

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY



REPLACEMENT OF CHILLERS AND COOLING TOWERS AT THREE METRO-RAIL STATIONS

CWPE05 - GEORGIA AVE-PETWORTH
CWPB11 - GLENMONT
CWPC03 - FARRAGUT WEST

CONTRACT NO. FQ17162
FINAL
MAY 2017



Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 41715, Expiration Date: 2018-03-08

VOLUME 2-WMATA STANDARD AND IFB DRAWINGS

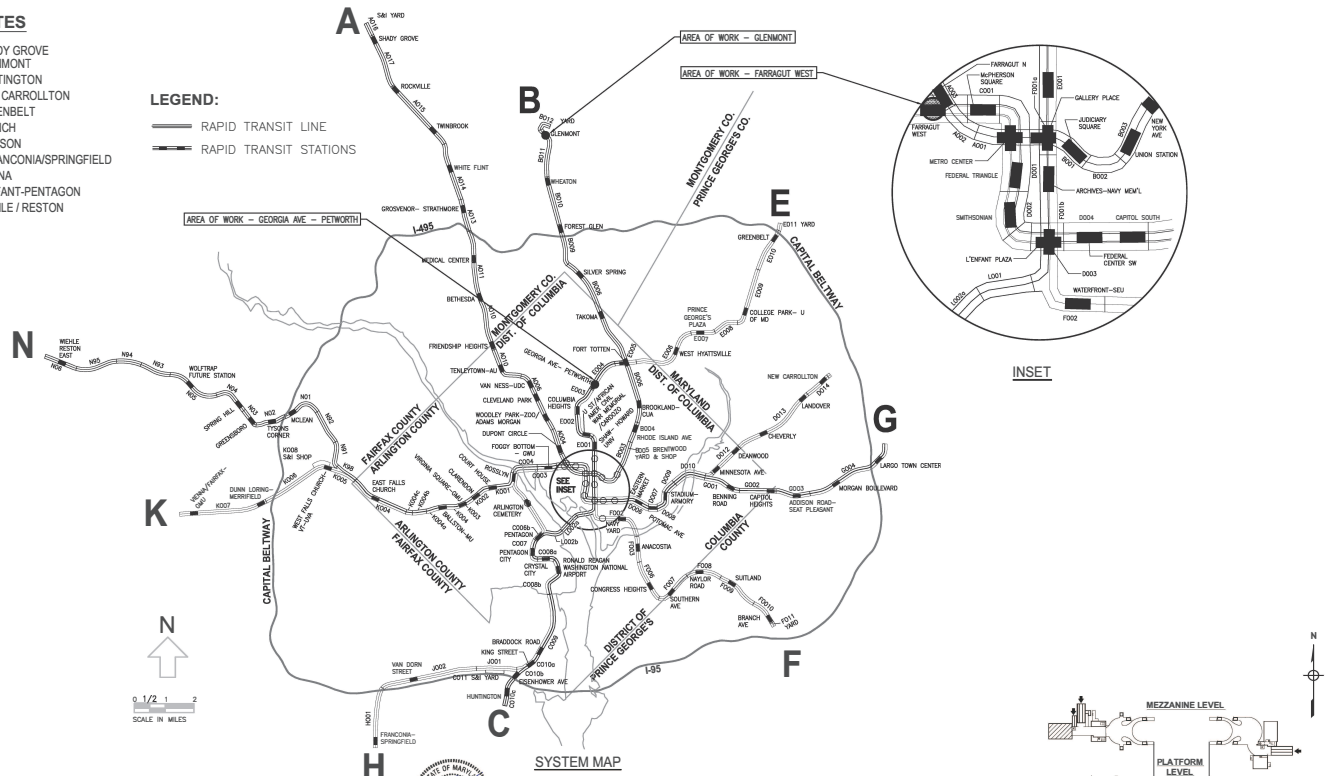
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ROUTES

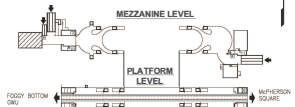
- A - SHADY GROVE
- B - GLENMONT
- C - HUNTINGTON
- D - NEW CARROLLTON
- E - GREENBELT
- F - BRANCH
- G - ADDISON
- HJ - FRANCONIA/SPRINGFIELD
- K - VIENNA
- L - L'ENFANT-PENTAGON
- N - WIEHLE / RESTON

LEGEND:

- RAPID TRANSIT LINE
- RAPID TRANSIT STATIONS



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DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
B. YEMNATHAN	05/17				
DRAWN	A. PANKOSKI				
CHECKED	R. SILVA				
APPROVED	R. SILVA				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED: *[Signature]*

