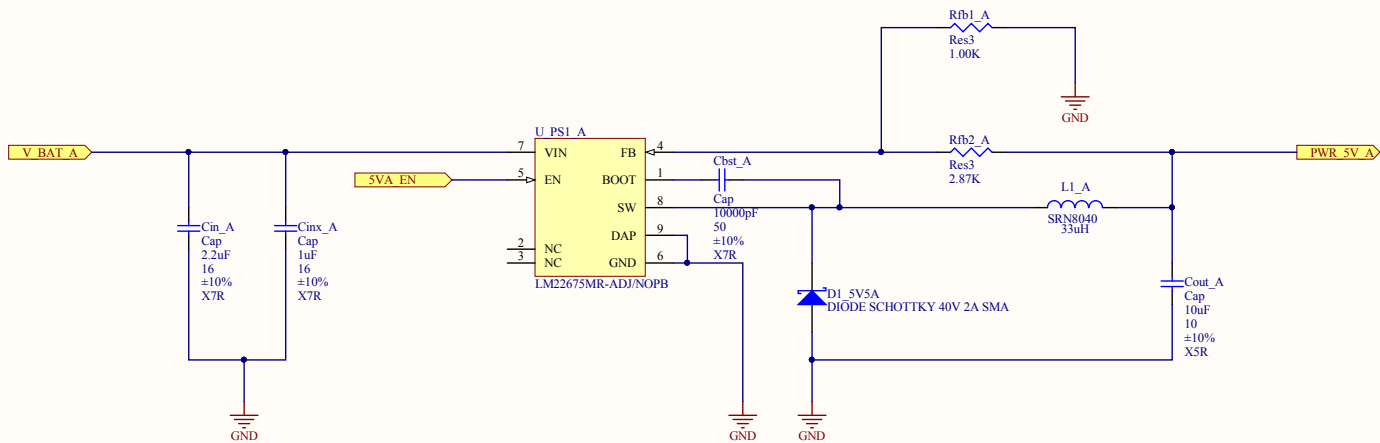


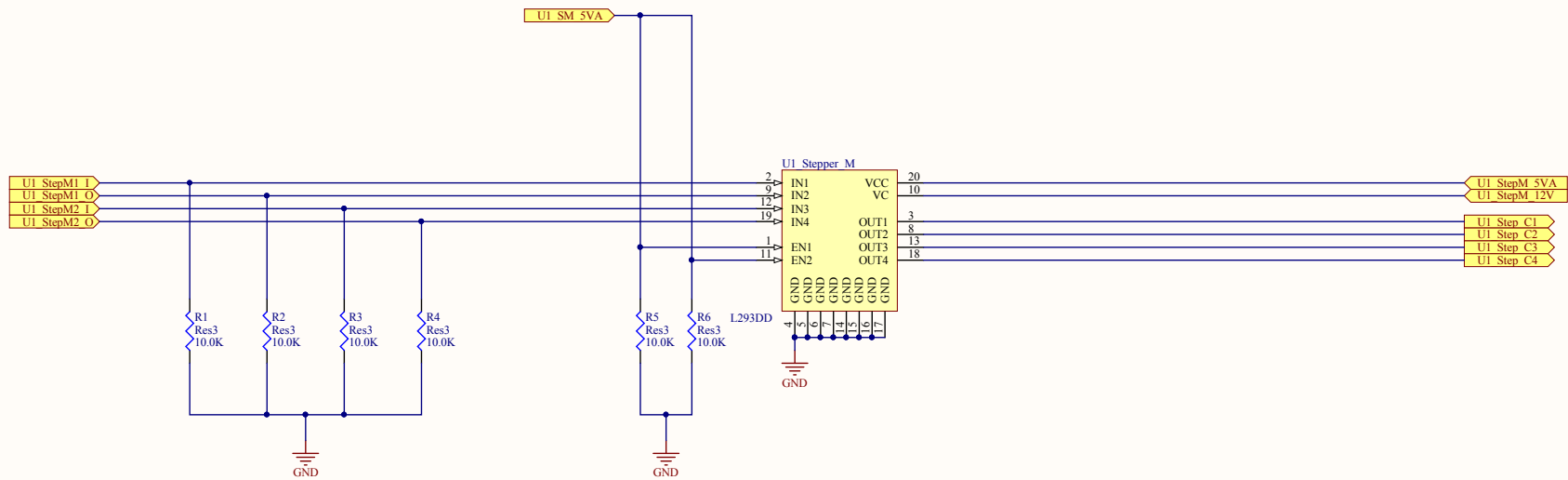


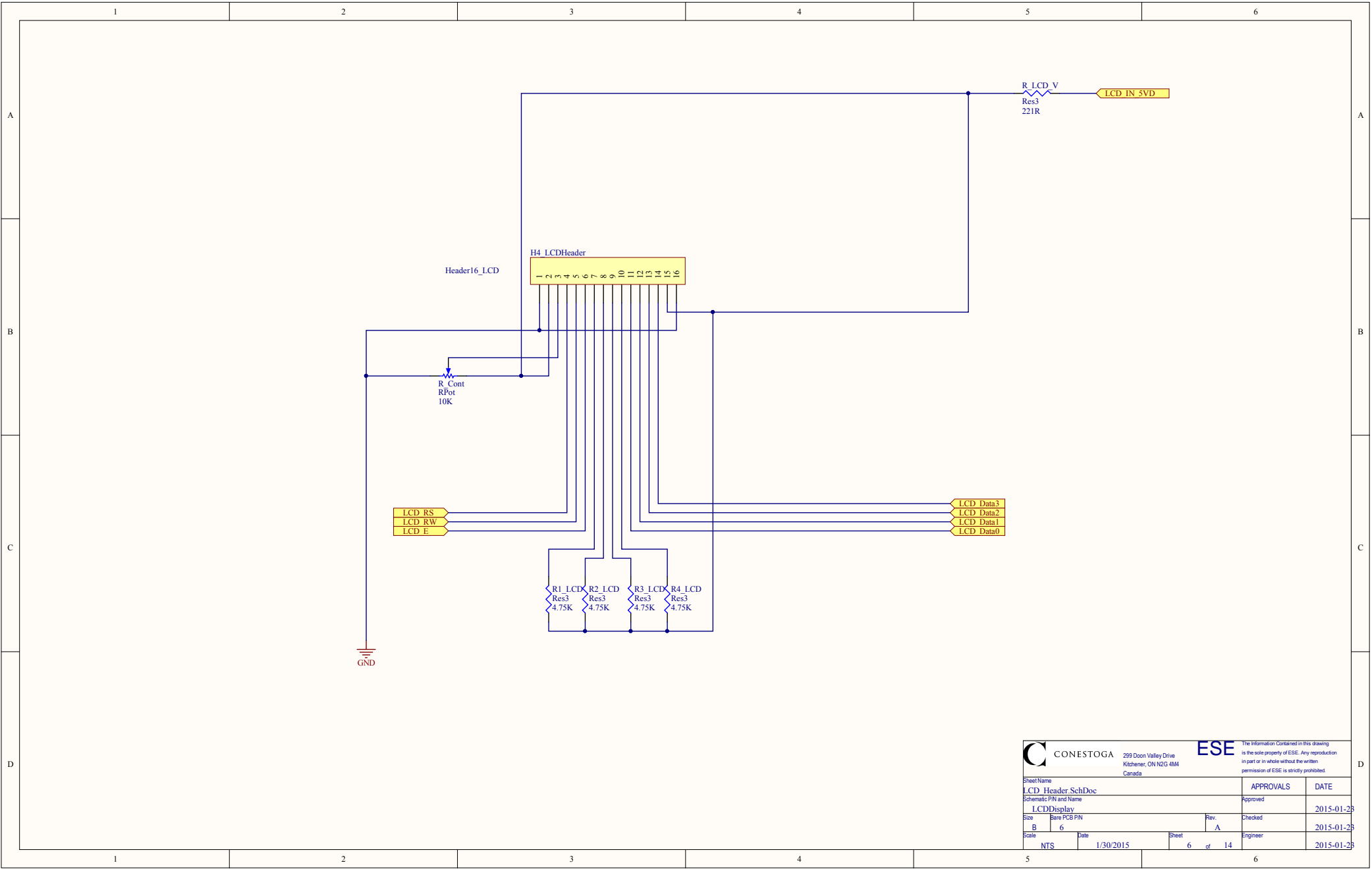
C CONESTOGA 299 Doon Valley Drive Kitchener, ON N2G 4M4 Canada		ESE The Information Contained in this drawing is the sole property of ESE. Any reproduction in part or in whole without the written permission of ESE is strictly prohibited.	
Sheet Name		APPROVALS	
SMPS 5V D.SchDoe		DATE	
Schematic PN and Name		Approved	
SMPS 5V Using LM22675		2015-01-15	
Size		Checked	
B Bare PCB PN		Rev. A	
Scale		Engineer	
NTS		2015-01-15	
