACHMENT.

STRUCTURE LIST

STRUCTURE	DESCRIPTION	STA/OFFSET	FOUNDATION
CC	CONTROLLER CABINET	48+45.88, 37.38 LT.	L48" X W26" X H48"
WP-1	40' - CLASS IV WOODEN POLE	49+50.88, 35.06 RT.	
WP-2	40' - CLASS IV WOODEN POLE	49+51.27, 36.12 LT.	
WP-3	40' - CLASS IV WOODEN POLE	48+64.29, 36.32 RT.	
WP-4	40' - CLASS IV WOODEN POLE	48+51.23, 35.45 RT.	

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2842800

WIN
028428.00

HIGHWAY PLANS

STATE OF MAINE — JOSEPH R. HOWE NO. 10420 — REGISTERED PROFESSIONAL ENGINEER

Joseph R. Howe

SIGNATURE
10420
P.E. NUMBER
8/20/2026
DATE

	BY	DATE
PROJ MANAGER	DAN LORING, PE	
DESIGN-DETAILED	CLG	JULY 2026
CHECKED-REVIEWED	JRH	JULY 2026
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

UNION
ROUTE 17

GENERAL PLAN

SHEET NUMBER
3
OF 10

Date: 8/20/2026
Username: cloukes

Filename: c:\pw_working\infra03\cloukes\d0178343\Plan_HealdHwy.dgn

EMERGENCY VEHICLE PREEMPTION OPERATION

PREEMPT ASSIGNMENT	PREEMPT RECEIVER	RECEIVER PRIORITY	ACTIVE PHASE
1	NOT USED / RESERVED		
2	NOT USED / RESERVED		
3	PR1	1	∅2 (WB)
4	PR2	2	∅6 (EB)
5	PR3	3	∅3 (NB)
6	PR4	4	∅4 (SB)

NOTES:

1. EMERGENCY VEHICLE PREEMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (PROVIDED BY OTHERS) MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
2. PREEMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (PR1=HIGHEST. PR4=LOWEST).
3. IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PREEMPTION PHASE CLEARANCE AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PREEMPTION CYCLE THE CONTROLLER SHALL TIME THE PREEMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
4. MINIMUM GREEN, NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PREEMPTION DEMAND.
5. CONFIRMATION STROBES SHALL BE ILLUMINATED ONLY WHEN EMERGENCY VEHICLE PREEMPTION GREEN IS ON.

LIST OF MAJOR ITEMS

ITEM	EQUIPMENT AND WORK FOR ITEM 643.80 - TRAFFIC SIGNAL AT: HEALD HIGHWAY (ROUTE 17 / 131) AT TOWN HOUSE ROAD (ROUTE 235) AND SENNEBEC ROAD	QTY
SUBSIDIARY TO ITEM 643.80	REMOVE AND SALVAGE EXISTING BEACON SYSTEM INCLUDING EXISTING POLE MOUNTED CABINET	1
	FURNISH AND INSTALL NEW MAINEDOT SPEC ATC CONTROLLER COMPLETE WITH ALL ANCILLARY EQUIPMENT WIRING INCLUDING BATTERY BACKUP WITH INTEGRATION INTO THE CLOUD BASED CENTRAL MANAGEMENT SYSTEM FURNISH AND INSTALL CONTROLLER CABINET FOUNDATION FOR MAINEDOT SPEC ATC CONTROLLER CABINET	1
	FURNISH AND INSTALL NEW 16-CHANNEL ETHERNET EQUIPPED ENHANCED MALFUNCTION MANAGEMENT UNIT (MMU)	1
	FURNISH AND INSTALL APPLIED INFORMATION (AI) FIELD MONITORING UNIT (FMU)	1
	FURNISH AND INSTALL ONE-WAY 3-SECTION, 12-INCH SIGNAL HEADS MOUNTED ON SIGNAL SPAN WIRE WITH ASTRO-BRACKETS WITH 5 " LOUVERED RETROREFLECTIVE BACKPLATES	13
	FURNISH AND INSTALL OPTICAL PREEMPTION SYSTEM INCLUDING 4-CHANNEL PREEMPTION PHASE SELECTOR, PREEMPTION RECEIVERS, AND CONFIRMATION STROBE	1
	FURNISH AND INSTALL NEW SIGNAL CABLE	-
	IMPLEMENT SIGNAL TIMINGS AND CONDUCT TESTING	-
643.21	FURNISH AND INSTALL NONINVASIVE STOP BAR DETECTION SYSTEM	1
643.22	FURNISH AND INSTALL NONINVASIVE ADVANCE DETECTION SYSTEM	1
654.351	FURNISH AND INSTALL CELLULAR VEHICLE TO INFRASTRUCTURE (CV2X) ROADSIDE UNIT	1

