Physical elements between B43 and C17 derived from JJ BTeV MAD file V2 M. Church 6/7/04 **Version 4**

Notes:
1) lengths are in meters; z coordinate is 0 at B38
2) PS current and integrated field strengths are @ 980 GeV low beta lattice or max allowable

1) added to comment on C0ud BPM's -- B0 and D0 BPMs have slot length of 10.25" (11/12/03)
2) packc0u and packc0d type changed to X4 spool; packb48, packc12 changed to X3 spool (11/13/03)
3) power leads moved from quadb47 to packb47, quadb48 to packb48, quadc12 to packc12, quadc13 to packc13 (11/18/03)
4) DR48C0 warm straight changed to as-yet-undetermined spool (11/18/03)
5) "feed" next to q3's is cryo turnaround
6) spoolb45 moved next to b44-5; assumed to be welded to dipole, as is spoolc15
1) added note that 1st parasitic crossings are at +-59.3m from IP (242.5m, 361.1m) (11/19/03)
2) added note that trench starts at d.s. end of (current) B48-5, ~266.3m (11/19/03)
3) Added 4 new columns and data from T Peterson (12/11/03)
4) Put H spool with tev bus leads at packb48b and added cold spool to be welded to ds bypass (12/11/03)
5) Moved Tev bus feed to feedcan on ds end of C-side Q123 (12/11/03)
6) Reduced Q1 BPM package to 10.25" (12/12/03)
7) renamed X3 spools to X2 spools; renamed X4 spools to X3 spools (12/15/03)
8) added H, V correctors, SQ, and vbpm to H spool at packb48b (12/15/03)
9) add through bus to HTS spool on B side; added through bus to LBQ feedcan on C side (12/15/03)
10) changed which spools have voltage taps in C sector to line up with present configuration (12/15/03)
11) changed location names between b48-6 and c11-1 (12/18/03)
12) minor update based on T Peterson's new heat load calculations (12/18/03)
13) Increased number of old-Q1 PS's from 2 to 4 (12/19/03)
14) flipped orientation of Q1's to put lead end away from IR -- no through bus in Q1,Q3 (12/20/03) **<--(V2)**
15) modified location designations per D Augustine's and D Allen's preferences (1/12/04)
16) added additional bpm at X2 spools (1/12/04)
17) aadded additional dipole correctors at X2 spools (1/12/04)
18) changed name of some PS to reflect 2 Q2 supplies and independent powering of new flat coil circuits (1/12/04)
19) updated "bipolar" column (1/12/04)
20) QB43, QC17 are unipolar (1/13/04)
21) modified correctors on P and H spools to match design spool sheet (1/23/04)
22) changed magnetic length of Q4's (column U) from 1.372 to 2.007 to be correct (1/16/04)
23) made additional station name changes based on D Allen and A Klebener discussions (1/27/04) **<--V3**
24) corrected number of corrector leads; corrected 3 device name errors for correctors (1/30/04)
25) Removed SS and Oct columns; modified some comments; removed question-marks and red font from TC/TB column (1/30/04)
26) Checked safety lead column against R Hively's tunnel QPM drawing(1/30/04)
27) Took some unnecessary "-"'s out of station location names (3/5/04)
28) Changed QT2 to QS2 (3/5/04)
29) Changed name of vbpm on H-spool at B49 to vbpmb49-0 (3/13/04)
30) Incorporated JJ V2 (5/25/04)
31) Added latest modification to triplet slot lengths (6/7/04) <-- **V4**

name	type	location	start z coordinate	slot length	slot length (in)	new/old	cold/warm	high power leads	corrector leads	lead flow (l/hr He)	lead flow (l/hr N)	heat load to 4K (W)	through bus	safety leads	internal BPM	PS	bipolar	V dipole	H dipole
quadb43	66" quad	B43-1	89.2302	2.31140	91.000	old	cold					8.0	IB upper		vbpmb43	T:IB=4350A	unipolar, defocus		
packb43	X1 spool	B43-1a	91.5416	1.82880	72.000	new	cold		3 x 50A	1.0		10.0	IB upper,lower	required		T:VDB43,T:QB43, T:SDB43; 50A max	2*bipolar; QB43 unipolar	.48 T-m max	
dipole	TB	B43-2	93.3704	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	B43-3	99.7712	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	B43-4	106.1720	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad

Physical c

Notes:

name	quad	skew quad	sextupole	comments
quadb43	L=1.67894, g=74.44T/m			
packb43	25 T-m/m max		450 T-m/m^2 max	lose SS, O coils
dipole				
dipole				
dipole				

name	type	location	start z coordinate	slot length	slot length (in)	new/old	cold/warm	high power leads	corrector leads	lead flow (l/hr He)	lead flow (l/hr N)	heat load to 4K (W)	through bus	safety leads	internal BPM	PS	bipolar	V dipole	H dipole
dipole	TC	B43-5	112.5728	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
quadb44	66" quad	B44-1	118.9736	2.31140	91.000	old	cold					8.0	IB lower		hbpmb44	T:IB=4350A	unipolar, focus		
packb44	X1 spool	B44-1a	121.2850	1.82880	72.000	new	cold		3 x 50A	1.0		10.0	IB upper,lower	not required		T:HDB44, T:QB44, T:SFB44; 50A max	3*bipolar		.48 T-m max
dipole	TC	B44-2	123.1138	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	B44-3	129.5146	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	B44-4	135.9154	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	B44-5	142.3162	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
spoolb45	cold spool	B44-6	148.7170	0.12764	5.025	new	cold					3.0	IB upper,lower						
quadb45	old-Q1	B45-1	148.8446	1.84980	72.827	used	cold					8.0	IB upper,lower			C:QB45=5KA max	unipolar, defocus		
packb45	P spool	B45-1a	150.6944	1.42618	56.149	used	cold	5KA for old-Q1	2 x 50A	25.0	0.0	10.0	IB upper,lower; old-Q1 leads	required	hbpmb45, vbpmb45	T:VDB45, T:SQ; 50A max	2*bipolar	L=.762, .42 T-m max	
feedcan	feedcan	B45-1b	152.1206	0.73660	29.000	old	cold					10.0	IB upper,lower						
dipole	TB	B45-2	152.8572	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	B45-3	159.2580	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	B45-4	165.6588	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	B45-5	172.0596	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	B45-6	178.4604	6.40080	252.000	used	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
quadb46	old-Q1	B46-1	184.8612	1.84980	72.827	used	cold					8.0	IB upper,lower			C:QB46=5KA max	unipolar, focus		
packb46	P spool	B46-1a	186.7110	1.42618	56.149	used	cold	5KA for old-Q1	2 x 50A	25.0	0.0	10.0	IB upper,lower; old-Q1 leads	not required	hbpmb46, vbpmb46	T:HDB46, T:SQ; 50A max	2*bipolar		L=.762, .42 T-m max
dipole	TC	B46-2	188.1372	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	B46-3	194.5380	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	B46-4	200.9388	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	B46-5	207.3396	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
quadb47	59" LHC quad (Q5)	B47-1	213.7404	2.47075	97.274	new	cold					7.0	IB upper,lower			C:C0Q5=10KA max	unipolar, defocus		
packb47	X2 spool	B47-1a	216.2112	1.52400	60.000	new	cold	10 KA	2 x 50A	3.8	14.4	10.0	IB upper,lower	required	hbpmb47,vbpmb47	T:VDB47, T:HDB47; 50A max	2*bipolar	.48 T-m max	.48 T-m max
dipole	TB	B47-2	217.7352	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	B47-3	224.1360	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
quadb48	79" LHC quad (Q4)	B48-1	230.5368	2.97875	117.274	new	cold					7.0	IB upper,lower			C:C0Q4=10KA max	unipolar, focus		
packb48	X2 spool	B48-1a	233.5155	1.52400	60.000	new	cold	10KA	2 x 50A	3.8	14.4	10.0	IB upper,lower	not required	hbpmb48,vbpmb48	T:HDB48, T:VDB48; 50A max	2*bipolar	.48 T-m max	.48 T-m max
coldbyp1	cold bypass	B48-1b	235.0395	0.43815	17.250	new	cold					5.0	IB upper,lower						