Date		2/8/2015	
Sheet		3 of 14	



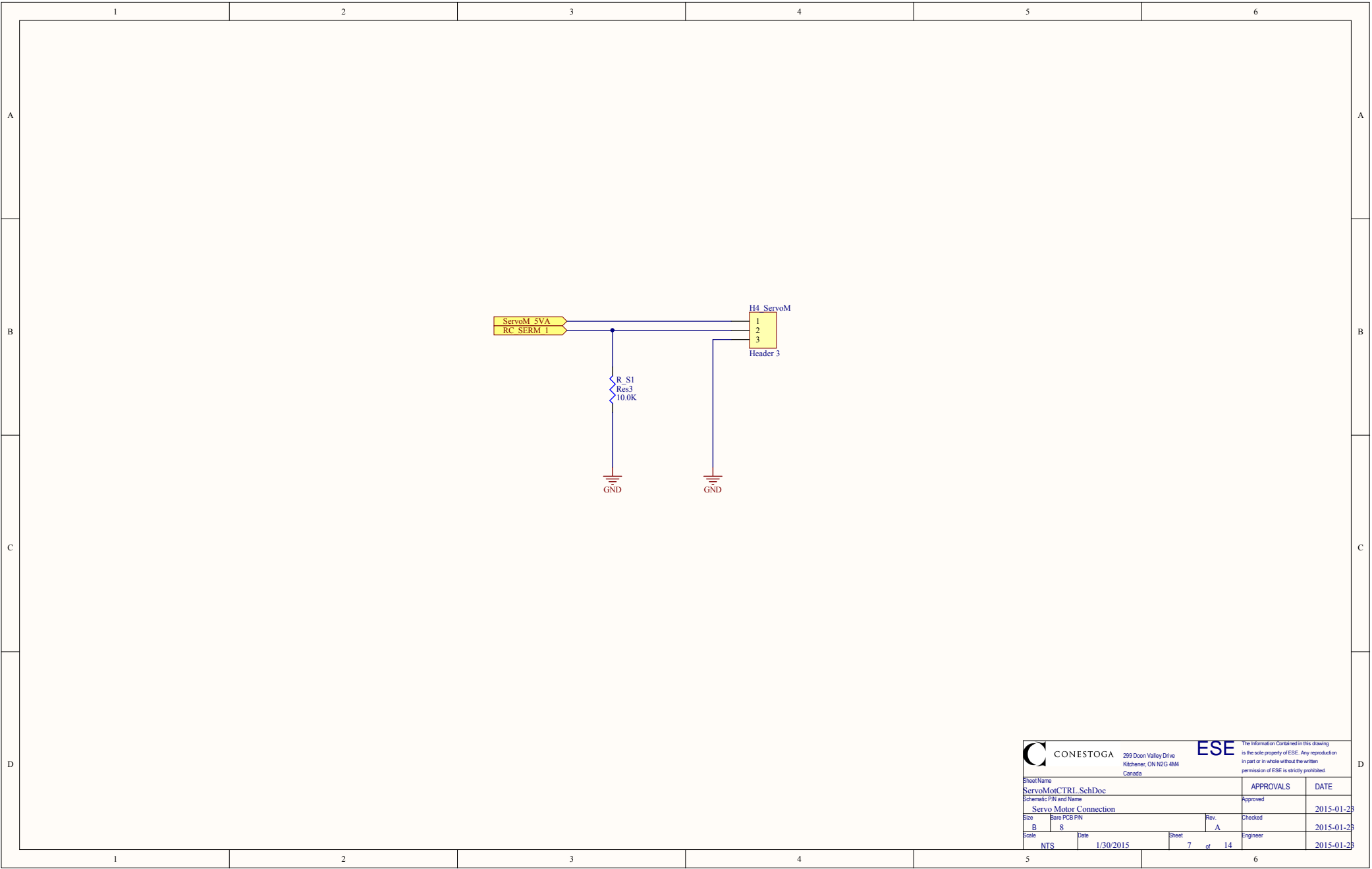
		CONESTOGA		299 Doon Valley Drive Kitchener, ON N2G 4M4 Canada				The Information Contained in this drawing is the sole property of ESE. Any reproduction in part or in whole without the written permission of ESE is strictly prohibited.		D
Sheet Name SMPS 5V A.SchDoe						APPROVALS		DATE		
Schematic P/N and Name SMPS 5V Using LM22675						Approved				
Size B		Bare PCB P/N 1		Rev. A		Checked		2015-01-15		
Scale NTS		Date 2/8/2015		Sheet 4 of 14		Engineer		2015-01-15		