Submitted: *[Signature]*
 PROJECT MANAGER

REPLACEMENT OF CHILLERS AND COOLING TOWERS AT THREE METRO-RAIL STATIONS

WMATA SYSTEM MAP

CONTRACT NO. **FQ17162**

SCALE: AS NOTED

DRAWING NO. **G-001**

M1299-001

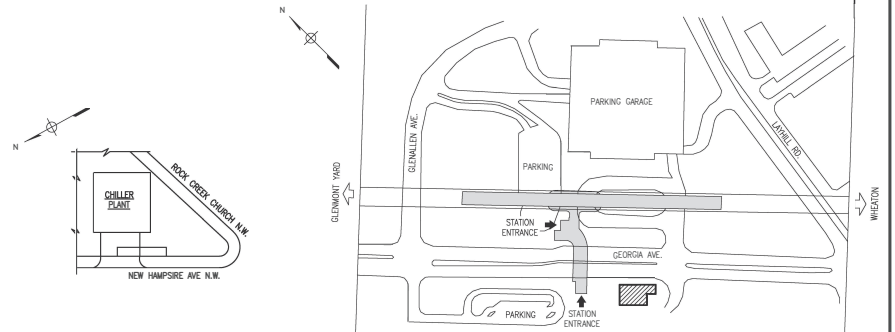
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ST-M-100 TO ST-M-106	-	WMAIA CHILLER PLANT - WATER TREATMENT SYSTEM CONTROL PANEL DRAWINGS

