



PROJECT MANUAL
VOLUME 1

ISSUE FOR CD DFM Review

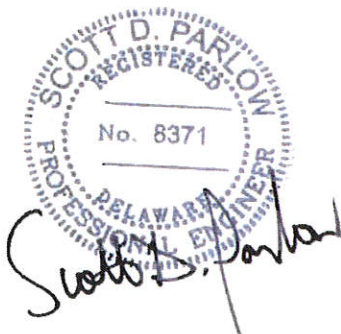
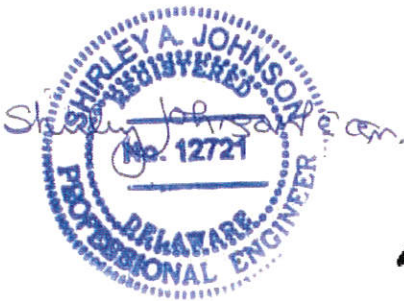


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VOLUME I

DIVISION 00 – CONTRACT REQUIREMENTS

INTRODUCTORY INFORMATION

00 01 01	TITLE PAGE/CONSULTANT DIRECTORY
00 01 10	TABLE OF CONTENTS
00 01 15	LIST OF DRAWINGS
00 11 16	ADVERTISEMENT FOR BID

PROCUREMENT INFORMATION

00 21 13	INSTRUCTIONS TO BIDDERS
00 41 26	BID FORMS INCLUDING: BID FORM SUB LISTING NON-COLLUSION STATEMENT
004313	STATE OF DELAWARE BID BOND

CONTRACTING INFORMATION

00 52 26	AGREEMENT INCLUDING STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR (AIA A132 – 2009)
00 61 13.13	STATE OF DELAWARE PERFORMANCE BOND FORM
00 61 13.16	STATE OF DELAWARE PAYMENT BOND FORM
00 62 76	MONTHLY REQUISITION & CONTINUATION SHEET (AIA G732-2009 & G703- 1992)
00 63 00	STANDARD FORMS CERTIFICATES AND MODIFICATION FORMS
00 72 26	GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION (AIA A232- 2009)
00 73 00	SUPPLEMENTARY GENERAL CONDITIONS A232-2009 INCLUDING ATTACHMENT “A” CONSTRUCTION MANAGER GENERAL CONDITIONS
00 73 46	DELAWARE PREVAILING WAGE RATES
00 73 16	INSURANCE INCLUDING SAMPLE CERTIFICATE OF INSURANCE
00 80 00	GENERAL REQUIREMENTS
00 93 00	REFERENCE MATERIALS GEOTECHNICAL REPORT (BORING LOGS) PAYROLL REPORT FORM

DIVISION 01 - GENERAL REQUIREMENTS

01 11 00	SUMMARY OF WORK
01 12 00	MULTIPLE CONTRACT SUMMARY
01 12 16	ALTERATION PROJECT PROCEDURES
01 14 00	WORK RESTRICTIONS
01 20 00	PRICE AND PAYMENT PROCEDURES
01 21 00	ALLOWANCES
01 22 00	UNIT PRICES
01 23 00	ALTERNATES
01 25 00	SUBSTITUTION PROCEDURES
01 25 01	SUBSTITUTION REQUEST SAMPLE FORM
01 26 00	CONTRACT MODIFICATION PROCEDURES
01 29 00	PAYMENT PROCEDURES

01 29 73	SCHEDULE OF VALUES
01 31 00	PROJECT MANAGEMENT AND COORDINATION
01 31 13	PROJECT COORDINATION
01 32 16	CONSTRUCTION SCHEDULE
01 32 33	CONSTRUCTION PROGRESS DOCUMENTATION
01 33 00	SUBMITTAL PROCEDURES
01 33 01	CADD RELEASE FORM
01 33 19	FIELD ENGINEERING
01 35 00	SAFETY
01 40 00	QUALITY CONTROL
01 41 00	REGULATORY REQUIREMENTS
01 42 00	REFERENCES
01 42 19	REFERENCE STANDARDS
01 50 00	TEMPORARY CONSTRUCTION UTILITIES, FACILITIES & CONTROLS
01 60 00	MATERIALS AND EQUIPMENT PRODUCT REQUIREMENTS
01 70 00	CONTRACT CLOSEOUT
01 73 29	CUTTING AND PATCHING
01 74 18	CONSTRUCTION WASTE MANAGEMENT
01 75 00	FACILITY STARTUP/COMMISSIONING
01 77 00	CLOSEOUT PROCEDURES
01 78 36	WARRANTIES
01 80 00	STATEMENT OF SPECIAL INSPECTIONS
01 91 10	COMMISSIONING REQUIREMENTS

