

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION



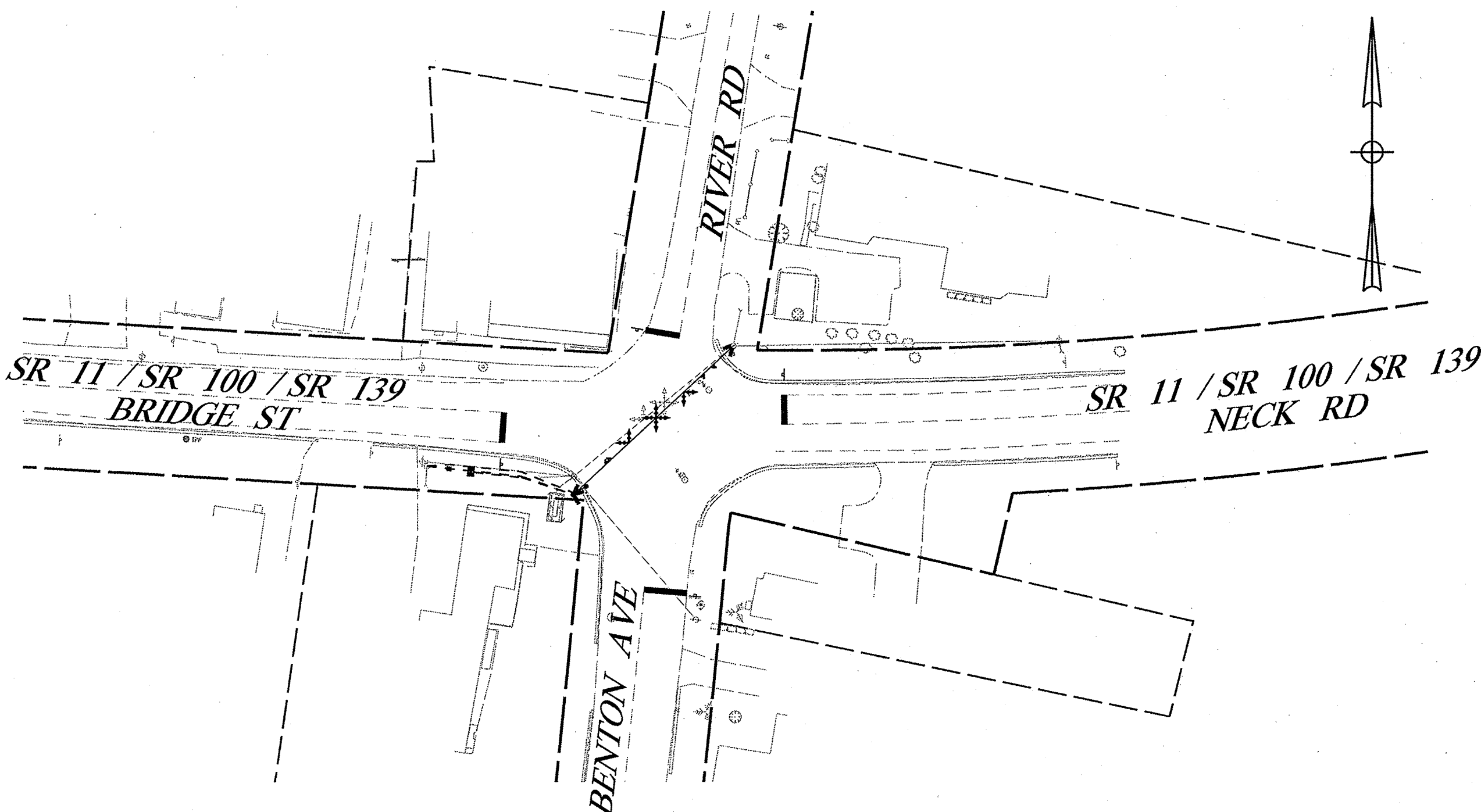
BENTON
KENNEBEC COUNTY
TRAFFIC SIGNAL MODERNIZATION
FEDERAL PROJECT NO. 2282900
STATE WIN 022829.00

PLAN LEGEND

Town, County, State	Centerline-Existing	
Property Lines	Centerline-Proposed	104-00
R/W Lines-Existing	Travelway-Existing	
R/W Lines-Proposed	Travelway-Proposed	
Culvert-Existing	Railroad	
Culvert Proposed	Catch Basins	Existing Proposed
Curbing	Manholes	Existing Proposed
Type 1	Proposed Underdrain	
Type 3	Proposed Ditch	
Type 5	Existing Ditch	
Outline of Bodies of Water	Utility Poles	Existing Proposed
Exposed Bedrock	Fire Hydrants	Existing Proposed
Buildings	Existing Water Line	
Trees	Existing San. Sewer	
Tree Line	Existing San. Sewer Manhole	
Clearing Limit Line	Guardrail-Existing	
Boring	Guardrail-Proposed	
	Guardrail-Cable, Other	
Advanced Traffic Controller (ATC) with Cabinet (ATCC)	Existing	Proposed
Vehicular Signal Head		
Video Detection Camera		
Overhead Light Fixture		
Post or Span Wire Mounted Sign		

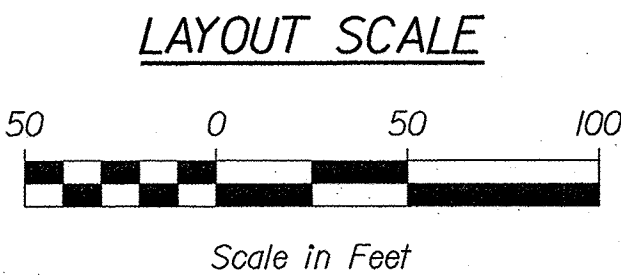
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Design Requirements (by MaineDOT)	6



TRAFFIC DATA

	IR 567 (RIVER RD) N/O SR 11/100/139	SR 11/100/139 E/O IR 567 (BENTON AVE)	BENTON AVE S/O EAST ST	SR 11/100/139 W/O IR 567 (BENTON AVE)
Current (2018) AADT	1,600	7,930	4,260	10,490
Future (2028) AADT	1,680	8,330	4,470	11,010
DHV - % of AADT	9%	10%	9%	10%
Design Hour Volume	150	839	386	1047
% Heavy Trucks (AADT)	9%	7%	7%	7%
% Heavy Trucks (DHV)	5%	2%	3%	2%
Directional Distribution (DHV)	51%	60%	54%	57%
18 kip Equivalent P 2.0	45	305	153	404
18 kip Equivalent P 2.5	43	291	146	385
Design Speed (mph)	30	25	35	25
Functional Class:	Minor Collector	Major Urban Collector	Minor Collector	Major Urban Collector