FOR REFERENCE ONLY

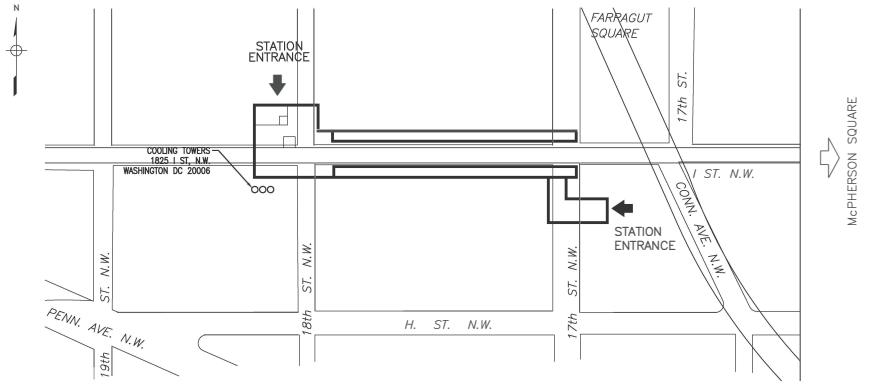
ST-M-141
ST-M-100 TO ST-M-106

TYPICAL INSTALLATIONS OF HEATING TAPE FOR PPRG
WMAIA CHILLER PLANT - WATER TREATMENT SYSTEM CONTROL PANEL DRAWINGS



CMPE05 - GEORGIA AVE - PETWORTH
NEW HAMPSHIRE AVE & ROCK CREEK CHURCH ROAD, N.W. WASHINGTON, DC

CMPE11 - GLENMONT
12501 GEORGIA AVENUE, WHEATON-GLENMONT, MD



CMPC03 - FARRAGUT WEST
800 18th St N.W., Washington, DC 20006



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VICINITY MAPS

CONTRACT NO.
FQ17162

DESIGNED	B. VIGNANTON	05/17
DRAWN	A. FRANKO	05/17
CHECKED	J. SILVA	05/17
APPROVED	R. SILVA	05/17

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	DESCRIPTION



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED: *Mark H. Kappan*

GFP A GARRETT FLEMING/PARSONS JOINT VENTURE
SUBMITTED: *GFP*
PROJECT MANAGER

REPLACEMENT OF CHILLERS AND COOLING TOWERS AT THREE METRO-RAIL STATIONS

INDEX OF DRAWINGS AND VICINITY MAP

SCALE: NOT TO SCALE

DRAWING NO.: **G-002**

M1299-002

GENERAL NOTES - NEW CONSTRUCTION

- A. THE DRAWINGS ARE DIAGRAMATIC AND INDICATE THE GENERAL ARRANGEMENT OF WORK INCLUDED IN THE PROJECT. DO NOT SCALE THE DRAWINGS. THE CONTRACTOR SHALL ESTABLISH FINAL DIMENSIONS FROM THE FIELD MEASUREMENTS PRIOR TO STARTING WORK.
- B. THE WORD "PROVIDE" AS USED IN THE PROJECT SHALL BE DEFINED AS "FURNISH AND INSTALL."
- C. MECHANICAL EQUIPMENT AND PRODUCTS SHALL BE LISTED AND/OR LABELED BY AN APPROVED TESTING OR INSPECTION AGENCY IN ACCORDANCE WITH CODE REQUIREMENTS.
- D. EQUIPMENT AND PRODUCT MANUFACTURERS RECOMMENDATIONS AND INSTRUCTIONS FOR INSTALLATION AND OPERATION SHALL BE FOLLOWED IN PERFORMING WORK.
- E. ALL EQUIPMENT, DUCTWORK, DAMPERS, AND ACCESSORIES SERVING EQUIPMENT SHALL BE INSTALLED TO ALLOW SERVICING AND/OR REMOVAL WITHOUT DISCONNECTING OTHER DUCTWORK, PIPING AND ACCESSORIES.
- F. ALL EQUIPMENT AND PIPING SHALL BE PROPERLY IDENTIFIED IN ACCORDANCE WITH WHMATA SPECIFICATION 15075.
- G. NEW MECHANICAL WORK SHALL BE EXTENDED AND CONNECTED TO EXISTING SYSTEMS AS INDICATED. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS FOR POINTS OF CONNECTION, CAPACITIES AND ELEVATIONS OF EXISTING SYSTEMS, IN ALL AREAS AFFECTED BY THE PROJECT. CUT, PATCH, REPAIR, AND/OR REPLACE ALL MATERIALS REQUIRED TO INCORPORATE WORK.
- H. CONTRACTOR SHALL PROVIDE ALL NECESSARY FOUNDATIONS, SUPPORTS, PADS AND BASES REQUIRED FOR MECHANICAL EQUIPMENT AND DUCTS. INSTALL EQUIPMENT AND DUCTWORK SO AS TO BE FREE FROM OBJECTIONABLE NOISE AND VIBRATION.
- I. STRUCTURAL COMPONENTS OF THE BUILDING AND EQUIPMENT SUPPORT SHALL NOT BE CUT, DRILLED, OR MODIFIED IN ANY WAY WITHOUT THE STRUCTURAL ENGINEER'S REVIEW AND PRIOR APPROVAL.
- J. FINISHES DAMAGED AS A RESULT OF NEW WORK SHALL BE REPAIRED TO MATCH APPROPRIATE ADJACENT FINISHES. FILL VOIDS AROUND DUCTWORK PENETRATING WALLS/CEILING WITH FIRE STOPPING MATERIAL (FIRE CAULKING SEALANT THERMAFIBER OR APPROVED EQUAL).
- K. MECHANICAL WORK SHALL BE COORDINATED WITH THE WORK OF ALL OTHER TRADES PRIOR TO INSTALLATION TO AVOID CONFLICTS AND ALLOCATE SPACE REQUIREMENTS.
- L. UNLESS OTHERWISE INDICATED OR DIRECTED, MATERIALS AND METHODS USED IN THE WORK SHALL BE COMPATIBLE WITH EXISTING BUILDING CONDITIONS AND COMPLY WITH CODE REQUIREMENTS.
- M. ALL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER BY SKILLED WORKMEN EXPERIENCED IN THEIR TRADE. THE WORK SHALL BE SUBJECT TO THE ACCEPTANCE OF THE AR.
- N. PROVIDE GALVANIZED DUCT HARDWARE FOR DUCT SUPPORTS. ANY ATTACHMENTS TO CONCRETE STRUCTURE SHALL BE STAINLESS STEEL.
- O. IN CASE OF ANY DISCREPANCY WITHIN THE DRAWINGS AND/OR SPECIFICATIONS THE MOST STRINGENT REQUIREMENT SHALL APPLY. CONTRACTOR SHALL CONFIRM WITH THE OWNER/ENGINEER FOR EXACT REQUIREMENT.
- P. CONTRACTOR SHALL FIELD COORDINATE TO PROVIDE DEMOLITION AND NEW WORK REQUIRED FOR A COMPLETE SYSTEM (EQUIPMENT, PIPING, DUCTWORK, CONTROLS, ETC.) INSTALLATION AS ACCEPTABLE TO THE ENGINEER/OWNER. EXTENT OF DEMOLITION/NEW WORK SHOWN ON DRAWINGS ARE APPROXIMATE.
- Q. PROVIDE VOLUME DAMPERS AT ALL AIR TERMINALS, BRANCH DUCTWORKS REGARDLESS OF WHETHER SHOWN ON DRAWINGS.
- R. ALL VALVES MAY NOT BE SHOWN ON THE PLANS FOR CLARITY. REFER TO FLOW DIAGRAMS FOR VALVE REQUIREMENTS. INSTALL SYSTEMS AND PROVIDE ISOLATION VALVES AS REQUIRED PER THE MANUFACTURER'S RECOMMENDATIONS.
- S. FOR COOLING TOWERS LOCATED ON TOP OF OTHER NON-WHATA COMMERCIAL BUILDINGS, CONTRACTOR SHALL COORDINATE ALL WORK ACCESS AND AUTHORIZATION WITH THE BUILDING MANAGEMENT.
- T. REFRIGERANT LEAK DETECTION AND CORRESPONDING EXHAUST SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ASHRAE 15.
- U. CONTROL PANEL SHALL BE PROVIDED AND INSTALLED PER REQUIREMENTS IN THE SPECIFICATIONS AND REFERENCE DRAWINGS ATTACHED WITH THIS PACKAGE.
- V. ALL PIPING AND DUCTWORK CONNECTING TO VIBRATING EQUIPMENT SHALL BE PROVIDED WITH FLEXIBLE CONNECTIONS.

