C	ABLE SPEC: 35KV, AL, MV90 OR MV10	5, TRXPLE OR EPR, 100% INSULATIO	N	
CABLE SIZE	STUDY CASE	CABLE AMPACITY [A]	MAX APPARENT POWER [MVA]	MAX # OF INVERTER:
#4/0	1	240	14.34	3
#4/0	3	225	13.45	3
#4/0	4	225	13.45	3
#4/0	7	373	22.29	6
500MCM	1	379	22.65	6
500MCM	2	356	21.27	5
500MCM	3	358	21.39	5
500MCM	5	328	19.60	5
750MCM	1	466	27.85	7
750MCM	4	434	25.93	7
795kCMIL	7	1098	65.61	18
1000MCM	6	436	26.05	7

	TABLE 2: MV FEEDER STUDY CASE SCHEDULE
CASE	DESCRIPTION
1	SINGLE SET OF CONDUCTORS, DIRECT BURIED, 36" BELOW GRADE
2	TWO (2) SETS OF CONDUCTORS OF THE SAME SIZE CO-LOCATED IN A SINGLE TRENCH SECTION, 48" HORIZONTAL CENTER-CENTER SPACING, 36" BELOW GRADE, DIRECT BURIED
3	TWO (2) CIRCUITS OF DIFFERENT CONDUCTOR SIZES CO-LOCATED IN A SINGLE TRENCH SECTION, 48" HORIZONTAL CENTER-CENTER SPACING, 36" BELOW GRADE, DIRECT BURIED
4	SINGLE SET OF CONDUCTORS VIA BORE OR DIRECTIONAL DRILL, 60" BELOW GRADE
5	TWO (2) SETS OF CONDUCTORS VIA BORE OR DIRECTIONAL DRILL, 60" HORIZONTAL CENTER-CENTER SPACING, 60" BELOW GRADE
6	THREE (3) SETS OF CONDUCTORS VIA BORE OR DIRECTIONAL DRILL, 60" HORIZONTAL CENTER-CENTER SPACING, 60" BELOW GRADE
7	OVERHEAD INSTALLATION. AMPACITY BASED ON 40°C AMBIENT TEMPERATURE. DESIGN BY OTHERS, FOR REFERENCE ONLY
	REFER TO CABLE AMPACITY STUDY FOR SIMULATION PARAMETERS

TOTAL AVERAGE MV VOLTAGE DROP: 0.59%

				MV F	EEDER 1	.00 CALC	ULATIONS (34.5KV)									
FEEDER ID	EQUIPMENT SUPPLIED	FED FROM	CIRCUIT ROUTING	# OF INVERTERS	APPARENT POWER [KVA]	FEEDER LENGTH [FT]	FULL LOAD AMPS 'FLA' [A]	CONDUCTOR MATERIAL	CONDUCTORS PER PHASE	CONDUCTOR SIZE	STUDY CASE	CONDUCTOR AMPACITY [A]	CHECK CONDUCTOR AMPACITY > FLA?	CONCENTRIC NEUTRAL SIZE	GROUND SIZE	SEGMENT VOLTAGE DROP AT FLA	TOTAL VOLTAGE DROP AT FLA
MVF-TAP-100	TAP-100	SUBSTATION	OVERHEAD BY OTHERS	12	43,200	1,730	722.9	AL	1	795kCMIL	7	1098	PASS			0.17%	0.17%
MVF-RISER-101	RISER-101	TAP-100	OVERHEAD BY OTHERS	3	10,800	910	180.7	AL	1	#4/O	7	373	PASS			0.08%	0.25%
MVF-PCS-101	PCS-101	RISER-101	DIRECTIONAL BORE	3	10,800	130	180.7	AL	1	#4/0	4	225	PASS	1/3	7#6 CCS	0.01%	0.26%
MVF-PCS-102	PCS-102	PCS-101	UNDERGROUND DIRECT BURY TRIPLEXED	2	7,200	500	120.5	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.03%	0.29%
MVF-PCS-103	PCS-103	PCS-102	UNDERGROUND DIRECT BURY TRIPLEXED	1	3,600	290	60.2	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.01%	0.30%
MVF-RISER-MVSECT-101	RISER-MVSECT-101	TAP-100	OVERHEAD BY OTHERS	9	32,400	3,340	542.2	AL	1	795kCMIL	7	1098	PASS		-	0.24%	0.41%
MVF-MVSECT-101	MVSECT-101	RISER-MVSECT-101	UNDERGROUND DIRECT BURY TRIPLEXED	9	32,400	60	542.2	AL	2	500MCM	2	712	PASS	1/6	7#6 CCS	0.00%	0.41%
MVF-PCS-104	PCS-104	MVSECT-101	DIRECTIONAL BORE	3	10,800	300	180.7	AL	1	#4/O	4	225	PASS	1/3	7#6 CCS	0.03%	0.44%
MVF-PCS-105	PCS-105	PCS-104	UNDERGROUND DIRECT BURY TRIPLEXED	2	7,200	2,110	120.5	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.13%	0.57%
MVF-PCS-106	PCS-106	PCS-105	DIRECTIONAL BORE	1	3,600	650	60.2	AL	1	#4/O	4	225	PASS	1/3	7#6 CCS	0.02%	0.59%
MVF-PCS-107	PCS-107	MVSECT-101	DIRECTIONAL BORE	6	21,600	2,190	361.5	AL	1	750MCM	4	434	PASS	1/6	7#6 CCS	0.12%	0.53%
MVF-PCS-108	PCS-108	PCS-107	UNDERGROUND DIRECT BURY TRIPLEXED	5	18,000	160	301.2	AL	1	500MCM	1	379	PASS	1/6	7#6 CCS	0.01%	0.55%
MVF-PCS-109	PCS-109	PCS-108	UNDERGROUND DIRECT BURY TRIPLEXED	4	14,400	300	241.0	AL	1	500MCM	1	379	PASS	1/6	7#6 CCS	0.02%	0.56%
MVF-PCS-110	PCS-110	PCS-109	UNDERGROUND DIRECT BURY TRIPLEXED	3	10,800	350	180.7	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.03%	0.59%
MVF-PCS-111	PCS-111	PCS-110	UNDERGROUND DIRECT BURY TRIPLEXED	2	7,200	320	120.5	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.02%	0.61%
MVF-PCS-112	PCS-112	PCS-111	UNDERGROUND DIRECT BURY TRIPLEXED	1	3,600	380	60.2	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.01%	0.62%