THE LISTED QUANTITIES ARE APPROXIMATED AND ARE PROVIDED FOR INFORMATION ONLY

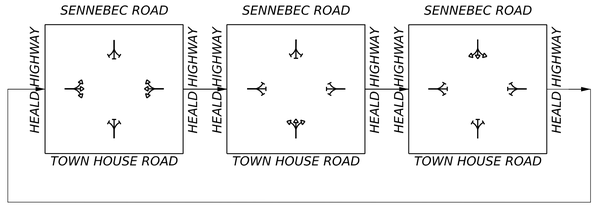
DETECTOR OPERATION

DETECTION ZONE	ZONE SIZE (FT)	PROCESSOR NO.	CHANNEL NO.	∅ CALLED	∅ EXT.	MODE	DELAY (SEC)	EXT. (SEC)
⟨1⟩	6 X 50	1	1	2	2	PRESENCE	-	-
⟨2⟩	6 X 50	1	2	6	6	PRESENCE	-	-
⟨3⟩	6 X 50	2	1	3	3	PRESENCE	-	-
⟨4⟩	6 X 50	2	2	4	4	PRESENCE	-	-
⟨5⟩	SEE ADVANCED DILEMMA ZONE DETAIL	3	1	N/A	2	ADVANCE	-	3
⟨6⟩		3	2	N/A	6	ADVANCE	-	3
⟨7⟩		4	1	N/A	3	ADVANCE	-	3
⟨8⟩		4	2	N/A	4	ADVANCE	-	3

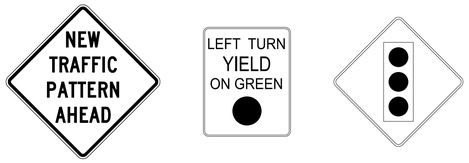
PREFERENTIAL PHASE SEQUENCE

NEMA RING AND BARRIER DIAGRAM

2 | 3 4
6



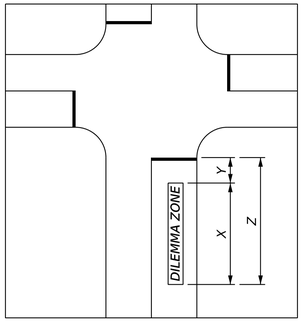
PROPOSED TRAFFIC SIGNS



W23-2 36" x 36"

R10-12 30" x 36"

W3-3 30" x 30"



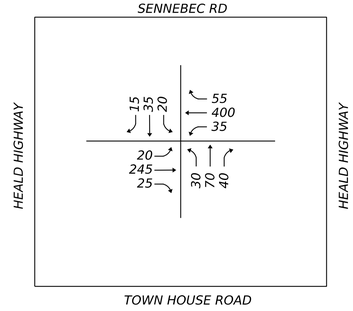
SPEED (MILES PER HOUR)	X (DISTANCE)	Y (DISTANCE)	Z (DISTANCE)
35	152'	102'	254'
40	162'	122'	284'
45	175'	152'	327'
50	181'	172'	353'
55	152'	234'	386'

ADVANCE DILEMMA ZONE SETUP

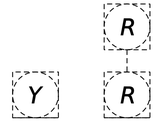
SIGNAL TIMING SCHEDULE

ITEM/PHASE	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8	PHASE 9
ROADWAY	-	EB L-TH-R	NB L-TH-R	SB L-TH-R	-	WB L-TH-R	-	-	-
MINIMUM GREEN	-	10	5	5	-	10	-	-	-
EXTENSION	-	4	3	3	-	4	-	-	-
MAXIMUM I	-	40	20	15	-	40	-	-	-
MAXIMUM II	-	50	25	20	-	50	-	-	-
VEHICLE CLEAR	-	3.0	3.0	3.0	-	3.0	-	-	-
RED CLEAR	-	3.0	2.5	2.5	-	3.0	-	-	-
RECALL	-	MIN	OFF	OFF	-	MIN	-	-	-
DUAL ENTRY	-	ON	-	-	-	ON	-	-	-
FLASH	-	Y	R	R	-	Y	-	-	-

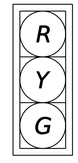
2030 SYSTEM DESIGN VOLUMES PM



EXISTING BEACON INDICATIONS



PROPOSED INDICATIONS



A, B, C, D,
E, G, F, H
I,J,K

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2842800

WIN
028428.00

HIGHWAY PLANS

STATE OF MAINE JOSEPH R. HOWE NO. 10420 REGISTERED PROFESSIONAL ENGINEER

SIGNATURE	
P.E. NUMBER	10420
DATE	8/20/2026

	DAN LORING, PE	DATE
PROJ MANAGER		
DESIGN-DETAILED	CLG	JULY 2026
CHECKED-REVIEWED	JRH	JULY 2026
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