GEORGIA AVENUE-PETWORTH, FARRAGUT WEST STATIONS APPLICABLE CODES - NEW CONSTRUCTION

2012 INTERNATIONAL CODE COUNCIL WITH DC AMENDMENTS AS SET FORTH IN DC 2013 CONSTRUCTION CODE SUPPLEMENT. THIS INCLUDES ALL CODE REFERENCING TO BUILDING, MECHANICAL, PLUMBING, ELECTRICAL, AND ENERGY CODES.

2011 NFPA 70 NATIONAL ELECTRIC CODE

GLENMONT STATION APPLICABLE CODES - NEW CONSTRUCTION

STATE OF MARYLAND ADOPTS THE 2015 INTERNATIONAL CODE COUNCIL.

2015 INTERNATIONAL BUILDING CODE
 2015 INTERNATIONAL MECHANICAL CODE
 2015 INTERNATIONAL PLUMBING CODE
 2015 INTERNATIONAL ENERGY CODE
 2015 NFPA
 2015 NFPA 70 NATIONAL ELECTRIC CODE



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DESIGNED B. YOKNATHAN 05/17 DRAWN A. PINKOWSKI 05/17 CHECKED J. SILVA 05/17 APPROVED J. SILVA 05/17		REFERENCE DRAWINGS <table border="1"> <thead> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	NUMBER	DESCRIPTION	DATE	BY																	REVISIONS <table border="1"> <thead> <tr> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	DATE	BY	DESCRIPTION													WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM APPROVED <i>Mark H. [Signature]</i>	REPLACEMENT OF CHILLERS AND COOLING TOWERS AT THREE METRO-RAIL STATIONS GENERAL NOTES SCALE: NOT TO SCALE DRAWING NO. G-003 PROJECT MANAGER M1299-003
NUMBER	DESCRIPTION	DATE	BY																																					
DATE	BY	DESCRIPTION																																						

SYMBOLS

ABBREVIATIONS

ITEMS TO BE REMOVED	
CHILLED WATER SUPPLY	
CHILLED WATER RETURN	
CONDENSER WATER SUPPLY	
CONDENSER WATER RETURN	
CONDENSATE DRAIN	
WATER MAKE-UP SUPPLY	
PIPE RISING	
PIPE TURNING DOWN	
CONTROL VALVE, 3-WAY	
CONTROL VALVE, 2-WAY	
ORIFICE OR VENTURI FLANGE	
UNION	
PIPE REDUCER	
DIRECTION OF FLOW	
STRAINER	
VALVE, GATE, HORIZONTAL AND IN RISER	
VALVE, BALL	
VALVE, BUTTERFLY	
VALVE, MANUAL CONTROL	
VALVE, SOLENOID	
VALVE, GATE (OS&Y), HORIZONTAL AND IN RISER	
VALVE, CHECK	
BALANCING COCK	
BACK FLOW PREVENTER	
FLEXIBLE CONNECTOR (PIPING)	
PUMP, CENTRIFUGAL	
VALVE, MAGNETIC STOP	
VALVE, AIR RELEASE	
VALVE, PRESSURE-REDUCING	
PRESSURE SWITCH	
THERMOSTAT, REMOTE SENSING ELEMENT	
THERMOSTAT	
WATER METER	
FLOW METER	
BASKET STRAINER	

