

Plot Date: 9/16/11 By: Koriek,Susanne File Location: U:\30070.00\Drawings\Gen\00-G-003.dwg

(G) GENERAL	
00-G-001	PLANT GENERAL COVERSHEET
00-G-002	PLANT GENERAL GENERAL INFORMATION
00-G-003	PLANT GENERAL DRAWING INDEX SHEET 1
00-G-004	PLANT GENERAL DRAWING INDEX SHEET 2
00-G-005	PLANT GENERAL DRAWING INDEX SHEET 3
00-G-100	PLANT GENERAL GENERAL ARRANGEMENT SITE - OVERALL
00-G-101	PLANT GENERAL GENERAL ARRANGEMENT HARVESTING AND PRETREATMENT
00-G-103	PLANT GENERAL GENERAL ARRANGEMENT SOLVENT AND ALGAE OIL STORAGE
00-G-105	PLANT GENERAL GENERAL ARRANGEMENT WATER STORAGE
00-G-106	PLANT GENERAL GENERAL ARRANGEMENT ALGAE LOAD-OUT
00-G-107	PLANT GENERAL GENERAL ARRANGEMENT CHEMICAL STORAGE
00-G-108	PLANT GENERAL GENERAL ARRANGEMENT LIQUID CO2 STORAGE
00-G-150	PLANT GENERAL LOCATION PLAN EYE WASH, SHOWERS & UTILITY STATIONS
00-G-200	PLANT GENERAL GENERAL ARRANGEMENT SECTIONS - SHEET 1
00-G-201	PLANT GENERAL GENERAL ARRANGEMENT SECTIONS - SHEET 2
00-G-202	HYDRAULIC PROFILE LOWER PONDS DAF 1

