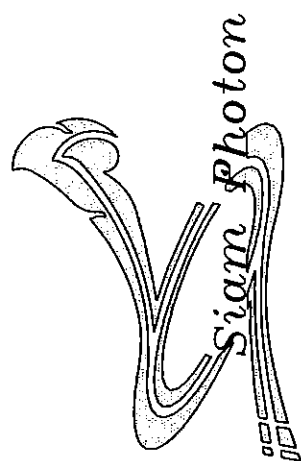




โครงการปรับปรุงระบบน้ำหล่อเย็นและเปลี่ยนเครื่องทำน้ำเย็น อาคารปฏิบัติการแสงสยาม

๒๕๖๒



MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT
111 WATSAI AVE. NAKHON RATCHASIMA, 30002
TEL. 04-41 217 000 FAX. 04-41 217 001
EMAIL: minnat@minnat.go.th

PROJECT
CHILLER REPLACEMENT AND
IMPROVING COOLING WATER SYSTEM
OF SPS PAPER MILL

ARE CONDITION/COOLING WATER SYSTEM

ABBREVIATION	DESCRIPTION
AHU	AIR HANDLING UNIT
FCU	FAN COIL UNIT
CHP	COOLING WATER PUMP
CWS	COOLING WATER SUPPLY
CWR	COOLING WATER RETURN
CH	CHILLER
CHR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
CHP	CHILLED WATER PUMP
CWP	CONDENSER WATER PUMP
COS	CONDENSER WATER SUPPLY
COR	CONDENSER WATER RETURN
CT	COOLING TOWER
CS	AIR SEPARATOR
CTWP	COOLING TOWER WATER PUMP
CWS	COOLING TOWER WATER SUPPLY
CWR	COOLING TOWER WATER RETURN
PWP	PURIFIED WATER PUMP
PWS	PURIFIED WATER SUPPLY
PWR	PURIFIED WATER RETURN
HE	HEAT EXCHANGER
STR	STORAGE TANK
RT	REFRIGERATION TONS

PIPE FILLING SYMBOLS

SYMBOLS	DESCRIPTION
	ELBOW, 45°
	ELBOW, 90°
	LATERAL
	REDUCER, CONCENTRIC
	TEE, OUTLET UP
	TEE, OUTLET DOWN
	TEE, SIDE OUTLET, OUTLET UP
	TEE, SIDE OUTLET, OUTLET DOWN
	TEE, SINGLE SWEEP
	UNION, FLANGED
	UNION, INTERMEDIATE
	EXPANSION JOINT
	ANCHOR, INTERMEDIATE
	THERMOMETER WELL ONLY CAP
	Y-BRANCH
	HOSE END DRAIN
	CONNECTION, BOTTOM
	CONNECTION, TOP
	ELBOW TURNED UP
	ELBOW TURNED DOWN
	VALVE IN PIPE

DRAWING LIST

DWG. NO.	DESCRIPTION
M-0-1	DRAWING LIST ABBREVIATION AND SYMBOLS
M-0-2	OLD PLAN DETAIL OF CHILLER ROOM
M-0-3	NEW PLAN LAYOUT OFF CHILLER ROOM
M-0-4	PLANT LAYOUT FOR TO INSTALL BUFFER TANK AND CMP-1,2 PUMP
M-0-5	LAYOUT OF ROOF STRUCTURE AND LIGHTING
M-0-6	OLD PLAN LAYOUT OF PUMP ROOM
M-0-7	NEW PLAN LAYOUT OF PUMP ROOM
M-0-8	ONE LINE DIAGRAM FOR IMPROVEMENT OF SPS COOLING WATER SYSTEM
M-0-9	ELECTRICAL SYSTEM
M-1-0	IMPROVING THE CONCEPTUAL DESIGN OF SPS COOLING WATER SYSTEM

ELECTRICAL SYSTEM

ABBREVIATION	DESCRIPTION
AT	AUTOMATIC TRIP
AF	AIRPARE FRAME
PCM	POWER QUALITY METER
LAB	MAIN DISTRIBUTION BOARD
DB	DISTRIBUTION BOARD
PB	PANEL BOARD
LP	LOAD PANEL
CT	CURRENT TRANSFORMER
IC	INTERLOCKING CAPACITY
IMR	INTERLOCK

PIPING, VALVES AND PUMPS

SYMBOLS	DESCRIPTION
	AUTOMATIC AIR VENT
	BUTTERFLY VALVE
	BELLOWS TYPE FLEXIBLE PIPE CONNECTOR
	MOTORIZED 3-WAY CONTROL VALVE
	STRAINER
	CHECK VALVE

CONTROL AND INSTRUMENTATION

SYMBOLS	DESCRIPTION
	DIFFERENTIAL PRESSURE CONTROLLER
	FLOW METER
	FLOW SWITCH
	PRESSURE GAUGE WITH COCK
	PRESSURE SENSOR
	THERMOMETER
	TEMPERATURE SENSOR/THERMOSTAT/RTD SENSOR
	CONTROL SET THERMOSTAT 3 SPEED ON-OFF SWITCH
	TEMPERATURE CONTROLLER