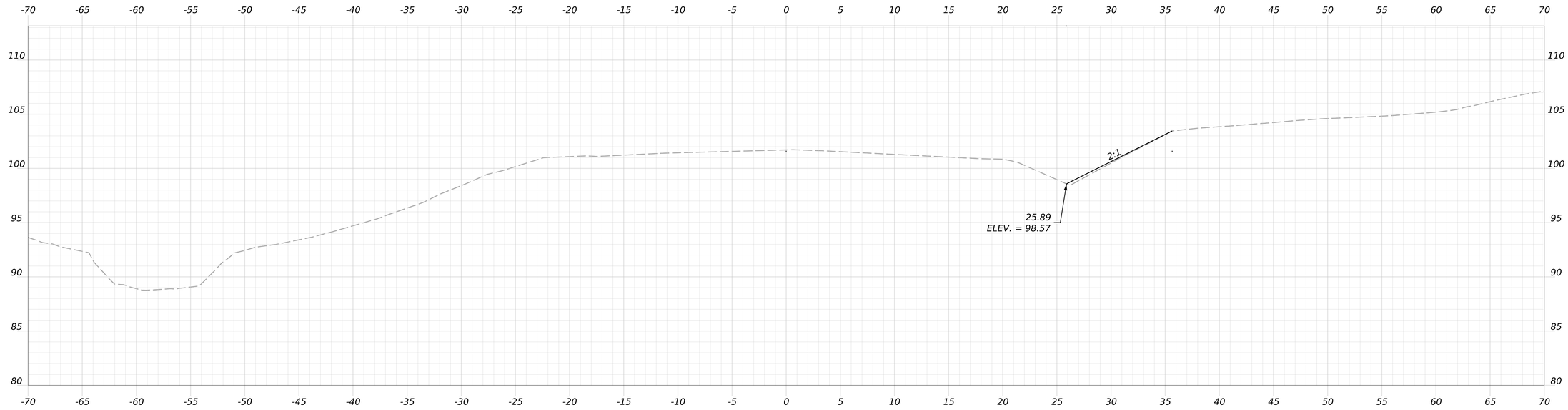
UNION
ROUTE 17

TRAFFIC SIGNAL DETAILS

SHEET NUMBER
4
OF 10

Date: 8/20/2026
Username: cloukes

Filename: c:\pw_working\infra03\cloukes\d0178343\Detail_Traffic_Signals.dgn



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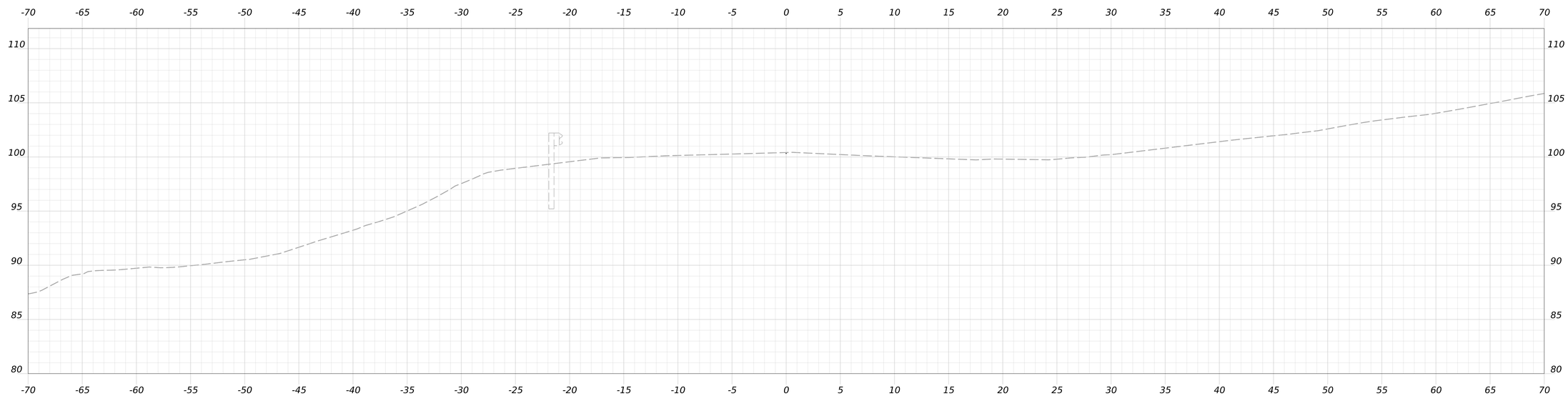


46+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2842800

WIN
028428.00

HIGHWAY PLANS

STATE OF MAINE
JOSEPH R. HOWE
NO. 10420
REGISTERED
PROFESSIONAL
ENGINEER

Joseph R. Howe

SIGNATURE

10420
P.E. NUMBER

8/20/2026
DATE

			BY	DATE
PROJ. MANAGER	DAN LOSHING, PE			
DESIGNED-DETAILED	CHL	CLG		JULY 2026
CHECKED-REVIEWED	EGD	JRH		JULY 2026
DESIGN2-DETAILED2				
DESIGN3-DETAILED3				
REVISIONS 1				
REVISIONS 2				
REVISIONS 3				
REVISIONS 4				
FIELD CHANGES				