AVERAGE VOLTAGE DROP: 0.45%

DRAWING NOTES:

1. DISTANCES ARE ESTIMATES GENERATED FOR ENGINEER'S CALCULATIONS, CONTRACTOR IS RESPONSIBLE FOR OWN MEASUREMENTS AND TAMEOFFS.

2. THE CONTRACTOR STRUCTURAL DESIGN IS A TOTHERS, AND ETAILS, CAULATIONS, SPEPICATIONS, POLE SPACING/LOCATIONS, OVERCURRENT DEVICES, FLO. ASSOCIATED WITH THE OVERFIRED DESIGN LELEMENTS SHOWN IN THESE DOCUMENTS ARE FOR RETENENCE AND CONSERVED, DESIGN CELEMENT DESIGN CELEMENT DESIGN CONSERVED, DESIGN CELEMENT, DESIGN CELEMENT, DESIGN CELEMENT, DESIGN CELEMENT, DESIGN CONSERVED, DESIGN CELEMENT, DESIGN CELEMENT, DESIGN CONSERVED, DESIGN CELEMENT, DESIGN CONSERVED, DESIGN CELEMENT, DESIGN CONSERVED, DESIGN CELEMENT, DESIGN CONSERVED, DESIGN CONSERVED

SCHEDULES & CALCULATIONS
MEDIUM VOLTAGE

E3.310

| DUREPOWER | DOT | | DUREPOWER | DOT | DO

179,536.50 kW 176,400.00 kW HT-SAAE HT72-18X-550 326,430 25" TLT, 180" AZI

5 WW SOLAR GROUND WOUNT SYSTEM AT DO SYSTEM SIZE
C PV BACKBONNE
1429 SHARPLESS MINE ROAD
GRENTIT COUNTY, MARYLAND 21561

GRENTINGOUNTY

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RULER IN INCHES:	