(C) CIVIL	
00-C-100	EXISTING SITE PLAN, SURVEY CONTROL PLAN AND DEMOLITION
00-C-101	IABR SITE PLAN - GRADING AND PAVING PLAN AND AREA DESIGNATION PLAN
00-C-102	AREA A GRADING, PAVING AND SURVEY CONTROL
00-C-103	AREA B GRADING, PAVING AND SURVEY CONTROL
00-C-104	AREA C GRADING, PAVING AND SURVEY CONTROL
00-C-105	AREA D GRADING, PAVING AND SURVEY CONTROL
00-C-106	AREA E GRADING, PAVING AND SURVEY CONTROL
00-C-107	YARD PIPING - AREA DESIGNATION PLAN
00-C-108	AREA A-P - YARD PIPING
00-C-109	AREA B-P - YARD PIPING
00-C-111	HARVEST AREA - YARD PIPING
00-C-112	STORMWATER RUN-OFF PLAN
00-C-113	EAST STORMWATER DITCH DETAIL AND PROFILE
00-C-114	MIDDLE STORMWATER DITCH DETAIL AND PROFILE
00-C-115	STORMWATER DITCH CULVERTS
00-C-116	MISCELLANEOUS CULVERTS
00-C-117	SECTION
00-C-118	HARVEST CHANNEL PARTIAL PLAN AND SECTIONS
00-C-119	ACCESS ROAD CROSSING BERM AT GRAVEL ROAD
00-C-120	EASTERN STORMWATER DITCH PLAN
00-C-160	PLANT GENERAL CIVIL GRADING PLAN
00-C-170	PLANT GENERAL CIVIL UTILITY PLAN
00-C-175	PLANT GENERAL FIRE PROTECTION HARVESTING AND EXTRACTION
00-C-180	PLANT GENERAL CIVIL HARVESTING AREA PLAN
00-C-200	PRODUCTION PONDS ROADS PROFILES
00-C-201	MIDDLE STORMWATER DITCH PROFILE
00-C-202	EASTERN STORMWATER DITCH PROFILE
00-C-300	TRENCH DETAILS
00-C-301	HARVEST/EXTRACTION AREA PARTIAL PAVING PLAN
00-C-302	PAVED ROAD SECTIONS
00-C-304	STORMWATER DITCH AND TYPICAL ROAD SECTIONS AND DETAILS
00-C-305	MISCELLANEOUS DETAILS 1
00-C-306	MISCELLANEOUS DETAILS 2
00-C-307	FENCING DETAILS
00-C-350	PLANT GENERAL CIVIL DETAILS AND SECTION
02-C-100	300 ACRE PONDS SITE LAYOUT
02-C-103	LOWER PRODUCTION PONDS GRADING PLAN
02-C-104	LOWER PRODUCTION PONDS PARTIAL GRADING PLAN 1
02-C-110	HARVEST RETURN AND INOCULATION PONDS PLAN
02-C-111	DAF FEED POND AND CHANNEL PLAN
02-C-203	PRODUCTION PONDS PROFILE SECTION 1
02-C-204	PRODUCTION PONDS PROFILE SECTION 2
02-C-205	HARVEST RETURN POND PROFILE SECTIONS
02-C-206	INOCULATION PONDS PROFILE SECTIONS
02-C-207	DAF FEED POND PROFILE SECTIONS
02-C-208	PRODUCTION PONDS DETAILS AND SECTIONS
02-C-209	PRESSURE PIPE CONNECTION TO HARVEST RETURN STORAGE POND
02-C-220	OVERALL PIPING PLAN PRODUCTION PONDS
02-C-221	PRODUCTION PONDS PIPING LAYOUT 1
02-C-222	PRODUCTION PONDS PIPING LAYOUT 2
02-C-223	HARVEST AND INOCULATION PONDS PIPING LAYOUT 3
02-C-224	PRODUCTION PONDS PARTIAL PIPING PLAN 1
02-C-225	PRODUCTION PONDS PARTIAL PIPING PLAN 2
02-C-226	INOCULATION PONDS PARTIAL PIPING PLAN
02-C-227	HARVEST RETURN AND INOCULATION PONDS-PARTIAL PIPING PLANS
02-C-228	PRODUCTION PONDS PADDLE WHEEL SUPPORT STRUCTURE MISCELLANEOUS DETAILS
02-C-229	INOCULATION PONDS PADDLE WHEEL SUPPORT STRUCTURE MISCELLANEOUS DETAILS
02-C-300	HARVEST CHANNEL SECTIONS AND DETAILS
03-C-160	EVAPORATION PONDS PLAN AND PART PLAN
03-C-260	EVAPORATION POND - SECTIONS

(A) ARCHITECTURAL	
00-A-100	PLANT GENERAL SWITCHGEAR ELECTRICAL ROOM PLANS, ELEVATIONS AND SECTION
02-A-100	PRODUCTION LOWER GROWTH PONDS ELECTRICAL ROOMS PLANS, ELEVATIONS AND SECTION
03-A-101	HARVEST CENTRIFUGE BUILDING PLANS, ELEVATIONS AND SECTION
04-A-100	EXTRACTION HARVEST/EXTRACTION ELECTRICAL ROOM PLANS, ELEVATIONS AND SECTION
09-A-100	CHEMICALS AND UTILITIES DRY POLYMER BUILDING PLANS, ELEVATIONS AND SECTION
10-A-100	BUILDINGS AND STRUCTURES MAINTENANCE & SHOP BUILDING PLANS, ELEVATIONS AND SECTION
10-A-110	BUILDINGS AND STRUCTURES MAINTENANCE AND SHOP BUILDING OFFICES & RESTROOM