VOLUME II

DIVISION 03 - CONCRETE

03 30 00 CAST-IN PLACE CONCRETE

DIVISION 04 – MASONRY

04 20 00 UNIT MASONRY

04 72 00 CAST STONE MASONRY

DIVISION 05 – METALS

05 12 00 STRUCTURAL STEEL

05 21 00 STEEL JOIST FRAMING

05 31 00 STEEL DECK

05 40 00 COLD-FORMED METAL FRAMING

05 50 00 METAL FABRICATIONS

05 51 13 METAL PAN STAIRS

05 52 00 METAL RAILINGS

DIVISION 06 – WOOD, PLASTICS AND COMPOSITES

06 06 60 TRANSLUCENT RESIN PANEL SYSTEM

06 10 00 ROUGH CARPENTRY

06 16 00 SHEATHING

06 18 00 GLUED-LAMINATED CONSTRUCTION

06 41 16 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

06 46 00 WOOD TRIM

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

07 21 00 THERMAL INSULATION

07 41 13 METAL ROOF PANELS

07 42 13 METAL WALL PANELS

07 42 13.23 METAL COMPOSITE MATERIAL WALL PANEL

07 53 23 EPDM ROOFING

07 62 00 SHEET METAL FLASHING AND TRIM

07 71 00 ROOF SPECIALTIES

07 72 00 ROOF ACCESSORIES

07 84 13 PENETRATION FIRESTOPPING

07 84 46 FIRE-RESISTIVE JOINT SYSTEMS

07 92 00 JOINT SEALANTS

07 95 00 EXPANSION CONTROL

DIVISION 08 – OPENINGS

08 11 13 HOLLOW METAL DOORS AND FRAMES

08 14 16 FLUSH WOOD DOORS

08 16 13 FIBERGLASS DOORS AND ALUMINUM FRAMES

08 31 13 ACCESS DOORS AND FRAMES

08 33 13 COILING COUNTER DOORS

08 33 26 OVERHEAD COILING GRILLE

08 35 13 FOLDING GLASS STOREFRONT

08 41 13 ALUMINUM-FRAMED ENTRANCES AND STOREFRONT

08 44 13 GLAZED ALUMINUM CURTAIN WALL

08 45 23	FIBERGLASS-SANDWICH-PANEL ASSEMBLIES
08 51 13	ALUMINUM WINDOWS
08 71 00	DOOR HARDWARE
08 80 00	GLAZING
08 90 00	LOUVERS AND VENTS

DIVISION 09 – FINISHES

09 00 00	FINISH SCHEDULE
09 22 16	NON-STRUCTURAL METAL FRAMING
09 24 00	PORTLAND CEMENT PLASTERING
09 29 00	GYPHUM BOARD
09 30 13	CERAMIC TILING
09 51 13	ACOUSTICAL PANEL CEILINGS
09 54 50	WOOD PANEL CEILINGS
09 65 13	RESILIENT BASE AND ACCESSORIES
09 65 19	RESILIENT FLOORING
09 68 13	TILE CARPETING
09 84 33	SOUND-ASBORBING WALL UNITS
09 91 13	EXTERIOR PAINTING
09 91 23	INTERIOR PAINTING

DIVISION 10 – SPECIALTIES

10 11 00	VISUAL DISPLAY SURFACES
10 21 13	PLASTIC TOILET COMPARTMENTS
10 21 23	CUBICLE CURTAINS AND TRACK
10 22 26	OPERABLE PARTITIONS
10 28 00	TOILET ACCESSORIES
10 44 13	FIRE EXTINGUISHER CABINETS
10 44 16	FIRE EXTINGUISHERS
10 51 13	METAL LOCKERS
10 71 13	EXTERIOR SUN CONTROL DEVICES
10 82 00	LOUVERED ROOF TOP EQUIPMENT SCREENS

DIVISION 11 – EQUIPMENT

11 12 00	PARKING CONTROL EQUIPMENT
11 13 00	LOADING DOCK EQUIPMENT
11 31 00	RESIDENTIAL APPLIANCES
11 40 00	FOOD SERVICE EQUIPMENT
11 52 13	PROJECTION SCREENS
11 61 43	STAGE CURTAINS
11 66 23	GYMNASIUM EQUIPMENT

DIVISION 12 – FURNISHINGS

12 24 13	ROLLER WINDOWS SHADES
12 36 23.13	PLASTIC LAMINATE-CLAD COUNTERTOP
12 36 61.16	SOLID SURFACING COUNTERTOP
12 48 13	ENTRANCE FLOOR MATS AND FRAMES

DIVISION 14 – CONVEYING EQUIPMENT

14 24 00	MACHINE ROOM-LESS HYDRAULIC ELEVATOR
----------	--------------------------------------

VOLUME III

DIVISION 21 – FIRE SUPPRESSION

21 05 13	COMMON MOTOR REQUIREMENTS FOR FIRE SUPPRESSION EQUIPMENT
21 05 17	SLEEVES AND SLEEVE SEALS FOR FIRE SUPPRESSION PIPING
21 05 18	ESCUTCHEONS FOR FIRE SUPPRESSION PIPING
21 05 23	GENERAL DUTY VALVES FOR FIRE PROTECTION PIPING
21 05 53	IDENTIFICATION FOR FIRE SUPPRESSION PIPING AND EQUIPMENT
21 11 00	FACILITY FIRE SUPPRESSION WATER SERVICE PIPING
21 11 19	FIRE DEPARTMENT CONNECTIONS
21 12 00	FIRE SUPPRESSION STANDPIPES
21 13 13	WET PIPE SPRINKLER SYSTEMS
21 35 00	FIRE PROTECTION CABINETS

DIVISION 22 – PLUMBING

22 05 13	COMMON MOTOR REQUIREMENTS FOR PLUMBING EQUIPMENT
22 05 16	EXPANSION FITTINGS AND LOOPS FOR PLUMBING PIPING
22 05 17	SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING
22 05 18	ESCUTCHEONS FOR PLUMBING PIPING
22 05 19	METERS AND GAGES FOR PLUMBING PIPING
22 05 23.12	BALL VALVES FOR PLUMBING PIPING
22 05 23.13	BUTTERFLY VALVES FOR PLUMBING PIPING
22 05 23.14	CHECK VALVES FOR PLUMBING PIPING
22 05 23.15	GATE VALVES FOR PLUMBING PIPING
22 05 29	HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT
22 05 53	IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT
22 07 19	PLUMBING PIPING INSULATION
22 11 13	FACILITY WATER DISTRIBUTION PIPING
22 11 16	DOMESTIC WATER PIPING
22 11 19	DOMESTIC WATER PIPING SPECIALTIES
22 11 23	DOMESTIC WATER PUMPS
22 12 23	FACILITY INDOOR POTABLE-WATER STORAGE TANKS
22 13 13	FACILITY SANITARY SEWERS
22 13 16	SANITARY WASTE AND VENT PIPING
22 13 19	SANITARY WASTE PIPING SPECIALTIES
22 14 13	FACILITY STORM DRAINAGE PIPING
22 14 23	STORM DRAINAGE PIPING SPECIALTIES
22 14 29	SUMP PUMPS
22 35 00	FUEL-FIRED DOMESTIC WATER HEATERS
22 42 13.13	COMMERCIAL WATER CLOSETS
22 42 13.16	COMMERCIAL URINALS
22 42 16.13	COMMERCIAL LAVATORIES
22 42 16.16	COMMERCIAL SINKS
22 42 23	COMMERCIAL SHOWERS
22 45 00	EMERGENCY PLUMBING FIXTURES
22 47 16	PRESSURE WATER COOLERS