				MV		200 CAL	CULATIONS	(34.5KV)									
FEEDER ID	EQUIPMENT SUPPLIED	FED FROM	CIRCUIT ROUTING	# OF INVERTERS	APPARENT POWER [KVA]	FEEDER LENGTH [FT]	FULL LOAD AMPS 'FLA' [A]	CONDUCTOR MATERIAL	CONDUCTORS PER PHASE	CONDUCTOR SIZE	STUDY CASE	CONDUCTOR AMPACITY [A]	CHECK CONDUCTOR AMPACITY > FLA?	CONCENTRIC NEUTRAL SIZE	GROUND SIZE	SEGMENT VOLTAGE DROP AT FLA	TOTAL VOLTAGE DROP AT FL
MVF-TAP-200	TAP-200	SUBSTATION	OVERHEAD BY OTHERS	11	39,600	190	662.7	AL	1	795kCMIL	7	1098	PASS			0.02%	0.02%
MVF-RISER-201	RISER-201	TAP-200	OVERHEAD BY OTHERS	2	7,200	480	120.5	AL	1	#4/0	7	373	PASS	-		0.03%	0.05%
MVF-PCS-201	PCS-201	RISER-201	UNDERGROUND DIRECT BURY TRIPLEXED	2	7,200	140	120.5	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.01%	0.05%
MVF-PCS-202	PCS-202	PCS-201	UNDERGROUND DIRECT BURY TRIPLEXED	1	3,600	260	60.2	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.01%	0.06%
MVF-TAP-201	TAP-201	TAP-200	OVERHEAD BY OTHERS	9	32,400	3,110	542.2	AL	1	795kCMIL	7	1098	PASS	-		0.22%	0.24%
MVF-MVSECT-201	MVSECT-201	TAP-201	UNDERGROUND DIRECT BURY TRIPLEXED	7	25,200	60	421.7	AL	1	750MCM	1	466	PASS	1/6	7#6 CCS	0.00%	0.25%
MVF-PCS-203	PCS-203	MVSECT-201	UNDERGROUND DIRECT BURY TRIPLEXED	3	10,800	320	180.7	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.03%	0.27%
MVF-PCS-204	PCS-204	PCS-203	UNDERGROUND DIRECT BURY TRIPLEXED	2	7,200	170	120.5	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.01%	0.28%
MVF-PCS-205	PCS-205	PCS-204	UNDERGROUND DIRECT BURY TRIPLEXED	1	3,600	370	60.2	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.01%	0.30%
MVF-PCS-206	PCS-206	MVSECT-201	UNDERGROUND DIRECT BURY TRIPLEXED	4	14,400	160	241.0	AL	1	500MCM	1	379	PASS	1/6	7#6 CCS	0.01%	0.25%
MVF-PCS-207	PCS-207	PCS-206	UNDERGROUND DIRECT BURY TRIPLEXED	3	10,800	370	180.7	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.03%	0.29%
MVF-PCS-208	PCS-208	PCS-207	UNDERGROUND DIRECT BURY TRIPLEXED	2	7,200	230	120.5	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.01%	0.30%
MVF-PCS-209	PCS-209	PCS-208	UNDERGROUND DIRECT BURY TRIPLEXED	1	3,600	460	60.2	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.01%	0.32%
MVF-RISER-210	RISER-210	TAP-201	OVERHEAD BY OTHERS	2	7,200	3,640	120.5	AL	1	#4/0	7	373	PASS			0.22%	0.46%
MVF-PCS-210	PCS-210	RISER-210	UNDERGROUND DIRECT BURY TRIPLEXED	2	7,200	930	120.5	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.06%	0.52%
MVF-PCS-211	PCS-211	PCS-210	UNDERGROUND DIRECT BURY TRIPLEXED	1	3,600	1,315	60.2	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.04%	0.56%