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Sheet Name		APPROVALS	
StepperMotor1CTRL.SchDoc		DATE	
Schematic PN and Name		Approved	
Stepper Motor Driver		2015-01-28	
Size	Bare PCB PN	Rev.	Checked
B	5	A	2015-01-28
Scale	NTS	Date	Engineer
		1/30/2015	2015-01-28
Sheet		5 of 14	



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Sheet Name LCD Header SchDoc				APPROVALS		DATE	
Schematic P/N and Name LCDDisplay				Approved		2015-01-28	
Size B		Basic P/N 6		Rev. A		2015-01-28	
Scale NTS		Date 1/30/2015		Sheet 6 of 14		Engineer 2015-01-28	



C

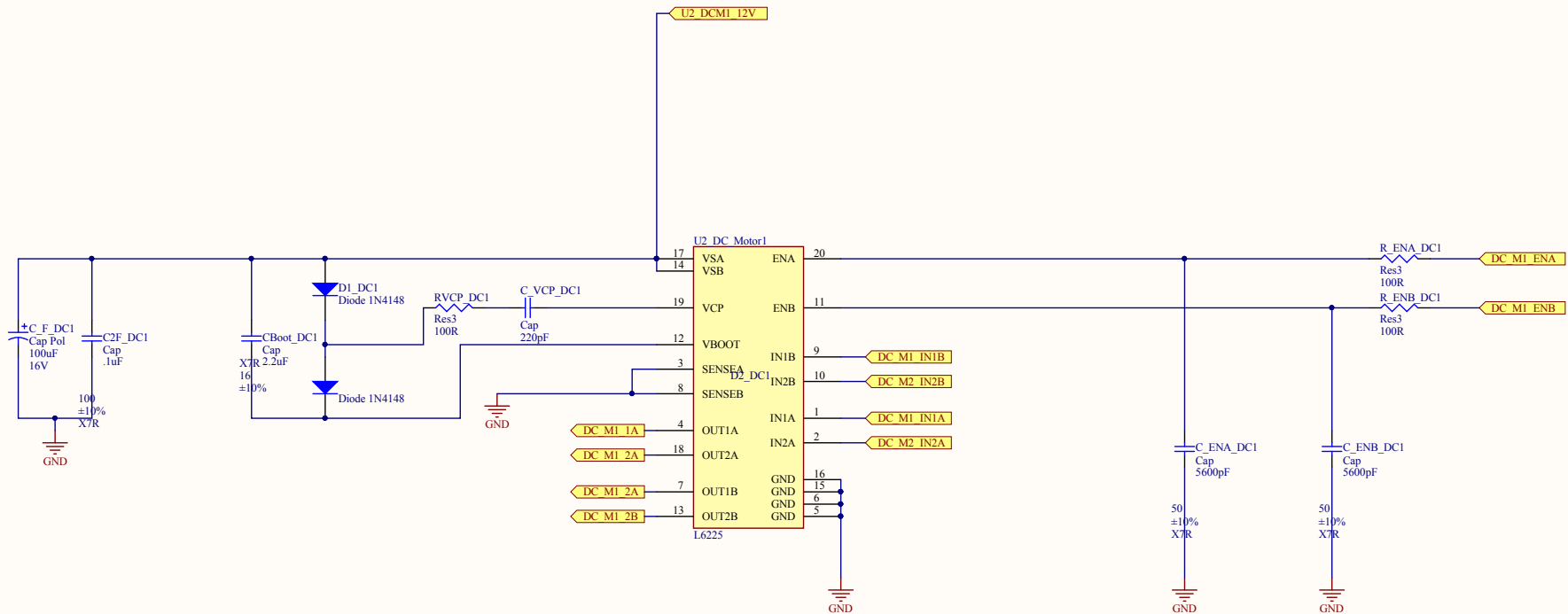
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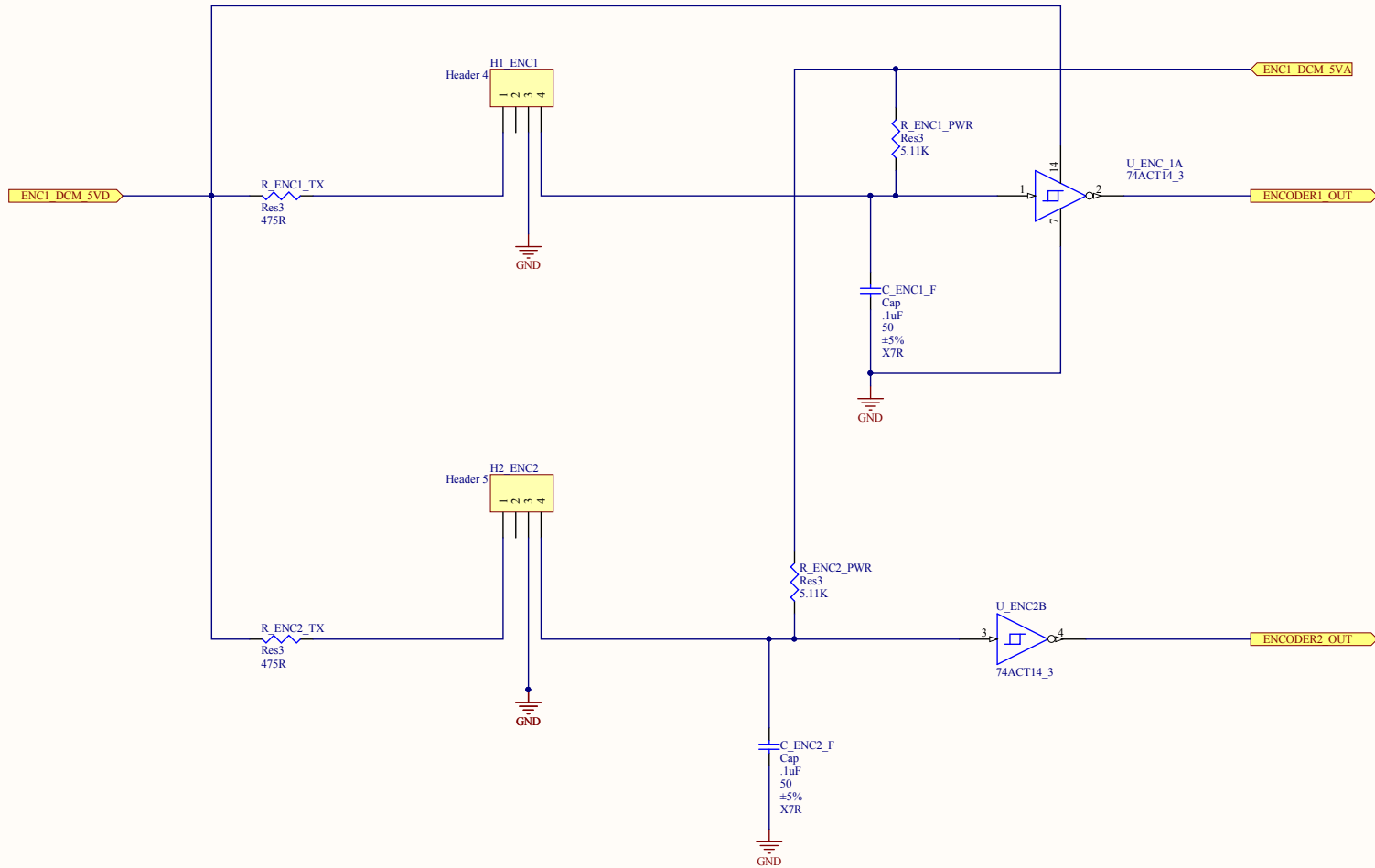
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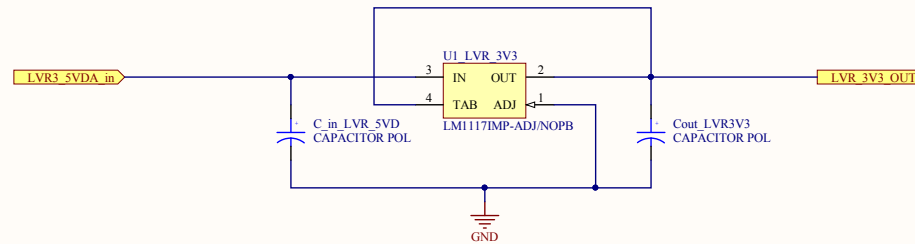
Sheet Name		APPROVALS		DATE
ServoMotCTRL.SchDoe		Approved		2015-01-28
Schematic PN and Name		Checked		2015-01-28
Servo Motor Connection		Engineer		2015-01-28
Size	Bare PCB PN	Rev.		
B	8	A		
Scale	NTS	Date	1/30/2015	Sheet 7 of 14