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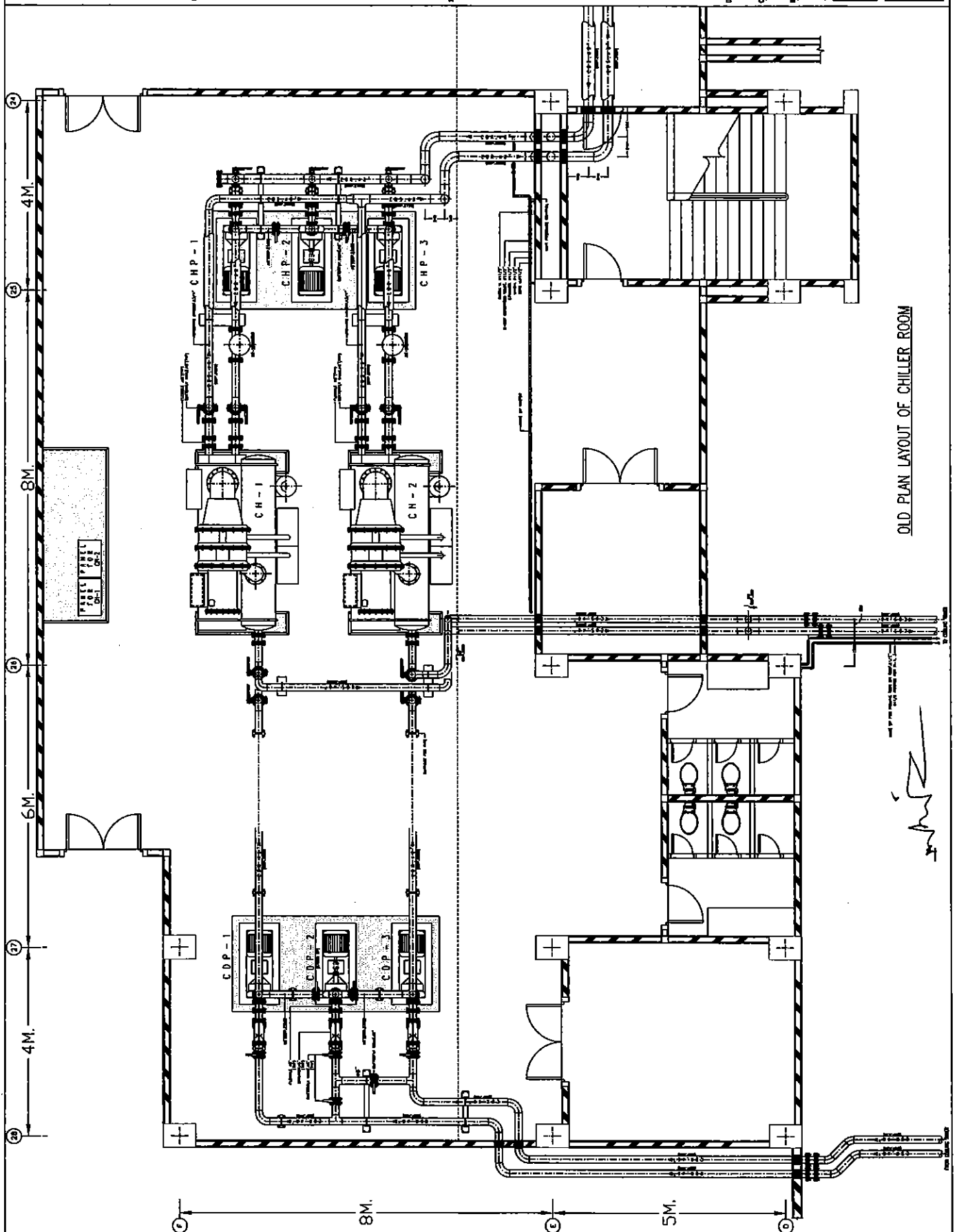
SIAM PHOTON LIGHT RESEARCH INSTITUTE
(PUBLIC CORPORATION)
111 UNIVERSITY AVENUE, BANGKOK DISTRICT,
BANGKOK 10130, THAILAND
TEL. 02-611-7111 FAX. 02-611-7171
E-MAIL: SIA@SIAMPHOTON.CO.TH

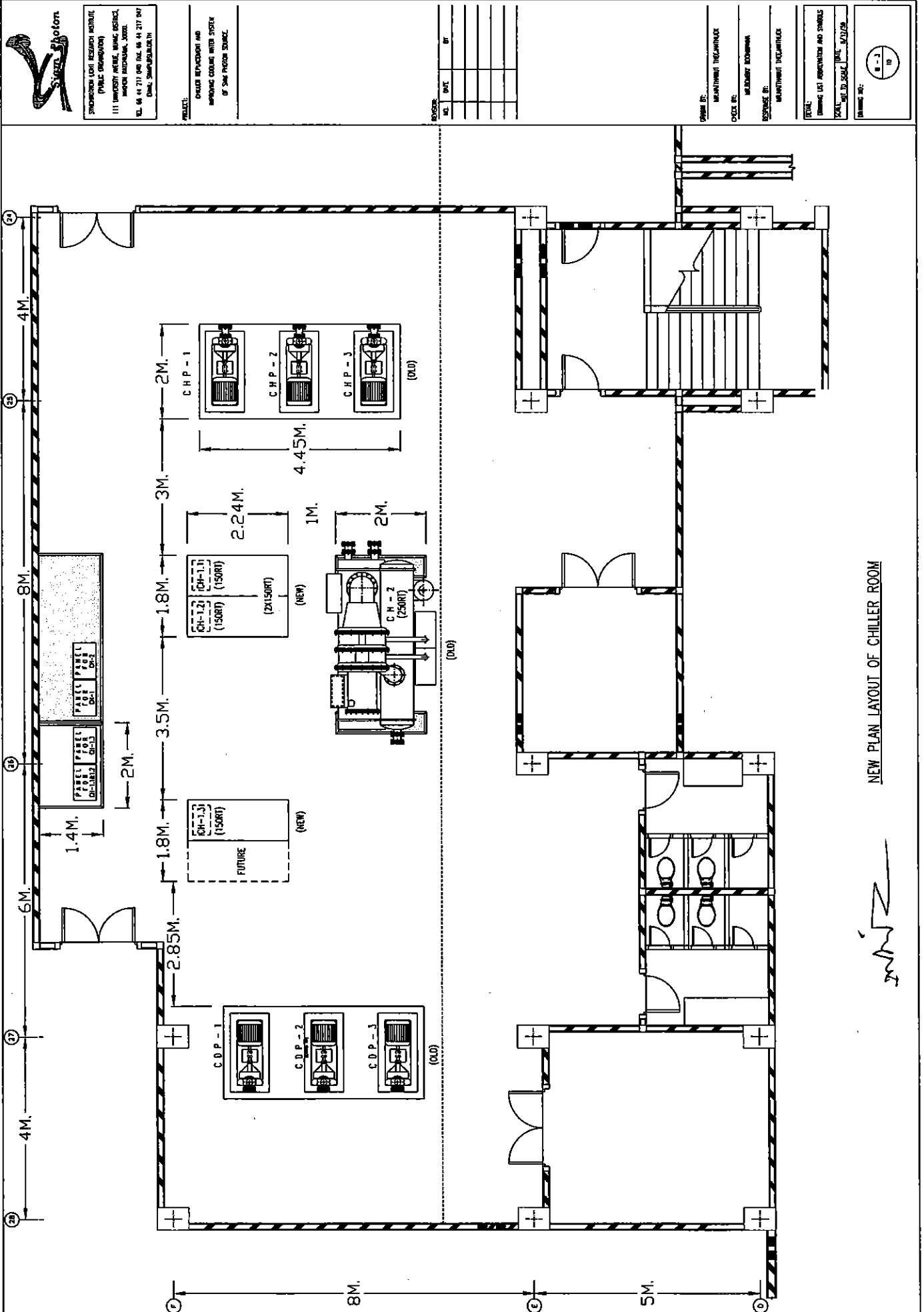
PROJECT:
CHILLER REPLACEMENT AND
IMPROVING COOLING WATER SYSTEM
OF SIAM PHOTON SOURCE

