INDEX OF SHEETS

SEE SHEET 2

RECORD PLANS

CONTRACTOR J P SICARD,INC – BARTON, VT

RESIDENT ENGINEER JAY STRONG FOR CARL FIELDER

CONSTRUCTION BEGAN JUNE 5, 2009

CONSTRUCTION COMPLETE DECEMBER 10, 2010

RECORD PLANS BY JAY STRONG & C PIERCE

I HEREBY CERTIFY THAT ALL THE CONSTUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN

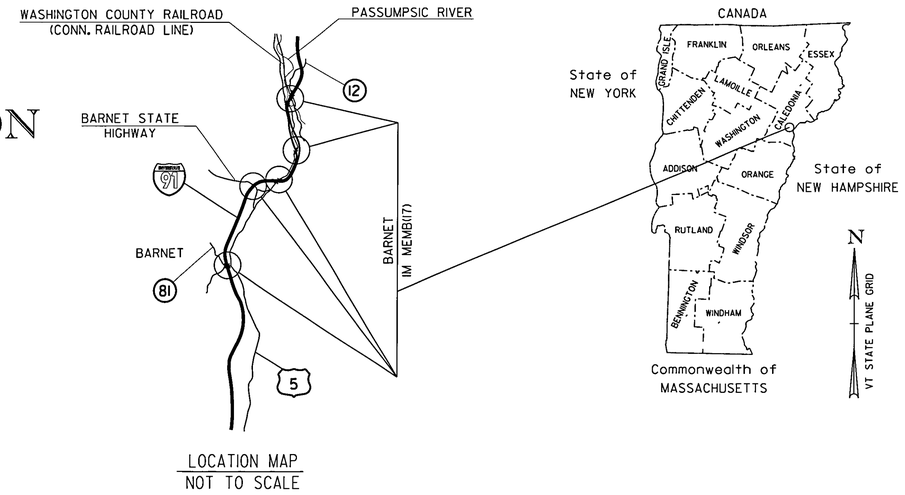
BY _____ RESIDENT ENGINEER

DATE 5-25-2011

NOTE Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF BARNET
COUNTY OF CALEDONIA
PROJECT IM MEMB(17)



LOCATION MAP
NOT TO SCALE

ROUTE NO.: INTERSTATE 91

BRIDGE NO.: 70N, 71N, 74N, 76N, 77N, AND 78N

PROJECT LOCATION: BR 70 N OVER TH NO. 81 (GARLAND HILL ROAD) (MM 118.188)
BR 71 N OVER BARNET STATE HIGHWAY(WEST BARNET ROAD) (MM 120.448)
BR 74 N OVER US 5 (MM 121.041)
BR 76 N OVER US 5 (MM 122.584)
BR 77 N OVER US 5 & PASSUMPSIC RIVER (MM 123.217)
BR 78 N OVER WACR-CRL & TH NO. 12 (OLD SILO ROAD) (MM 123.382)

PROJECT DESCRIPTION: THIS PROJECT INVOLVES REMOVING AND REPLACING THE SHEET MEMBRANE WATERPROOFING AND BITUMINOUS CONCRETE PAVEMENT ON THE BRIDGE AND ITS APPROACHES ALONG WITH MINOR RELATED WORK.

LENGTH OF STRUCTURES:

BR 70N	82.27'
BR 71N	117.00'
BR 74N	121.96'
BR 76N	286.69'
BR 77N	428.50'
BR 78N	270.51'

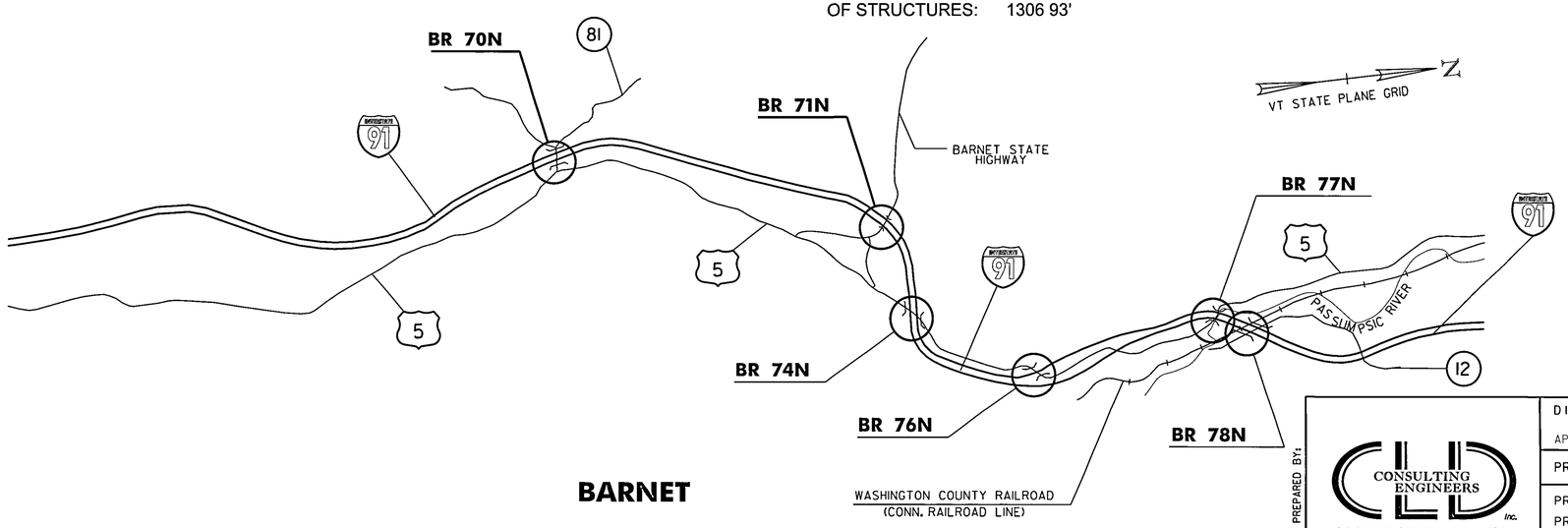
TOTAL LENGTH OF STRUCTURES: 1306 93'

SURVEYED BY : N/A
SURVEYED DATE : N/A

DATUM
VERTICAL N/A
HORIZONTAL N/A

CONVENTIONAL SYMBOLS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TREES
CONTROL OF ACCESS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS SR SR SR
TOP OF CUT
TOE OF SLOPE



BARNET

STATE OF VERMONT JOHN P BYATT NO 8478 Structural LICENSED PROFESSIONAL ENGINEER 5/27/11

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

PLANS PREPARED BY:

CONSULTING ENGINEERS Inc.
540 Commercial Street Manchester NH 03101
(603) 668-8223 • Fax (603) 668-8802
email cld@cldengineers.com • www.cldengineers.com
Maine •New Hampshire •Vermont

DIRECTOR OF PROGRAM DEVELOPMENT

APPROVED _____ DATE 3-27-09

PROJECT MANAGER : SHERWARD FARNSWORTH

PROJECT NAME : **BARNET**

PROJECT NUMBER : IM MEMB(17)

SHEET 1 OF 63 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	BRIDGE NO. 70N	BRIDGE NO. 71N	BRIDGE NO. 74N	BRIDGE NO. 76N	BRIDGE NO. 77N	BRIDGE NO. 78N	FULL C.E. ITEMS
1							
	254	549	845	652	204	326	
	1.8	2.2	2.9	3.8	4.6	3.5	
	115	141	185	251	303	230	
	1	1	1	1	1	1	
1							
	23	20	49	26	35	22	
	86	38	53	65		47	
	348	494	511	1168	1746	1103	
	601	494	511	1168	1991	1347	
		10		10			
			4	4	4		
	3127	4446	4597	10512	15712	9919	
	10	10	10	10	10	10	
	120	120	180	300	300	240	
		2		2		2	
	360	360	360	360	360	360	
	360	360	360	360	360	360	
	120	120	180	300	300	240	
	120	120	180	300	300	240	
	150	150	150	150	150	150	
							1
							1
							1
1							
	1						
		1					
			1				
				1			
					0.5	0.5	
	1	1	1	1	0.5	0.5	
	1	1	1	1	0.5	0.5	
	253	309	402	559	674	514	
	203	247	321	447	539	411	
	1385	1385	1385	1385	1385	1385	
	1385	1385	1385	1385	1385	1385	
	6	7	9	12	14	11	
	75	75	75	75	75	75	
1							

TOTALS

GRAND TOTAL	FINAL FUEL ADJ.
1	
2830	NO
18.8	
1225	YES
6	
1	
175	
289	
5370	
6112	
20	
12	
48313	
60	
1260	
6	
2160	
2160	
1260	
900	
1	
1	
1	
1	
1	
1	
1	
1	
1	
1	
5	
5	
2711	
2168	
8310	
8310	
59	
450	
1	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	
CWT	EMULSIFIED ASPHALT	404.65	
TON	MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT	406.27	
LU	MAT DENSITY PAY ADJUSTMENT (N.A.B.I.)	406.29	
LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	
GAL	WATER REPELLENT, SILANE	514.10	
LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	
SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20	
SY	REMOVAL OF BRIDGE PAVEMENT	529.10	
SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II	580.11	
CY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS III	580.12	
SF	SURFACE PREPARATION FOR MEMBRANE	580.16	
CF	RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE	580.20	
HR	TRUCK-MOUNTED ATTENUATOR	608.45	
EACH	ENERGY ABSORPTION ATTENUATOR	621.56	
LF	TEMPORARY TRAFFIC BARRIER	621.90	
LF	REMOVE AND RESET TEMPORARY TRAFFIC BARRIER	621.95	
HR	UNIFORMED TRAFFIC OFFICERS	630.10	
HR	FLAGGERS	630.15	
LS	FIELD OFFICE, ENGINEERS	631.10	
LS	TESTING EQUIPMENT, BITUMINOUS	631.17	
LU	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.25	
LS	MOBILIZATION/DEMOBILIZATION	635.11	
LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 70N)	641.10	
LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 71N)	641.10	
LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 74N)	641.10	
LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 76N)	641.10	
LS	TRAFFIC CONTROL (I-91 - BRIDGE NO. 77N AND 78N)	641.10	
EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15	
EACH	PORTABLE ARROW BOARD	641.16	
LF	6 INCH WHITE LINE	646.214	
LF	6 INCH YELLOW LINE	646.215	
LF	TEMPORARY 6 INCH WHITE LINE, TYPE II TAPE	646.621	
LF	TEMPORARY 6 INCH YELLOW LINE, TYPE II TAPE	646.631	
EACH	LINE STRIPING TARGETS	646.76	
SF	PAVEMENT MARKING MASK	646.86	
LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50	