DIVISION 23 – HVAC

23 02 00	GENERAL PROVISIONS – HVAC
23 02 10	BASIC MATERIALS AND METHODS – HVAC
23 02 15	VALVES
23 02 30	INSULATION & COVERING – HVAC
23 03 00	VIBRATION ISOLATION – HVAC
23 04 00	HEATING GENERATION EQUIPMENT
23 04 10	HEATING GENERATION AUXILIARY EQUIPMENT
23 04 11	SLAM WARMING SYSTEM
23 04 50	REFRIGERATION EQUIPMENT – HVAC
23 05 00	PIPING SYSTEMS & ACCESSORIES – HVAC
23 05 10	WATER TREATMENT (HVAC)
23 06 00	AIR DISTRIBUTION & ACCESSORIES – HVAC
23 06 05	FANS
23 07 25	TERMINAL HEATING UNITS
23 07 26	ACTIVE CHILLED BEAM UNITS
23 07 30	TERMINAL HEATING AND COOLING EQUIPMENT
23 07 60	AIR HANDLING EQUIPMENT
23 09 00	AUTOMATIC TEMPERATURE CONTROLS (DDC)
23 09 50	TESTING & BALANCING OF MECHANICAL SYSTEMS
23 11 26	FACILITY LIQUEFIED-PETROLEUM GAS PIPING
23 51 23	GAS VENTS

DIVISION 26 – ELECTRICAL

26 00 00	GENERAL PROVISIONS – ELECTRICAL
26 00 55	ELECTRICAL IDENTIFICATION
26 01 10	RACEWAYS
26 01 20	WIRES AND CABLES
26 01 21	WIRE CONNECTIONS AND DEVICES
26 01 30	MANHOLES
26 01 31	HANDHOLES
26 01 35	ELECTRICAL BOXES & FITTINGS
26 01 40	WIRING DEVICES
26 01 55	MOTOR STARTERS
26 01 60	PANELBOARDS
26 01 65	SWITCHBOARDS
26 01 70	MOTOR AND CIRCUIT DISCONNECTS
26 01 80	OVERCURRENT PROTECTIVE DEVICES
26 01 90	SUPPORTING DEVICES
26 01 95	POWER SYSTEM STUDIES
26 04 00	ELECTRICAL DISTRIBUTION
26 04 30	METERING EQUIPMENT
26 04 52	GROUNDING
26 04 60	TRANSFORMERS
26 04 70	DISTRIBUTION CIRCUITS
26 04 71	FEEDER CIRCUITS
26 04 72	BRANCH CIRCUITS
26 04 75	ELEVATOR ELECTRICAL SYSTEMS
26 05 10	BUILDING LIGHTING
26 05 20	ROADWAY & PARKING AREA LIGHTING

26 06 01	LIGHTNING PROTECTION SYSTEMS
26 07 40	NETWORK CABLING SYSTEMS (DCET) SCHOOLS
26 07 72	INTERCOM/TELEPHONE COMMUNICATIONS SYSTEM AND CLOCK SYSTEM
26 07 73	CLASSROOM AMPLIFICATION SYSTEMS
26 07 74	CAFÉ/GYM SOUND REINFORCEMENT SYSTEM
26 08 51	HEATING TERMINALS

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

28 07 21	FIRE ALARM AND DETECTION SYSTEMS
28 07 24	AREA RESCUE SYSTEM
28 07 28	CCTV SYSTEM (GENERIC)

DIVISION 31 – EARTHWORK

31 00 00	EARTHWORK
31 10 00	SITE CLEARING
31 11 00	CLEARING AND GRUBBING
31 23 00	EXCAVATION AND BACKFILL FOR PIPELINES AND STRUCTURES
31 25 00	EROSION & SEDIMENT CONTROL
31 31 16	TERMITE CONTROL
31 32 00	SOIL STABILIZATION
31 50 00	EXCAVATION SUPPORT AND PROTECTION

DIVISION 32 – EXTERIOR IMPROVEMENTS

32 11 26	BITUMINOUS STABILIZED BASE COURSES
32 11 36	CONCRETE BASE COURSES
32 12 16	ASPHALT PAVING
32 13 13	CONCRETE PAVING (SIDEWALKS)
32 16 00	CURBS AND GUTTERS
32 30 00	SITE IMPROVEMENTS AND AMENITIES
32 31 00	FENCES AND GATES
32 90 00	PLANTING
32 92 00	TURF AND GRASSES

DIVISION 33 – UTILITIES

33 10 00	WATER UTILITIES
33 30 00	SANITARY SEWERAGE SYSTEM
33 40 00	STORM DRAINAGE UTILITIES
33 47 00	POND AND RESERVOIR LINERS

END OF TABLE OF CONTENTS

SECTION 000115 - LIST OF DRAWING SHEETS

GENERAL

- G-000 COVER SHEET
- G-001 CODE ANALYSIS
- G-002 FIRST AND SECOND FLOOR CODE PLAN

CIVIL

- C-001 CIVIL TITLE SHEET
- C-003 CIVIL NOTES AND LEGEND
- C-100 BOUNDARY AND EASEMENT PLAN
- C-110 CIVIL SITE DEMOLITION - PHASE 1
- C-111 CIVIL SITE PLAN – PHASE 1
- C-120 CIVIL SITE DEMOLITION - PHASE 2
- C-121 CIVIL SITE PLAN – PHASE 2
- C-130 CONSTRUCTION SITE SWM PLAN - PHASING PLAN
- C-131 CONSTRUCTION SITE SWM PLAN PHASE 1
- C-132 CONSTRUCTION SITE SWM PLAN PHASE 2
- C-141 GRADING PLAN – PHASE 1
- C-142 GRADING PLAN – PHASE 2
- C-151 UTILITIES PLANS – PHASE 1
- C-152 UTILITIES PLANS – PHASE 2
- C-161 SITE PROTECTION PLAN - PHASE 1
- C-162 SITE PROTECTION PLAN - PHASE 2
- C-171 ENTRANCE - TITLE
- C-172 ENTRANCE - NOTES & LEGEND
- C-173 ENTRANCE - TYPICAL SECTIONS
- C-174 ENTRANCE - CONSTRUCTION PLANS
- C-175 ENTRANCE - GRADING & GEOMETRIC PLANS
- C-176 ENTRANCE - PHASING & MOT - PHASE 1
- C-177 ENTRANCE - PHASING & MOT - PHASE 2
- C-178 ENTRANCE - SIGNING & STRIPING PLANS
- C-231 STORMWATER PROFILES
- C-232 STORMWATER PROFILES
- C-251 UTILITY PROFILES
- C-252 UTILITY PROFILES
- C-511 SITE DETAILS
- C-531 SEDIMENT & STORMWATER DETAILS & NOTES
- C-532 SEDIMENT & STORMWATER DETAILS & NOTES
- C-533 SEDIMENT & STORMWATER DETAILS & NOTES
- C-534 SEDIMENT & STORMWATER DETAILS & NOTES
- C-551 UTILITY DETAILS
- C-552 UTILITY DETAILS
- C-631 STORMWATER SCHEDULES