NO.	DATE	BY

DESIGN BY:
ARCHITECTURAL INSULATION
CHECK BY:
MECHANICAL ENGINEER
REVISION BY:
ARCHITECTURAL INSULATION

SCALE:
DRAWING LIST, SPECIFICATION AND SYMBOLS
DATE: 10/10/2554
DRAWING NO.: 4-2







SIAM PHOTON
(PUBLIC COMPANY)
111 UNIVERSITY AVENUE, SUITE 1202,
SINGAPORE 119270, SINGAPORE
TEL: 65 43 717 400 FAX: 65 43 717 401
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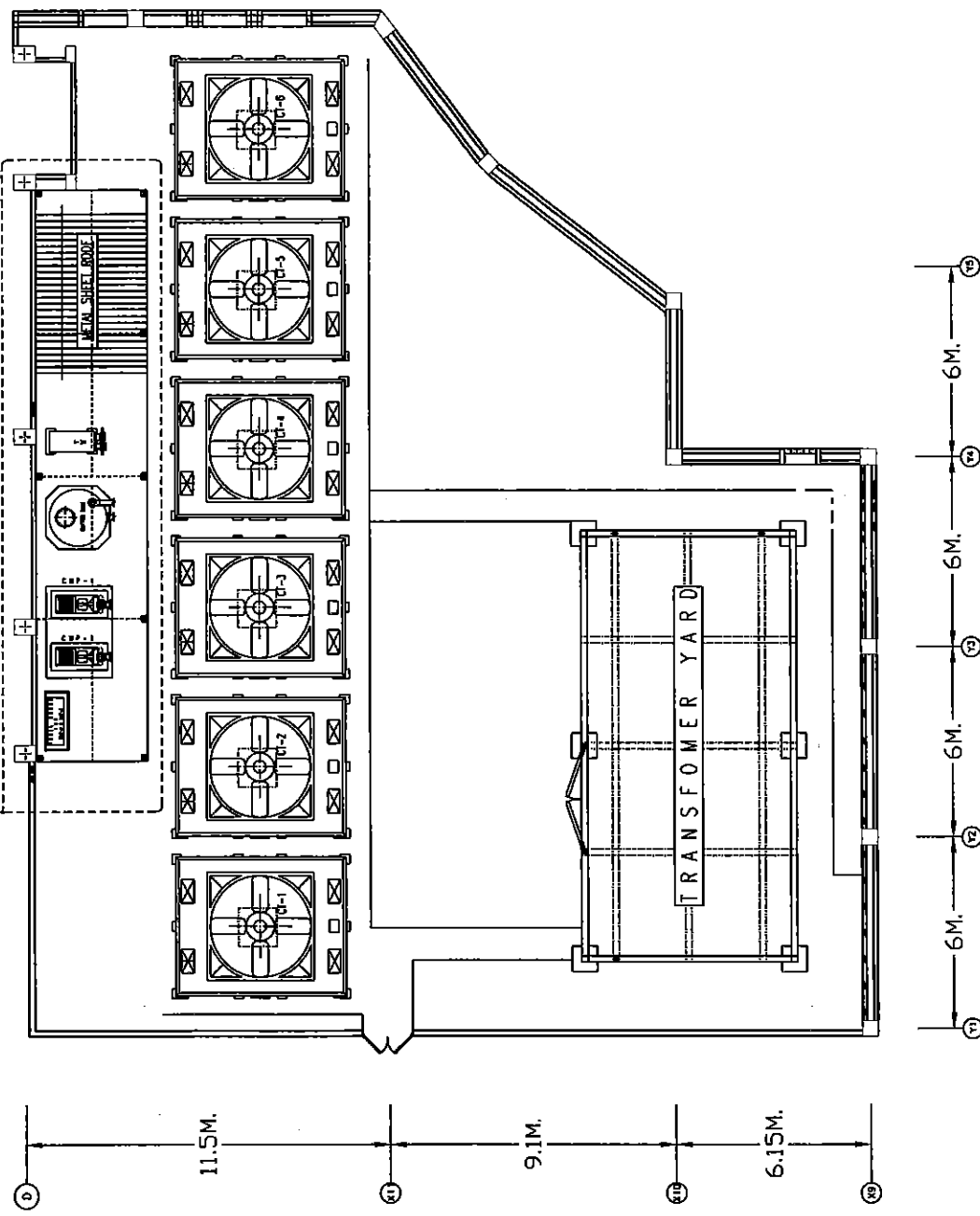
PROJECT:
CHANG HUPAHOON AND
SINGAPORE CHINESE MEDICAL
OF SINGAPORE DISTRICT