PROJECT LOCATION:

In the Town of Benton at Route 11/100/139 (Bridge Street/Neck Road) and Benton Avenue / River Road

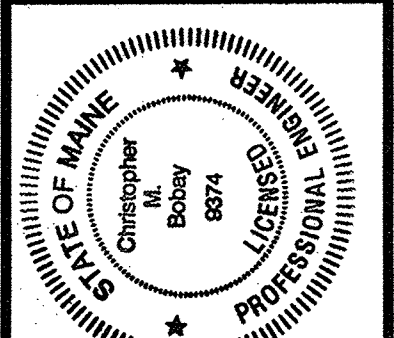
PROGRAM AREA:

Multimodal

OUTLINE OF WORK:

Traffic Signal Design and Other Incidental Work

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
COMMISSIONER: <i>[Signature]</i>	<i>[Signature]</i>	5/24/19
CHIEF ENGINEER: <i>[Signature]</i>	<i>[Signature]</i>	5-24-19



SIGNATURE	P.E. NUMBER	DATE
<i>[Signature]</i>	9374	5/17/2019

PROJECT INFORMATION	PROGRAM	PROJECT MANAGER	DESIGNER	CONSULTANT	PROJECT RESIDENT	CONTRACTOR	PROJECT COMPLETION DATE
MULTIMODAL	G. DOSTIE	M. GRAHAM	VHB				

BENTON ROUTE 11/100/139 (BRIDGE ST) AND BENTON AVE / RIVER RD	TITLE SHEET
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SHEET NUMBER	1
OF 6	

WIN 22829.00

SIGNAL PLAN NOTES:

1. WHERE NOTED ON THE PLANS, ALL NEW VEHICULAR SIGNAL HEADS SHALL BE EQUIPPED WITH NEW LED LENSES 12 INCHES IN DIAMETER AND EQUIPPED WITH NEW 5-INCH LOUVERED BACK PLATES, INCLUDING 3-INCH RETROREFLECTIVITY.
2. ALL NEW SIGNAL HEADS SHALL BE MOUNTED ON SPAN WIRE WITH TETHER.
3. THE BOTTOM OF THE HOUSING OF NEW SIGNAL FACES SHALL BE AT LEAST 17 FEET BUT NOT MORE THAN 19 FEET ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY.
4. TWO COPIES OF AS-BUILT PLANS, WIRING DIAGRAMS, BOX PRINTS, AND EQUIPMENT MANUALS SHALL BE LEFT IN THE CONTROLLER CABINET.
5. THE CONTRACTOR IS RESPONSIBLE FOR FINDING EXACT LOCATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT DIG-SAFE AND APPROPRIATE AUTHORITIES PRIOR TO ANY SUBSURFACE ACTIVITIES.

THE CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE UTILITY COMPANIES WHEN INSTALLING EQUIPMENT (RISERS) ON THEIR POLES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES TO DETERMINE THEIR REQUIREMENTS.

6. TRAFFIC SIGNAL WORK SHALL BE COMPLETED IN A MANNER AND ORDER THAT WILL CAUSE THE MINIMUM DISRUPTION TO TRAFFIC.
7. THE ENGINEER 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.
8. ALL SIGNING, SIGNAL AND STRIPING MATERIALS AND PLACEMENT SHALL CONFORM TO THE MAINEDOT STANDARD SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND STANDARD DETAILS AND WITH THE FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) DATED 2009, AS AMENDED.
- ALL TRAFFIC CONTROL EQUIPMENT, DEVICES AND LAYOUTS SHALL ALSO CONFORM TO THE MAINEDOT STANDARD SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND STANDARD DETAILS AS WELL AS THE MUTCD, CHAPTER 6.
9. ANY RELOCATIONS OR ADJUSTMENTS OF EXISTING UTILITY FACILITIES WILL BE MADE BY THE RESPECTIVE UTILITIES IN COORDINATION WITH THE WORK OF THE CONTRACTOR.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY NECESSARY OPENING PERMITS.
11. ALL EXISTING DRIVEWAY ACCESSES SHALL BE MAINTAINED AT ALL TIMES.
12. THE CONTRACTOR SHALL PROVIDE THE ENGINEER, MAINEDOT, AND THE TOWN OF BENTON WITH A SCHEDULE OF WORK FOR CONSTRUCTING THE TRAFFIC IMPROVEMENTS AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF WORK.
13. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE HIS OWN MATERIAL SCHEDULES BASED UPON HIS PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.
14. ALL NON-PAVED AREAS DISTURBED DURING CONSTRUCTION SHALL BE LOAMED AND SEEDED, UNLESS OTHERWISE DIRECTED BY THE OWNER. ALL PAVED AREAS DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR. COSTS FOR REPAIR OF DISTURBED AREAS SHALL BE INCIDENTAL TO OTHER CONTRACT ITEMS.
15. EQUIPMENT

THE TRAFFIC SIGNAL CONTROLLER AND VARIOUS OTHER EQUIPMENT ITEMS SHOWN ON THE PLANS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. THE TRAFFIC SIGNAL CONTROLLER SUPPLIED UNDER THIS CONTRACT SHALL BE ADVANCED TRANSPORTATION CONTROLLER (ATC) WITH THE CAPABILITY OF SUPPORTING NTCIP PROTOCOLS.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING THE PROJECT WITH WORKING AND FULLY CONFIGURED CONTROLLER AND CABINET.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR FURNISHING AND INSTALLING ALL OTHER EQUIPMENT TO INCLUDE VEHICLE TRAFFIC SIGNALS, ADVANCED VEHICLE DETECTION DEVICE, VIDEO DETECTION CAMERA(S), FIELD WIRING, AND ALL OTHER EQUIPMENT NECESSARY TO PROVIDE COMPLETE AND OPERATIONAL TRAFFIC SIGNAL SYSTEMS. THE CONTRACTOR SHALL BE AWARE OF AND CONFORM TO ALL DETAILS FOR THE MATERIAL SPECIFICATIONS IN SPECIAL PROVISION 718.