LANDSCAPE

- L-100 LANDSCAPE PLAN
- L-101 LANDSCAPE SCHEDULE & DETAILS

ARCHITECTURAL

- A-001 ABBREVIATIONS, LEGENDS & GENERAL NOTES
- A-002 ARCHITECTURAL STANDARDS
- A-110 COMPOSITE FIRST FLOOR PLAN
- A-111 PARTIAL FIRST FLOOR PLAN - AREA A
- A-112 PARTIAL FIRST FLOOR PLAN - AREA B
- A-113 PARTIAL FIRST FLOOR PLAN - AREA C
- A-114 PARTIAL FIRST FLOOR PLAN - AREA D
- A-115 PARTIAL FIRST FLOOR PLAN - AREA E
- A-120 COMPOSITE SECOND FLOOR PLAN
- A-121 PARTIAL SECOND FLOOR PLAN - AREA D
- A-130 ROOF PLAN
- A-140 COMPOSITE FIRST FLOOR REFLECTED CEILING PLAN
- A-141 PARTIAL FIRST FLOOR REFLECTED CEILING PLAN - AREA A
- A-142 PARTIAL FIRST FLOOR REFLECTED CEILING PLAN - AREA B & E
- A-143 PARTIAL FIRST FLOOR REFLECTED CEILING PLAN - AREA C
- A-144 PARTIAL FIRST FLOOR REFLECTED CEILING PLAN - AREA D
- A-150 COMPOSITE SECOND FLOOR REFLECTED CEILING PLAN
- A-151 SECOND FLOOR REFLECTED CEILING PLAN - AREA D
- A-160 SOFFIT DETAILS
- A-201 COMPOSITE BUILDING ELEVATIONS
- A-202 PARTIAL BUILDING ELEVATIONS
- A-203 PARTIAL BUILDING ELEVATIONS
- A-204 PARTIAL BUILDING ELEVATIONS
- A-205 PARTIAL BUILDING ELEVATIONS
- A-301 BUILDING SECTIONS
- A-302 BUILDING SECTIONS
- A-303 BUILDING SECTIONS
- A-310 WALL SECTIONS
- A-311 WALL SECTIONS
- A-312 WALL SECTIONS
- A-313 WALL SECTIONS
- A-314 WALL SECTIONS
- A-315 WALL SECTIONS
- A-316 WALL SECTIONS
- A-317 WALL SECTIONS
- A-318 WALL SECTIONS
- A-319 WALL SECTIONS
- A-320 WALL SECTIONS
- A-401 ENLARGED GANG TOILET ROOM PLANS AND ELEVATIONS
- A-402 ENLARGED UNISEX TOILET ROOM PLANS AND ELEVATIONS
- A-403 ENLARGED LOADING DOCK PLAN AND DETAILS
- A-404 ENLARGED PLANS
- A-405 ENLARGED PLANS
- A-410 INTERIOR ELEVATIONS
- A-411 INTERIOR ELEVATIONS
- A-412 INTERIOR ELEVATIONS
- A-413 INTERIOR ELEVATIONS
- A-414 INTERIOR ELEVATIONS
- A-415 MILLWORK DETAILS
- A-501 PARTITION TYPES
- A-510 EXPANSION JOINT PLANS AND DETAILS
- A-511 EXPANSION JOINT SECTION DETAILS
- A-512 PLAN DETAILS
- A-513 SECTION DETAILS
- A-520 ENTRANCE CANOPY
- A-531 ROOF DETAILS

- A-601 DOOR SCHEDULE FIRST FLOOR
- A-602 DOOR SCHEDULE SECOND FLOOR & DOOR DETAILS
- A-610 FOLDING PARTITION SECTIONS & ELEVATIONS
- A-611 WINDOW ELEVATIONS
- A-612 WINDOW ELEVATIONS
- A-613 WINDOW DETAILS
- A-614 WINDOW DETAILS
- A-701 ENLARGED STAIR PLANS AND SECTIONS
- A-702 ENLARGED STAIR PLANS AND SECTIONS
- A-703 STAIR AND RAILING DETAILS
- A-704 STAIR AND RAILING DETAILS
- A-705 ENLARGED ELEVATOR PLANS, SECTIONS, AND ELEVATIONS
- A-706 SITE SIGN WITH MASONRY PIERS
- A-707 LOW SIGNAGE WALL
- A-811 PARTIAL FIRST FLOOR FINISH PLAN – AREA A
- A-812 PARTIAL FIRST FLOOR FINISH PLAN – AREA B & E
- A-813 PARTIAL FIRST FLOOR FINISH PLAN – AREA C
- A-814 PARTIAL FIRST FLOOR FINISH PLAN – AREA D
- A-815 SECOND FLOOR FINISH PLAN - AREA D
- A-816 FINISH DETAILS
- A-830 FINISH SCHEDULE
- A-910 COMPOSITE FURNITURE PLAN - FIRST AND SECOND FLOOR (FOR REFERENCE ONLY)