NO.	DATE	BY

DESIGN BY:
SIAM PHOTON PROJECT
CHECK BY:
SIAM PHOTON PROJECT
APPROVED BY:
SIAM PHOTON PROJECT

SCALE:
Drawing is for reference and symbols
DATE: 12/07/2016
DRAWN BY: 12/07/2016
CHECKED BY: 12/07/2016

SEE ADDITIONAL DETAIL A-A



PLANT LAYOUT FOR TO INSTALL BUFFER TANK AND CWP-1.2 PUMP



STATIONARY LIGHT REDUCION SYSTEM
(PANEL ORIGINATOR)
111 UNIVERSITY AVENUE, 11th FLOOR, SUITE 1101,
UNIVERSITY MICROFILMS, 300 N. ZEEB RD., ANN ARBOR, MI 48106-1500
TEL: 86 41 217 040 FAX: 86 41 217 040
EMAIL: SHOLOM@SUZEX.COM

PROJECT:

CHILD RENOVATION AND
IMPROVING COOLING WATER SYSTEM
OF SUEZ POWER SOURCE

REVISION:

NO.	DATE	BY

DESIGN BY:

SHOLOM ENGINEERING

CHECK BY:

SHOLOM ENGINEERING

APPROVED BY:

SHOLOM ENGINEERING

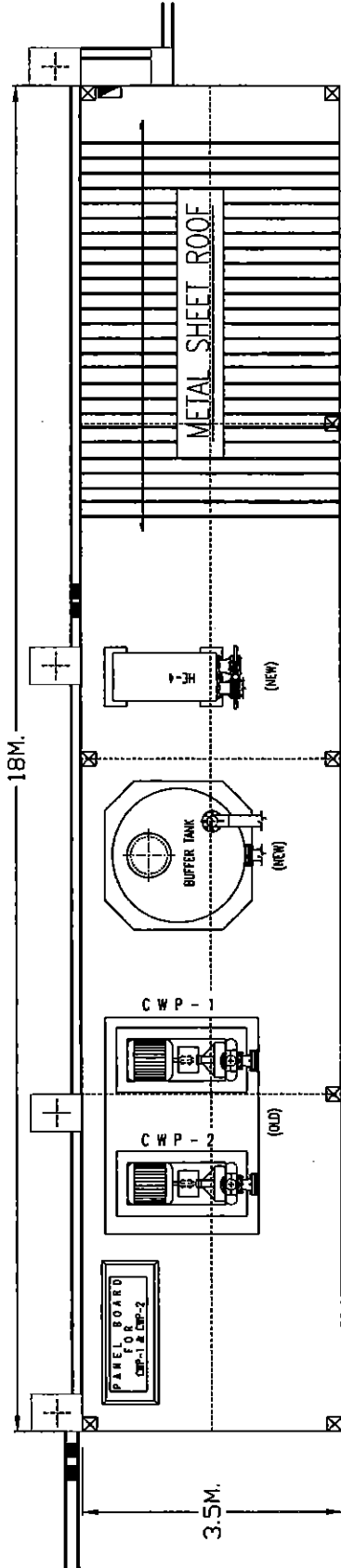
SCALE:

1:1 (ORIGINAL SIZE)

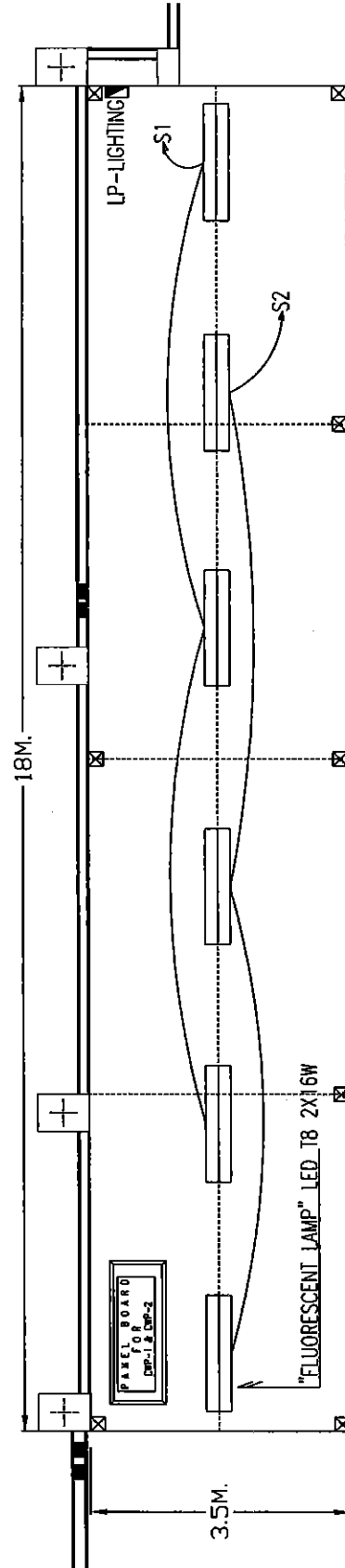
DATE:

20/12/20

PROJECT NO.:



HOT-DIP GALVANIZED STEEL STRUCTURE



DETAIL A-A

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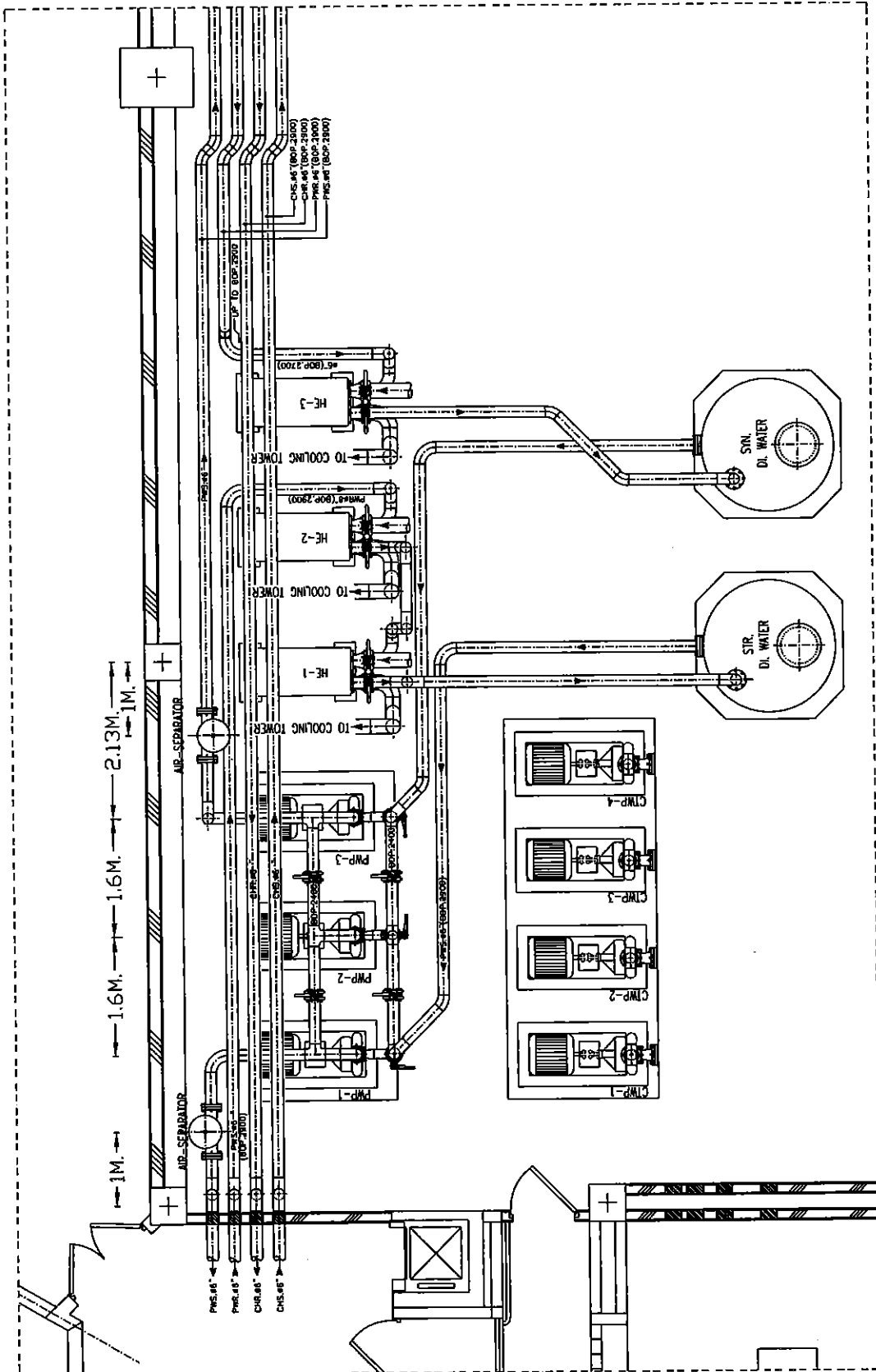
SPERMATOPHYTES RESEARCH INSTITUTE
(PUBLIC ORGANIZATION)
111 UNIVERSITY AVENUE, MUMBAI DISTRICT,
MUMBAI 400 006, 30000.
TEL. 66 44 217 040 FAX. 66 44 217 047
E-MAIL: SPERMATOPHYTES@MUMBAI.INDIA

SOURCE OF THE INFORMATION

[illegible]

OPERA 87.	MAINTENANCE THEATRICAL
CHICK 11.	MAINTENANCE THEATRICAL
ROCKWELL 82.	MAINTENANCE THEATRICAL

TOTAL: CHINESE LIST ASSOCIATION AND SYMBOLS	DATE: 4/12/78 VOL. TO SENT:	
PENDING MR.:		



OLD PLAN LAYOUT OF PUMP ROOM



PROPOSED FOR RESEARCH AND
PUBLIC INFORMATION
111 IMPROVEMENT, MAING DISTRICT,
BANGKOK METROPOLIS, 10000
TEL. 02-217 840 FAX. 02-217 841
WWW.SIAMPUMP.COM