PRESSURE GAUGE	
THERMOMETER	
AIR ENTERS GRILLE OR DUCT	
AIR LEAVES GRILLE OR DUCT	
SECTION, SUPPLY AIR DUCT	
SECTION, DUCT ON SUCTION SIDE OF FAN	
DUCT SIZE, FIRST DIMENSION IS FOR SIDE SHOWN	
DUCT SECTION, FIRST DIMENSION IS FOR DUCT WIDTH	
DUCT TRANSITION	
DUCT TRANSITION	
SQUARE ELBOW WITH TURNING VANES	
DIRECTION OF FLOW	
INCLINED DROP (WITH RESPECT TO AIR FLOW)	
INCLINED RISE (WITH RESPECT TO AIR FLOW)	
TURNING VANES	
FLEXIBLE DUCT AND EQUIPMENT CONNECTOR	
POINT OF CONNECTION TO EXISTING WORK	
POINT OF DISCONNECTION TO EXISTING WORK	

AIR CONDITIONING UNIT	ACU	HERTZ	HZ
AIR SEPARATOR	AS	HORIZONTAL MULTISTAGE CENTRIFUGAL PUMP	HSC
AUTOMATED ENERGY MANAGEMENT SYSTEM	A.E.M.S.	INCHES	IN
AXIAL FAN	AF	LEAVING AIR TEMPERATURE	LAT
BRITISH THERMAL UNITS	BTU	POUNDS	LBS
BTU PER HOUR	BTUH	LEAVING WATER TEMPERATURE	LWT
CEILING	CLG	LOCKED ROTOR AMPERES	LRA
CENTRIFUGAL	CENT	MAKEUP WATER PUMP	MP
CENTRIFUGAL FAN	CF	MANHOLE	MH
CUBIC FEET PER MINUTE	CFM	MAXIMUM OVER CURRENT PROTECTION	MCCP
CHILLER	CH	MINIMUM CIRCUIT AMPS	MCA
CHILLED WATER PUMP	CHWP	NATIONAL ELECTRICAL CODE	NEC
CHILLED WATER SUPPLY	CHWS	NORMALLY CLOSED	NC
CHILLED WATER RETURN	CHWR	NORMALLY OPEN	NO
COOLING TOWER	CT	OUTSIDE AIR	OA
COLD WATER	CW	PARTS PER MINUTE	PPM
CONDENSER WATER SUPPLY	CWS	PHASE	PH
CONDENSER WATER RETURN	CWR	POUNDS PER SQUARE INCH	PSI
CONDENSER WATER PUMP	CWP	POUNDS PER SQUARE INCH GAGE	PSIG
DAMPER	DRP	PRESSURE GAUGE	P.G.
DATA TRANSMISSION SYSTEM	DTS	QUANTITY	QTY
DEGREES FAHRENHEIT	°F	RETURN GRILLE	R.G.
DIAMETER	DIA	RATED LOADS AMPS	RLA
DOWN	DN	REMOTE TERMINAL UNIT	RTU
DRAWING	DWG	RESISTANCE TEMPERATURE DETECTOR	RTD
ENTERING AIR TEMPERATURE	EAT	RETURN AIR	RA
ENTERING WATER TEMPERATURE	EWI	REVOLUTION PER MINUTE	RPM
EXHAUST AIR	EA	SOLENOID VALVE	SOL
EXHAUST FAN	EF	STATION	STA
EXISTING	(E)	SUPPLY AIR	SA
EXPANSION TANK	ET	THOUSANDS BTU PER HOUR	MBH
FLEXIBLE CONNECTION	F.C.	TEMPERED WATER	TW
FAN COIL UNIT	FCU	TYPICAL	TYP
FLOOR DRAIN	FD	VARIABLE FREQUENCY DRIVE	VFD
FEMALE PIPE THREAD	FPT	VOLT-AMPERE	VA
FINISHED FLOOR	F.F.	VOLTS ALTERNATING CURRENT	VAC
FLOW SWITCH	F	WITH	W/
GALLONS	GAL		
GALLONS PER MINUTE	GPM		
HATER	HTR		
POWER	HP		



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CHECKED	J. SILVA	05/17
APPROVED	B. SILVA	05/17

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 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
 APPROVED: *Mark H. Hagan*

GFP A Gannett Fleming/Parsons JOINT VENTURE
 SUBMITTED: *[Signature]*
 PROJECT MANAGER

REPLACEMENT OF CHILLERS AND COOLING TOWERS AT THREE METRO-RAIL STATIONS
 MECHANICAL SYMBOLS AND ABBREVIATIONS
 SCALE: NONE
 DRAWING NO. **M-001**
M1299-004