

# REINFORCING STEEL SCHEDULE AND PROJECT NOTES

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O	ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O	
<b>HEADWALL FOR CULVERT #1 (MM 117.72)</b>																																				
▲	19	5	3'- 5"	1W501	STR																															
▲	30	5	17'- 6"	1W502	STR																															
▲	19	5	8'- 3"	1W503	STR																															
▲	19	5	2'- 10"	1W504	17		1'- 0"	0'- 10"	1'- 0"																											
▲	4	5	12'- 6"	1W505	14	2'- 6"	2'- 6"	2'- 6"	2'- 6"	2'- 6"			1'- 9"		1'- 9"																					
▲	36	7	6'- 9"	1W701	STR																															
▲	19	7	8'- 3"	1W702	STR																															
▲	19	7	7'- 7"	1W703	17		2'- 10"	4'- 9"																												
<b>HEADWALL FOR CULVERT #2 (MM 117.96)</b>																																				
▲	19	5	3'- 5"	2W501	STR																															
▲	30	5	17'- 6"	2W502	STR																															
▲	19	5	7'- 9"	2W503	STR																															
▲	19	5	2'- 10"	2W504	17		1'- 0"	0'- 10"	1'- 0"																											
▲	4	5	11'- 3"	2W505	14	2'- 3"	2'- 3"	2'- 3"	2'- 3"	2'- 3"			1'- 7"		1'- 7"																					
▲	36	7	6'- 9"	2W701	STR																															
▲	19	7	7'- 9"	2W702	STR																															
▲	19	7	7'- 7"	2W703	17		2'- 10"	4'- 9"																												

~ NOTES ~

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-S). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- \* DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.

**GENERAL NOTES**

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DATED 2002, AND ITS LATEST REVISIONS.

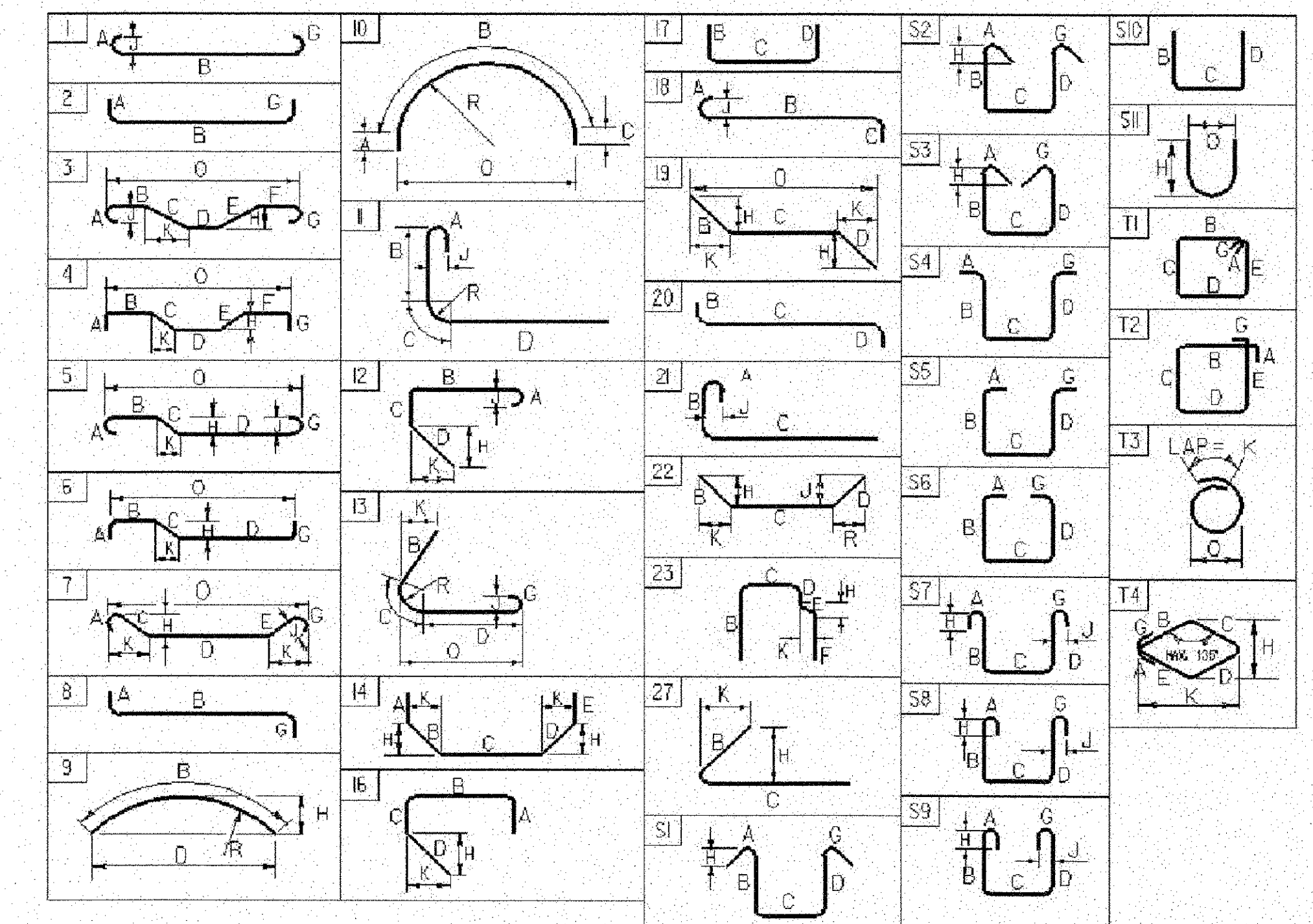
- ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE

**HEADWALL NOTES**

- REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:

SPACING: +/- 1"  
CLEARANCE: +/- 1/4"

- THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT. UPWARD KEYS SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.
- JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS SHOWN IN THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.
- ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH X 1 INCH.
- THE INLET SHALL BE CUT WITH AN ABRASIVE SAW TO BE VERTICAL PRIOR TO PLACING THE HEADWALL. FLAME CUTTING OF THE EXISTING PIPE WILL NOT BE PERMITTED.
  - PRIOR TO INSTALLING THE NEW CONCRETE HEADWALLS, THE OUTSIDE OF THE EXISTING CORRUGATED METAL PIPES SHALL BE CLEANED TO REMOVE ANY CONTAMINANT THAT WOULD PREVENT A GOOD BOND BETWEEN THE PIPE AND CONCRETE.
  - THE COST OF CLEANING AND CUTTING THE EXISTING PIPE WILL BE INCIDENTAL TO CONTRACT ITEM 501.34.
- THE SIZES, ELEVATION, AND SLOPES OF THE EXISTING PIPES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY WORK.
- WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES.



ASTM STANDARD REINFORCING BARS				
BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER INCHES	AREA INCHES <sup>2</sup>	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

PROJECT NAME: **BARNET**  
 PROJECT NUMBER: **IM SCRP(2)**  
 FILE NAME: d07a102steel.dgn PLOT DATE: 12/19/2007  
 PROJECT MANAGER: K. UPMAL DRAWN BY: R. FOSTER  
 DESIGNED BY: R. FOSTER CHECKED BY: W. SYMONDS  
 REINFORCING STEEL SCHEDULE SHEET SHEET 13 OF 20