UNION
ROUTE 17

CROSS SECTIONS - ROUTE 17

SHEET NUMBER

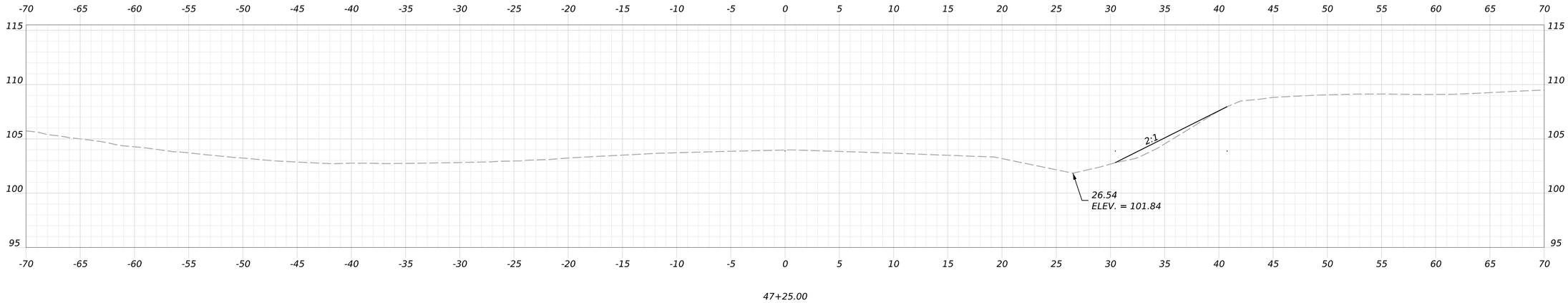
5

OF 10

Date: 8/20/2026

Username: cloukes

Filename: c:\pw_working\infra03\cloukes\d0178343\CrossSections_HealdHwy.dgn



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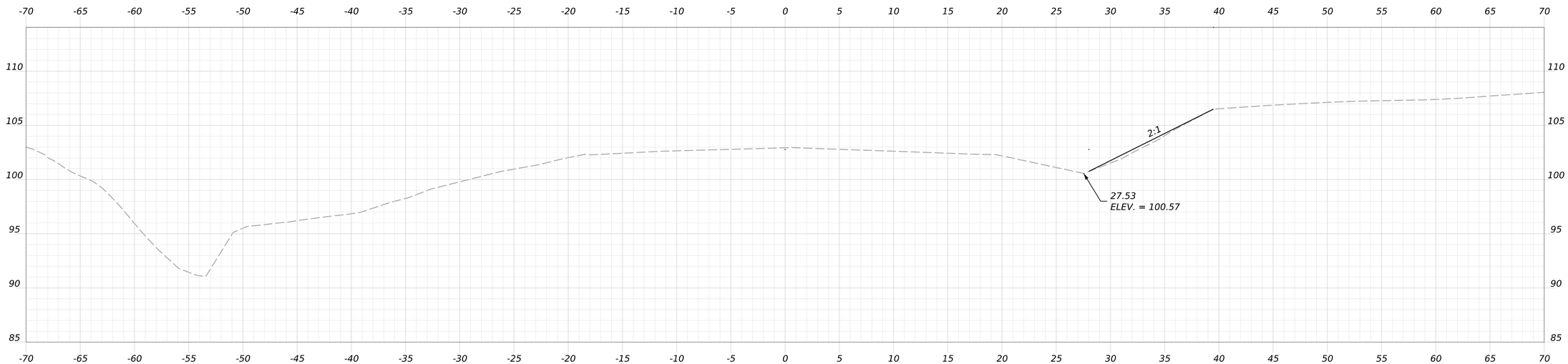


47+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2842800

WIN
028428.00

HIGHWAY PLANS

STATE OF MAINE
JOSEPH R. HOWE
NO. 10420
REGISTERED
PROFESSIONAL
ENGINEER

Joseph R. Howe

SIGNATURE

10420

P.E. NUMBER

8/20/2026

DATE

		BY	DATE
PROJ. MANAGER	DAN LORING, PE		
DESIGN-DETAILED	CHL	CLG	JULY 2026
CHECKED-REVIEWED	EGD	JRH	JULY 2026
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