(S) STRUCTURAL	
00-S-001	PLANT GENERAL STRUCTURAL NOTES - SHEET 1
00-S-002	PLANT GENERAL STRUCTURAL NOTES - SHEET 2
00-S-004	PLANT GENERAL CONCRETE TYPICAL DETAILS - SHEET 1
00-S-005	PLANT GENERAL CONCRETE TYPICAL DETAILS - SHEET 2
00-S-006	PLANT GENERAL STEEL TYPICAL DETAILS - SHEET 3
00-S-007	PLANT GENERAL STEEL TYPICAL DETAILS - SHEET 4
00-S-008	PLANT GENERAL STEEL TYPICAL DETAILS - SHEET 5
00-S-009	PLANT GENERAL STEEL TYPICAL DETAILS - SHEET 6
00-S-010	PLANT GENERAL STEEL TYPICAL DETAILS - SHEET 7
00-S-011	PLANT GENERAL STEEL TYPICAL DETAILS - SHEET 8
00-S-025	STANDARD DETAILS
00-S-026	STANDARD DETAILS
00-S-027	STANDARD DETAILS
00-S-050	PLANT GENERAL STRUCTURAL SITE - OVERALL
00-S-051	PLANT GENERAL STRUCTURAL SITE - HARVEST/EXTRACTION
00-S-100	PLANT GENERAL SWITCHGEAR ELECTRICAL ROOM FOUNDATION PLAN
00-S-300	PLANT GENERAL TANK, VESSEL & EQUIPMENT FOUNDATIONS FOUNDATION SCHEDULE - SHEET 1
02-S-100	PRODUCTION LOWER GROWTH PONDS ELECTRICAL ROOMS FOUNDATION PLAN
02-S-110	STORMWATER STRUCTURAL STILLING PLANS
02-S-111	STORMWATER STRUCTURAL STILLING SECTIONS 1
02-S-112	STORMWATER STRUCTURAL STILLING SECTIONS 2
02-S-371	PRODUCTION PADDLE WHEEL SUPPORT STRUCTURE WITH INOCULATION
02-S-372	PRODUCTION PADDLE WHEEL STRUCTURE WITHOUT INOCULATION
02-S-373	PADDLE WHEEL SUPPORT STRUCTURE - INOCULATION
02-S-374	HARVEST AND RETURN STRUCTURES
03-S-100	HARVEST DAF FEED PUMPS ELECTRICAL ROOM FOUNDATION PLAN
03-S-151	CENTRIFUGE FOUNDATION
03-S-302	DAF FOUNDATION PLANS, SECTIONS AND DETAILS
03-S-350	DAF FEED PUMP STATION
03-S-351	DAF SUBNATANT PUMP STATION
03-S-500	FLOCCULATION TANK PLANS
03-S-501	FLOCCULATION TANK, SECTIONS AND DETAILS
04-S-100	EXTRACTION HARVEST/EXTRACTION ELECTRICAL ROOM FOUNDATION PLAN
09-S-100	CHEMICALS AND UTILITIES FIRE WATER, WELL & POTABLE WATER TANKS FOUNDATION PLAN
09-S-101	CHEMICALS AND UTILITIES ACID STORAGE AREA FOUNDATION PLAN
09-S-102	CHEMICALS AND UTILITIES ALGAE/SOLVENT STORAGE FOUNDATION PLAN
09-S-103	CHEMICALS AND UTILITIES CAUSTIC STORAGE FOUNDATION PLAN
09-S-104	CHEMICALS AND UTILITIES DRY POLYMER BUILDING FOUNDATION PLAN
09-S-105	CHEMICALS AND UTILITIES ALGAE/SOLVENT LOAD/UNLOAD AREA FOUNDATION PLAN
09-S-106	CHEMICALS AND UTILITIES DRY POLYMER TRUCK LOAD/UNLOAD
09-S-107	CHEMICALS AND UTILITIES CAUSTIC TRUCK LOAD/UNLOAD AREA
09-S-108	CHEMICALS AND UTILITIES CHEMICAL STORAGE AREA FOUNDATION PLAN
09-S-109	CHEMICALS AND UTILITIES DRY POLYMER UNLOADING RAMP
09-S-110	CHEMICALS AND UTILITIES TANK AND EQUIPMENT FOUNDATIONS FOUNDATION PLAN
09-S-190	POLYMER BUILDING TANK FOUNDATION PLANS
09-S-300	CHEMICALS AND UTILITIES CONCRETE SECTIONS & DETAILS - SHEET 1
09-S-301	CHEMICALS AND UTILITIES DRY POLYMER UNLOADING DOCK - SECTIONS & DETAILS
10-S-100	BUILDINGS AND STRUCTURES MAINTENANCE & SHOP BUILDING FOUNDATION PLAN
10-S-105	BUILDINGS AND STRUCTURES UTILITY BRIDGE FOUNDATION PLAN - SHEET 1
10-S-111	BUILDINGS AND STRUCTURES UTILITY BRIDGE PLANS & ELEVATIONS - SHEET 1
10-S-112	BUILDINGS AND STRUCTURES UTILITY BRIDGE PLANS & ELEVATIONS - SHEET 2
10-S-113	BUILDINGS AND STRUCTURES UTILITY BRIDGE PLANS & ELEVATIONS - SHEET 3
10-S-114	BUILDINGS AND STRUCTURES UTILITY BRIDGE PLANS & ELEVATIONS - SHEET 4
10-S-115	BUILDINGS AND STRUCTURES UTILITY BRIDGE PLANS & ELEVATIONS - SHEET 5
10-S-117	BUILDINGS AND STRUCTURES UTILITY BRIDGE PLANS & ELEVATIONS - SHEET 7
10-S-118	BUILDINGS AND STRUCTURES UTILITY BRIDGE PLAN - SHEET 8
10-S-119	BUILDINGS AND STRUCTURES UTILITY BRIDGE PLAN - SHEET 9
10-S-300	BUILDINGS & STRUCTURES UTILITY BRIDGE CONCRETE SECTIONS AND DETAILS - SHEET 1
10-S-500	BUILDINGS AND STRUCTURES UTILITY BRIDGE STEEL SECTIONS - SHEET 1
10-S-501	BUILDINGS AND STRUCTURES UTILITY BRIDGE STEEL SECTIONS - SHEET 2