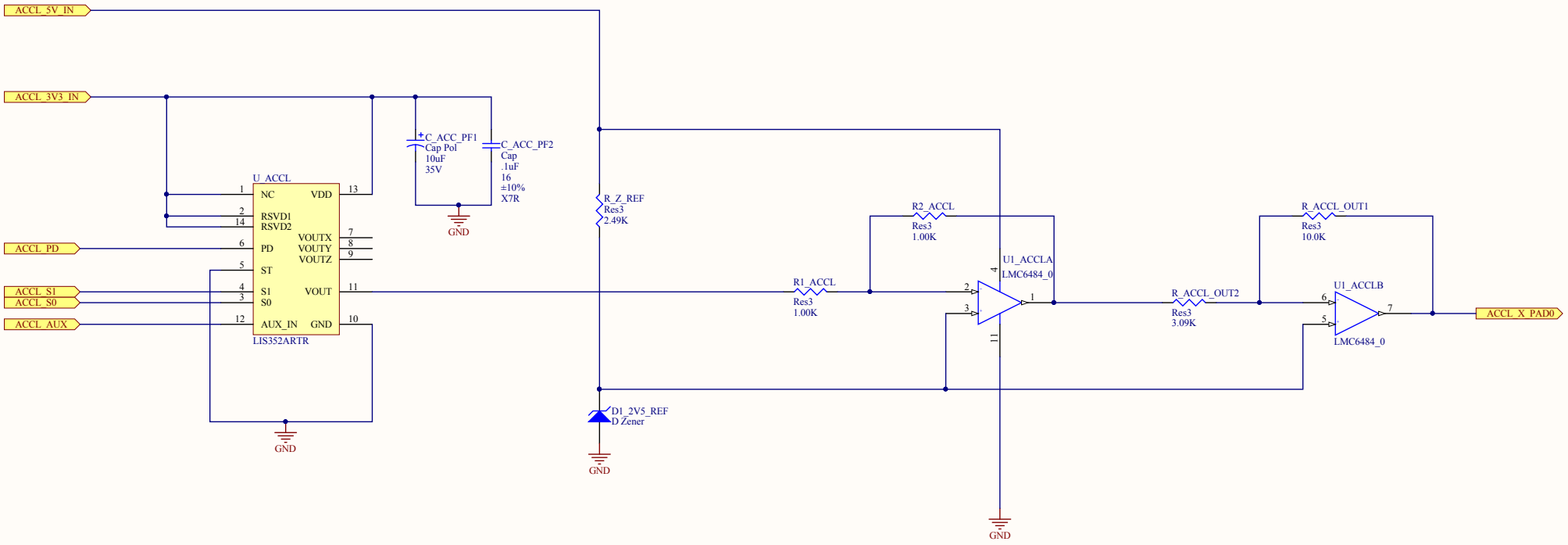
C CONESTOGA 299 Doon Valley Drive Kitchener, ON N2G 4M4 Canada		ESE The Information Contained in this drawing is the sole property of ESE. Any reproduction in part or in whole without the written permission of ESE is strictly prohibited.	
Sheet Name DCMotor1CTRL.SchDoc		APPROVALS Approved	
Schematic PN and Name DC Motor Driver		DATE 2015-01-28	
Size B	Bare PCB PN 7	Rev. A	Checked 2015-01-28
Scale NTS	Date 2/7/2015	Sheet 7 of 14	Engineer 2015-01-28





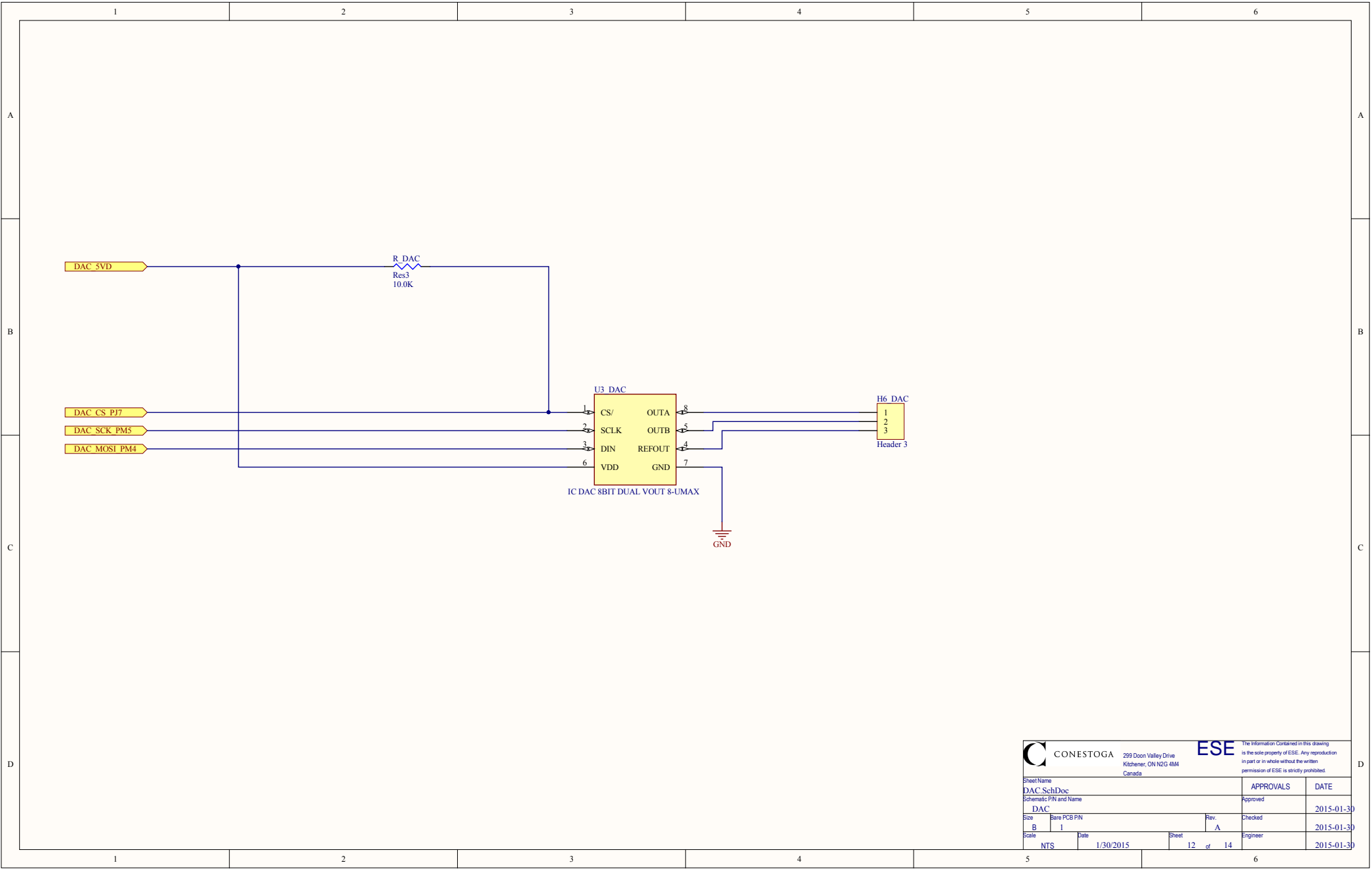
C CONESTOGA 299 Doon Valley Drive Kitchener, ON N2G 4M4 Canada		ESE The Information Contained in this drawing is the sole property of ESE. Any reproduction in part or in whole without the written permission of ESE is strictly prohibited.	
Sheet Name		APPROVALS	
Encoder DC Mot.SchDoc		DATE	
Schematic P/N and Name		Approved	
DC Motor Speed Encoder		2015-01-28	
Size	Bare PCB P/N	Rev.	Checked
B	9	B	2015-01-28
Scale	Date	Sheet	Engineer
NTS	1/30/2015	9 of 14	2015-01-28