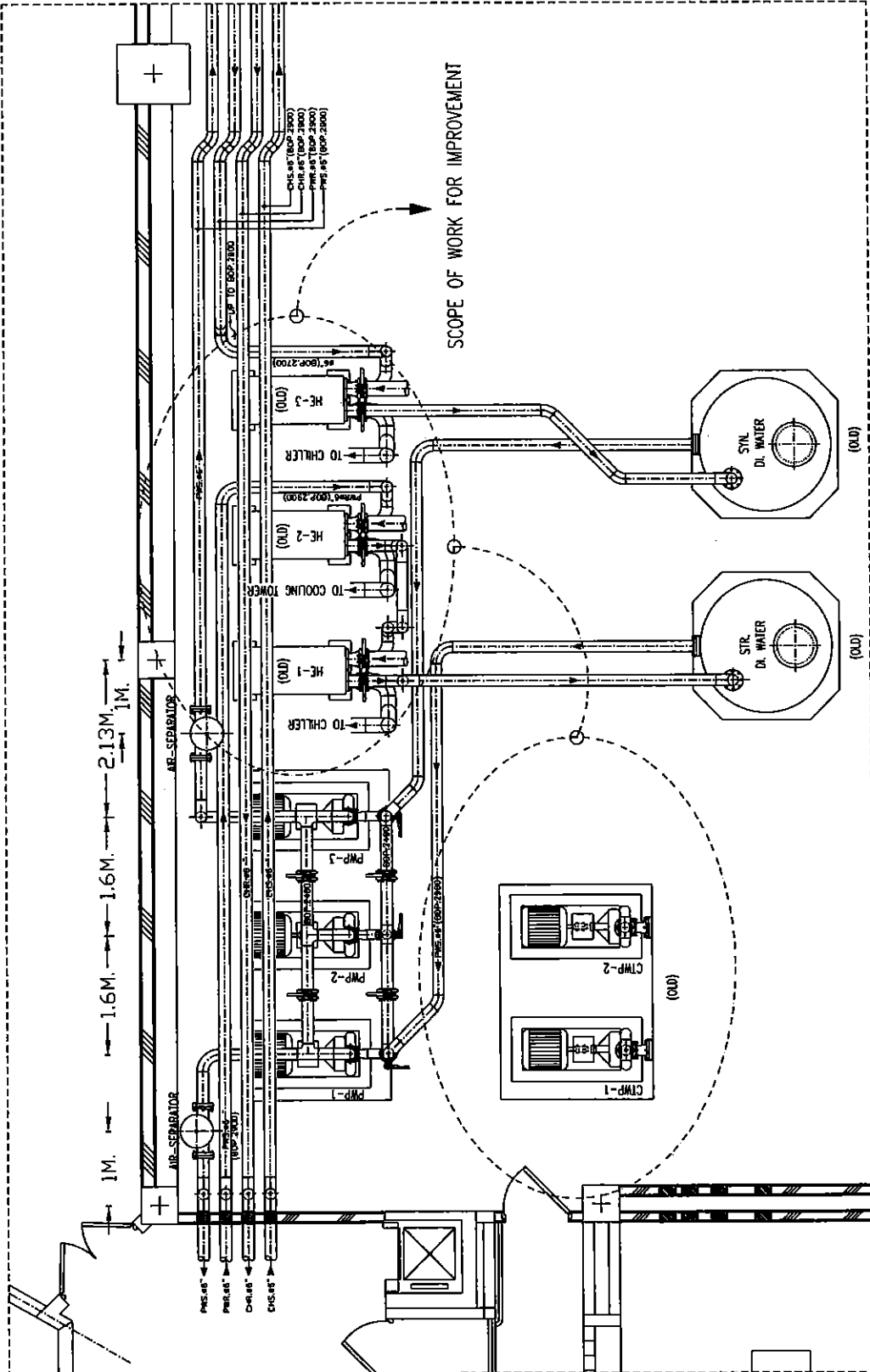
PROJECT:
CHILLER REPLACEMENT AND
IMPROVING COOLING WATER SYSTEM
OF SIAI PUMP STATION

NO.	DATE	BY

DESIGN BY:
MAINTENANCE TEAM/MAINTENANCE
CHECK BY:
MAINTENANCE TEAM/MAINTENANCE
RESPONSE BY:
MAINTENANCE TEAM/MAINTENANCE

REVISION:
CHANGES FOR ADDITIONAL AND SYMBOLS
SCALE: 1:100 DATE: 2/1/20

PROJECT NO.:
10



NEW PLAN LAYOUT OF PUMP ROOM

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SYNCHROTRON UNIT REPAIRING MATERIAL
(PRICE ESTIMATION)
111 UNIVERSITY AVENUE, BANGKOK, THAILAND
BANGKOK 10130, THAILAND
TEL. 02-277 2101 (Ext. 2101) FAX. 02-277 2101
E-MAIL: SIAUPHOTO@GMAIL.COM