UNION
ROUTE 17

CROSS SECTIONS - ROUTE 17

SHEET NUMBER

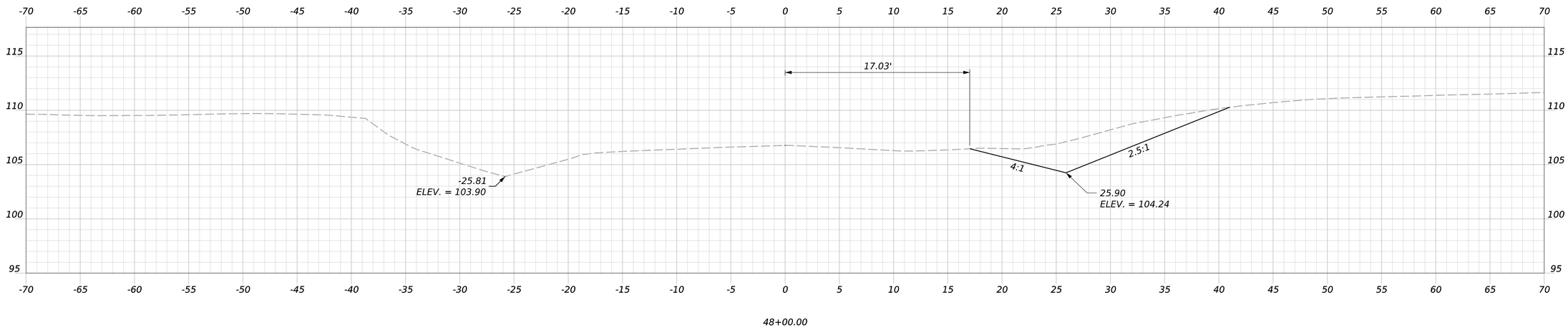
6

OF 10

Date: 8/20/2026

Username: cloukes

Filename: c:\pw_working\infra03\cloukes\d0178343\CrossSections_HealdHwy.dgn



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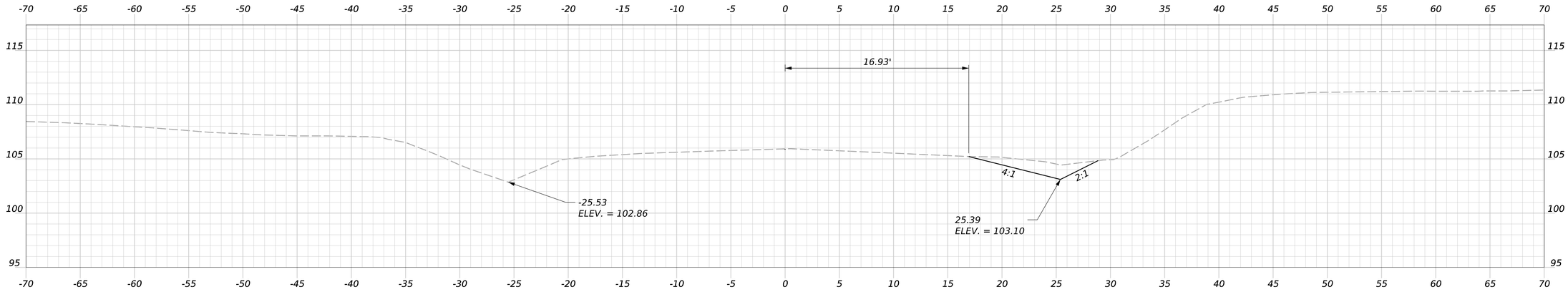

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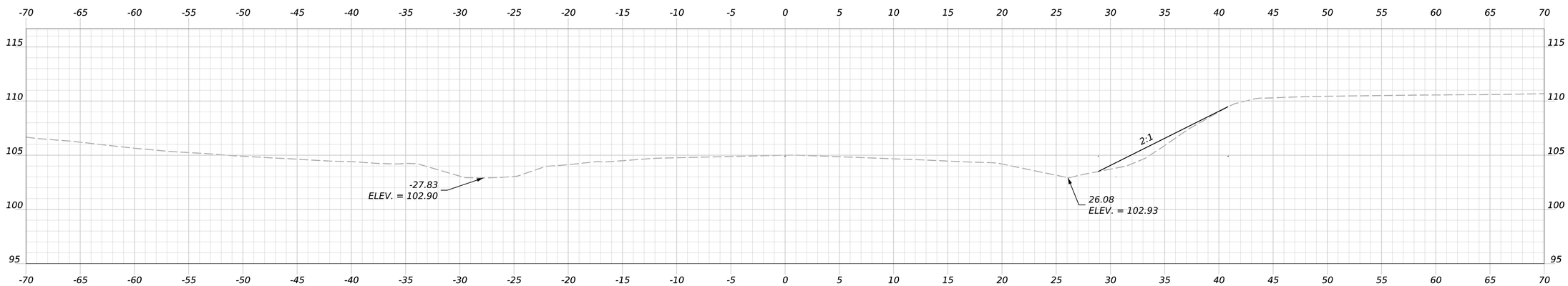


47+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2842800

WIN
028428.00

HIGHWAY PLANS

STATE OF MAINE
JOSEPH R. HOWE
NO. 10420
REGISTERED
LICENSED
PROFESSIONAL

Joseph R. Howe

SIGNATURE
10420
P.E. NUMBER
8/20/2026
DATE

	DAN LORING, PE	BY	DATE
PROJ MANAGER			
DESIGN-DETAILED	CHL	CLG	JULY 2026
CHECKED-REVIEWED	ED	JRH	JULY 2026
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