THE LOCATIONS OF ALL EQUIPMENT SHOWN ARE APPROXIMATE. FINAL LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE CONSTRUCTION MANAGER.

THE COST OF POLE RISERS SHALL BE INCIDENTAL TO ITEM 643.71.

16. FOUNDATIONS

FOUNDATIONS FOR CONTROL CABINET AND PROPOSED STRAIN POLE ARE SHOWN IN THE PLANS TO BE WITHIN THE EXISTING RIGHT-OF-WAY (ROW) AND TO AVOID UNDERGROUND CONFLICTS WITH INFORMATION THAT WAS PROVIDED DURING DESIGN; HOWEVER, THE CONTRACTOR MAY UPON CONSULTATION WITH APPROVAL FROM THE RESIDENT ENGINEER, RELOCATE CABINET, AND TRAFFIC SIGNAL POLE AS NEEDED TO AVOID UNANTICIPATED CONFLICTS AS LONG AS THE FINAL LOCATION MEETS THE GUIDELINES IN SECTION 4E.08 OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE STRUCTURE IS INSTALLED COMPLETELY WITHIN THE EXISTING ROW.

17. STOP LINE VIDEO DETECTION AND ADVANCE DETECTOR INSTALLATION

AS PAYMENT FOR THIS WORK, THE CONTRACTOR SHALL SUBMIT A LUMP SUM BID FOR VIDEO BASED TRAFFIC PRESENCE DETECTORS AND ADVANCE DETECTOR WHICH ARE TO BE CONNECTED TO THE INTERSECTION FOR LOCAL VEHICLE DETECTION. WORK SHALL BE PAID FOR AS OUTLINED IN SPECIAL PROVISION 643.

THE ENGINEER RESERVES THE RIGHT TO DIRECT THE CONTRACTOR TO FIELD ADJUST THE VIDEO DETECTOR MOUNTING HEIGHT FOR LOCAL CONDITIONS IDENTIFIED DURING OR AFTER INSTALLATION. NO ADDITIONAL COST WILL BE ALLOWED FOR FIELD ADJUSTING THE PIPE EXTENSIONS OR REWIRING AS NECESSARY. THIS WORK WILL BE INCIDENTAL TO THE 643.83 VIDEO DETECTION SYSTEM ITEM.

VIDEO DETECTION CAMERAS SHALL BE CONNECTED TO THE FIELD MONITORING UNIT (CELL MODEM) FOR REMOTE MONITORING AND ADJUSTMENTS.