PROCESS FLOW DIAGRAMS	
00-F-100	PROCESS FLOW DIAGRAM IABR BLOCK FLOW DIAGRAM
01-F-210	PROCESS FLOW DIAGRAM INTEGRATED ALGAL BIOREFINERY WATER INTAKE
02-F-220	INOCULATION AND HARVEST RETURN STORAGE POND
02-F-229	LOWER PRODUCTION PONDS 1
02-F-230	LOWER PRODUCTION PONDS 2
02-F-231	LOWER PRODUCTION PONDS 3
02-F-232	LOWER PRODUCTION PONDS 4
02-F-233	LOWER PRODUCTION PONDS 5
02-F-234	LOWER PRODUCTION PONDS 6
02-F-235	LOWER PRODUCTION PONDS 7
02-F-236	LOWER PRODUCTION PONDS 8
02-F-237	LOWER PRODUCTION PONDS 9
02-F-238	LOWER PRODUCTION PONDS 10
02-F-239	LOWER PRODUCTION PONDS 11
03-F-230	DAF 1
03-F-233	SOLIDS DEWATERING
03-F-250	EVAPORATION PONDS
09-F-290	PROCESS FLOW DIAGRAM INTEGRATED ALGAL BIOREFINERY CHEMICAL STORAGE AND DISTRIBUTION
09-F-293	FLOCCULANT STORAGE AND DISTRIBUTION
09-F-294	COAGULANT STORAGE AND DISTRIBUTION