UNION
ROUTE 17

CROSS SECTIONS - ROUTE 17

SHEET NUMBER

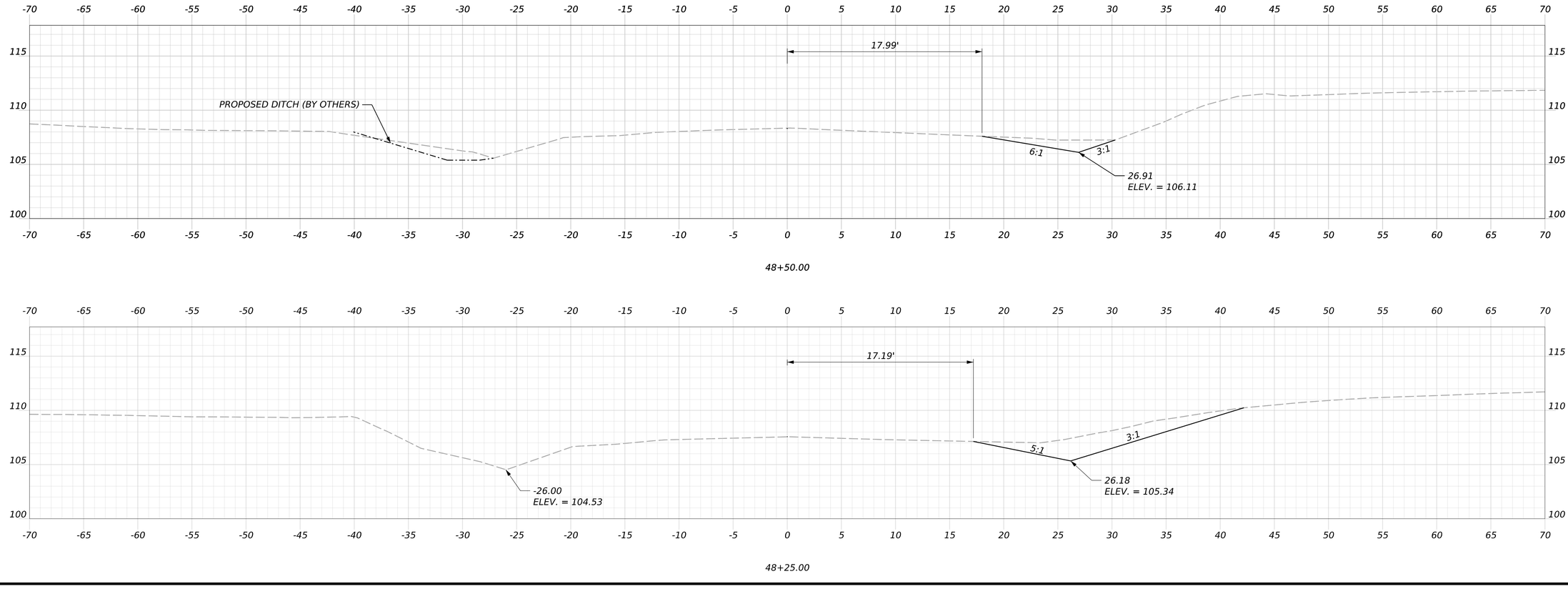
7

OF 10

Date: 8/20/2026

Username: cloukes

Filename: c:\pw_working\infra03\cloukes\d0178343\CrossSections_HealdHwy.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2842800

WIN
028428.00

HIGHWAY PLANS

STATE OF MAINE
JOSEPH R. HOWE
NO. 10420
LICENSED PROFESSIONAL ENGINEER

Joseph R. Howe

SIGNATURE	
10420	
P.E. NUMBER	
8/20/2026	
DATE	

PROJ MANAGER	DAN LOSHING, PE		
DESIGNED-DETAILED	CHL	CLG	JULY 2026
CHECKED-REVIEWED	ED	JRH	JULY 2026
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