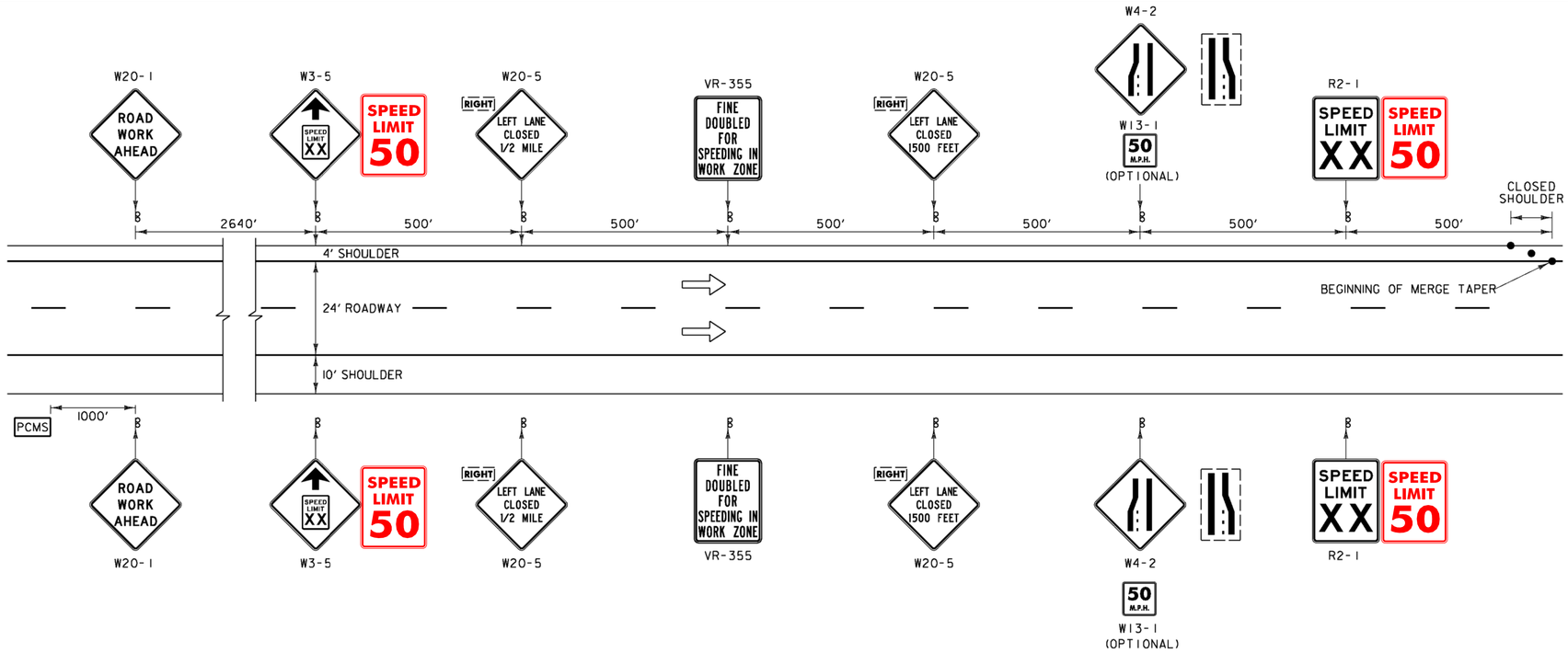
DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

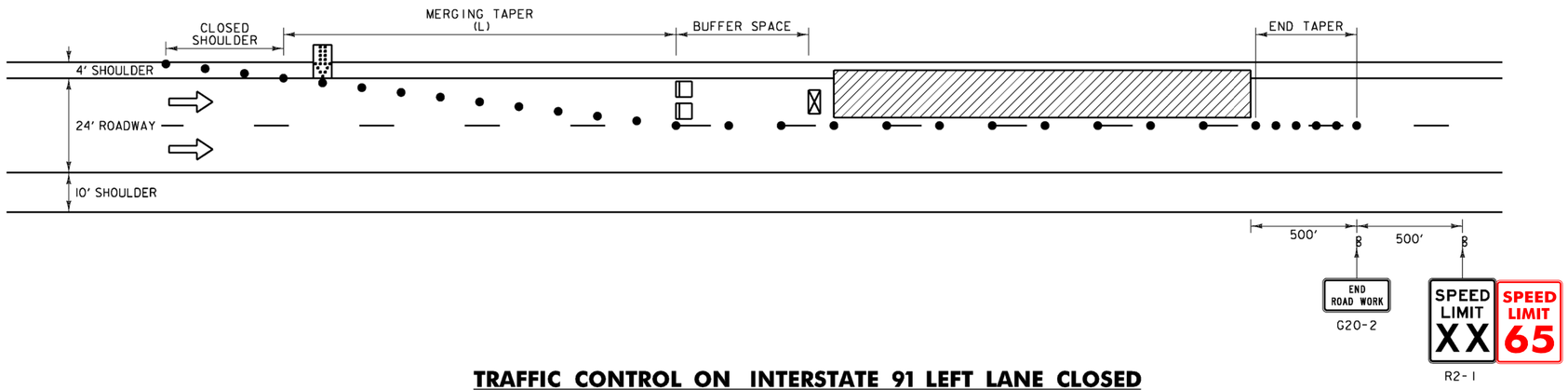
PROJECT NAME: BARNET
PROJECT NUMBER: IM MEMB(17)

FILE NAME: 03-QSS.dgn
PROJECT LEADER: SHERWARD FARNSWORTH
DESIGNED BY: SRB
QUANTITY SHEET #1

PLOT DATE: 03/19/2009
DRAWN BY: SRB
CHECKED BY: JPB
SHEET 3 OF 63



CONSTRUCTION APPROACH SIGNING ON INTERSTATE 91 LEFT LANE CLOSED



TRAFFIC CONTROL ON INTERSTATE 91 LEFT LANE CLOSED

LEGEND

- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM
- PORTABLE ARROW BOARD
- TYPE III BARRICADE
- WORK AREA
- TRUCK/TRAILER MOUNTED ATTENUATOR
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN (SEE NOTE 15)

POSTED SPEED (MPH)	TAPER LENGTHS (FT)		TANGENT W=12 FT (L/2)	BARRIER FLARE RATE (MINIMUM)	MINIMUM BUFFER SPACE LENGTH (FT)	MAXIMUM CHANNELIZING DEVICE SPACING (FT)	
	SHOULDER W=10 FT (L/3)	MERGING 12 FT LANE (L)				TAPER (S)	TANGENT (2S)
≤40	90	320	160	1:9	305	40	80
45	150	540	270	1:9	360	45	90
50	170	600	300	1:11	425	50	100
55	185	660	330	1:13	495	55	110
60	200	720	360	1:13	570	60	120
65	215	780	390	1:13	645	65	130

TAPER RATES ARE DETERMINED USING THE FOLLOWING EQUATION:
L = WS FOR POSTED SPEEDS OF 45 MPH OR GREATER
L = WS²/60 FOR POSTED SPEEDS OF 40 MPH OR LESS

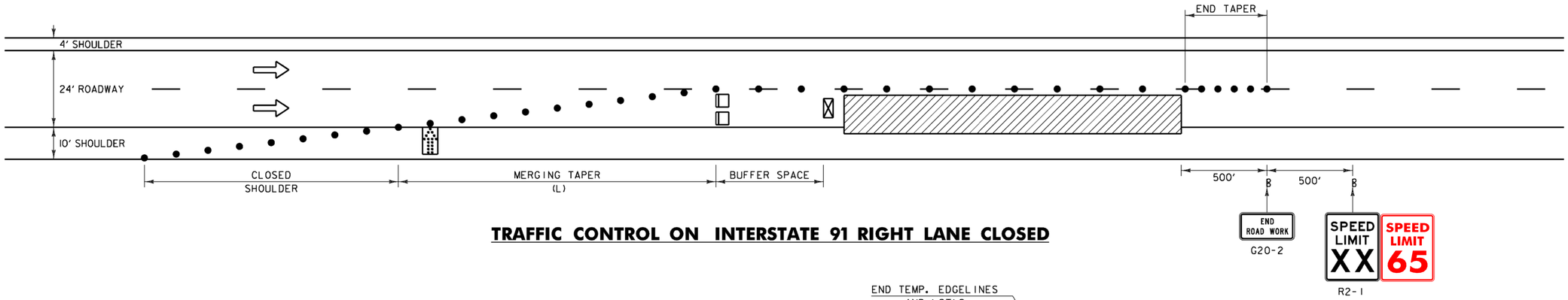
L = MINIMUM LENGTH OF TAPER
W = WIDTH OF OFFSET IN FEET. (TYPICAL)
S = POSTED SPEED IN MPH

TRAFFIC CONTROL NOTES:

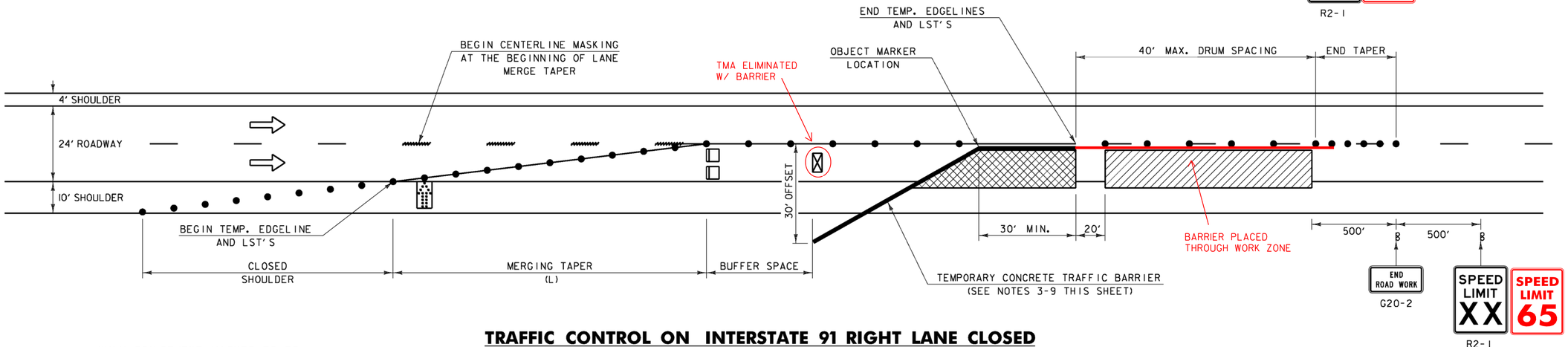
1. THE LEFT LANE CLOSURE IS SHOWN. THE RIGHT LANE APPROACH SIGNING IS SIMILAR. THE RIGHT LANE CLOSURE IS SHOWN ON TRAFFIC CONTROL SHEET 2.
2. THE EXISTING SPEED LIMIT IS 65 MPH. THE SPEED LIMIT WILL BE REDUCED TO 50 MPH IN THE WORK ZONE FOR THIS PROJECT. ANY EXISTING SPEED LIMIT SIGNS WITHIN THE SPEED REDUCTION AREA SHALL BE COMPLETELY COVERED.
3. SIGNS SHALL BE INSTALLED SO AS NOT TO OBSTRUCT EXISTING SIGNS.
4. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS" BOOK (SHS) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
5. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) TYPE VII, VIII OR IX REQUIREMENTS, UNLESS OTHERWISE NOTED.
6. ROLL UP SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM TYPE VI.
7. SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
8. FIXED SIGNS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE EDGE OF PAVEMENT. THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT OR FOUR FEET OUTSIDE GUARDRAIL.
9. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND A ONE FOOT MINIMUM ABOVE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.
10. WHERE SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL BE "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 COMPLIANT. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POST(S). WHEN ANCHORS ARE INSTALLED STUB SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
11. THE CONTRACTOR SHALL HAVE SIGNS FOR CLOSURE OF RIGHT AND LEFT LANES ON PROJECT BEFORE WORK COMMENCES.
12. THE NUMBER OF CHANNELIZING DEVICES, TYPE THREE BARRICADE AND OTHER TRAFFIC CONTROL DEVICES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY, THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR, CURVE, ETC.). WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
13. PLACE LAST CHANNELIZING DEVICE 100 FEET BEYOND THE ANTICIPATED WORK ZONE TERMINAL POINT EACH DAY AND THEN START THE END TAPER. THE END TAPER SHALL BE CONSTRUCTED OF 5 ADDITIONAL RETROREFLECTIVE DRUMS SPACED AT 10 FEET ON CENTER.
14. THE ARROW BOARD SHALL BE PLACED ON THE SHOULDER OF THE ROADWAY, OR IF PRACTICAL FURTHER FROM THE TRAVELED LANE AT THE END OF THE SHOULDER TAPER.
15. THE PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE USED AT THE DISCRETION OF THE ENGINEER, THE PCMS SHALL BE USED IN ACCORDANCE WITH SECTION 6F.55 OF THE MUTCD. THE PCMS SHALL READ "LEFT (OR RIGHT) LANE CLOSED AHEAD, PLEASE MERGE EARLY".
16. TRAVEL LANE SHALL BE 12 FEET WIDE.
17. THE CONTRACTOR SHALL REDUCE TRAFFIC TO ONE LANE DURING WORKING HOURS IN ACCORDANCE WITH THIS SHEET. ALL EQUIPMENT SHALL BE MOVED TO A LOCATION OFF PAVED SHOULDERS DURING NON-WORK PERIODS, AND PROTECTED BY BARRELS OR CONES.

PROJECT NAME: BARNET
PROJECT NUMBER: IM MEMB(17)

FILE NAME: 05-TCS 1.dgn — PLOT DATE: 3/20/2009
PROJECT LEADER: JPB — DRAWN BY: MWS
DESIGNED BY: SRB — CHECKED BY: JPB
TRAFFIC CONTROL SHEET 1 — SHEET 5 OF 63

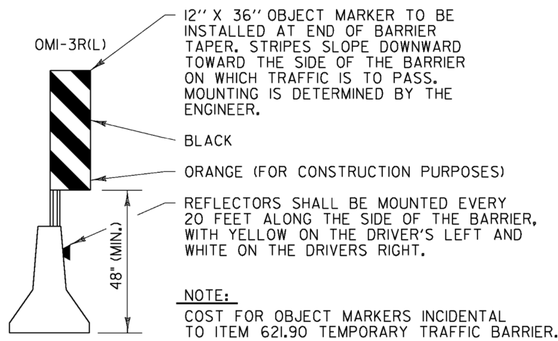


TRAFFIC CONTROL ON INTERSTATE 91 RIGHT LANE CLOSED



TRAFFIC CONTROL ON INTERSTATE 91 RIGHT LANE CLOSED WITH TEMPORARY CONCRETE TRAFFIC BARRIER

(RIGHT LANE CLOSURE SHOWN, LEFT LANE CLOSURE MIRRORED)



12" X 36" OBJECT MARKER TO BE INSTALLED AT END OF BARRIER TAPER. STRIPES SLOPE DOWNWARD TOWARD THE SIDE OF THE BARRIER ON WHICH TRAFFIC IS TO PASS. MOUNTING IS DETERMINED BY THE ENGINEER.

BLACK

ORANGE (FOR CONSTRUCTION PURPOSES)

REFLECTORS SHALL BE MOUNTED EVERY 20 FEET ALONG THE SIDE OF THE BARRIER, WITH YELLOW ON THE DRIVER'S LEFT AND WHITE ON THE DRIVERS RIGHT.

NOTE:
COST FOR OBJECT MARKERS INCIDENTAL TO ITEM 621.90 TEMPORARY TRAFFIC BARRIER.

LEGEND

- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM
- PORTABLE ARROW BOARD
- TYPE III BARRICADE
- WORK AREA
- TRUCK/TRAILER MOUNTED ATTENUATOR
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN (SEE NOTE 15 ON TRAFFIC CONTROL SHEET 1)
- CONSTRUCTION STAGING/ STORAGE AREA (SEE NOTE 8 THIS SHEET)

POSTED SPEED (MPH)	TAPER LENGTHS (FT)		TANGENT W=12 FT (L/2)	BARRIER FLARE RATE (MINIMUM)	MINIMUM BUFFER SPACE LENGTH (FT)	MAXIMUM CHANNELIZING DEVICE SPACING (FT)	
	SHOULDER W=10 FT (L/3)	MERGING 12 FT LANE (L)				TAPER (S)	TANGENT (2S)
≤40	90	320	160	1:9	305	40	80
45	150	540	270	1:9	360	45	90
50	170	600	300	1:11	425	50	100
55	185	660	330	1:13	495	55	110
60	200	720	360	1:13	570	60	120
65	215	780	390	1:13	645	65	130

TAPER RATES ARE DETERMINED USING THE FOLLOWING EQUATION:
L = WS FOR POSTED SPEEDS OF 45 MPH OR GREATER
L = WS²/60 FOR POSTED SPEEDS OF 40 MPH OR LESS

L = MINIMUM LENGTH OF TAPER
W = WIDTH OF OFFSET IN FEET. (TYPICAL)
S = POSTED SPEED IN MPH

TRAFFIC CONTROL NOTES:

1. DUE TO THE PROXIMITY OF BRIDGES 77N AND 78N, THE TRAFFIC CONTROL FOR THESE BRIDGES WILL BE PAID FOR UNDER ONE TRAFFIC CONTROL ITEM.
2. SEE THE TRAFFIC CONTROL NOTES ON THE PREVIOUS SHEET (TRAFFIC CONTROL SHEET 1) FOR ADDITIONAL NOTES AND APPROACH SIGNING FOR THE RIGHT LANE CLOSURE.
3. DUE TO PROXIMITY OF BRIDGES 71N & 74N, THE TRAFFIC CONTROL FOR THESE BRIDGES WERE COMBINED INTO ONE WORK ZONE. E-106 WAS IMPLEMENTED FOR BARNET OFF AND ON RAMPS.

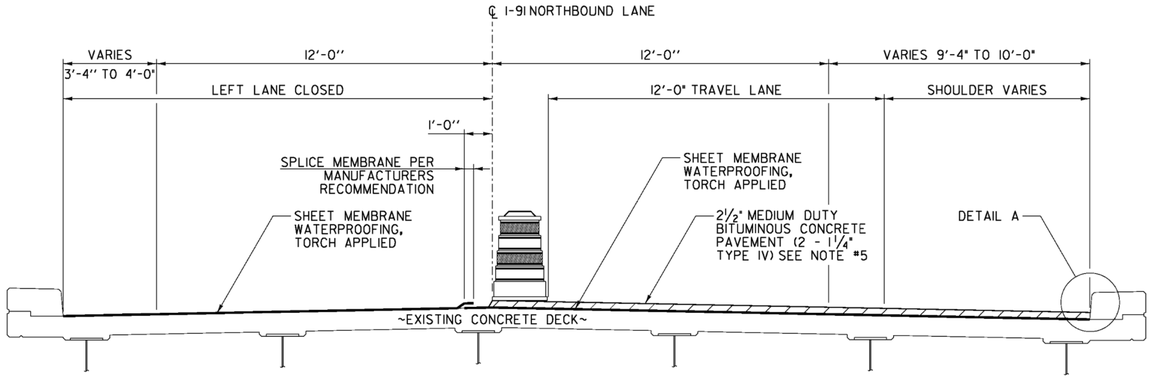
CONCRETE MEDIAN BARRIER NOTES:

3. THE EXISTING TRAVEL LANE WIDTH SHOULD BE MAINTAINED IF POSSIBLE.
4. TEMPORARY TAPE EDGELINES SHALL BE APPLIED AND SHALL MAINTAIN A ONE FOOT MINIMUM DISTANCE FROM THE BARRIER WITH TWO FEET BEING DESIRABLE.
5. LINE STRIPING TARGETS (LST'S) SHALL BE PLACED TO THE OUTSIDE OF THE TEMPORARY TAPE AT 20 FOOT SPACING.
6. PROVIDE A MINIMUM TAPER RATE AS SHOWN IN THE TABLE THIS SHEET, WITH A MINIMUM OF 30 FEET OF TANGENT SECTION PRIOR TO THE BEGINING OF THE WORK ZONE.
7. THE END OF THE BARRIER FACING APPROACHING TRAFFIC SHALL MEET THE FOLLOWING REQUIREMENTS.
   A. WHEN NO GUARDRAIL IS PRESENT, A 30 FOOT OFFSET SHALL BE USED FROM THE EDGE OF TRAVELLED WAY. IF A 30' OFFSET IS NOT ATTAINABLE, THEN AN ENERGY ABSORPTION ATTENUATOR SHALL BE PROVIDED.
   B. IF GUARDRAIL IS PRESENT, THEN TEMPORARY CONCRETE TRAFFIC BARRIER SHALL BE CONNECTED TO EXISTING GUARDRAIL (COST INCIDENTAL TO ITEM 621.90 TEMPORARY TRAFFIC BARRIER) (COSTS FOR DISMANTLING BARRIER CONNECTION AND RESTORING EXISTING BARRIER TO ORIGINAL CONFIGURATION SHALL BE INCIDENTAL TO ITEM 621.90 TEMPORARY TRAFFIC BARRIER.)
8. ALL EQUIPMENT SHALL BE PARKED BEHIND TEMPORARY CONCRETE TRAFFIC BARRIERS AT NIGHT AND ON WEEKENDS WHEN NOT IN USE.
9. RETROREFLECTIVE PLASTIC DRUM SPACING SHALL BE 40 FOOT MAX. BETWEEN TEMPORARY CONCRETE TRAFFIC BARRIER AND END OF WORK ZONE.