PIPING & INSTRUMENTATION DIAGRAMS	
00-F-001	P&ID LEGEND
00-F-301	P&ID WATER STORAGE & PUMPS
00-F-302	P&ID PROCESS SEWER
01-F-313	P&ID CARBON DIOXIDE STORAGE
01-F-314	P&ID CO2 VAPOR DISTRIBUTION
02-F-320	INOCULATION PONDS
02-F-350	CO2 INJECTION DETAILS
02-F-351	HARVEST RETURN POND
02-F-353	LOWER PRODUCTION PONDS 02-R-0101, 0102, 0103, 0104, 0201, 0202, 0203 & 0204
02-F-354	LOWER PRODUCTION PONDS 02-R-0301, 0302, 0303, 0304, 0401, 0402, 0403 & 0404
02-F-355	LOWER PRODUCTION PONDS 02-R-0501, 0502, 0503, 0504, 0601, 0602, 0603 & 0604
02-F-356	LOWER PRODUCTION PONDS 02-R-0701, 0702, 0703, 0704, 0801, 0802, 0803 & 0804
02-F-357	LOWER PRODUCTION PONDS 02-R-0901, 0902, 0903, 0904, 1001, 1002, 1003 & 1004
02-F-358	LOWER PRODUCTION PONDS 02-R-1101, 1102, 1103, 1104, 1201, 1202, 1203 & 1204
02-F-359	LOWER PRODUCTION PONDS 02-R-1301, 1302, 1303, 1304, 1401, 1402, 1403 & 1404
02-F-360	LOWER PRODUCTION PONDS 02-R-0306, 0308, 0406 & 0408
02-F-361	LOWER PRODUCTION PONDS 02-R-0506, 0508, 0606 & 0608
02-F-362	LOWER PRODUCTION PONDS 02-R-0706, 0708, 0806 & 0808
02-F-363	LOWER PRODUCTION PONDS 02-R-0906, 0908, 1006 & 1008
02-F-364	DAF FEED POND
03-F-324	EVAPORATION PONDS
03-F-330	DAF 1 FEED SYSTEM
03-F-331	DAF 1 FLOTATION TANK
03-F-332	DAF 1 PRESSURIZATION SYSTEM
03-F-333	DAF 1 SUBNATANT RETURN
03-F-345	CENTRIFUGE
03-F-346	CENTRATE BLOWDOWN
03-F-350	FLOCCULANT FEED
03-F-352	COAGULANT DISTRIBUTION
09-F-390	P&ID LIQUID UREA STORAGE & DISTRIBUTION
09-F-391	P&ID PHOSPHORIC ACID STORAGE & DISTRIBUTION
09-F-392	P&ID SOLVENT STORAGE & DISTRIBUTION
09-F-393	P&ID SULFURIC ACID STORAGE & DISTRIBUTION
09-F-395	P&ID SODIUM HYPOCHLORITE STORAGE & DISTRIBUTION
09-F-396	P&ID CAUSTIC STORAGE & DISTRIBUTION
09-F-399	P&ID ALGAE LOAD-OUT
09-F-400	P&ID CHEMICAL UNLOAD
09-F-402	P&ID ALGAE OIL DAY TANKS
09-F-403	P&ID ALGAE OIL STORAGE
09-F-406	P&ID COMPRESSED AIR
09-F-407	P&ID WELL WATER STORAGE & PUMPS
09-F-408	P&ID PROCESS WATER DISTRIBUTION
09-F-410	P&ID POTABLE WATER TREATMENT
09-F-411	P&ID POTABLE WATER DISTRIBUTION
09-F-415	FLOCCULANT DILUTION AND STORAGE
09-F-417	COAGULANT STORAGE AND DISTRIBUTION