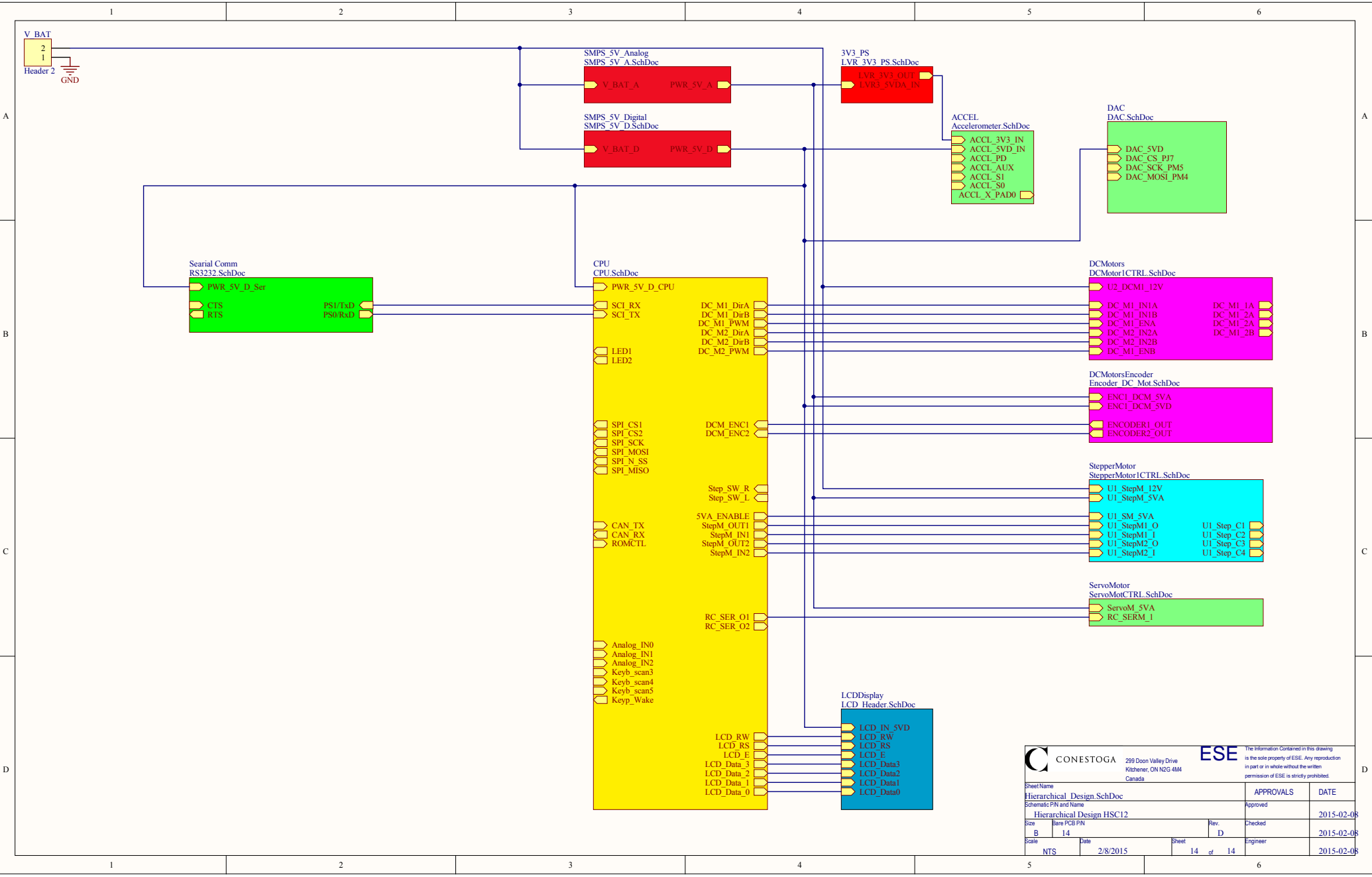
		CONESTOGA		299 Doon Valley Drive Kitchener, ON N2G 4M4 Canada				The Information Contained in this drawing is the sole property of ESE. Any reproduction in part or in whole without the written permission of ESE is strictly prohibited.		D
Sheet Name LVR_3V3_PS SchDoc						APPROVALS		DATE		
Schematic P/N and Name 3V3 Linear Voltage Regulator						Approved		2015-01-30		
Size B	Bare PCB P/N 1				Rev. A	Checked		2015-01-30		
Scale NTS	Date 1/30/2015		Sheet 10 of 14		Engineer		2015-01-30			



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Sheet Name Accelerometer.SchDoc				APPROVALS		DATE	
Schematic PN and Name Accelerometer				Approved		2015-01-30	
Size B		Base PCB PN I		Rev. A		2015-01-30	
Scale NTS		Date 2/8/2015		Sheet 11 of 14		Engineer 2015-01-30	