name	quad	skew quad	sextupole	comments
dipole				
quadb44	L=1.67894, g=74.44T/m			
packb44	25 T-m/m max		450 T-m/m^2 max	
dipole				
dipole				
dipole				
dipole				
spoolb45				assumed to be welded to end of dipole
quadb45	L=1.4018, 140 T/m req.			lose VBPM
packb45		L=.762, 7.5 T-m/m max		gain VBPM, HBPM, SQ coils; leads toward the tunnel wall; lose Q, S coils
feedcan				
dipole				
dipole				
dipole				
dipole				
dipole				
dipole				5th dipole in this half-cell
quadb46	L=1.4018, 140 T/m req.			lose HBPM
packb46		L=.762, 7.5 T-m/m max		gain VBPM, HBPM; lose Q, S coils; leads toward the tunnel wall
dipole				
dipole				
dipole				
dipole				
quadb47	L=1.498, 170 T/m req.			lose VBPM
packb47				gain VBPM, SQ coil; lose Q, S, SS coils
dipole				
dipole				only 2 dipoles in this half-cell
quadb48	L=2.006, 170 T/m req.			lose HBPM
packb48				gain HBPM, SQ coil
coldbyp1				

name	type	location	start z coordinate	slot length	slot length (in)	new/old	cold/warm	high power leads	corrector leads	lead flow (l/hr He)	lead flow (l/hr N)	heat load to 4K (W)	through bus	safety leads	internal BPM	PS	bipolar	V dipole	H dipole
straight48	warm straight		235.4777	3.72614	146.698	new	warm						IB upper,lower						
coldbyp2	cold bypass		239.2038	0.31115	12.250	new	cold					5.0	IB upper,lower						
dipole	TC	B48-2	239.5149	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	B48-3	245.9157	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	B48-4	252.3165	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	B48-5	258.7173	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
coldbyp2	cold bypass	B49-1	265.1181	0.43815	17.250	new	cold					5.0	IB upper,lower						
b49vsep	separator		265.5563	3.03270	119.398	new	warm												
b49hsep1	separator		268.5890	3.03270	119.398	new	warm												
b49hsep2	separator		271.6217	3.03270	119.398	new	warm												
coldbyp1	cold bypass		274.6544	0.31115	12.250	new	cold					5.0	IB upper,lower						
feed	cryo turnaround	B49-2	274.9655	0.73660	29.000	new	cold	5KA for main bus		1.4	7.2	15.0	IB upper,lower	taps on warm Tev bus					
q3up	94" LHC quad (Q3)	B49-3	275.7021	3.45122	135.875	new	cold					7.0				C:C0Q123, 10KA max; C:C0QSD, 200A max	2*unipolar, defocus		
packc0u	X3 spool	B49-3a	279.1534	1.52400	60.000	new	cold	10kA, 200A	3 x 50A	3.8	14.4	10.0	Q123 bus		hbpmb49,vbpmv49	T:HDB49,T:VDB49, T:SQB4; 50A max	3*bipolar	.48 T-m max	.48 T-m max
q2up	170" LHC quad (Q2)	B49-4	280.6774	5.31178	209.125	new	cold					12.0	Q123 bus			C:C0Q123, 10KA max	unipolar, focus		
q1up	94" LHC quad (Q1)	B49-5	285.9891	3.63220	143.000	new	cold					7.0			hbpmc0u, vbpmcou	C:C0Q123, 10KA max; C:C0QSD, 200A max	2*unipolar, defocus		
dc0u	warm straight	C-0	289.6213	12.19512	480.123	new	warm												
dc0d	warm straight	C-0	301.8165	12.19512	480.123	new	warm												
q1d	94" LHC quad (Q1)	C10-1	314.0116	3.63220	143.000	new	cold					7.0			hbpmc0d,vbpmc0d	C:C0Q123, 10KA max; C:C0QSD, 200A max	2*unipolar, focus		
q2d	170" LHC quad (Q2)	C10-2	317.6438	5.31178	209.125	new	cold					12.0	Q123 bus			C:C0Q123, 10KA max	unipolar, defocus		
packc0d	X3 spool	C10-2a	322.9556	1.52400	60.000	new	cold	10kA, 200A	3 x 50A	3.8	14.4	10.0	Q123 bus		hbpmc11,vbpmc11	T:HDC11,T:VDC11, T:SQC1; 50A max	3*bipolar	.48 T-m max	.48 T-m max
q3d	94" LHC quad (Q3)	C10-3	324.4796	3.45122	135.875	new	cold					7.0				C:C0Q123, 10KA max; C:C0QSD, 200A max	2*unipolar, focus		
feed	cryo turnaround	C10-3a	327.9308	0.73660	29.000	new	cold	5KA for main bus		1.4	7.2	15.0	IB upper,lower	taps on warm Tev bus					
coldbyp1	cold bypass	C10-4	328.6674	0.43815	17.250	new	cold					5.0	IB upper,lower						
c11vsep1	separator		329.1055	2.90414	114.336	new	warm												
c11vsep2	separator		332.0097	2.90414	114.336	new	warm												
c11hsep	separator		334.9138	2.90414	114.336	new	warm												
coldbyp2	cold bypass		337.8180	0.31115	12.250	new	cold					5.0	IB upper,lower						
dipole	TC	C11-2	338.1291	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	C11-3	344.5299	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	C11-4	350.9307	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad

name	quad	skew quad	sextupole	comments
straight48				need this space for 2 collimators
coldbyp2				
dipole				1st parasitic xing is in this dipole @242.5m
dipole				
dipole				
dipole				
coldbyp2				
b49vsep				slightly longer warm space than a49; trench starts at ~266m
b49hsep1				
b49hsep2				
coldbyp1				
feed				contains JT valve, etc.
q3up	L=2.384, 170 T/m req.			
packc0u		7.5 T-m/m max		gain H, V, SQ coils
q2up	L=4.299, 170 T/m req.			separate 200A trim supply for each Q1/Q3
q1up	L=2.384, 170 T/m req.			
dc0u				40' is official "keep clear" distance
dc0d				
q1d	L=2.384, 170 T/m req.			
q2d	L=4.299, 170 T/m req.			separate 200A trim supply for each Q1/Q3
packc0d		7.5 T-m/m max		gain H, V, SQ coils
q3d	L=2.384, 170 T/m req.			
feed				contains JT valve, etc.
coldbyp1				
c11vsep1				same as total warm length for 3 separators at a49 (8.73145)
c11vsep2				
c11hsep				
coldbyp2				
dipole				
dipole				
dipole				

name	type	location	start z coordinate	slot length	slot length (in)	new/old	cold/warm	high power leads	corrector leads	lead flow (l/hr He)	lead flow (l/hr N)	heat load to 4K (W)	through bus	safety leads	internal BPM	PS	bipolar	V dipole	H dipole
dipole	TB	C11-5	357.3315	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	C11-6	363.7323	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
quadc12	79" LHC quad (Q4)	C12-1	370.1331	2.97875	117.274	new	cold					7.0	IB upper,lower			C:C0Q4=10KA max	unipolar, defocus		
packc12	X2 spool	C12-1a	373.1119	1.52400	60.000	new	cold	10KA	2 x 50A	3.8	14.4	10.0	IB upper,lower	required	hbpmc12,vbpmc12	T:VDC12, T:HDC12; 50A max	2*bipolar	.48 T-m max	.48 T-m max
dipole	TB	C12-2	374.6359	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	C12-3	381.0367	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
quadc13	59" LHC quad (Q5)	C13-1	387.4375	2.47075	97.274	new	cold					7.0	IB upper,lower			C:C0Q5=10KA max	unipolar, focus		
packc13	X2 spool	C13-1a	389.9082	1.52400	60.000	new	cold	10KA	2 x 50A	3.8	14.4	10.0	IB upper,lower	not required	hbpmc13,vbpmc13	T:HDC13, T:VDC13; 50A max	2*bipolar	.48 T-m max	.48 T-m max
dipole	TC	C13-2	391.4322	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	C13-3	397.8330	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	C13-4	404.2338	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	C13-5	410.6346	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
quadc14	old-Q1	C14-1	417.0354	1.84980	72.827	used	cold					8.0	IB upper,lower			C:QC14=5KA max	unipolar, defocus		
packc14	P spool	C14-1a	418.8852	1.42618	56.149	used	cold	5KA for old-Q1	2 x 50A	25.0	0.0	10.0	IB upper,lower; old-Q1 leads	required	hbpmc14, vbpmc14	T:VDC14, T:SQ; 50A max	2*bipolar	L=.762, .42 T-m max	
dipole	TB	C14-2	420.3114	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	C14-3	426.7122	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	C14-4	433.1130	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	C14-5	439.5138	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	C14-6	445.9146	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
spoolc15	cold spool	C14-6a	452.3154	0.12761	5.024	new	cold					3.0	IB upper,lower						
quadc15	old-Q1	C15-1	452.4430	1.84980	72.827	used	cold					8.0	IB upper,lower			C:QC15=5KA max	unipolar, focus		
packc15	P spool	C15-1a	454.2928	1.42618	56.149	used	cold	5KA for old-Q1	2 x 50A	25.0	0.0	10.0	IB upper,lower; old-Q1 leads	not required	hbpmc15, vbpmc15	T:HDC15, T:SQ; 50A max	2*bipolar		L=.762, .42 T-m max
feedcan	feedcan	C15-1b	455.7190	0.73660	29.000	old	cold					10.0	IB upper,lower						
dipole	TC	C15-2	456.4556	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	C15-3	462.8564	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	C15-4	469.2572	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	C15-5	475.6580	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
quadc16	66" quad	C16-1	482.0588	2.31140	91.000	old	cold					8.0	IB upper		vbpmc16	T:IB=4350A	unipolar, defocus		