(M) MECHANICAL	
00-M-025	NOTES AND SCHEDULES
00-M-026	PIPE SUPPORT DETAILS
00-M-027	PIPE PENETRATION DETAILS
00-M-028	EQUIPMENT MOUNTING DETAILS
00-M-029	PIPE AND STRUCTURAL ATTACHMENTS - 1
00-M-030	PIPE AND STRUCTURAL ATTACHMENTS - 2
00-M-031	PIPE RESTRAINT ATTACHMENTS
02-M-151	INOCULATION PONDS TYPICAL PADDLE WHEEL PLAN, SECTIONS AND MOUNTING DETAILS
02-M-153	PRODUCTION PONDS TYPICAL PADDLE WHEEL PLAN AND SECTIONS
02-M-154	PRODUCTION PONDS TYPICAL PADDLE WHEEL SECTION AND MOUNTING DETAILS
02-M-250	CO2 PRODUCTION & INOCULATION PUMPING, SECTIONS AND TYPICAL CO2 INJECTION
03-M-151	DAF AREA PLAN
03-M-152	DAF PUMPING STATION PLANS
03-M-153	CENTRIFUGE BUILDING PLAN
03-M-154	DAF1 SUBNATANT PUMP STATION PLAN AND SECTION
03-M-251	CENTRIFUGE BUILDING SECTIONS
03-M-252	DAF SECTIONS
03-M-253	DAF PART PLAN, SECTIONS AND DETAILS
09-M-190	POLYMER BUILDING PLAN
09-M-191	POLYMER BUILDING PART PLAN
09-M-250	FLOCCULANT TANKS - SECTIONS
09-M-251	POLYMER BUILDING SECTIONS
09-M-501	CHEMICALS AND UTILITIES TANK DATA SHEET NITRIC ACID STORAGE TANK (09-T-9000A)
09-M-503	CHEMICALS AND UTILITIES TANK DATA SHEET SOLVENT STORAGE TANK (09-T-9020)
09-M-504	CHEMICALS AND UTILITIES TANK DATA SHEET ALGAE OIL STORAGE TANK (09-T-9060A)
09-M-506	CHEMICALS AND UTILITIES TANK DATA SHEET ALGAE OIL DAY TANK 1 (09-T-9065A)
09-M-507	CHEMICALS AND UTILITIES TANK DATA SHEET ALGAE OIL DAY TANK 2 (09-T-9065B)
09-M-508	CHEMICALS AND UTILITIES TANK DATA SHEET SULFURIC ACID STORAGE TANK 1 (09-T-9050A)
09-M-510	CHEMICALS AND UTILITIES TANK DATA SHEET PHOSPHORIC ACID STORAGE TANK 1 (09-T-9010A)
09-M-512	CHEMICALS AND UTILITIES TANK DATA SHEET WELL WATER TANK (09-T-9110)
09-M-513	CHEMICALS AND UTILITIES TANK DATA SHEET FIRE WATER TANK (00-T-9210)
09-M-516	CHEMICALS AND UTILITIES TANK DATA SHEET SODIUM HYPOCHLORITE TANK 1 (09-T-9106A)
09-M-518	CHEMICALS AND UTILITIES TANK DATA SHEET CAUSTIC STORAGE TANK 1 (09-T-9090A)
09-M-520	CHEMICALS AND UTILITIES TANK DATA SHEET LIQUID UREA STORAGE TANK 1 (09-T-9000A)

CONTAINS PROPRIETARY INFORMATION OF SAPPHIRE ENERGY, INC. ACCESS LIMITED TO NEED TO KNOW. UNAUTHORIZED REPRODUCTION PROHIBITED.

PRELIMINARY- NOT FOR CONSTRUCTION

Reference Drawings			Revisions				Revisions				<div><div>Sapphire</div><div>Energy</div></div> <div>SAPPHIRE ENERGY SAN DIEGO CALIFORNIA</div>	<div><div>Harris Group Inc.</div><div>Engineering for Optimum Performance®</div><div>www.harrisgroup.com</div></div> <div>Subconsultant: Drawn: SKK Engr: MDB Appr:</div> <div>Check: GLS Check: PMgr: RSM</div>	PLANT GENERAL DRAWING INDEX SHEET 1	
Drawing No	Title	Rev	Date	By	Description	Rev	Date	By	Description	IABR Columbus, NM.				
		A	04/06/11	MDB	ISSUED FOR BID PHASE 1A					Project No: 30070.00			Rev: <div>C</div>	
		B	04/20/11	MDB	ADDED C-005, C-113B, C-118, & FLOW DIAGRAMS; REVISED DWG TITLES					Drawing: 00-G-003				
		C	09/16/11	MDB	ADDED C-119, C-120, C-200, C-201, C-202, 02-C-300, S-100, S-108, S-109, S-110, S-301, F-302, M-520; REMOVED C-113B, S-101, F-240, F-214, F-242, F-292; REVISED DRAWING TITLES									
										Rev	Date	App'd	Client Approval Milestone	