STRUCTURAL

- S-001 STRUCTURAL COVER SHEET
- S-002 STRUCTURAL GENERAL NOTES
- S-003 STRUCTURAL SCHEDULES
- S-110 STRUCTURAL OVERALL FOUNDATION PLANS
- S-111 STRUCTURAL FOUNDATION PLANS - AREA A
- S-112 STRUCTURAL FOUNDATION PLANS - AREA B
- S-113 STRUCTURAL FOUNDATION PLANS - AREA C
- S-114 STRUCTURAL FOUNDATION PLANS - AREA D
- S-115 STRUCTURAL FOUNDATION PLANS - AREA E
- S-121 STRUCTURAL SECOND FLOOR FRAMING PLAN - AREA D
- S-131 STRUCTURAL ROOF FRAMING PLAN - AREA A
- S-132 STRUCTURAL ROOF FRAMING PLAN - AREA B
- S-133 STRUCTURAL ROOF FRAMING PLAN - AREA C
- S-134 STRUCTURAL ROOF FRAMING PLAN - AREA D
- S-135 STRUCTURAL ROOF FRAMING PLAN - AREA E
- S-200 STRUCTURAL PARTIAL PLANS
- S-201 STRUCTURAL PARTIAL PLANS
- S-202 STRUCTURAL PARTIAL PLANS
- S-203 STRUCTURAL PARTIAL PLANS
- S-300 STRUCTURAL ALTERNATE PLANS
- S-500 STRUCTURAL FOUNDATION TYPICAL DETAILS
- S-501 STRUCTURAL FOUNDATION TYPICAL DETAILS
- S-502 STRUCTURAL FOUNDATION SECTIONS
- S-503 STRUCTURAL FOUNDATION SECTIONS
- S-504 STRUCTURAL FOUNDATION SECTIONS
- S-505 STRUCTURAL FOUNDATION SECTIONS
- S-510 STRUCTURAL FRAMING TYPICAL DETAILS
- S-511 STRUCTURAL FRAMING SECTIONS
- S-512 STRUCTURAL FRAMING SECTIONS
- S-513 STRUCTURAL FRAMING SECTIONS
- S-514 STRUCTURAL FRAMING SECTIONS
- S-515 STRUCTURAL FRAMING SECTIONS

- S-516 STRUCTURAL FRAMING SECTIONS
- S-517 STRUCTURAL FRAMING SECTIONS
- S-518 STRUCTURAL FRAMING SECTIONS
- S-519 STRUCTURAL FRAMING SECTIONS
- S-520 STRUCTURAL FRAMING SECTIONS
- S-521 STRUCTURAL FRAMING SECTIONS

MECHANICAL

- M-001 ABBREVIATIONS, LEGENDS & GENERAL NOTES
- M-111 PARTIAL FIRST FLOOR PLAN – AREA A MECHANICAL DUCTWORK
- M-112 PARTIAL FIRST FLOOR PLANS – AREAS B & E MECHANICAL DUCTWORK
- M-113 PARTIAL FIRST FLOOR PLAN – AREA C MECHANICAL DUCTWORK
- M-114 PARTIAL FIRST FLOOR PLANS – AREAS D1 & D2 MECHANICAL DUCTWORK
- M-121 PARTIAL SECOND FLOOR PLANS – AREAS D1 & D2 MECHANICAL DUCTWORK
- M-130 ROOF PLAN MECHANICAL
- M-211 PARTIAL FIRST FLOOR PLAN – AREA A MECHANICAL PIPING
- M-212 PARTIAL FIRST FLOOR PLANS – AREAS B & E MECHANICAL PIPING
- M-213 PARTIAL FIRST FLOOR PLAN – AREA C MECHANICAL PIPING
- M-214 PARTIAL FIRST FLOOR PLANS – AREAS D1 & D2 MECHANICAL PIPING
- M-221 PARTIAL SECOND FLOOR PLANS - AREAS D1 & D2 - MECHANICAL PIPING
- M-401 ENLARGED BOILER ROOM PLANS - MECHANICAL
- M-501 DETAILS MECHANICAL
- M-502 DETAILS MECHANICAL
- M-503 DETAILS MECHANICAL
- M-601 SCHEDULES MECHANICAL
- M-602 SCHEDULES MECHANICAL

FIRE PROTECTION

- FP-001 FIRE SUPPRESSION SYSTEM LEGEND AND ABBREVIATIONS
- FP-110 FIRE SUPPRESSION SYSTEM OVERALL FIRST FLOOR PLAN
- FP-120 FIRE SUPPRESSION SYSTEM OVERALL SECOND FLOOR PLAN
- FP-501 FIRE PROTECTION SCHEDULE & DETAILS

PLUMBING

- P-001 PLUMBING LEGEND & ABBREVIATIONS
- P-111 PARTIAL FIRST FLOOR PLAN – AREA A & B - WATER & SANITARY SYSTEMS
- P-112 PARTIAL FIRST FLOOR PLAN – AREA C - WATER & SANITARY SYSTEM
- P-113 PARTIAL FIRST FLOOR PLAN – AREA D1 - WATER & SANITARY SYSTEM
- P-114 PARTIAL FIRST FLOOR PLAN – AREA D2 - WATER & SANITARY SYSTEM
- P-115 PARTIAL FIRST FLOOR PLAN – AREA E - WATER & SANITARY SYSTEM
- P-121 PARTIAL SECOND FLOOR PLAN – AREA D1 - WATER & SANITARY SYSTEM
- P-122 PARTIAL SECOND FLOOR PLAN – AREA D2 - WATER & SANITARY SYSTEM
- P-130 RAIN WATER COLLECTION SYSTEM OVERALL ROOF PLAN
- P-401 ENLARGED FIRST FLOOR PLAN MECHANICAL ROOM PLUMBING AREA A
- P-402 ENLARGED FIRST FLOOR PLAN - AREA A - KITCHEN WATER DISTRIBUTION SYSTEM
- P-403 ENLARGED FIRST FLOOR PLAN KITCHEN PLAN AREA A SANITARY SYSTEM
- P-404 ENLARGED FIRST FLOOR PLUMBING PLAN – AREA A & AREA B – NEW WORK
- P-405 ENLARGED FIRST FLOOR PLUMBING PLAN – AREAS B & C – NEW WORK
- P-406 ENLARGED FIRST FLOOR PLUMBING PLAN – AREAS B, C, & D – NEW WORK
- P-407 ENLARGED FIRST FLOOR PLUMBING PLAN – AREA D – NEW WORK
- P-501 PLUMBING DETAILS
- P-502 PLUMBING DETAILS
- P-601 PLUMBING SCHEDULES SHEETS