PROJECT NAME: BARNET
PROJECT NUMBER: IM MEMB(17)

FILE NAME: 06-TCS 2.dgn
PROJECT LEADER: JPB
DESIGNED BY: SRB
TRAFFIC CONTROL SHEET 2

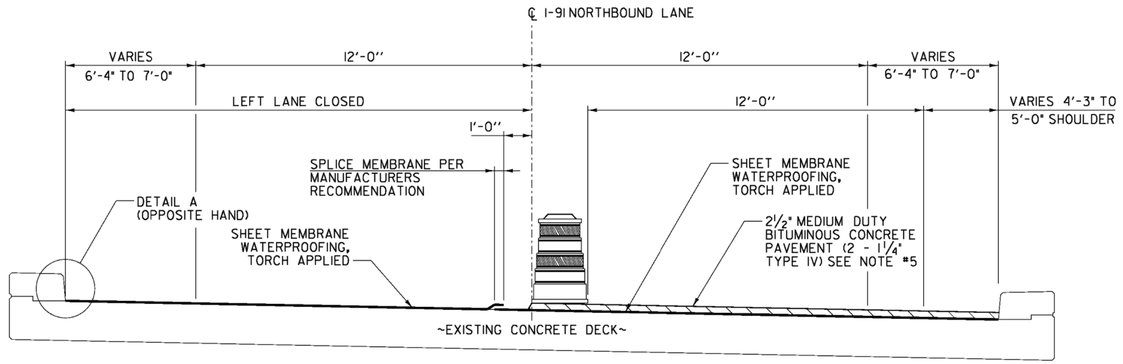
PLOT DATE: 3/20/2009
DRAWN BY: MWS
CHECKED BY: JPB
SHEET 6 OF 63



NOTE: LEFT LANE CLOSURE AND LEFT SIDE MEMBRANE SPLICE SHOWN. RIGHT LANE CLOSURE AND RIGHT SIDE MEMBRANE SPLICE SIMILAR. CONTRACTOR TO DETERMINE WHICH LANE THE MEMBRANE SPLICE SHALL OCCUR IN UNLESS THE BRIDGE IS SUPERELEVATED. BRIDGES WITH SUPERELEVATION SHALL HAVE THE MEMBRANE PLACED AS SHOWN ON THE MEMBRANE SPLICE DETAIL - SUPERELEVATED.

MEMBRANE SPLICE DETAIL – NORMAL CROWN

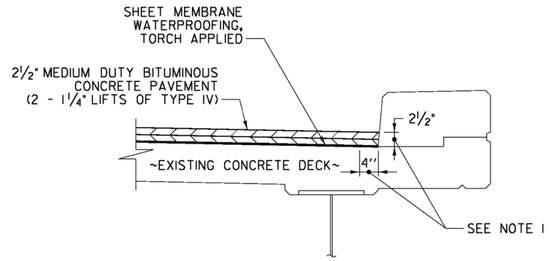
(BRIDGES 70N AND 78N)
NOT TO SCALE



NOTE: LEFT LANE CLOSURE AND LEFT SIDE MEMBRANE SPLICE SHOWN. RIGHT LANE CLOSURE AND RIGHT SIDE MEMBRANE SPLICE SIMILAR. PLACEMENT OF THE MEMBRANE SHALL START AT THE LOWSIDE OF THE BRIDGE. THE SPLICE SHALL BE AS SHOWN ABOVE, WITH THE HIGH SIDE OVERLAPPING THE LOW SIDE.

MEMBRANE SPLICE DETAIL – SUPERELEVATED

(BRIDGES 71N, 74N, 76N, AND 77N)
NOT TO SCALE



DETAIL A

NOT TO SCALE

DETAIL A NOTES:

1. INDICATES AREA ALONG DECK AND UP FACE OF CURB FOR PLACEMENT OF TWO COATS OF POLYURETHANE MEMBRANE.
2. POLYURETHANE MEMBRANE AND BLAST CLEANING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SHEET MEMBRANE WATERPROOFING, TORCH APPLIED.
3. SHEET MEMBRANE WATERPROOFING SHALL EXTEND TO FACE OF CURB AS SHOWN.
4. IN ADDITION TO THE REQUIREMENTS OF SUBSECTION 519.04, BLAST CLEAN 2½" UP THE FACE OF CURB PRIOR TO PLACING THE MEMBRANE.
5. FOR PG BINDER GRADE SEE SECTION 406 OF THE GENERAL PROVISIONS

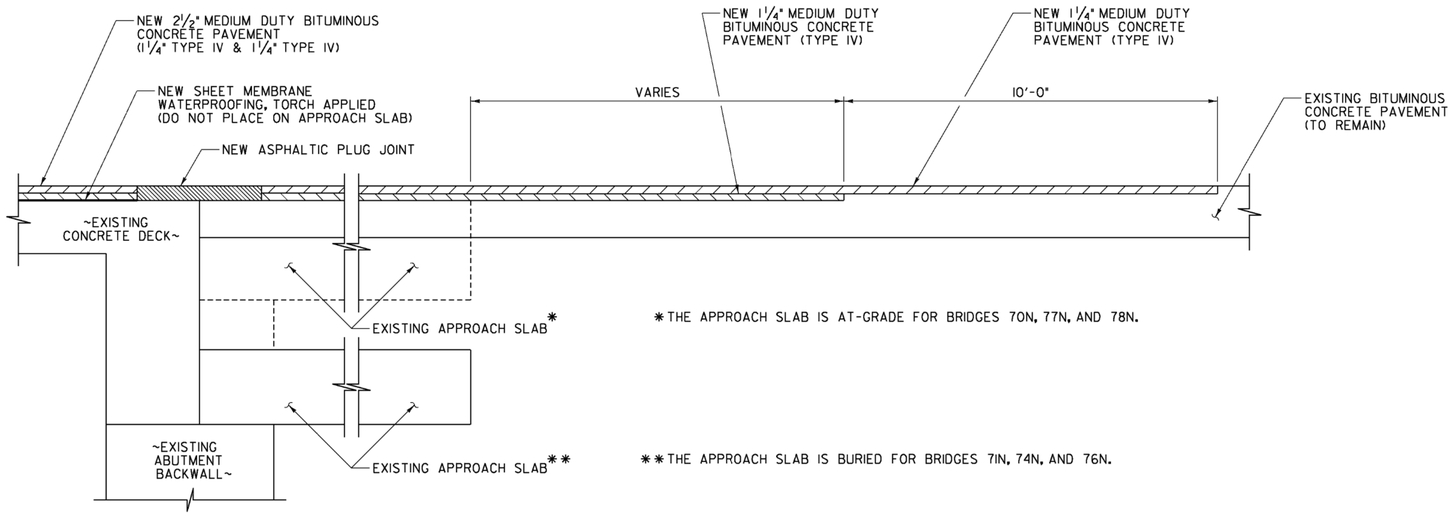
ASPHALTIC PLUG JOINT REPLACEMENT SCHEDULE

BRIDGE NO.	ABUT. 1	ABUT. 2
70N	43 FT	43 FT
* 71N	38 FT--	38 FT
* 74N	--	53 FT
* 76N	65 FT	--
77N	--	--
78N	--	47 FT

* - BURIED APPROACH SLAB, GALVANIZED STEEL PLATE NOT REQUIRED. (SEE ASPHALTIC PLUG-TYPE JOINT DETAIL ON SHEET 9).

BRIDGE LENGTH AND WIDTH (CURB TO CURB)

	WIDTH (CURB TO CURB) (FEET)	LENGTH (FEET)
70N	38.00	82.27
71N	38.00	117.00
74N	38.00	120.96
76N	36.67	286.69
77N	36.67	428.50
78N	36.67	270.51



* THE APPROACH SLAB IS AT-GRADE FOR BRIDGES 70N, 77N, AND 78N.