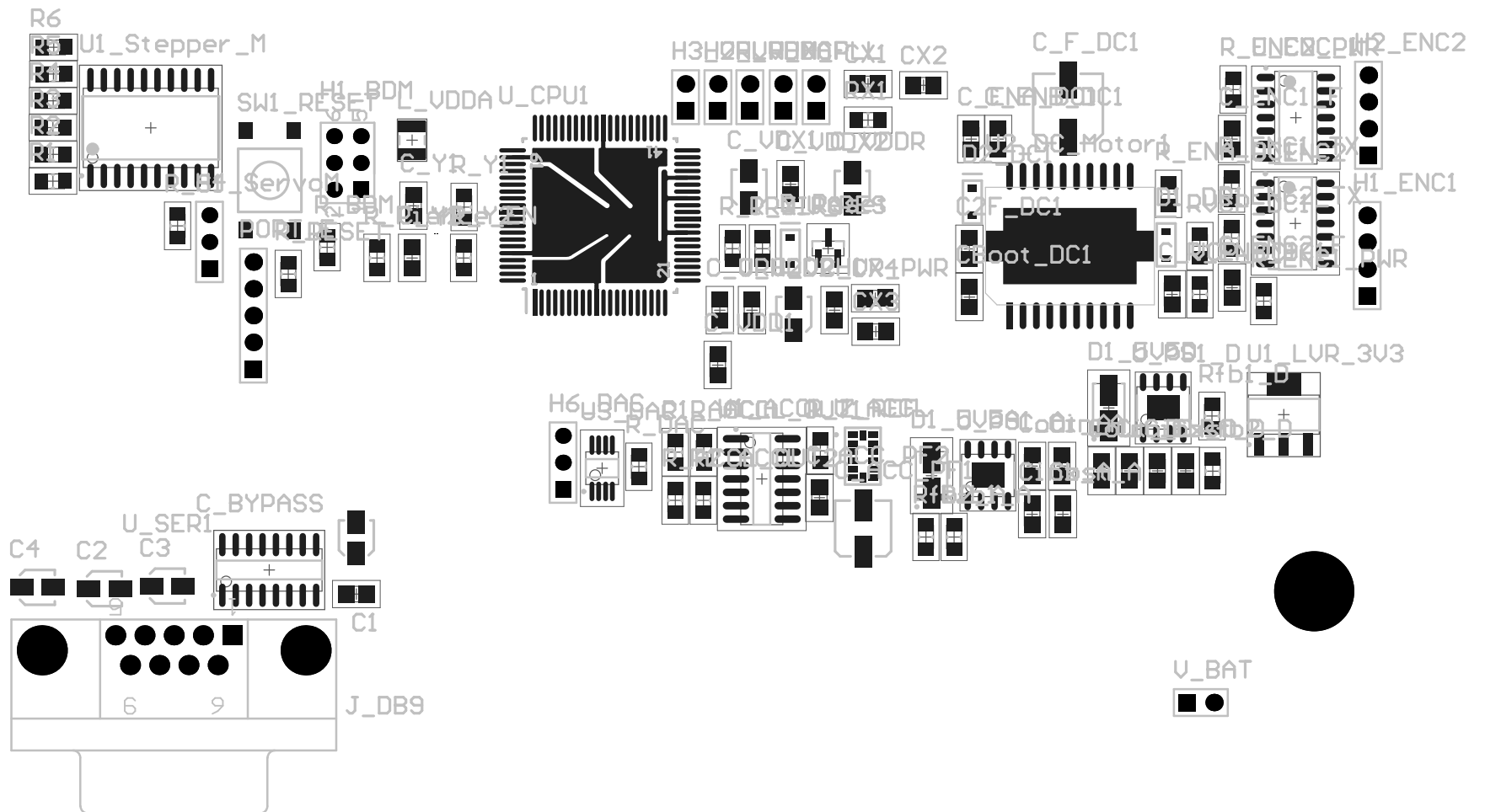
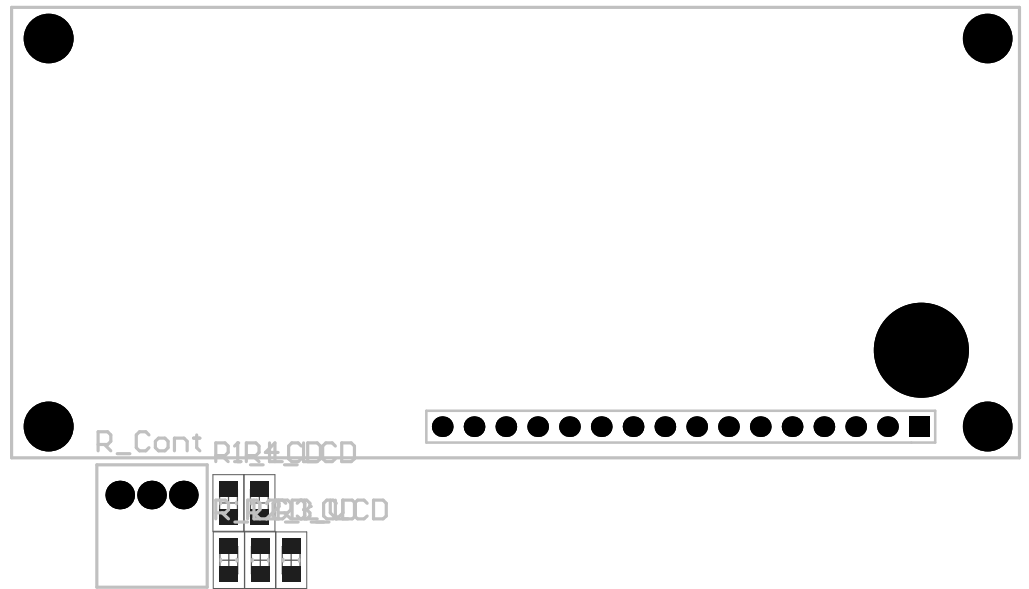


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Sheet Name DAC.SchDoc				APPROVALS		DATE	
Schematic P/N and Name DAC				Approved		2015-01-30	
Size B	Bare PCB P/N			Rev. A	Checked		2015-01-30
Scale NTS	Date 1/30/2015	Sheet 12 of 14		Engineer		2015-01-30	



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Sheet Name Hierarchical Design.SchDoc Schematic P/N and Name				APPROVALS		DATE	
Hierarchical Design HSC12				Approved		2015-02-08	
Size	B	Bare PCB P/N	I4	Rev.	D	Checked	
Scale	NTS	Date	2/8/2015	Sheet	14	of	14
				Engineer	2015-02-08		