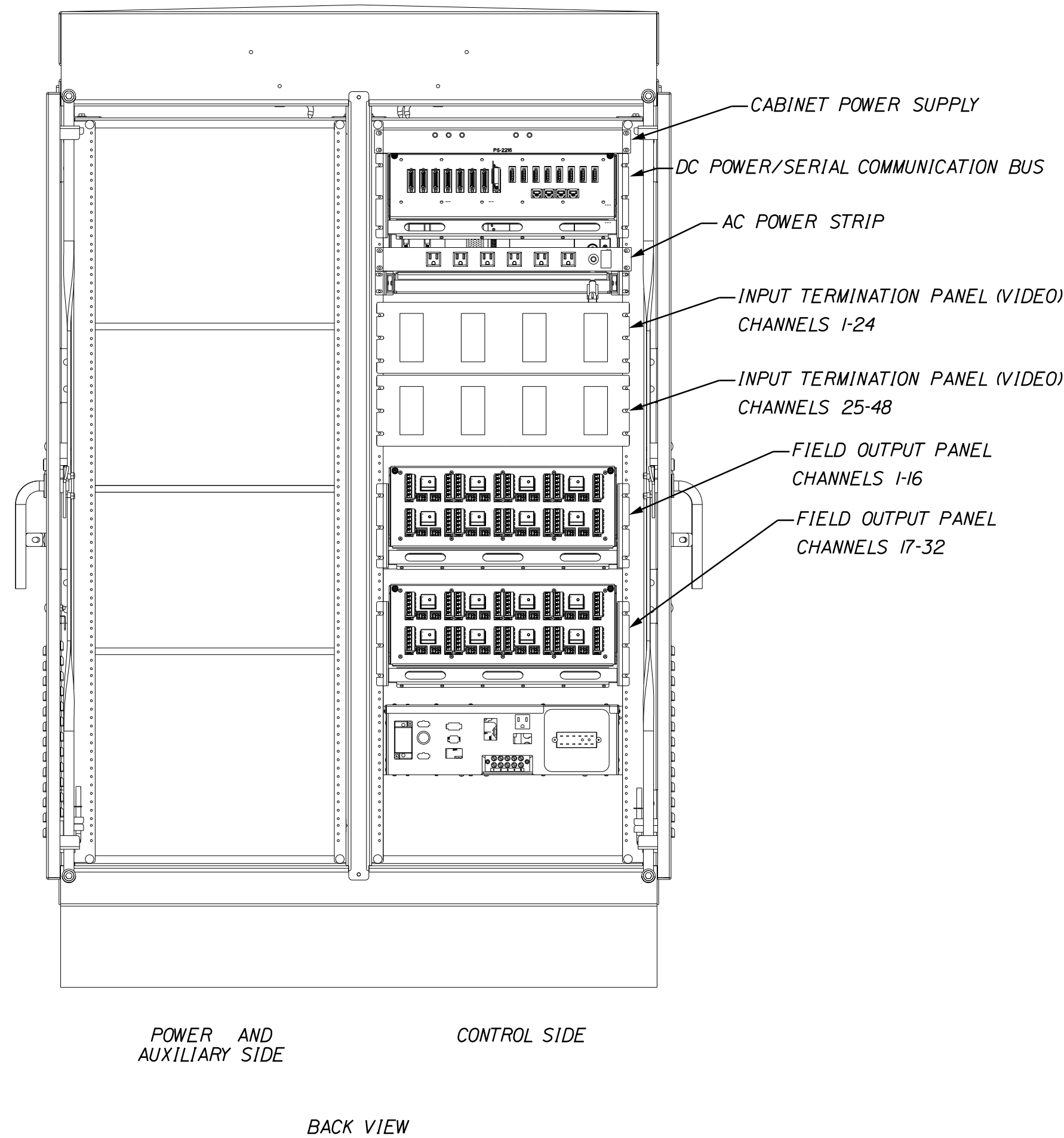
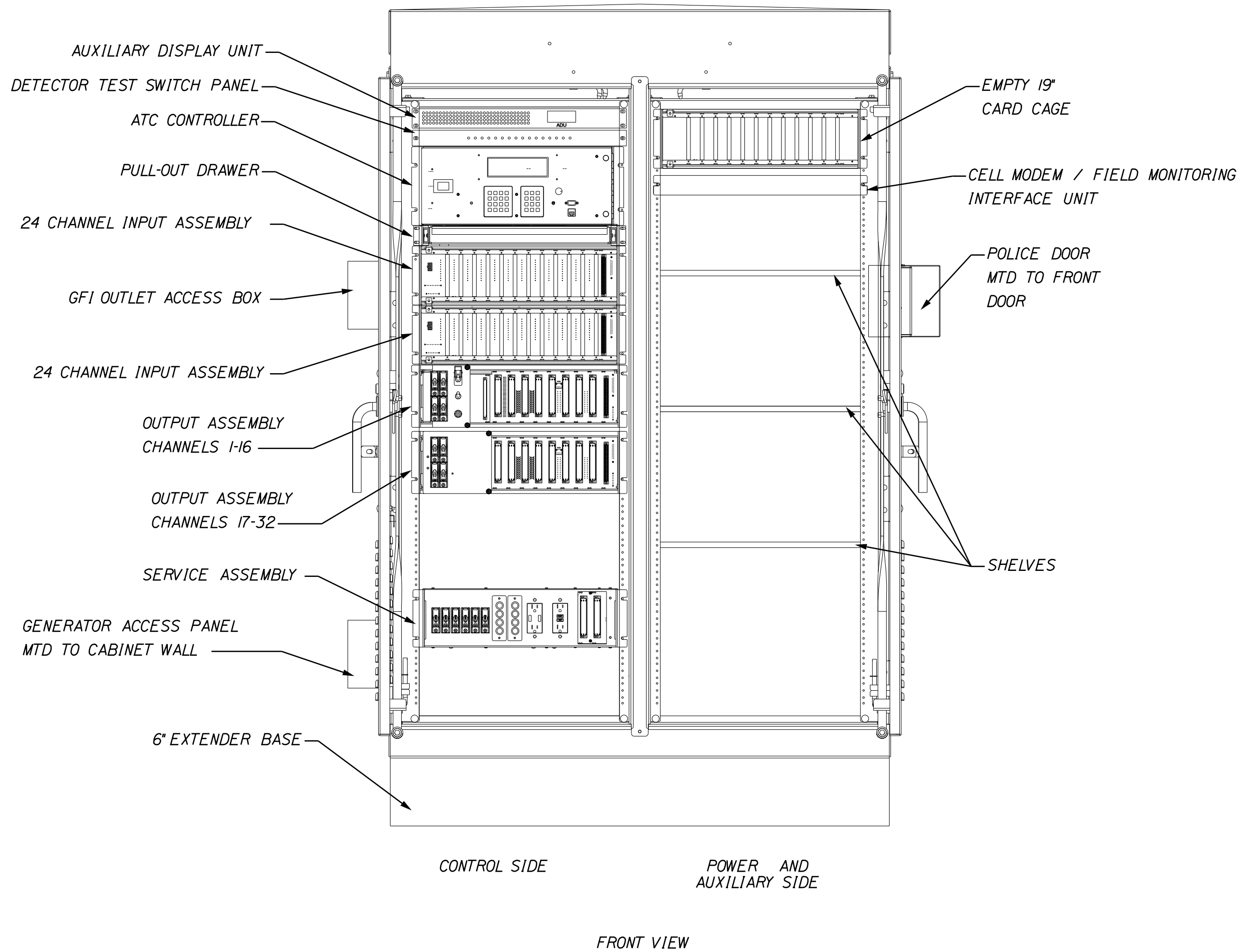
18. SALVAGE RIGHTS: MAINEDOT SHALL HAVE FIRST RIGHTS TO ALL EQUIPMENT REMOVED OR REPLACED BY THE PROJECT (CONTACT MIKE DELOIS AT 207-624-3625). THE TOWN OF BENTON SHALL HAVE SECOND SALVAGE RIGHTS TO ALL EQUIPMENT NOT CLAIMED BY MAINEDOT. MAINEDOT WILL SUBMIT A LIST OF SALVAGED MATERIAL TO BE DELIVERED TO THE ELECTRICAL SHOP ON LEIGHTON ROAD IN AUGUSTA. CONTACT MIKE EATON 207-215-4975 TO COORDINATE DELIVERY. LIKEWISE CONTRACTOR SHALL DELIVER REQUESTED SALVAGED MATERIAL TO THE TOWN OF BENTON AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ALL EQUIPMENT CLAIMED BY EITHER MAINEDOT OR THE TOWN OF BENTON AT A CENTRAL LOCATION ON SITE PRIOR TO DELIVERY. THE STORAGE AREA SHALL BE SECURE AND ALL CONTROL EQUIPMENT REMOVED THAT HAS COMPUTER CHIP TECHNOLOGY SHALL BE STORED IN AN INTERIOR HEATED ENVIRONMENT.

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

19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING RED-LINE AS-BUILT DRAWINGS OF THE FINAL WORK TO THE ENGINEER. THOSE DRAWINGS SHALL BE ON A CLEAN SET OF PLANS SHOWING ALL CHANGES OR MODIFICATIONS TO THE BID PLANS.
20. THE CONTRACTOR SHALL PERFORM THE WORK IN A MANNER THAT WILL REQUIRE THE LEAST AMOUNT OF DOWNTIME TO THE TRAFFIC SIGNAL OPERATIONS. ANY POLICE DETAIL REQUIRED (AS DEEMED NECESSARY BY THE RESIDENT ENGINEER) WILL BE PAID FOR BY THE CONTRACTOR.
21. THE CONTRACTOR IS DIRECTED TO PROJECT SPECIAL PROVISION 718 FOR ADDITIONAL INFORMATION RELATED TO THE FOLLOWING:
 - 718.07 CONTROLLERS
 - 718.08 CONTROLLER CABINETS
 - 718.13 FIELD MONITORING UNITSPECIAL PROVISION 718 EXPANDS UPON THE INFORMATION FOUND IN THESE GENERAL NOTES. AS SUCH, THE MORE RESTRICTIVE LANGUAGE BETWEEN THESE GENERAL NOTES AND SPECIAL PROVISION 718 SHALL GOVERN THE WORK TO BE PERFORMED UNDER THIS PROJECT.
22. THE INTERSECTION BASE PLANS SHOWN ON SHEETS 4-5 ARE BASED ON INTEGRATION OF SURVEY AND RIGHT-OF-WAY PLANS THAT WERE PROVIDED BY MAINEDOT. SUPPLEMENTAL INFORMATION WAS OBTAINED BY VHB FIELD REVIEW AND INVENTORY CONDUCTED ON JUNE 19, 2018.