** THE APPROACH SLAB IS BURIED FOR BRIDGES 71N, 74N, AND 76N.

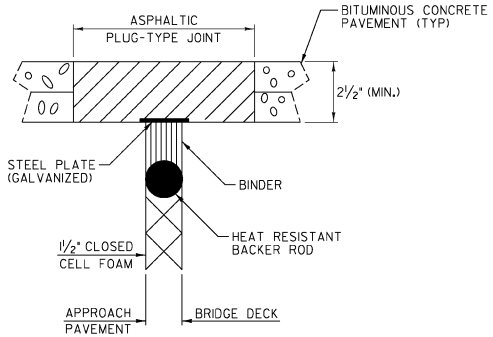
TYPICAL APPROACH SECTION

NOT TO SCALE

PROJECT NAME: BARNET
PROJECT NUMBER: IM MEMB(17)

FILE NAME: 09-Bit Conc Dets.dgn
PROJECT LEADER: JPB
DESIGNED BY: SRB
BITUMINOUS CONCRETE DETAILS

PLOT DATE: 3/20/2009
DRAWN BY: MWS
CHECKED BY: JPB
SHEET 8 OF 63



ASPHALTIC PLUG-TYPE JOINT DETAIL

NOTES:

1. THE JOINT SHALL BE LOCATED CENTRALLY OVER THE DECK EXPANSION GAP OR FIXED JOINT MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. THE JOINT SHALL BE EXCAVATED AS SHOWN ON THE PLANS BY USE OF SAWS AND PNEUMATIC HAMMER OR A HAMMER AND CHISEL.
3. THE JOINT AREA SHALL BE BLAST CLEANED OF DEBRIS AND ASPHALT. THE JOINT AREA SHALL BE THOROUGHLY DRIED USING HOT COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. SPALLED AND DEFECTIVE CONCRETE SHALL BE REPAIRED WITH AN APPROVED MATERIAL AS AGREED UPON BY THE RESIDENT ENGINEER.
5. PROPERLY SIZED HEAT RESISTANT BACKER ROD SHALL BE PLACED IN THE MOVEMENT GAP ALLOWING FOR 1INCH +/- OF BINDER ABOVE THE ROD.
6. THE BINDER MATERIAL SHALL BE HEATED AND PLACED AS RECOMMENDED BY THE MANUFACTURER.
7. PLACE 1/4 INCH THICK BY 8 INCH WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRESTAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER.
   A. THE STEEL PLATES MAY BE OMITTED WHERE THE APPROACH SLAB IS COVERED WITH A STONE BASE OR BITUMINOUS PAVEMENT AND VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.
8. THE BINDER MATERIAL AND AGGREGATE SHALL BE HEATED AND MIXED AS RECOMMENDED BY THE MANUFACTURER.
9. THE INSTALLATION OF MATERIAL, COMPACTION, AND TOPCOATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
10. IMMEDIATELY AFTER TOPCOATING, AN ANTI-SKID MATERIAL SHALL BE CAST OVER THE JOINT TO REDUCE THE RISK OF TRACKING.
11. JOINT SHALL BE PROTECTED FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 125°F±.

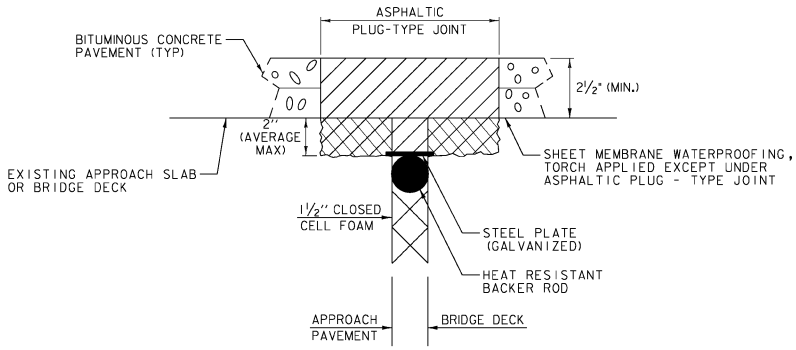
WEATHER LIMITATIONS

BINDER MATERIAL SHALL BE APPLIED ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL:

A. THE AMBIENT AIR TEMPERATURE IS AT LEAST 50° F AND RISING.

B. THE ROAD SURFACE IS SUFFICIENTLY DRY.

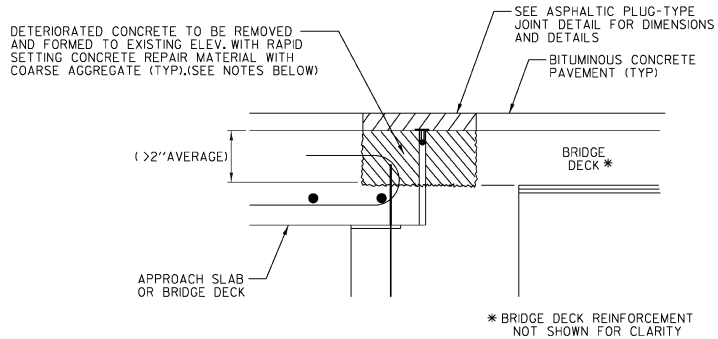
C. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.



ASPHALTIC PLUG-TYPE JOINT DETAIL REMOVAL OF UP TO 2" DETERIORATED CONCRETE

NOTES:

1. UPON ENCOUNTERING UP TO 2" AVERAGE OF DETERIORATED CONCRETE, THE CONTRACTOR SHALL REMOVE THE DETERIORATED MATERIAL AND REPLACE IT WITH THE ASPHALTIC PLUG JOINT MATERIAL AS DIRECTED BY THE RESIDENT ENGINEER.
2. REMOVAL OF THE DETERIORATED CONCRETE WILL NOT BE PAID SEPARATELY BUT WILL BE CONSIDERED INCIDENTAL TO THE UNIT BID PRICE FOR ITEM 516.10. THE ADDITIONAL PLUG JOINT MATERIAL BELOW THE DESIGN DEPTH REQUIRED TO REPLACE THE DETERIORATED CONCRETE WILL BE CONSIDERED INCIDENTAL TO THE UNIT BID PRICE FOR THE ITEM 516.10.
3. THE STEEL PLATE IN THE ASPHALTIC PLUG JOINT MAY BE OMITTED ONLY IF THE REPAIRED SURFACE IS SO IRREGULAR IT WILL CAUSE VERTICAL MOVEMENT AND IT IS DIRECTED BY THE RESIDENT ENGINEER.



ASPHALTIC PLUG-TYPE JOINT DETAIL REMOVAL OF >2" DETERIORATED CONCRETE

NOTES:

1. UPON ENCOUNTERING GREATER THAN 2" AVERAGE OF DETERIORATED CONCRETE, THE CONTRACTOR SHALL REMOVE THE DETERIORATED MATERIAL AND REPLACE IT WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.
2. REMOVAL OF THE DETERIORATED CONCRETE WILL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 580.20 "RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE".
3. THE STEEL PLATE IN THE ASPHALTIC PLUG JOINT MAY BE OMITTED ONLY IF THE REPAIRED SURFACE IS SO IRREGULAR IT WILL CAUSE VERTICAL MOVEMENT AND IT IS DIRECTED BY THE RESIDENT ENGINEER.

PROJECT NAME: BARNET
PROJECT NUMBER: IM MEMB(17)

FILE NAME: 10-Pvmt Jt Dets.dgn
PROJECT LEADER: JPB
DESIGNED BY: SRB
PAVEMENT JOINT DETAILS

PLOT DATE: 3/20/2009
DRAWN BY: MWS
CHECKED BY: JPB
SHEET 9 OF 63

VERMONT

State of Vermont
District 7
1068 US Route 5, Suite 2
St. Johnsbury, VT 05819-8501
www.aot.state.vt.us

[phone] 802-748-6670
[fax] 802-748-6671
[ttd] 800-253-0191

Agency of Transportation

July 15, 2009

J. P. Sicard, Inc.
P. O. Box 508
Barton, Vermont 05822

RE: Barnet I91 BR 74N Joint Proposal

Dear Jason:

As I mentioned to you in our telephone conversation, Bridge 74N on I91 in the town of Barnet has a failed expansion joint which is in need of removal. This bridge is located within the Barnet IM MEMB (17) project limits and is slated to have deck work done as part of this project. Since your crew will be there working, and in the interest of saving the State time and money, we ask that you look at the enclosed joint removal plans and provide us a cost to do the outlined work utilizing the Maintenance Rental Agreement Category II (for Bridge and/or Large Culvert Repair) rates.

If you are interested in performing this work, please provide us a detailed cost estimate by July 29, 2009. Acceptance of your proposal will depend on the estimated cost of this work.

If you have any questions, please feel free to contact me at (802) 748-6670.

Sincerely,

Shauna P. Clifford
District Project Manager

Enclosures

CC: Carl Fielder, Resident Engineer

VTrans Working to Get You There

GENERAL NOTES:

1. THESE PLANS WERE PREPARED BASED ON ORIGINAL "AS BUILT" PLANS. THE RESIDENT ENGINEER MAY BE REQUIRED TO MAKE MINOR CHANGES TO DIMENSIONS AND/OR QUANTITIES SHOWN TO MATCH ACTUAL FIELD CONDITIONS.

2. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT UNLESS OTHERWISE NOTED.

3. ALL CONCRETE SHALL BE "CONCRETE, CLASS A" UNLESS OTHERWISE NOTED.

4. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" BY 1", EXCEPT FOR THE NEW CONCRETE CURB. THIS CURB SHALL MATCH THE CROSS SECTION OF THE REMOVED GRANITE CURB.

5. JOINTS AND SCORE MARKS SHALL BE CONSTRUCTED AS DIRECTED BY THE RESIDENT ENGINEER.

6. REINFORCING STEEL PLACEMENT TOLERENCES SHALL BE:
   SPACING +/- 1"
   CLEARANCE +/- 1/4"

7. MINIMUM COVER FOR REINFORCING STEEL SHALL BE TWO INCHES UNLESS OTHERWISE NOTED.

8. ALL REINFORCING STEEL IS ASSUMED TO BE BLACK BAR. IF UNDAMAGED EPOXY COATED REINFORCING STEEL IS FOUND IN THE EXISTING DECK THEN EPOXY COATED STEEL SHALL BE USED.

9. ALL STEEL COMPONENTS SHALL BE AASHTO M270 GRADE 36 GALVANIZED OR METALIZED AS PER SUBSECTION 506.15 (a) OR (b) UNLESS OTHERWISE SPECIFIED.