name	quad	skew quad	sextupole	comments
dipole				1st parastic xing is in this dipole @ 361.1m
dipole				
quadc12	L=2.006, 170 T/m req.			lose VBPM
packc12				gain VBPM, SQ coil; lose O coil; safety leads typically are on every other spool; on this side of the IR they are on odd-numbered spools - used to be even-numbered
dipole				
dipole				
quadc13	L=1.498, 170 T/m req.			lose HBPM
packc13				gain HBPM; lose Q, S coils
dipole				
dipole				
dipole				
dipole				
quadc14	L=1.4018, 140 T/m req.			lose HBPM
packc14		L=.762, 7.5 T-m/m max		gain VBPM, HBPM, SQ coils; lose Q, S coils; leads toward the tunnel wall
dipole				5 dipoles in this half-cell
dipole				
dipole				
dipole				
dipole				
spoolc15				same as spoolb45; assumed to be welded to end of dipole
quadc15	L=1.4018, 140 T/m req.			lose HBPM
packc15		L=.762, 7.5 T-m/m max		gain VBPM, HBPM, SQ coils; lose Q, S coils; leads toward the tunnel wall
feedcan				
dipole				
dipole				
dipole				
dipole				
quadc16	L=1.67894, g=74.44T/m			

name	type	location	start z coordinate	slot length	slot length (in)	new/old	cold/warm	high power leads	corrector leads	lead flow (l/hr He)	lead flow (l/hr N)	heat load to 4K (W)	through bus	safety leads	internal BPM	PS	bipolar	V dipole	H dipole
packc16	X1 spool	C16-1a	484.3702	1.82880	72.000	new	cold		3 x 50A	1.0		10.0	IB upper,lower	required		T:VDC16, T:QC16, T:SDC16; 50A max	3*bipolar	.48 T-m max	
dipole	TB	C16-2	486.1990	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	C16-3	492.5998	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	C16-4	499.0006	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TC	C16-5	505.4014	6.40080	252.000	old	cold					10.0	IB lower			T:IB=4350A			L=6.1214, D=8.118mrad
quadc17	66" quad	C17-1	511.8022	2.31140	91.000	old	cold					8.0	IB lower		hbpmc17	T:IB=4350A	unipolar, focus		
packc17	X1 spool	C17-1a	514.1136	1.82880	72.000	new	cold		3 x 50A	1.0		10.0	IB upper,lower	not required		T:HDC17,T:QC17, T:SFC17; 50A max	2*bipolar; QC17 unipolar		.48 T-m max
coldbyp1	cold bypass	C17-2	515.9424	0.30163	11.875	old	cold					5.0							
D17space	open space		516.2440	0.00515	0.203	old	warm												
c17vsep1	separator		516.2492	2.91048	114.586	old	warm												
c17vsep2	separator		519.1596	2.91048	114.586	old	warm												
c17vsep3	separator		522.0701	2.91048	114.586	old	warm												
c17vsep4	separator		524.9806	2.91048	114.586	old	warm												
D17space	open space		527.8911	0.00515	0.203	old	warm												
coldbyp2	cold bypass		527.8962	0.42862	16.875	old	cold					5.0							
dipole	TB	C17-3	528.3248	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad
dipole	TB	C17-4	534.7256	6.40080	252.000	old	cold					10.0	IB upper			T:IB=4350A			L=6.1214, D=8.118mrad

name	quad	skew quad	sextupole	comments
packc16	25 T-m/m max		450 T-m/m^2 max	
dipole				
dipole				
dipole				
dipole				
quadc17	L=1.67894, g=74.44T/m			
packc17	25 T-m/m max		450 T-m/m^2 max	lose SQ, O coils
coldbyp1				this warm straight is unaltered from Run II
D17space				
c17vsep1				
c17vsep2				
c17vsep3				
c17vsep4				
D17space				
coldbyp2				
dipole				
dipole				