PROJECT:
CHILLER REPLACEMENT AND
IMPROVING COOLING WATER SYSTEM
OF SIAM PHOTON SOURCE

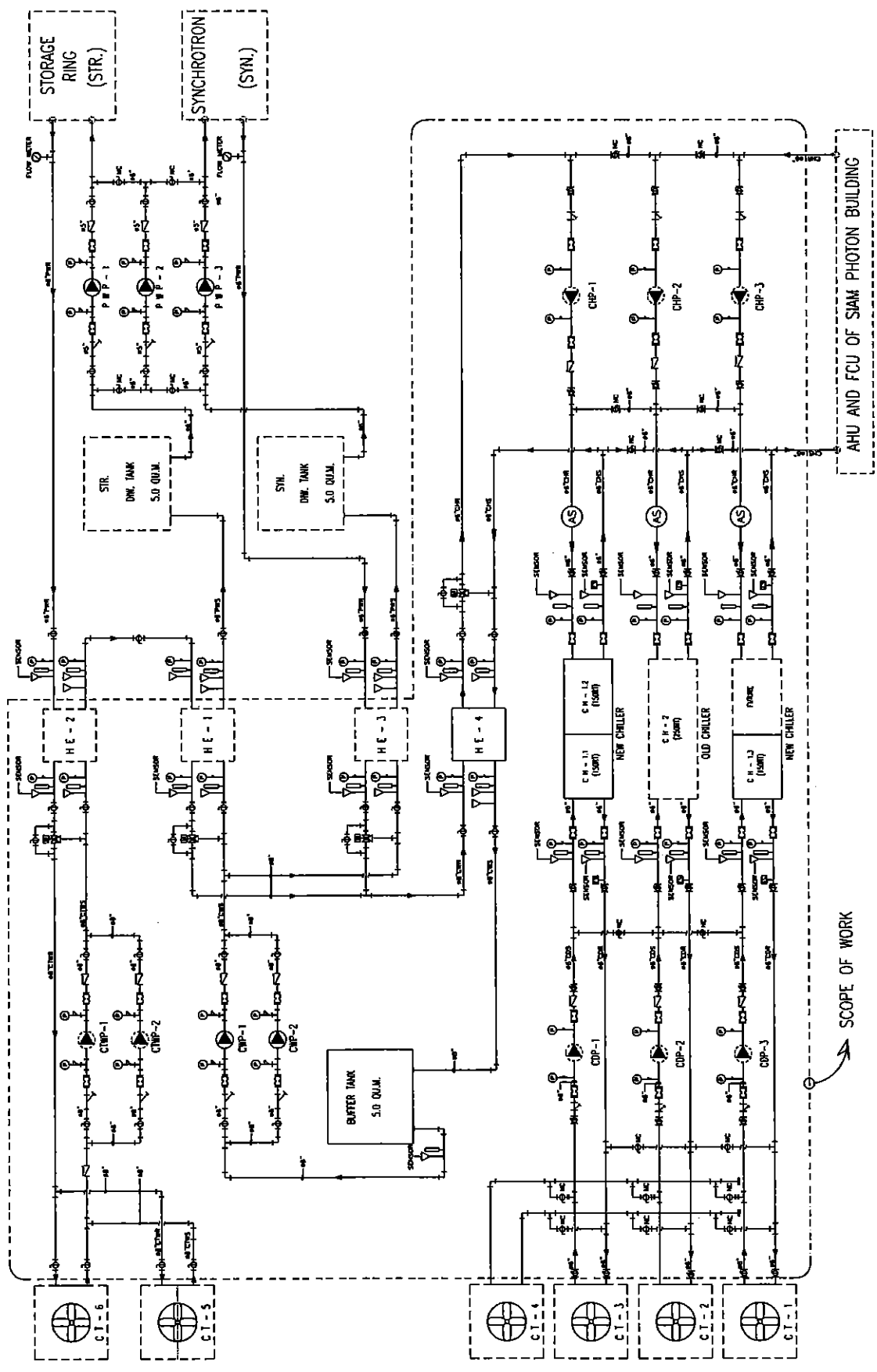
NO.	DATE	BY

DESIGN BY:
SIAUPHOTO ENGINEERING

CHECK BY:
SIAUPHOTO ENGINEERING

APPROVE BY:
SIAUPHOTO ENGINEERING

REVISION	REVISION NO.	REVISION DATE



Signature

ONE LINE DIAGRAM FOR IMPROVEMENT OF COOLING WATER SYSTEM OF SIAM PHOTON SOURCE



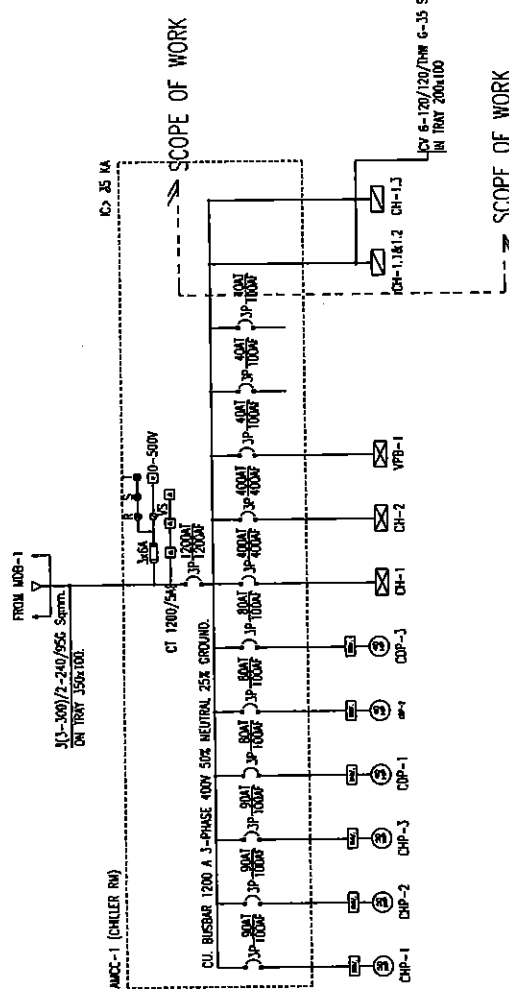
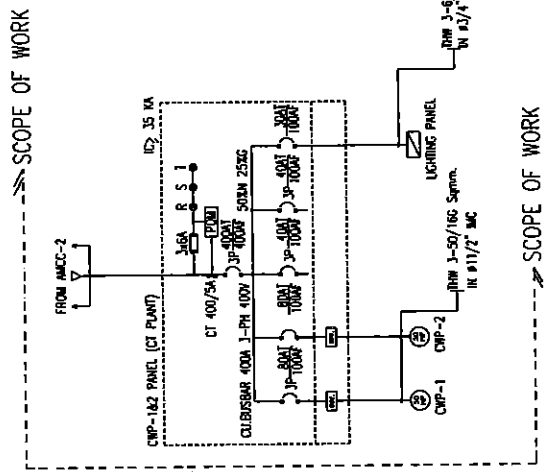
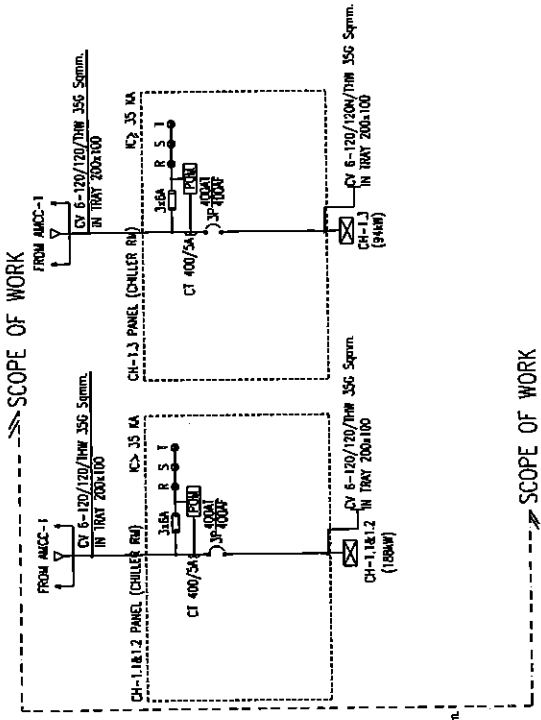
SYNCHRONOUS LIGHT RESEARCH INSTITUTE
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111 IMPROVEMENT AVENUE, BANGKOK, THAILAND 10260
TEL. 02-141-217 FAX 02-141-44-217 (40)
E-MAIL: SPPH@SPPH.COM