10. DURING CONCRETE REMOVAL, EXISTING, UNDAMAGED REBAR, SHOULD BE REUSED FOR THIS PROJECT.

11. PHASED CONSTRUCTION SHALL BE USED.

12. COAT CONCRETE CONTACT SURFACES WITH EPOXY BONDING COMPOUND MEETING THE REQUIREMENTS OF SUBSECTION 719.02.

13. COAT ALL NEW CONCRETE, USED FOR THE CURB, WITH SILANE.

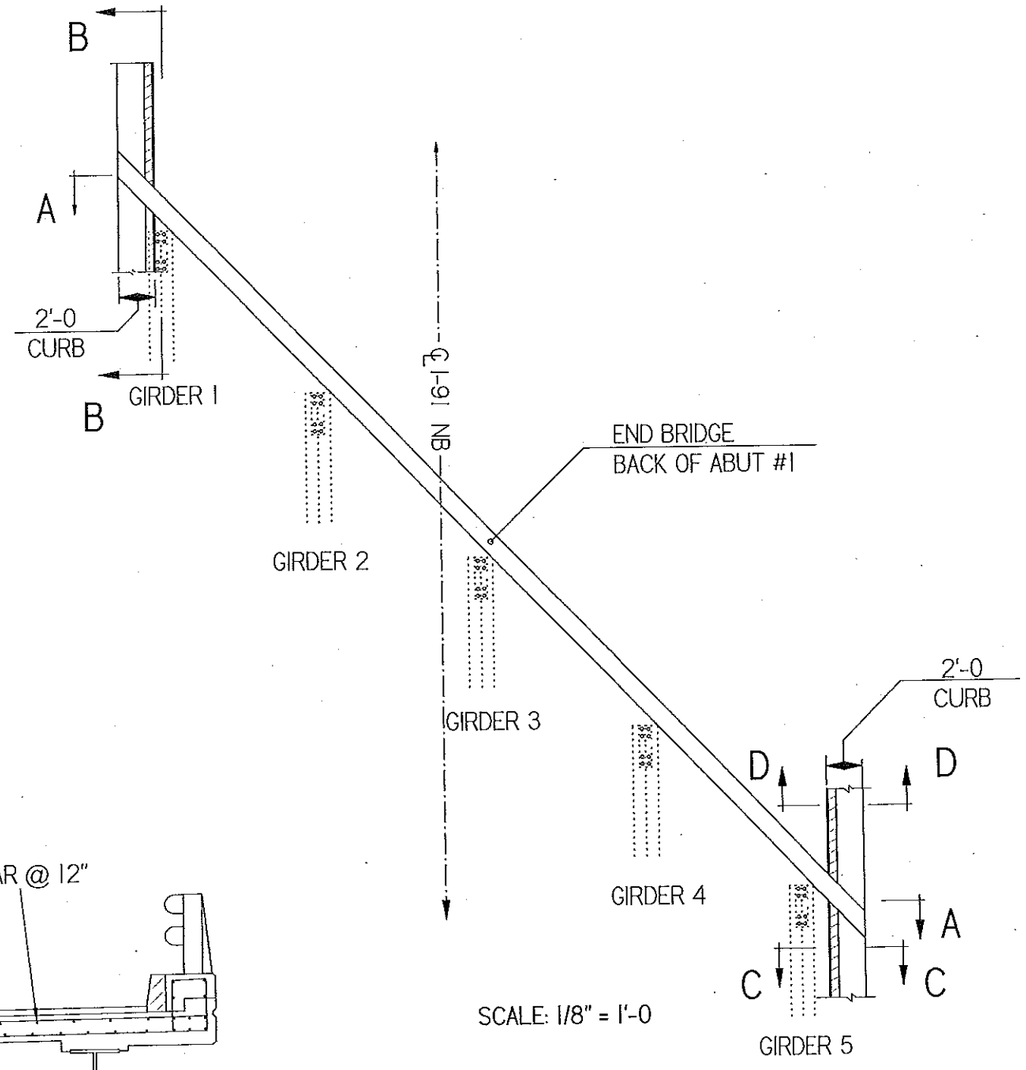
CHANGE ORDER # 3
ADD TO RECORD PLANS.

BARNET, I-91, BR 74N	
GENERAL NOTES	
DESIGNED/DRAWN BY: DWH CHECKED BY:	SHEET 1 OF 7

BRIDGE EXPANSION JOINT PLAN

NOTES:

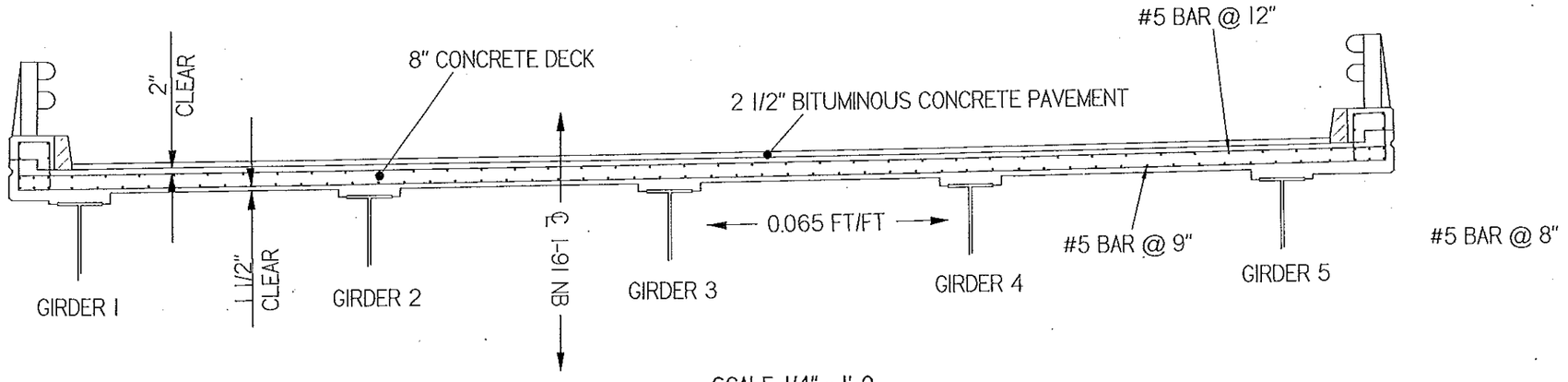
SEE SHEET 6 OF 7 FOR
SECTION B - B, SECTION C - C,
AND SECTION D - D



SCALE: 1/8" = 1'-0

SECTION A-A

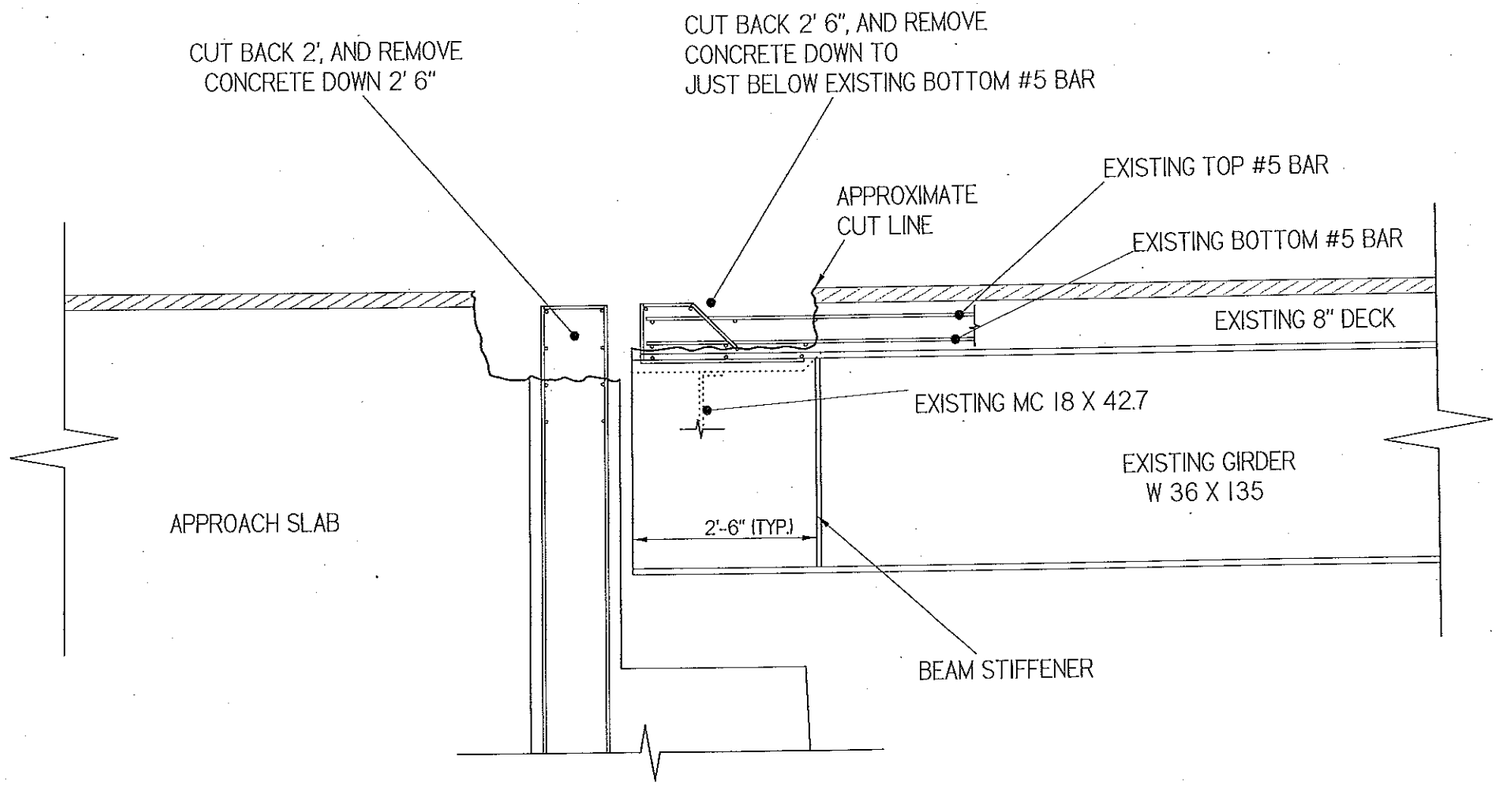
℄ OF JOINT



SCALE: 1/4" = 1'-0

BARNET, I-91, BR 74N	
LAYOUT & PROFILE OF EXP. JOINT	
DESIGNED/DRAWN BY: DWH CHECKED BY:	SHEET 2 OF 7

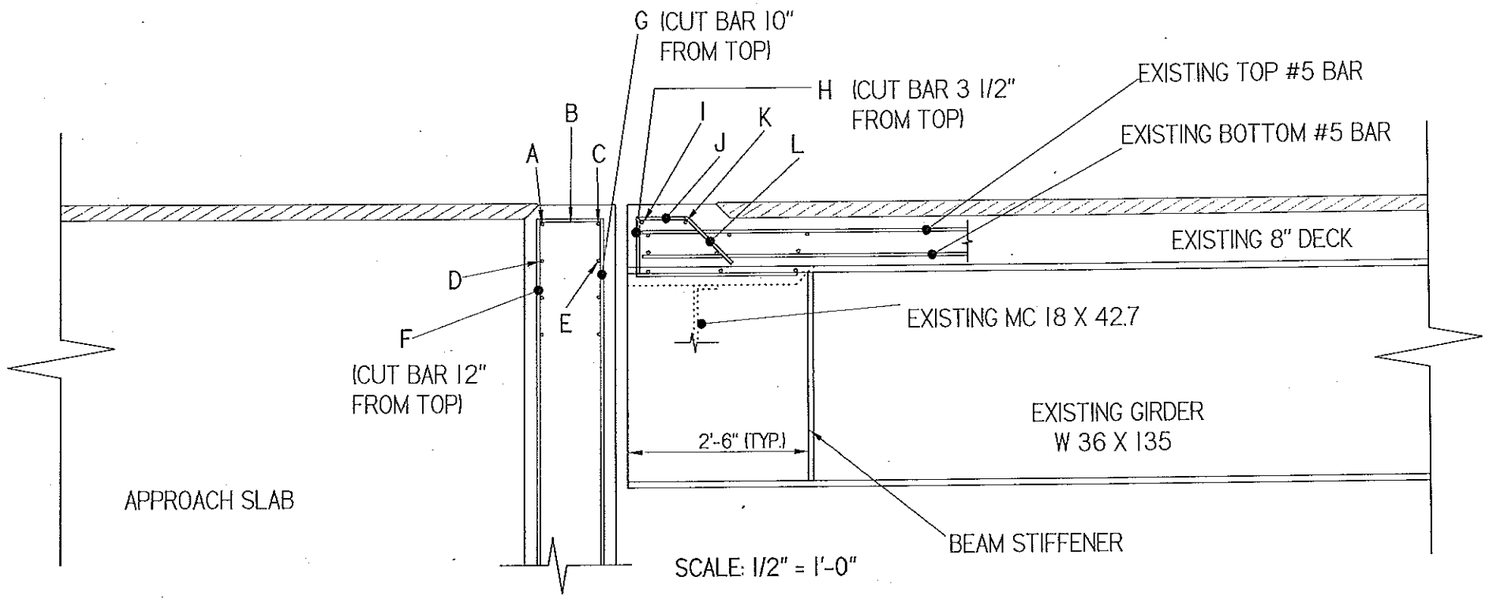
CONCRETE REMOVAL



SCALE: 1/2" = 1'-0"

BARNET, I-91, BR 74N	
CONCRETE REMOVAL	
DESIGNED/DRAWN BY: DWH CHECKED BY:	SHEET 3 OF 7

STEEL TO BE REMOVED

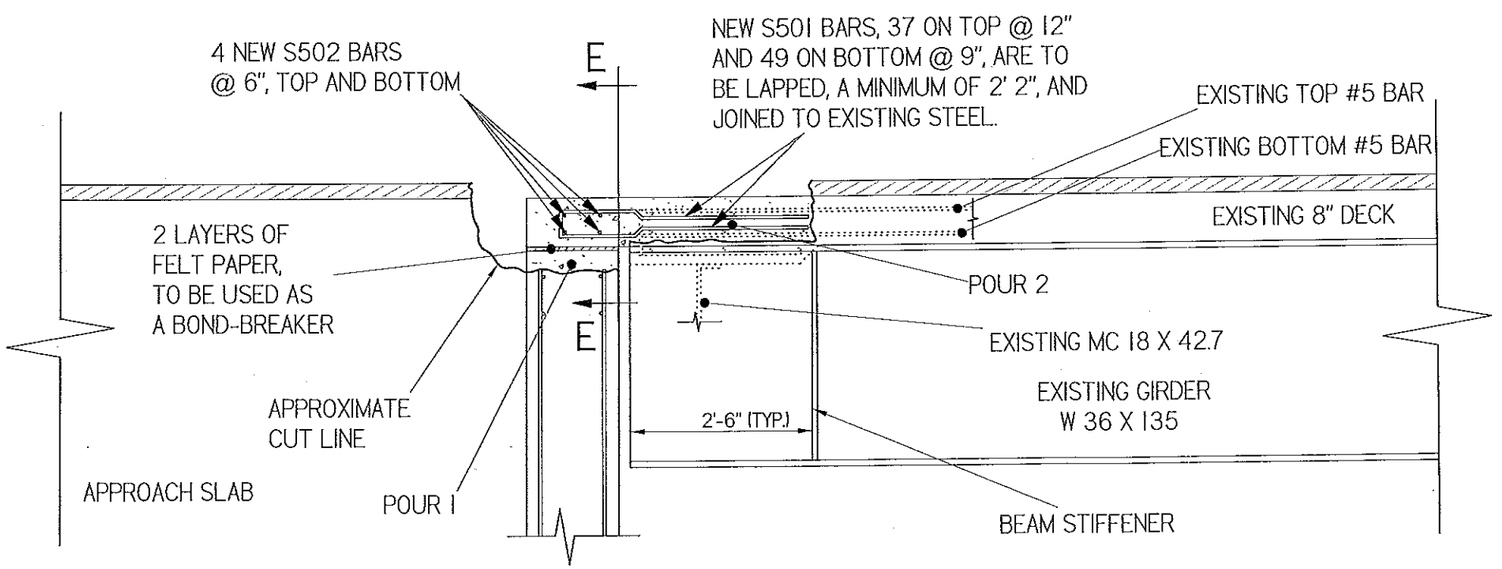


NOTES:

BARS TO BE REMOVED ARE A, B, C, D, E, F, G (SEE NOTES IN DIAGRAM FOR BARS F, G AND H), I, J, K, AND L.

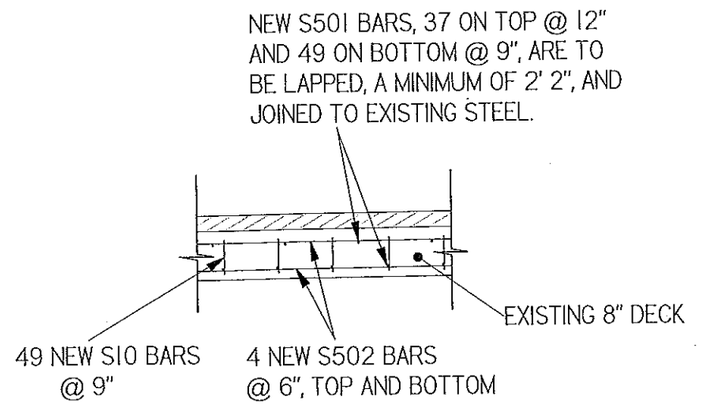
NEW BARS ARE TO BE LAPPED, A MINIMUM, OF 2' 2".

NEW STEEL TO BE ADDED



SCALE: 1/2" = 1'-0"

E-E



SCALE: 1/2" = 1'-0"