PROJ. MANAGER	B. NICHOLS	BY	DATE
DESIGN-DETAILED	MJC	JAR	05/18
CHECKED-REVIEWED	CMB	CMB	05/18
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			



MaineDOT 32/48 ATC CABINET
NOT TO SCALE

- NOTES:
- DRAWING SHOWN IS A SCHEMATIC REPRESENTATION OF THE ATC CABINET DEPICTING THE RELATIVE LOCATION OF VARIOUS IN-CABINET DEVICES AND SUBASSEMBLIES.THE EXACT SIZE OF VARIOUS ELEMENTS MAY VARY PER MANUFACTURER.
 - INPUT TERMINATION PANEL SHOWN IS FOR VIDEO BASED INPUTS.
 - DRAWING DEPICTS TWO INPUT PANELS AND TWO OUTPUT PANELS,THIS QUANTITY MAY BE REDUCED DEPENDING ON APPLICATION;SEE SPECIAL PROVISIONS FOR NUMBER OF PANELS TO BE SUPPLIED.
 - FAN AND THERMOSTAT SHALL BE INSTALLED ON CABINET FRAME ABOVE THE DOOR.
 - LED LIGHT STRIPS SHALL BE INSTALLED ON CABINET FRAME ABOVE THE DOOR AND ON THE UNDERSIDE OF THE LOWER SHELF.

NOMINAL TERMINAL PANEL SIZE
PER 24 INPUT RACK:
LOOP = 6U HIGH (10.5")
VIDEO = 3U HIGH (5.25")



PROJ. MANAGER	B. NICHOLS	BY	DATE
DESIGN-DETAILED	JAR	05/18	
CHECKED-REVIEWED	JH	05/18	
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

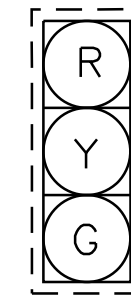
BENTON
ROUTE 11/100/139 (BRIDGE ST)
AND BENTON AVE / RIVER RD
ATCC DETAILS

LIST OF MAJOR ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
FURNISH AND INSTALL NEW ATCC MAINEDOT SPEC GROUND MOUNT CABINET AND ATC CONTROLLER COMPLETE WITH ALL ANCILLARY EQUIPMENT AND WIRING.	1
FURNISH AND INSTALL CELL MODEM WITH INTEGRATION INTO CLOUD BASED MONITORING SIERRA WIRELESS GX450 OR APPROVED EQUAL	1
FURNISH AND INSTALL ONE-WAY, 3-SECTION, 12-INCH TRAFFIC SIGNAL HEADS WITH LED MODULES, TUNNEL VISORS, AND 5-INCH AND RETROREFLECTIVE BACKPLATES MOUNTED ON SPAN AND TETHER WIRE	8
FURNISH AND INSTALL SPAN WIRE MOUNTED SIGNS	4
FURNISH AND INSTALL POST MOUNTED SIGNS	4
FURNISH AND INSTALL POLE RISER	1
FURNISH AND INSTALL SPAN AND TETHER WIRE	210 LF
REMOVE EXISTING POST MOUNTED SIGNS	2
RESET POST MOUNTED SIGN	1
REMOVE EXISTING WOOD POLE AND GUYS	2
FURNISH AND INSTALL NEW SIGNAL CABLE	-
IMPLEMENT LOCAL SIGNAL TIMINGS	-

THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

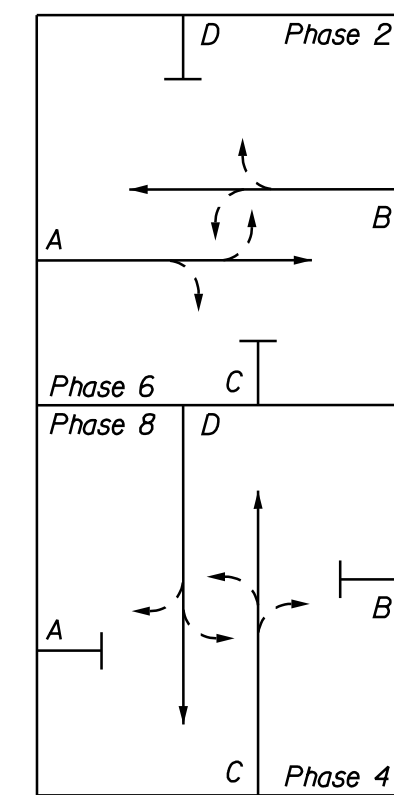
PROPOSED INDICATIONS



A1,A2,B1,B2
C1,C2,D1,D2

NOTE:
ALL INDICATIONS SHALL BE 12' LIGHT EMITTING DIODES (LED'S) WITH 5' LOUVERED RETROREFLECTIVE BACKPLATES

PHASE DIAGRAM



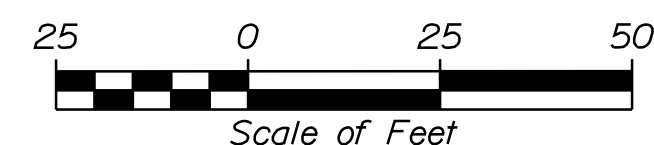
WHERE:
→ PROTECTED TRAFFIC MOVEMENT
--> PERMISSIVE TRAFFIC MOVEMENT

SIGNAL TIMING

	PHASE 2	PHASE 4	PHASE 6	PHASE 8
MINIMUM INITIAL	7	5	7	5
PASSAGE TIME	3.0	3.0	3.0	3.0
MAXIMUM 1	35	25	35	25
MAXIMUM 2	40	30	40	30
YELLOW	4.0	3.5	4.0	3.5
ALL RED	2.0	2.5	2.0	2.5
PED WALK	-	-	-	-
PED CLEAR	-	-	-	-
RECALL	S	0	S	0
DETECTOR	PR	PR	PR	PR
PREEMPT PRIORITY	-	-	-	-
FLASH	Y	R	Y	R
DUAL ENTRY	ON	ON	ON	ON