UNION
ROUTE 17

CROSS SECTIONS - ROUTE 17

SHEET NUMBER

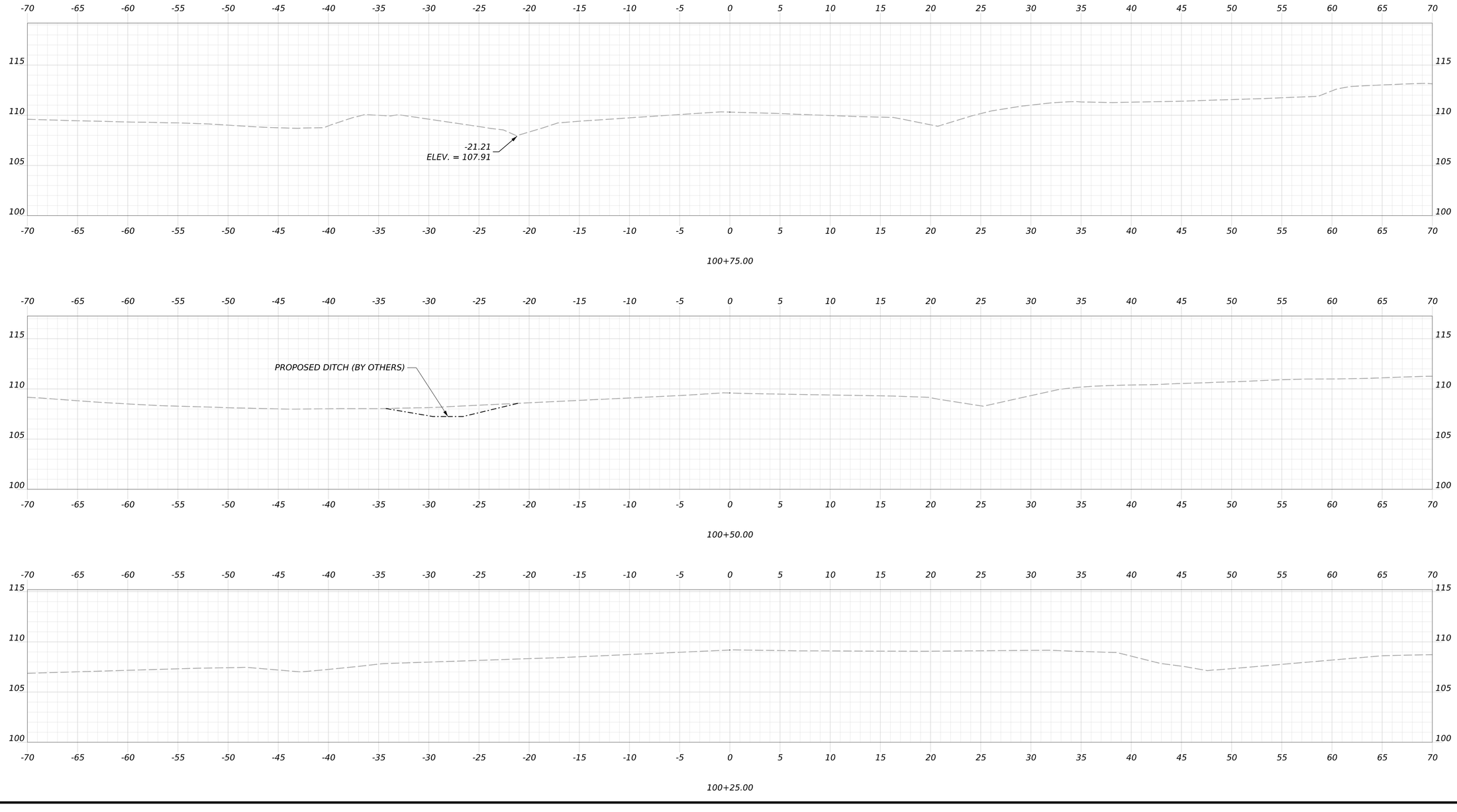
8

OF 10

Date: 8/20/2026

Username: cloukes

Filename: c:\pw_working\infra03\cloukes\d0178343\CrossSections_HealdHwy.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2842800

WIN
028428.00

HIGHWAY PLANS

STATE OF MAINE
JOSEPH R. HOWE
NO. 10420
LICENSED PROFESSIONAL ENGINEER

Joseph R. Howe

SIGNATURE

10420

P.E. NUMBER

8/20/2026

DATE

PROJ MANAGER	DAN LORING, PE		
DESIGN-DETAILED	CHL	CLG	JULY 2026
CHECKED-REVIEWED	ED	JRH	JULY 2026
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

UNION
ROUTE 17

CROSS SECTIONS SENNEBEC RD

SHEET NUMBER

9

OF 10

Date: 8/20/2026

Username: cloukes

Filename: c:\pw_working\infra03\cloukes\d0178343\CrossSections_Sennebec.dgn

PLAN LEGEND

Town, County, State	New R/W Along Existing R/W	Sanitary Sewer	Traveled Way
Approx. Property Lines	Building / Clearing Limit Line — CLL	Com. Line UG — COM	Ditch
Existing Right of Way	Trees: Conifer / Deciduous	Electric Line — E	Catch Basin
Limits of Wrought Portion — LIMITS OF WROUGHT PORTION	Tree Line / Bush Line	Water Line — W	Manhole
Control Of Access	Water Edge	Underdrain Line	Sewer Manhole
New Right of Way	Ledge / Rock/Boulder / Flag Pole	Gas Line — G	Utility Pole
New Easement	Fence: CHAIN LINK / BARB WIRE / STOCKADE	Guardrail	Fire Hydrant
New Temporary Rights — TEMP. CONST. LIMITS	Sign / Well / Mailbox	Culvert	Curbing

(Existing / Proposed)