> AVERAGE VOLTAGE DROP: 0.26%

				MV	FEEDER	300 CAL	CULATIONS	(34.5KV)									
FEEDER ID	EQUIPMENT SUPPLIED	FED FROM	CIRCUIT ROUTING	# OF INVERTERS	APPARENT POWER [KVA]	FEEDER LENGTH [FT]	FULL LOAD AMPS 'FLA' [A]	CONDUCTOR MATERIAL	CONDUCTORS PER PHASE	CONDUCTOR SIZE	STUDY CASE	CONDUCTOR AMPACITY [A]	CHECK CONDUCTOR AMPACITY > FLA?	CONCENTRIC NEUTRAL SIZE	GROUND SIZE	SEGMENT VOLTAGE DROP AT FLA	TOTAL VOLTAGE DROP AT FLA
MVF-RISER-300-01	RISER-300-01	SUBSTATION	OVERHEAD BY OTHERS	9	32,400	280	542.2	AL	1	795kCMIL	7	1098	PASS	-		0.02%	0.02%
MVF-RISER-300-02	RISER-300-02	RISER-300-01	DIRECTIONAL BORE	9	32,400	210	542.2	AL	2	500MCM	5	656	PASS	1/6	7#6 CCS	0.01%	0.03%
MVF-RISER-MVSECT-301	RISER-MVSECT-301	RISER-300-02	OVERHEAD BY OTHERS	9	32,400	950	542.2	AL	1	795kCMIL	7	1098	PASS			0.07%	0.10%
MVF-MVSECT-301	MVSECT-301	RISER-MVSECT-301	UNDERGROUND DIRECT BURY TRIPLEXED	9	32,400	60	542.2	AL	2	500MCM	2	712	PASS	1/6	7#6 CCS	0.00%	0.11%
MVF-PCS-301	PCS-301	MVSECT-301	UNDERGROUND DIRECT BURY TRIPLEXED	1	3,600	70	60.2	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.00%	0.11%
MVF-MVSECT-302	MVSECT-302	MVSECT-301	UNDERGROUND DIRECT BURY TRIPLEXED	8	28,800	1,240	482.0	AL	2	500MCM	5	656	PASS	1/6	7#6 CCS	0.07%	0.17%
MVF-PCS-302	PCS-302	MVSECT-302	UNDERGROUND DIRECT BURY TRIPLEXED	2	7,200	190	120.5	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.01%	0.18%
MVF-PCS-303	PCS-303	PCS-302	UNDERGROUND DIRECT BURY TRIPLEXED	1	3,600	440	60.2	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.01%	0.20%
MVF-PCS-304	PCS-304	MVSECT-302	UNDERGROUND DIRECT BURY TRIPLEXED	3	10,800	280	180.7	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.03%	0.20%
MVF-PCS-305	PCS-305	PCS-304	UNDERGROUND DIRECT BURY TRIPLEXED	2	7,200	340	120.5	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.02%	0.22%
MVF-PCS-306	PCS-306	PCS-305	UNDERGROUND DIRECT BURY TRIPLEXED	1	3,600	290	60.2	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.01%	0.23%
MVF-PCS-307	PCS-307	MVSECT-302	DIRECTIONAL BORE	3	10,800	1,650	180.7	AL	1	#4/0	4	225	PASS	1/3	7#6 CCS	0.15%	0.32%
MVF-PCS-308	PCS-308	PCS-307	UNDERGROUND DIRECT BURY TRIPLEXED	2	7,200	790	120.5	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.05%	0.37%
MVF-PCS-309	PCS-309	PCS-308	UNDERGROUND DIRECT BURY TRIPLEXED	1	3,600	580	60.2	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.02%	0.39%