NOTES: S = SOFT RECALL Y = YELLOW
0 = RECALL OFF R = RED
PR = PRESENCE D = DARK

PLAN

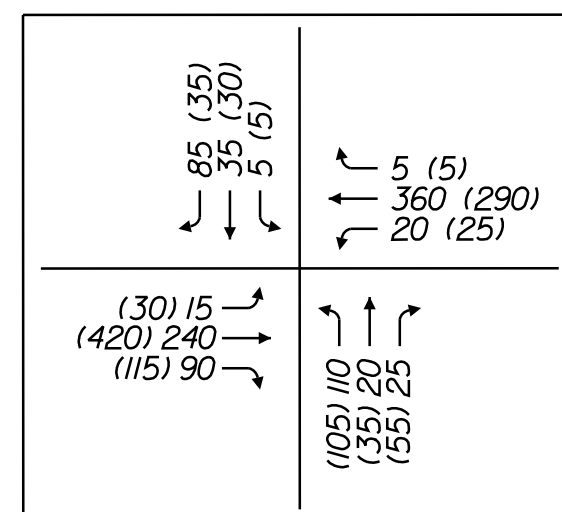


DETECTOR SCHEDULE

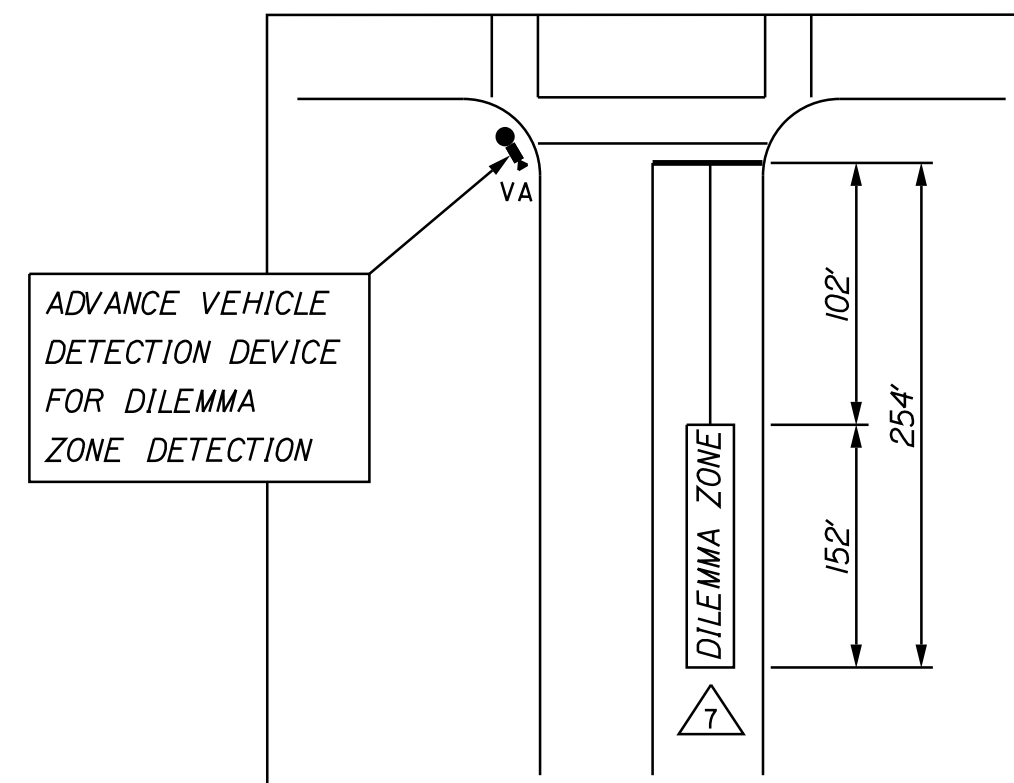
	DETECTOR					DETECTOR CARD IN VEHICLE DETECTION RACK			
	PLAN ID	STREET	DIRECTION	LANE	φ	TYPE	SLOT NO	DETECTOR NO	CHANNEL
CAMERA V1	6	BRIDGE ST	EASTBOUND	LEFT-THRU-RIGHT	6	FULL VIDEO			
CAMERA V2	2	NECK RD	WESTBOUND	LEFT-THRU-RIGHT	2	FULL VIDEO			
CAMERA V3	3	RIVER RD	SOUTHBOUND	LEFT-THRU-RIGHT	8	FULL VIDEO			
CAMERA V4	4	BENTON AVE	NORTHBOUND	LEFT-THRU-RIGHT	4	FULL VIDEO			
CAMERA VA	7	BENTON AVE	NORTHBOUND	THROUGH	4	ADVANCE			

DETECTOR NOTES:
TABLE TO BE COMPLETED BY CONTRACTOR AFTER INSTALLATION.

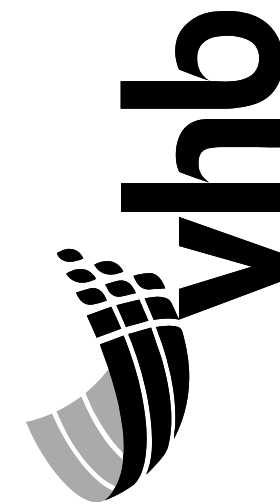
2018 SYSTEM DESIGN
VOLUMES AM (PM)