ELECTRICAL

- E-111 PARTIAL FIRST FLOOR LIGHTING PLAN – AREA A
- E-112 PARTIAL FIRST FLOOR LIGHTING PLANS – AREAS B & E
- E-113 PARTIAL FIRST FLOOR LIGHTING PLAN – AREA C
- E-114 PARTIAL FIRST FLOOR LIGHTING PLANS – AREAS D1 & D2
- E-121 PARTIAL SECOND FLOOR LIGHTING PLANS – AREAS D1 & D2
- E-211 PARTIAL FIRST FLOOR POWER PLAN – AREA A
- E-212 PARTIAL FIRST FLOOR POWER PLANS – AREAS B & E
- E-213 PARTIAL FIRST FLOOR POWER PLAN – AREA C
- E-214 PARTIAL FIRST FLOOR POWER PLANS – AREAS D1 & D2
- E-221 PARTIAL SECOND FLOOR POWER PLANS – AREAS D1 & D2
- E-230 ROOF LEVEL PLAN
- E-401 FOOD SERVICE PLAN
- E-500 SCHEDULES & DETAILS ELECTRICAL
- E-600 SINGLE LINE DISTRIBUTION DIAGRAM
- E-601 MECHANICAL EQUIPMENT SCHEDULE - ELECTRICAL
- E-700 SITE PLAN ELECTRICAL

FOOD SERVICE

- FS-100 FOOD SERVICE EQUIPMENT PLAN & SCHEDULE
- FS-101 FOOD SERVICE ELECTRICAL PLAN
- FS-102 FOOD SERVICE PLUMBING PLAN
- FS-103 FOOD SERVICE UTILITIES SCHEDULE
- FS-104 UTILITY DISTRIBUTION SYSTEM DETAILS
- FS-105 UTILITY DISTRIBUTION SYSTEM DETAILS
- FS-106 HOOD DETAILS
- FS-107 WALK-IN DETAILS

END OF SECTION 000115

SECTION 001116 – ADVERTISEMENT FOR BID

Public notice is hereby given that sealed bids for **Project No. 200-81485-16002**, will be received by the State of Delaware, Cape Henlopen School District, at the **HO Brittingham Elementary School located at 400 Mulberry Street, Delaware 19968 until 3:30 pm local time on December 14, 2016**, at which time they will be publicly opened and read aloud in the Cafeteria. Bidder bears the risk of late delivery. Any bids received after the stated time will be returned unopened.

Project involves new 90,000 sq.ft. Elementary School with associated site improvements. This is a construction management project. Bids are to be for the following contracts:

A-1: Site Work	A-10: Acoustical Work
A-2: Concrete Work	A-11: Floor Covering Work
A-3: Masonry Work	A-12: Caulking/Painting
A-4: Steel Work	A-13: Casework
A-5: Carpentry & General Work	A-14: Kitchen Equipment
A-6: Roofing Work	A-15: Mechanical
A-7: Furnish Hollow Metal/Doors/Hardware	A-16: Sprinkler System
A-8: Aluminum Storefront/Windows/Glass & Glazing	A-17: Electrical
A-9: Drywall/Metal Stud	

Attention is called to construction schedule as detailed in the Bid Documents.

A **MANDATORY** Pre-Bid Meeting will be held on November 16, 2016, at 3:30 pm at the **HO Brittingham Elementary School located at 400 Mulberry Street, Delaware 19968** in the cafeteria for the purpose of establishing the listing of subcontractors and to answer questions. All representatives must be employed by the company you are representing. Representatives of each party to any Joint Venture must attend this meeting. **ATTENDANCE OF THIS MEETING IS A PREREQUISITE FOR BIDDING ON THIS CONTRACT.**

Sealed bids shall be addressed to Cape Henlopen School District, Attn: Director of Administrative Services Brian Bassett. The outer envelope should clearly indicate: **"HO Brittingham Elementary Project No. 200-81485-16002, Company Name, Contract you are bidding, SEALED BID - DO NOT OPEN."**

Construction documents will be available for review at the following locations: Richard Y Johnson & Son Inc., and Delaware Contractors Association. Contract documents may be purchased at DiCarlo Printers, located at 2006 Northwood Drive, Salisbury MD, 21801. Electronic documents may be purchased at the office of Richard Y. Johnson & Son, Inc. for \$35. It is the responsibility of each bidder to review and coordinate all project documents. This includes plans, specifications and addendums. All documents will be available on November 16, 2016.

Questions should be directed to the Construction Manager, Richard Y. Johnson & Son, Inc. in writing only. The fax number is (302) 422-4696. Email questions too Attn: Jesse Dixon (jdixon@ryjson.com).

A bid security in the amount of 10% of the bid, plus a consent of surety must accompany each bid. Bid Security shall specify the Owner as the obligee. Owner: Cape Henlopen School District, 1270 Kings Highway Lewes, Delaware 19958.

Minority Business Enterprises (MBE), Disadvantaged Business Enterprises (DBE) and Women-Owned Business Enterprises (WBE) will be afforded full opportunity to submit bids on this contract and will not be subject to discrimination on the basis of race, color, national origin or sex in consideration of this award. Each bid must be accompanied by a bid security equivalent to ten percent of the bid amount and all additive alternates. The successful bidder must post a performance bond and payment bond in a sum equal to 100 percent of the contract price upon execution of the contract. The Owner reserves the right to reject any or all bids and to waive any informalities therein. The Owner may extend the time and place for the opening of the bids from that described in the advertisement, with not less than two calendar days notice by certified delivery, facsimile machine or other electronic means to those bidders receiving plans.