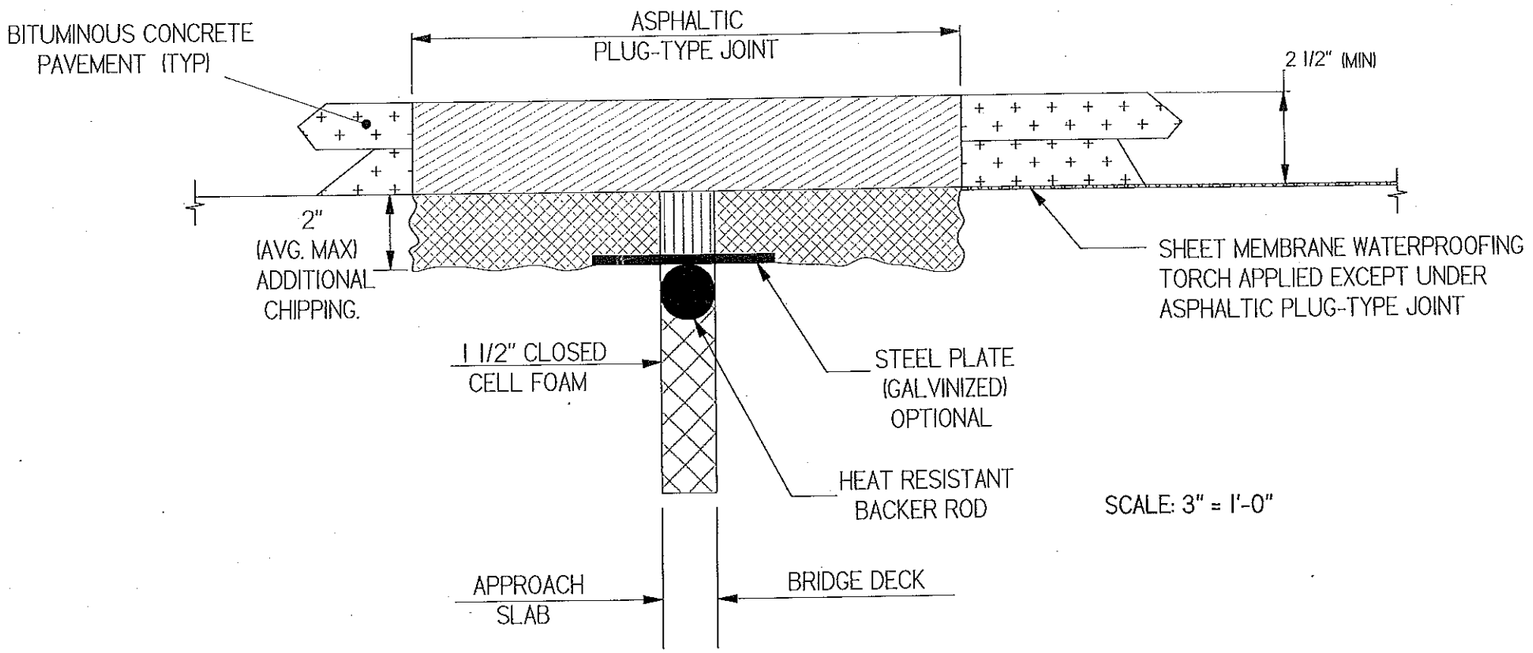
BARNET, I-91, BR 74N

REINFORCING STEEL

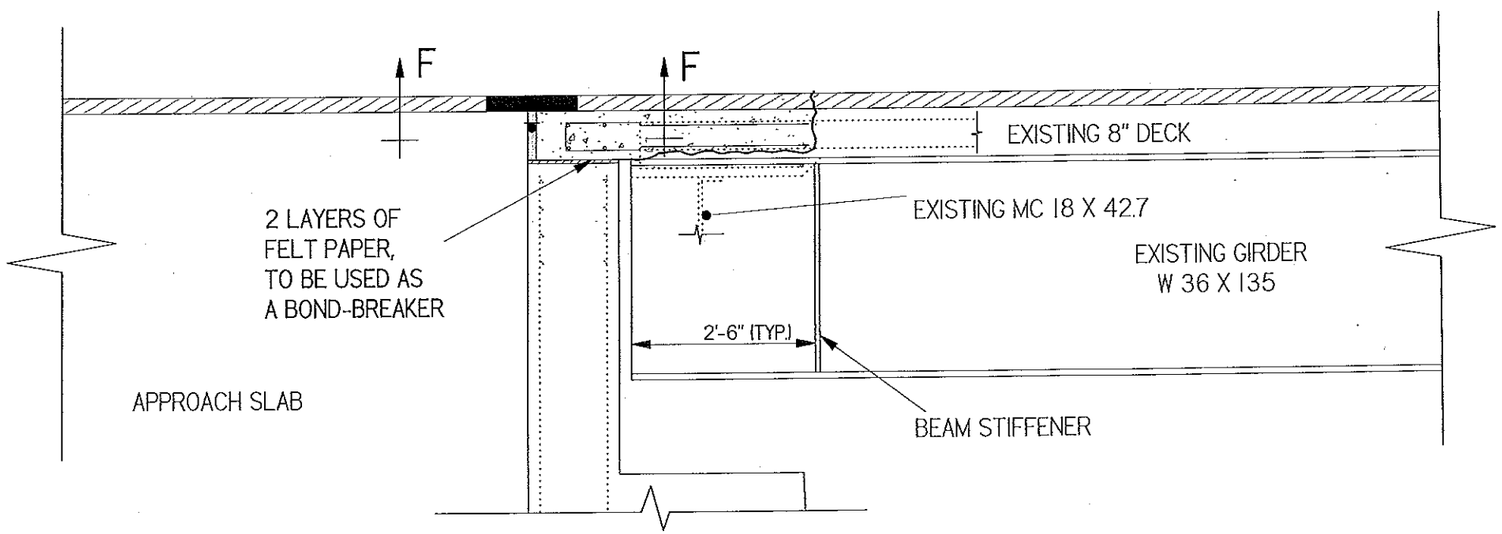
DESIGNED/DRAWN BY: DWH
CHECKED BY:

ASPHALTIC PLUG-TYPE JOINT

SECTION F-F



SCALE: 3" = 1'-0"

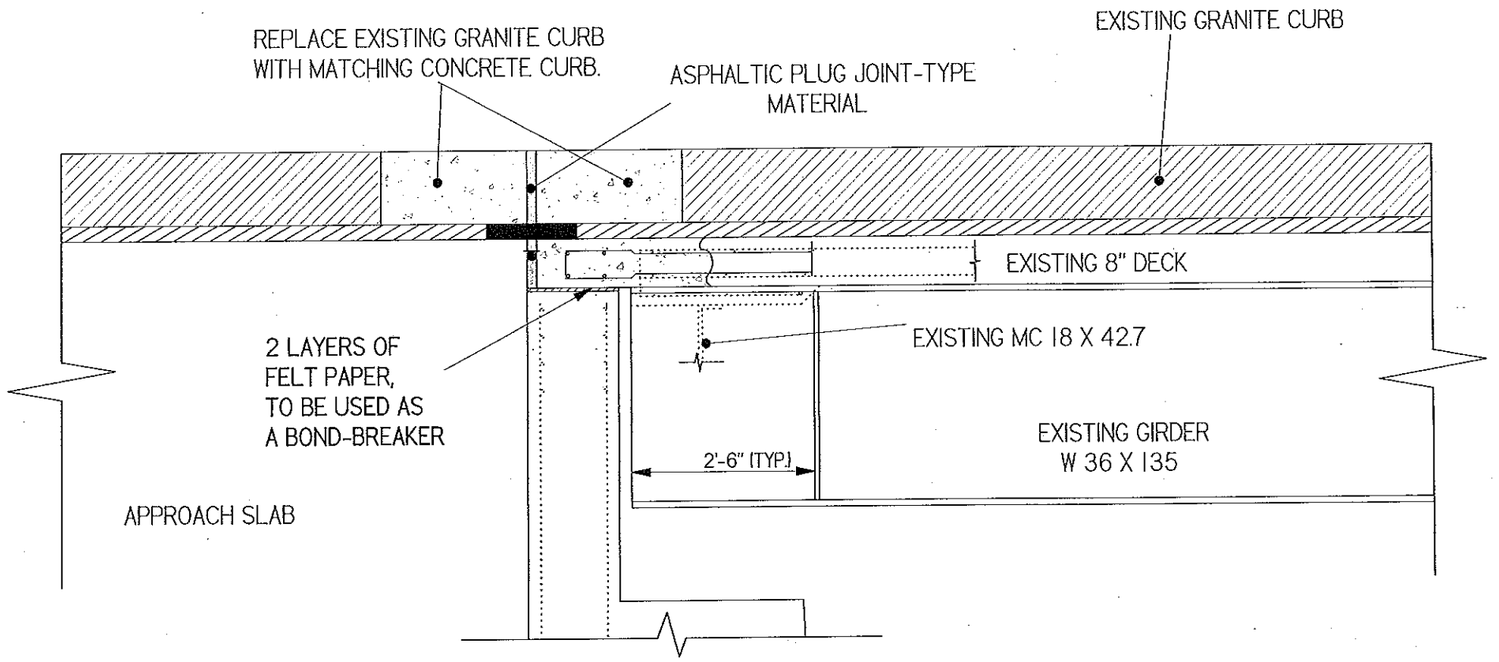


SCALE: 1/2" = 1'-0"

BARNET, I-91, BR 74N	
ASPHALTIC PLUG-TYPE JOINT	
DESIGNED/DRAWN BY: DWH CHECKED BY:	SHEET 5 OF 7

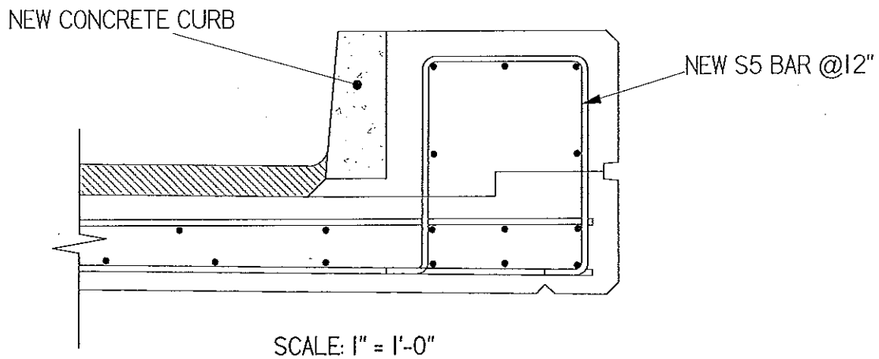
CURB DETAILS

SECTION B-B (FROM SHEET 2 OF 7)



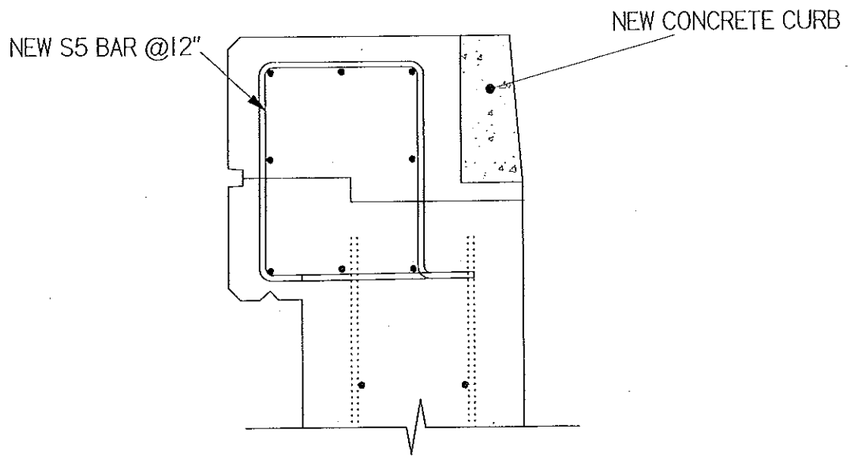
SCALE: 1/2" = 1'-0"

SECTION C-C (FROM SHEET 2 OF 7)



SCALE: 1" = 1'-0"

SECTION D-D (FROM SHEET 2 OF 7)



SCALE: 1" = 1'-0"

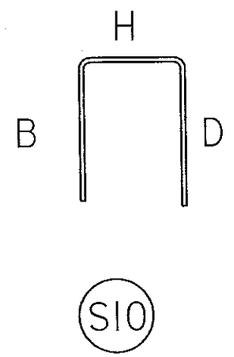
BARNET, I-91, BR 74N	
CURB DETAILS	
DESIGNED/DRAWN BY: DWH CHECKED BY:	SHEET 6 OF 7

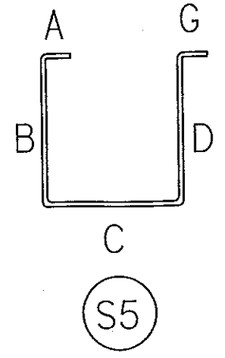
MATERIAL QUANTITIES

DESCRIPTION	UNIT	QUANTITY
CONCRETE REMOVAL	CY	8
REINFORCING STEEL	LBS	687
CONCRETE CLASS A	CY	6
BITUMINOUS CONCRETE PAVEMENT	TON	3 1/2
ASPHALTIC PLUG JOINT	LF	53

REINFORCING STEEL

NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	G	H
49	5	3'-1"		S10		1'-3 1/4"		1'-3 1/4"		0'- 4 1/2"
8	5	4'-5 1/2"		S5	3"	1'-4 1/4"	1'-1/2"	1'-4 1/4"	3"	
86	5	3'-3"	S501	STR						
4	5	36'-8"	S502	STR						





BARNET, I-91, BR 74N

QUANTITIES

DESIGNED/DRAWN BY: DWH
CHECKED BY:

SHEET 7 OF 7