DILEMMA ZONE LAYOUT FOR
BENTON AVE APPROACH



SOURCE: TRAFFIC DETECTOR HANDBOOK,
THIRD EDITION - VOLUME 1

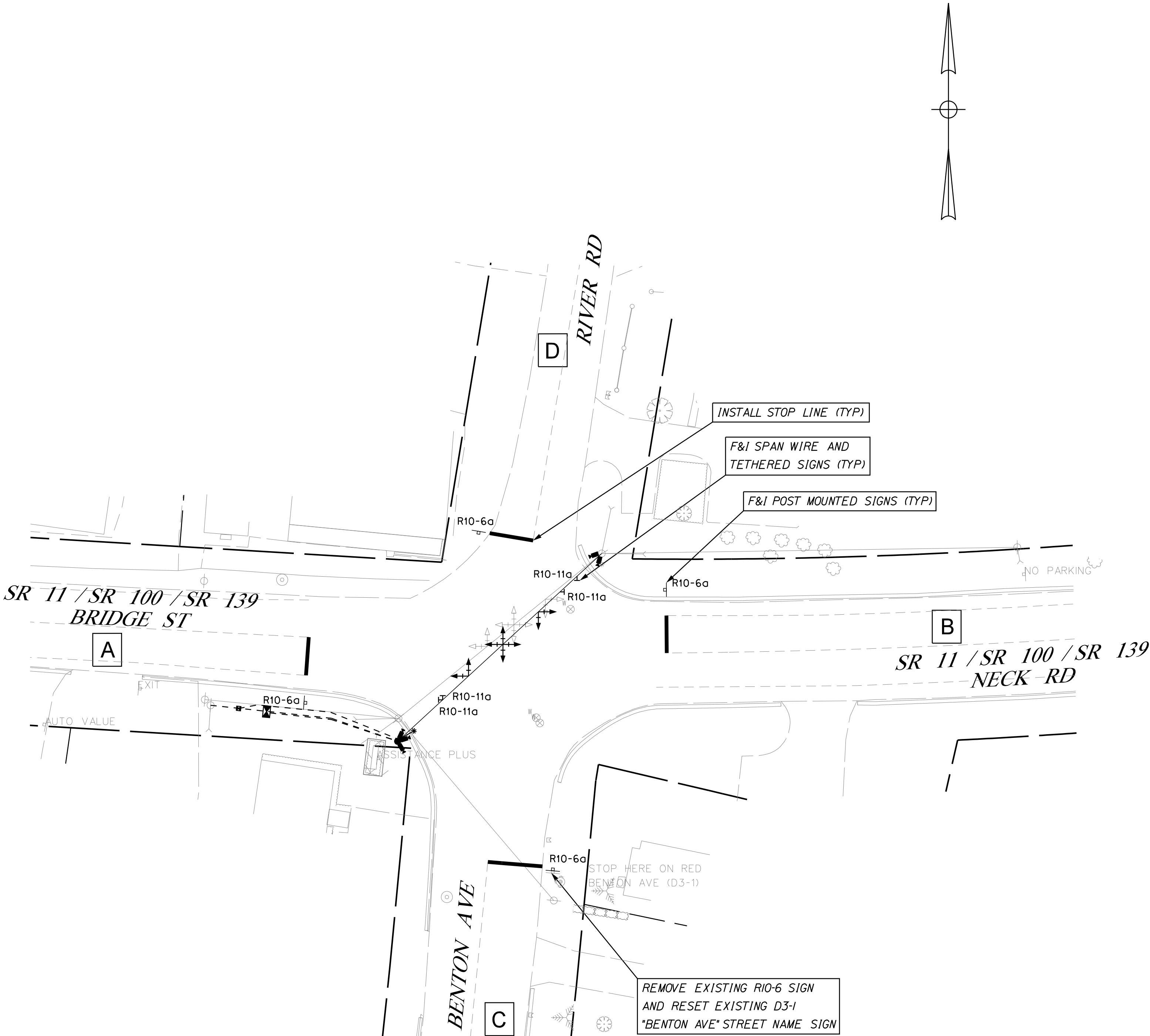


PROJ. MANAGER	B. NICHOLS	BY	DATE
DESIGN-DETAILED	M.C.	JAR	05/19
CHECKED-REVIEWED	CMB	CMB	05/19
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

LIST OF MAJOR ITEMS

EQUIPMENT AND WORK ITEMS (ITEM XXX.YYZ)	QUANTITY
FURNISH AND INSTALL (3-INCH) NON-METALLIC CONDUIT (ITEM 626.22)	200 LF
FURNISH AND INSTALL 24 INCH FOUNDATION (ITEM 626.32)	1
FURNISH AND INSTALL 30-IN DIAMETER, GREATER THAN 8-FT LONG AND ALL 36-IN AND 42-IN DIAMETER FOUNDATIONS (ITEM 626.332)	4.5 CY
FURNISH AND INSTALL CONTROLLER CABINET FOUNDATION (ITEM 626.35)	1
FURNISH AND INSTALL 12-INCH SOLID WHITE PAVEMENT MARKING LINE (ITEM 627.18)	70 LF
FURNISH AND INSTALL VIDEO BASED VEHICLE DETECTION SYSTEM WITH CONNECTION TO FIELD MONITORING UNIT FOR REMOTE MONITORING/ADJUSTMENT (ITEM 643.83)	1
FURNISH AND INSTALL ADVANCE VEHICLE DETECTION DEVICE FOR DILEMMA ZONE DETECTION (SUBSIDIARY TO ITEM 643.83)	1
FURNISH AND INSTALL 4 - FOOT PEDESTAL POLE (ITEM 643.92)	1
FURNISH AND INSTALL STRAIN POLE WITH LIGHT FIXTURE (ITEM 643.93)	1

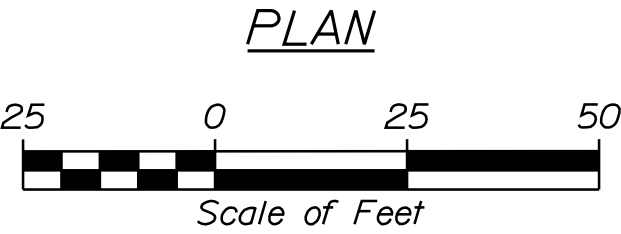
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PROPOSED SIGNS

R10-11a 30"x36" 4-PROPOSED	R10-6a 24"x30" 4-PROPOSED	D3-1 36"x12" 1-RESET

FURNISH AND INSTALL IN ACCORDANCE WITH SECTION 645 AND 719
BUT SUBSIDIARY TO ITEM 643.71



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
PROJECT NO. 2282900
WIN
022829.00
TRAFFIC PLANS

PROJ. MANAGER	B. NICHOLS	BY	DATE
DESIGN-DETAILED	MLC	JAR	05/18
CHECKED-REVIEWED	CMB	CMB	05/18
DESIGN-DETAILED			
REVISIONS 1			
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REVISIONS 4			
FIELD CHANGES			