H4_LCDHeader



Designator	Footprint	LibRef	Quantity
C1, C2F, DC1, C, ACC, PF2, C_ENA_DC1, C_ENB_DC1, C_ENC1_F, C_ENC2_F, C_VCP_DC1, C_VDD1, C_VDD2, C_VDDX2, C_VR_PWR, C_VRH2, C_Y1, C_Y2, CBoot_DC1, Cbst_A, Cbst_D, Cin_A, Cin_D, Cinx_A, Cinx_D, Cout_A, Cout_D, CX1, CX2, CX3, CX4	CAPC2012X09M	CAP-X7R-47000pF-50V-±10%, CAP-X7R-.1uF-100V-±10%, CAP-X7R-.1uF-16V-±10%, CAP-X7R-5600pF-50V-±10%, CAP-X7R-5600pF-50V-±10%, CAP-X7R-.1uF-50V-±5%, CAP-X7R-.1uF-50V±5%, CAP-COG-220pF-50V±5%, CAP-X7R-.1uF-50V±5%, CAP-X7R-.1uF-50V±5%, CAP-X7R-10000pF-50V±10%, CAP-X7R-.1uF-16V±10%, CAP-X7R-10000pF-50V±10%, CAP-COG-22pF-50V±5%, CAP-COG-22pF-50V±5%, CAP-X7R-2.2uF-16V±10%, CAP-X7R-10000pF-50V±10%, CAP-X7R-10000pF-50V±10%, CAP-X7R-2.2uF-16V±10%, CAP-X7R-2.2uF-16V±10%, CAP-X7R-.1uF-16V±10%, CAP-X7R-.1uF-16V±10%, CAP-X5R-10uF-10V±10%, CAP-X5R-10uF-10V±10%, CAP-X7R-4700pF-630V±10%, CAP-X7R-4700pF-630V±10%, CAP-X7R-.1uF-16V±10%, CAP-COG-10000pF-50V±5%	28
C2, C3, C4, C, BYPASS, C_VDDR, C_VDX1, C_VRH1	CAPACITOR_3MM	Cap Polar-0.33uF-50V, Cap Polar-0.33uF-50V, Cap Polar-0.33uF-50V, Cap Polar-10uF-16V, Cap Polar-10uF-16V, Cap Polar-10uF-16V	7
C_ACC_FF1	CAPACITOR_5MM	Cap Polar-10uF-35V	1
C_F_DC1	CAPACITOR_6.3MM	Cap Polar-100uF-16V	1
C_in_LVR_5VD, Cout_LVR3V3		CAPACITOR POL	2
D1_2V5_REF		D Zener	1
D1_5V5A, D1_5V5D	DIOM4326X23M	DIODE SCHOTTKY 40V 2A SMA	2
D1_DC1, D2_DC1, D_Reset	zener_sod323	Diode 1N4148	3
H1_BDM	HDR2X3	Header 3X2	1
H1_ENC1	HDR1X4	Header 4	1
H2_ENC2	HDR1X4	Header 4	1
H2_VRH, H3_VRL, H_PLL, H_VDDA, H_XCF, V_BAT	HDR1X2	Header 2	6
H4_LCDHeader	HDR1X16_LCD	Header16_LCD	1
H4_ServoM, H6_DAC	HDR1X3	Header 3	2
J_DB9	DSUB1.385-2H9	D Connector 9	1
L1_A, L1_D	INDP8080X40M	SRN8040	2
L_VDDA	C1210	INDUCTOR	1
PORT_E	HDR1X5	Header 5	1
R1, R1_ACCL, R1_LCD, R2, R2_ACCL, R2_LCD, R3, R3_LCD, R4, R4_LCD, R5, R6, R_ACCL_OUT1, R_ACCL_OUT2, R_BDM, R_DAC, R_ENA_DC1, R_ENB_DC1, R_ENC1_PWR, R_ENC1_TX, R_ENC2_PWR, R_ENC2_TX, R_IRQ, R_LCD_V, R_Pierce_EN, R_RESET, R_S1, R_XIRQ, R_Y1, R_Y2, R_Z_REF, Rfb1_A, Rfb1_D, Rfb2_A, Rfb2_D, R_VCP_DC1, RX1	RESC2112X05M	Resistor_10.0K, Resistor_1.00K, Resistor_4.75K, Resistor_10.0K, Resistor_1.00K, Resistor_4.75K, Resistor_10.0K, Resistor_4.75K, Resistor_10.0K, Resistor_4.75K, Resistor_10.0K, Resistor_10.0K, Resistor_10.0K, Resistor_10.0K, Resistor_10.0K, Resistor_3.09K, Resistor_10.0K, Resistor_10.0K, Resistor_100R, Resistor_100R, Resistor_5.11K, Resistor_475R, Resistor_5.11K, Resistor_475R, Resistor_4.75K, Resistor_221R, Resistor_4.75K, Resistor_10.0K, Resistor_10.0K, Resistor_4.75K, Resistor_10.0K, Resistor_1.02R, Resistor_2.49K, Resistor_1.00K, Resistor_1.00K, Resistor_2.87K, Resistor_2.87K, Resistor_100R, Resistor_5.11K	37
R_Cont	BOURNS_3386F	RPot	1
SW1_RESET	TACT_SWITCH_6MM_SMT	SWITCH_TACTILE	1
U1_ACCL	SOIC127P600X175-14M-NS	LMC6484_0	1
U1_LVR_3V3	MP04A_L	LM1117IMP-ADJ/NOPB	1
U1_Stepper_M	SO20_N	L293DD	1
U2_DC_Motor1	POWERSOP20	l6225	1
U3_DAC	TSOP65P490X110-8M	Max5513-dac	1
U_ACCL	LGA-14-3XSMM	US352AR	1
U_CPU1	QUAD.65M/80/WG17.45-HCS12	MC9S12C128MFUE	1
U_ENC2, U_ENC_1	SOIC127P600X175-14M	74ACT14_3	2
U_PS1_A, U_PS1_D	MRA08B_L	LM22675MR-ADJ/NOPB	2
U_RES	SOT95P230X110-3M	DS1813-10	1
U_SER1	NSO16_N	MAX3232CSE	1
Y1	PCBComponent_1	ECS-160-20-5P	1