> AVERAGE VOLTAGE DROP: 0.19%

				MV	FEEDER	400 CAL	CULATIONS	(34.5KV)										1
FEEDER ID	EQUIPMENT SUPPLIED	FED FROM	CIRCUIT ROUTING	# OF INVERTERS	APPARENT POWER [KVA]	FEEDER LENGTH [FT]	FULL LOAD AMPS 'FLA' [A]	CONDUCTOR MATERIAL	CONDUCTORS PER PHASE	CONDUCTOR SIZE	STUDY CASE	CONDUCTOR AMPACITY [A]	CHECK CONDUCTOR AMPACITY > FLA?	CONCENTRIC NEUTRAL SIZE	GROUND SIZE	SEGMENT VOLTAGE DROP AT FLA	TOTAL VOLTAGE DROP AT FLA	
MVF-RISER-400-01	RISER-400-01	SUBSTATION	OVERHEAD BY OTHERS	17	61,200	2,360	1024.2	AL	1	795kCMIL	7	1098	PASS			0.32%	0.32%	1
MVF-RISER-400-02	RISER-400-02	RISER-400-01	DIRECTIONAL BORE	17	61,200	1,470	1024.2	AL	3	1000MCM	6	1308	PASS	1/12	7#6 CCS	0.06%	0.38%	1
MVF-TAP-400	TAP-400	RISER-400-02	OVERHEAD BY OTHERS	17	61,200	6,030	1024.2	AL	1	795kCMIL	7	1098	PASS	-	-	0.82%	1.21%	1
MVF-PCS-401	PCS-401	TAP-400	UNDERGROUND DIRECT BURY TRIPLEXED	7	25,200	100	421.7	AL	1	750MCM	1	466	PASS	1/6	7#6 CCS	0.01%	1.21%	1
MVF-PCS-402	PCS-402	PCS-401	UNDERGROUND DIRECT BURY TRIPLEXED	6	21,600	300	361.5	AL	1	750MCM	1	466	PASS	1/6	7#6 CCS	0.02%	1.23%	1
MVF-PCS-403	PCS-403	PCS-402	UNDERGROUND DIRECT BURY TRIPLEXED	5	18,000	300	301.2	AL	1	500MCM	1	379	PASS	1/6	7#6 CCS	0.02%	1.25%	1
MVF-PCS-404	PCS-404	PCS-403	UNDERGROUND DIRECT BURY TRIPLEXED	4	14,400	430	241.0	AL	1	500MCM	1	379	PASS	1/6	7#6 CCS	0.02%	1.27%	1
MVF-PCS-405	PCS-405	PCS-404	UNDERGROUND DIRECT BURY TRIPLEXED	3	10,800	540	180.7	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.05%	1.32%	1
MVF-PCS-406	PCS-406	PCS-405	UNDERGROUND DIRECT BURY TRIPLEXED	2	7,200	730	120.5	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.04%	1.37%	1
MVF-PCS-407	PCS-407	PCS-406	UNDERGROUND DIRECT BURY TRIPLEXED	1	3,600	540	60.2	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.02%	1.38%	1
MVF-RISER-MVSECT-401	RISER-MVSECT-401	TAP-400	OVERHEAD BY OTHERS	10	36,000	90	602.5	AL	1	795kCMIL	7	1098	PASS			0.01%	1.21%	1
MVF-MVSECT-401	MVSECT-401	RISER-MVSECT-401	UNDERGROUND DIRECT BURY TRIPLEXED	10	36,000	60	602.5	AL	2	500MCM	2	712	PASS	1/6	7#6 CCS	0.00%	1.22%	1
MVF-PCS-408	PCS-408	MVSECT-401	UNDERGROUND DIRECT BURY TRIPLEXED	5	18,000	630	301.2	AL	1	500MCM	2	356	PASS	1/6	7#6 CCS	0.04%	1.26%	1
MVF-PCS-409	PCS-409	PCS-408	UNDERGROUND DIRECT BURY TRIPLEXED	4	14,400	480	241.0	AL	1	500MCM	2	356	PASS	1/6	7#6 CCS	0.03%	1.29%	1
MVF-PCS-410	PCS-410	PCS-409	UNDERGROUND DIRECT BURY TRIPLEXED	3	10,800	320	180.7	AL	1	#4/0	3	225	PASS	1/3	7#6 CCS	0.03%	1.32%	1
MVF-PCS-411	PCS-411	PCS-410	UNDERGROUND DIRECT BURY TRIPLEXED	2	7,200	290	120.5	AL	1	#4/0	3	225	PASS	1/3	7#6 CCS	0.02%	1.33%	1
MVF-PCS-412	PCS-412	PCS-411	UNDERGROUND DIRECT BURY TRIPLEXED	1	3,600	290	60.2	AL	1	#4/0	3	225	PASS	1/3	7#6 CCS	0.01%	1.34%	1
MVF-PCS-413	PCS-413	MVSECT-401	UNDERGROUND DIRECT BURY TRIPLEXED	5	18,000	2,070	301.2	AL	1	500MCM	3	358	PASS	1/6	7#6 CCS	0.14%	1.36%	1
MVF-PCS-414	PCS-414	PCS-413	UNDERGROUND DIRECT BURY TRIPLEXED	4	14,400	300	241.0	AL	1	500MCM	1	379	PASS	1/6	7#6 CCS	0.02%	1.38%	1
MVF-PCS-415	PCS-415	PCS-414	UNDERGROUND DIRECT BURY TRIPLEXED	3	10,800	400	180.7	AL	1	#4/O	1	240	PASS	1/3	7#6 CCS	0.04%	1.41%	1
MVF-PCS-416	PCS-416	PCS-415	UNDERGROUND DIRECT BURY TRIPLEXED	2	7,200	490	120.5	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.03%	1.44%	1
MVF-PCS-417	PCS-417	PCS-416	UNDERGROUND DIRECT BURY TRIPLEXED	1	3,600	550	60.2	AL	1	#4/0	1	240	PASS	1/3	7#6 CCS	0.02%	1.46%	1

AVERAGE VOLTAGE DROP: 1.23%

DRAWING NOTES:

1. DISTANCES ARE ESTIMATES GENERATED FOR ENGINEER'S CALCULATIONS, CONTRACTOR IS RESPONSIBLE FOR OWN MASUREMENTS AND TRACOFTS.

18 OF OTHERS, AND ETAILS, CAULATIONS, SEPCIFICATIONS, POLE SPACING/LOCATIONS, OVERCUREENT DEVICES, ETC.

ASSOCIATED WITH THE OVERHEAD DESIGN ELEMENTS SHOWN IN THESE DOCUMENTS AND FOR ROTERING LOCATIONS OVERFILED ESSENCEDATIONS, OVERFILED DESIGN ELEMENTS.

SCHEDULES & CALCULATIONS
MEDIUM VOLTAGE

E3.311

PURETOWER

DITTORN AND SECURITY OF THE PURETOWER OF PURET

179,536.50 kW 176,400.00 kW HT-SAAE HT72-18X-550 326,430 25" TLT, 180" AZI

5 WW SOLAR GROUND WOUNT SYSTEM AT DO SYSTEM SIZE
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