INSTRUCTIONS TO BIDDERS

TABLE OF ARTICLES

1. DEFINITIONS
2. BIDDER'S REPRESENTATION
3. BIDDING DOCUMENTS
4. BIDDING PROCEDURES
5. CONSIDERATION OF BIDS
6. POST-BID INFORMATION
7. PERFORMANCE BOND AND PAYMENT BOND
8. FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

ARTICLE 1: GENERAL

1.1 DEFINITIONS

1.1.1 Whenever the following terms are used, their intent and meaning shall be interpreted as follows:

1.2 STATE: The State of Delaware.

1.3 AGENCY: Contracting State Agency as noted on cover sheet.

1.4 DESIGNATED OFFICIAL: The agent authorized to act for the Agency.

1.5 BIDDING DOCUMENTS: Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement for Bid, Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders (if any), General Conditions, Supplementary General Conditions, General Requirements, Special Provisions (if any), the Bid Form (including the Non-collusion Statement), and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, as well as the Drawings, Specifications (Project Manual) and all Addenda issued prior to execution of the Contract.

1.6 CONTRACT DOCUMENTS: The Contract Documents consist of the, Instructions to Bidders, Supplementary Instructions to Bidders (if any), General Conditions, Supplementary General Conditions, General Requirements, Special Provisions (if any), the form of agreement between the Owner and the Contractor, Drawings (if any), Specifications (Project Manual), and all addenda.

1.7 AGREEMENT: The form of the Agreement shall be AIA Document A101, Standard Form of Agreement between Owner and Contractor where the basis of payment is a STIPULATED SUM. In the case of conflict between the instructions contained therein and the General Requirements herein, these General Requirements shall prevail.

1.8 GENERAL REQUIREMENTS (or CONDITIONS): General Requirements (or conditions) are instructions pertaining to the Bidding Documents and to contracts in general. They contain, in summary, requirements of laws of the State; policies of the Agency and instructions to bidders.

1.9 SPECIAL PROVISIONS: Special Provisions are specific conditions or requirements peculiar to the bidding documents and to the contract under consideration and are supplemental to the General Requirements. Should the Special Provisions conflict with the General Requirements, the Special Provisions shall prevail.

1.10 ADDENDA: Written or graphic instruments issued by the Owner/Architect prior to the execution of the contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

1.11 BIDDER OR VENDOR: A person or entity who formally submits a Bid for the material or Work contemplated, acting directly or through a duly authorized representative who meets the requirements set forth in the Bidding Documents.

1.12 SUB-BIDDER: A person or entity who submits a Bid to a Bidder for materials or labor, or both for a portion of the Work.

- 1.13 BID: A complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.
- 1.14 BASE BID: The sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids (if any are required to be stated in the bid).
- 1.15 ALTERNATE BID (or ALTERNATE): An amount stated in the Bid, where applicable, to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents is accepted.
- 1.16 UNIT PRICE: An amount stated in the Bid, where applicable, as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.
- 1.17 SURETY: The corporate body which is bound with and for the Contract, or which is liable, and which engages to be responsible for the Contractor's payments of all debts pertaining to and for his acceptable performance of the Work for which he has contracted.
- 1.18 BIDDER'S DEPOSIT: The security designated in the Bid to be furnished by the Bidder as a guaranty of good faith to enter into a contract with the Agency if the Work to be performed or the material or equipment to be furnished is awarded to him.
- 1.19 CONTRACT: The written agreement covering the furnishing and delivery of material or work to be performed.
- 1.20 CONTRACTOR: Any individual, firm or corporation with whom a contract is made by the Agency.
- 1.21 SUBCONTRACTOR: An individual, partnership or corporation which has a direct contract with a contractor to furnish labor and materials at the job site, or to perform construction labor and furnish material in connection with such labor at the job site.
- 1.22 CONTRACT BOND: The approved form of security furnished by the contractor and his surety as a guaranty of good faith on the part of the contractor to execute the work in accordance with the terms of the contract.

ARTICLE 2: BIDDER'S REPRESENTATIONS

- 2.1 PRE-BID MEETING
- 2.1.1 A pre-bid meeting for this project will be held at the time and place designated. Attendance at this meeting is a pre-requisite for submitting a Bid, unless this requirement is specifically waived elsewhere in the Bid Documents.
- 2.2 By submitting a Bid, the Bidder represents that:
- 2.2.1 The Bidder has read and understands the Bidding Documents and that the Bid is made in accordance therewith.

2.2.2 The Bidder has visited the site, become familiar with existing conditions under which the Work is to be performed, and has correlated the Bidder's his personal observations with the requirements of the proposed Contract Documents.

2.2.3 The Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception.

2.3 JOINT VENTURE REQUIREMENTS

2.3.1 For Public Works Contracts, each Joint Venturer shall be qualified and capable to complete the Work with their own forces.

2.3.2 Included with the Bid submission, and as a requirement to bid, a copy of the executed Joint Venture Agreement shall be submitted and signed by all Joint Venturers involved.

2.3.3 All required Bid Bonds, Performance Bonds, Material and Labor Payment Bonds must be executed by both Joint Venturers and be placed in both of their names.

2.3.4 All required insurance certificates shall name both Joint Venturers.

2.3.5 Both Joint Venturers shall sign the Bid Form and shall submit a valid Delaware Business License Number with their Bid or shall state that the process of application for a Delaware Business License has been initiated.

2.3.6 Both Joint Venturers shall include their Federal E.I. Number with the Bid.

2.3.7 In the event of a mandatory Pre-bid Meeting, each Joint Venturer shall have a representative in attendance.

2.3.8 Due to exceptional circumstances and for good cause shown, one or more of these provisions may be waived at the discretion of the State.

2.4 ASSIGNMENT OF ANTITRUST CLAIMS

2.4.1 As consideration for the award and execution by the Owner of this contract, the Contractor hereby grants, conveys, sells, assigns and transfers to the State of Delaware all of its right, title and interests in and to all known or unknown causes of action it presently has or may now or hereafter acquire under the antitrust laws of the United States and the State of Delaware, relating to the particular goods or services purchased or acquired by the Owner pursuant to this contract.

ARTICLE 3: BIDDING DOCUMENTS

3.1 COPIES OF BID DOCUMENTS

3.1.1 Bidders may obtain complete sets of the Bidding Documents from the Architectural/Engineering firm designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein.