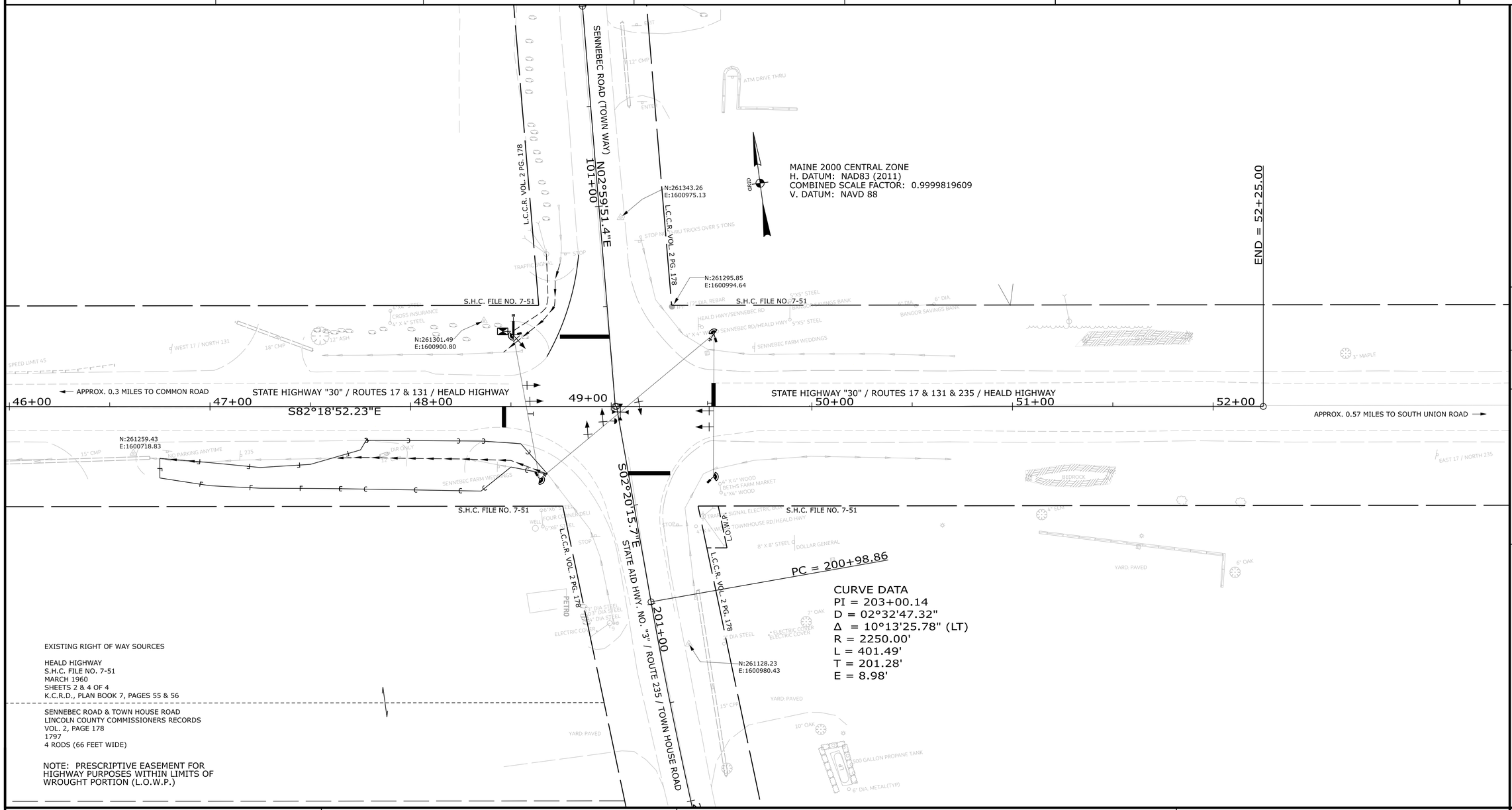
Cut Line C C C	Fill Line F F F	Baseline 10+00 11+00 12+00	Iron Rod Set ⊙ IRS
Stonewall	Retaining Wall	Monument	Traverse Point

THIS PLAN WAS PREPARED IN CONNECTION WITH THE DEPARTMENT'S ACQUISITION OF REAL PROPERTY FOR TRANSPORTATION PURPOSES. IT CANNOT BE USED TO ESTABLISH LEGAL BOUNDARIES BETWEEN ABUTTING PROPERTY OWNERS.

25 0 25 50 75 100
Scale of Feet

STATE OF MAINE
REGISTRY OF DEEDS

COUNTY OF _____
RECEIVED _____, 20____
AT _____ HRS. _____ MINS. _____ .M.
AND RECORDED IN
PLAN BOOK (OR FILE NO.) _____, PAGE _____
ATTEST: _____
REGISTER



PRELIMINARY PLAN

ITEM	CHECKED
EXISTING CONDITION PLAN	G.L.
FINAL RIGHT OF WAY	B.S.
AREAS	N/A

TECH	
B.S.	
G.C.	
N/A	

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016 - 207-624-3460

UNION
RIGHT OF WAY MAP

REVISIONS			
NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK PAGE COUNTY RECORD						
NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE	

DALE F. DOUGHTY
COMMISSIONER
WILLIAM A. PULVER
CHIEF ENGINEER
DATE

STATE HIGHWAY "30"
ROUTE 17 & 131 & 235 / HEALD HIGHWAY

UNION — KNOX COUNTY

WORK IDENTIFICATION NUMBER (W.I.N.) 028428.00

JULY 2026	RIGHT-OF-WAY MAP	FOR EXISTING RIGHT OF WAY PURPOSES ONLY
SCALE 1"= 25'	SHEET 1 OF 1	

SHEET NUMBER
10
OF 10

Date: 7/30/2026
Username: james.gus.cooke
Filename: C:\Users\james.gus.cooke\State of Maine\MaineDOT Work - 28428_00\ROW\Right-of-Way_Plan.dgn