PROJECT:
CHILLER REPLACEMENT AND
IMPROVING COOLING WATER SYSTEM
OF SPPH PROJECT SOURCE

REVISION:
NO. DATE BY

DESIGNED BY:
CHECKED BY:
APPROVED BY:
DATE: 11/11/2558

SCALE: 1:100
DATE: 11/11/2558
DRAWN BY:
CHECKED BY:
APPROVED BY:
DATE: 11/11/2558





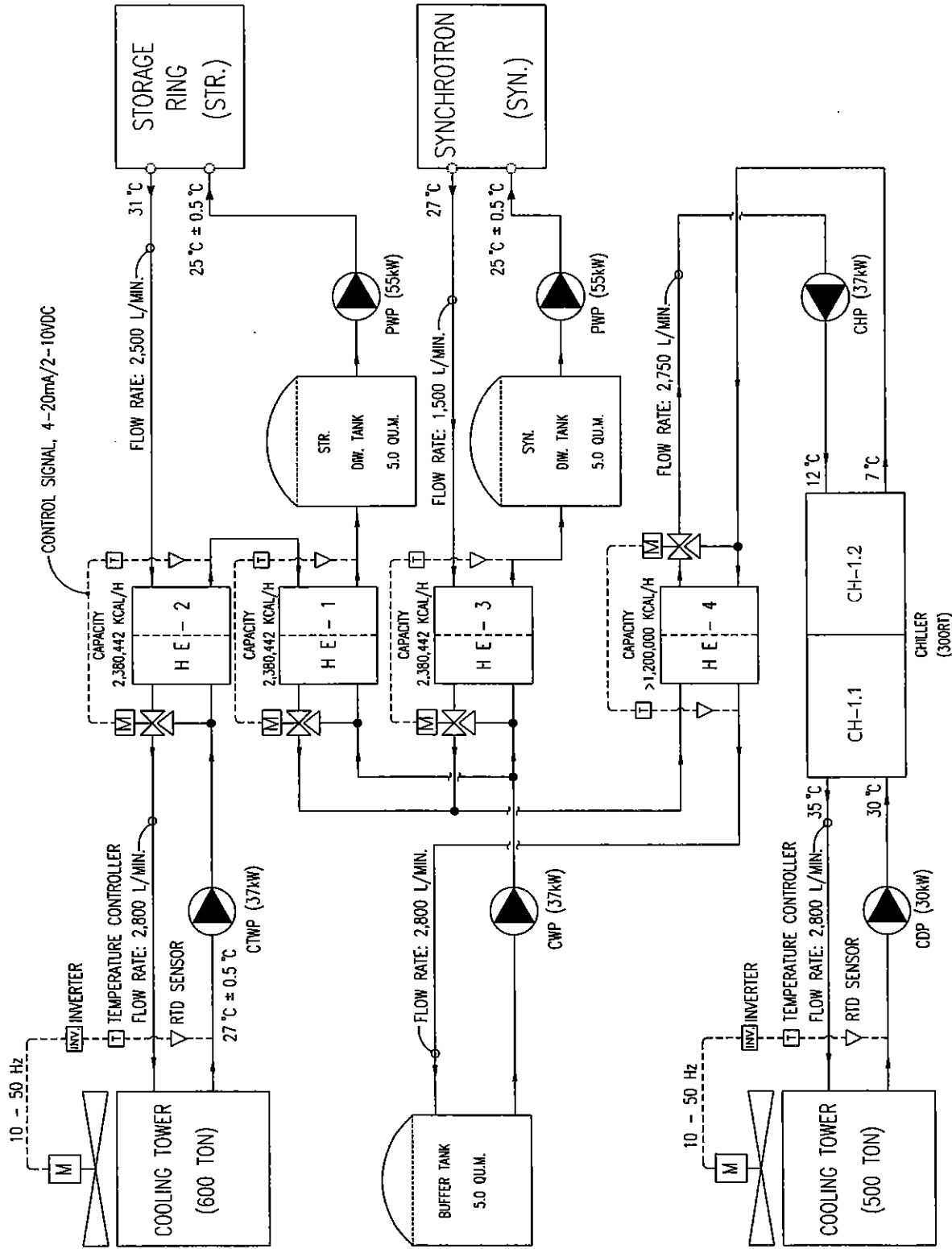
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(PACIFIC ORIENTAL)
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TAIPEI, TAIWAN 106, REPUBLIC OF CHINA
TEL. 86 41 270 000 FAX 86 41 270 001
E-MAIL: SHANGHAI@SHANGHAI.IN

PROJECT:
CHILLER REPLACEMENT AND
IMPROVED COOLING WATER SYSTEM
OF SPS PROJECT SOURCE.

REVISION	NO.	DATE	BY

DESIGN NO.:
DESIGN TITLE:
DESIGNER:
DESIGN DATE:
DESIGN SCALE:

REVISION NO.:
REVISION DATE:
REVISION SCALE:
REVISION BY:



IMPROVING THE CONCEPTUAL DESIGN OF SPS COOLING WATER SYSTEM.

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