BENTON
ROUTE 11/100/139 (BRIDGE ST)
AND BENTON AVE / RIVER RD
TRAFFIC SIGNAL PLAN

SHEET NUMBER
5
OF 6



Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS			Project: Route 111 (Benton Avenue and Bridge Street Intersection) Location: Benton, Maine			Boring No.: HB-BEN-101																																																																																																																																																											
Driller: MaineDOT			Elevation (ft.): 163.3			Auger ID/OD: 5: Solid Stem																																																																																																																																																											
Operator: Daggett			Datum: NAVD88			Sampler: Standard Split Spoon																																																																																																																																																											
Logged By: B. Wilder			Rig Type: CME 45C			Hammer Wt./Fall: 140#/30"																																																																																																																																																											
Date Start/Finish: 3/7/2019: 09:30-12:00			Drilling Method: Cased Wash Boring			Core Barrel: NG-2"																																																																																																																																																											
Boring Location: See Boring Location Plan			Casing ID/OD: NW-3"			Water Level*: None Observed																																																																																																																																																											
Hammer Efficiency Factor: 0.928			Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathode ☐																																																																																																																																																														
Definitions: D = Split Spoon Sample U = Unsuccessful Split Spoon Sample Attempt U = Thin Wall Tube Sample MU = Unsuccessful Thin Wall Tube Sample Attempt V = Field Vane Shear Test W = Unsuccessful Field Vane Shear Test Attempt			R = Rock Core Sample SSA = Solid Stem Auger RSA = Hollow Stem Auger RC = Roller Cone NOR = Weight of 140lb. Hammer PP = Pocket Penetrometer NOR/C = Weight of Rods or Casing WOP = Weight of One Person			S _u = Peak/Retained Field Vane Undrained Shear Strength (psf) S _u (lab) = Lab Vane Undrained Shear Strength (psf) q _p = Unconfined Compressive Strength (ksf) N = Uncorrected = Raw Field SPT N-value Hammer Efficiency Factor = Rig Specific Annual Calibration Value N ₆₀ = SPT Uncorrected Corrected for Hammer Efficiency N ₆₀ = (Hammer Efficiency Factor)N _{uncorrected}																																																																																																																																																											
						WC = Water Content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test																																																																																																																																																											
<table><thead><tr><th colspan="8">Sample Information</th><th rowspan="2">Elevation (ft.)</th><th rowspan="2">Graphic Log</th><th rowspan="2">Visual Description and Remarks</th><th rowspan="2">Laboratory Testing Results/AASHTO and Unified Class</th></tr><tr><th>Depth (ft.)</th><th>Sample No.</th><th>Pen./Rec. (in.)</th><th>Sample Depth (ft.)</th><th>Blows / 6 in. Strength (Defl. of ROD (%))</th><th>N-uncorrected</th><th>N₆₀</th><th>Casing Blows</th></tr></thead><tbody><tr><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td>SSA</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td>24/18</td><td>2.00 – 4.00</td><td>16/7/6/5</td><td>13</td><td>20</td><td></td><td></td><td></td><td></td><td></td><td>Brown, moist, medium dense, fine to coarse SAND, some gravel, little silt, (FILL). Frost Depth at 2.5 ft bgs.</td><td></td></tr><tr><td>5</td><td>2D</td><td>20.4/13</td><td>5.00 – 6.70</td><td>16/16/21/25(2.4)</td><td>37</td><td>57</td><td>43</td><td>157.8</td><td></td><td></td><td>Weathered ROCK. 0125 blows for 0.7 ft.</td><td>–5.5</td></tr><tr><td></td><td>R1</td><td>36/34</td><td>7.00 – 10.00</td><td>ROD = 0%</td><td></td><td></td><td></td><td>156.6</td><td></td><td></td><td>Top of Bedrock at Elev. 156.6 ft. Roller Cored ahead to 7.0 ft bgs.</td><td>–6.7</td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>153.3</td><td></td><td></td><td>R1: Bedrock: Interbedded PELITE and SANDSTONE of the Waterville Formation. R1: Core Times (min:sec) 7.0-8.0 ft (2:30) 8.0-9.0 ft (2:07) 9.0-10.0 ft (3:00) Core Blocked 94% Recovery</td><td>–7.0</td></tr><tr><td></td><td>R2</td><td>24/22</td><td>10.00 – 12.00</td><td>ROD = 0%</td><td></td><td></td><td></td><td>151.3</td><td></td><td></td><td>R2: Bedrock: Interbedded PELITE and SANDSTONE of the Waterville Formation. R2: Core Times (min:sec) 10.0-11.0 ft (2:07) 11.0-12.0 ft (2:16) 92% Recovery</td><td>–10.0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Bottom of Exploration at 12.0 feet below ground surface.</td><td>–12.0</td></tr><tr><td>15</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>20</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>25</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table>												Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class	Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. Strength (Defl. of ROD (%))	N-uncorrected	N ₆₀	Casing Blows	0							SSA						10	24/18	2.00 – 4.00	16/7/6/5	13	20						Brown, moist, medium dense, fine to coarse SAND, some gravel, little silt, (FILL). Frost Depth at 2.5 ft bgs.		5	2D	20.4/13	5.00 – 6.70	16/16/21/25(2.4)	37	57	43	157.8			Weathered ROCK. 0125 blows for 0.7 ft.	–5.5		R1	36/34	7.00 – 10.00	ROD = 0%				156.6			Top of Bedrock at Elev. 156.6 ft. Roller Cored ahead to 7.0 ft bgs.	–6.7	10								153.3			R1: Bedrock: Interbedded PELITE and SANDSTONE of the Waterville Formation. R1: Core Times (min:sec) 7.0-8.0 ft (2:30) 8.0-9.0 ft (2:07) 9.0-10.0 ft (3:00) Core Blocked 94% Recovery	–7.0		R2	24/22	10.00 – 12.00	ROD = 0%				151.3			R2: Bedrock: Interbedded PELITE and SANDSTONE of the Waterville Formation. R2: Core Times (min:sec) 10.0-11.0 ft (2:07) 11.0-12.0 ft (2:16) 92% Recovery	–10.0												Bottom of Exploration at 12.0 feet below ground surface.	–12.0	15													20													25												
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Design of the Foundations for the Signal shall be based on Standard Details 626(03) and 626(04) using Charts P32-1, P32-2 and P32-3 (Soils with Phi = 32 degrees) with reference to Standard Specification Section 626.034 for shallow bedrock and Standard Detail 626(06) (Top) for foundations where solid rock is encountered at less than the required distance below ground level.