3.1.2 Bidders shall use complete sets of Bidding Documents for preparation of Bids. The issuing Agency nor the Architect assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

3.1.3 Any errors, inconsistencies or omissions discovered shall be reported to the Architect immediately.

3.1.4 The Agency and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall report any errors, inconsistencies, or ambiguities discovered to the Architect.

3.2.2 Bidders or Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Architect at least seven days prior to the date for receipt of Bids. Interpretations, corrections and changes to the Bidding Documents will be made by written Addendum. Interpretations, corrections, or changes to the Bidding Documents made in any other manner shall not be binding.

3.2.3 The apparent silence of the specifications as to any detail, or the apparent omission from it of detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and only material and workmanship of the first quality are to be used. Proof of specification compliance will be the responsibility of the Bidder.

3.2.4 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all permits, labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work.

3.2.5 The Owner will bear the costs for all impact and user fees associated with the project.

3.3 SUBSTITUTIONS

3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of quality, required function, dimension, and appearance to be met by any proposed substitution. The specification of a particular manufacturer or model number is not intended to be proprietary in any way. Substitutions of products for those named will be considered, providing that the Vendor certifies that the function, quality, and performance characteristics of the material offered is equal or superior to that specified. It shall be the Bidder's responsibility to assure that the proposed substitution will not affect the intent of the design, and to make any installation modifications required to accommodate the substitution.

3.3.2 Requests for substitutions shall be made in writing to the Architect at least ten days prior to the date of the Bid Opening. Such requests shall include a complete description of the proposed substitution, drawings, performance and test data, explanation of required installation modifications due the substitution, and any other information necessary for an evaluation. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval shall be final. The Architect is to notify Owner prior to any approvals.

- 3.3.3 If the Architect approves a substitution prior to the receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding.
- 3.3.4 The Architect shall have no obligation to consider any substitutions after the Contract award.
- 3.4 ADDENDA
- 3.4.1 Addenda will be mailed or delivered to all who are known by the Architect to have received a complete set of the Bidding Documents.
- 3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.
- 3.4.3 No Addenda will be issued later than 4 days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which extends the time or changes the location for the opening of bids.
- 3.4.4 Each bidder shall ascertain prior to submitting his Bid that they have received all Addenda issued, and shall acknowledge their receipt in their Bid in the appropriate space. Not acknowledging an issued Addenda could be grounds for determining a bid to be non-responsive.

ARTICLE 4: BIDDING PROCEDURES

4.1 PREPARATION OF BIDS

- 4.1.1 Submit the bids on the Bid Forms included with the Bidding Documents.
- 4.1.2 Submit the original Bid Form for each bid. Bid Forms may be removed from the project manual for this purpose.
- 4.1.3 Execute all blanks on the Bid Form in a non-erasable medium (typewriter or manually in ink).
- 4.1.4 Where so indicated by the makeup on the Bid Form, express sums in both words and figures, in case of discrepancy between the two, the written amount shall govern.
- 4.1.5 Interlineations, alterations or erasures must be initialed by the signer of the Bid.
- 4.1.6 BID ALL REQUESTED ALTERNATES AND UNIT PRICES, IF ANY. If there is no change in the Base Bid for an Alternate, enter "No Change". The Contractor is responsible for verifying that they have received all addenda issued during the bidding period. Work required by Addenda shall automatically become part of the Contract.
- 4.1.7 Make no additional stipulations on the Bid Form and do not qualify the Bid in any other manner.
- 4.1.8 Each copy of the Bid shall include the legal name of the Bidder and a statement whether the Bidder is a sole proprietor, a partnership, a corporation, or any legal entity, and each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current Power of Attorney attached, certifying agent's authority to bind the Bidder.

- 4.1.9 Bidder shall complete the Non-Collusion Statement form included with the Bid Forms and include it with their Bid.
- 4.1.10 In the construction of all Public Works projects for the State of Delaware or any agency thereof, preference in employment of laborers, workers or mechanics shall be given to bona fide legal citizens of the State who have established citizenship by residence of at least 90 days in the State.
- 4.1.11 Each bidder shall include in their bid a copy of a valid Delaware Business License.
- 4.1.12 Each bidder shall include signed Affidavit(s) for the bidder and each listed Subcontractor certifying compliance with OMB Regulation 4104 "Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on " Large Public Works Projects" "large Public Works" is based upon the current threshold required for bidding Public Works as set by the Purchasing and Contracting Advisory Council.
- 4.2 **BID SECURITY**
- 4.2.1 All bids shall be accompanied by a deposit of either a good and sufficient bond to the agency for the benefit of the agency, with corporate surety authorized to do business in this State, the form of the bond and the surety to be approved by the agency, or a security of the bidder assigned to the agency, for a sum equal to at least 10% of the bid plus all add alternates, or in lieu of the bid bond a security deposit in the form of a certified check, bank treasurer's check, cashier's check, money order, or other prior approved secured deposit assigned to the State. The bid bond need not be for a specific sum, but may be stated to be for a sum equal to 10% of the bid plus all add alternates to which it relates and not to exceed a certain stated sum, if said sum is equal to at least 10% of the bid. The Bid Bond form used shall be the standard OMB form (attached).
- 4.2.2 The Agency has the right to retain the bid security of Bidders to whom an award is being considered until either a formal contract has been executed and bonds have been furnished or the specified time has elapsed so the Bids may be withdrawn or all Bids have been rejected.
- 4.2.3 In the event of any successful Bidder refusing or neglecting to execute a formal contract and bond within 20 days of the awarding of the contract, the bid bond or security deposited by the successful bidder shall be forfeited.
- 4.3 **SUBCONTRACTOR LIST**
- 4.3.1 As required by Delaware Code, Title 29, section 6962(d)(10)b, each Bidder shall submit with their Bid a completed List of Sub-Contractors included with the Bid Form. **NAME ONLY ONE SUBCONTRACTOR FOR EACH TRADE.** A Bid will be considered non-responsive unless the completed list is included.
- 4.3.2 Provide the Name and Address for each listed subcontractor. Addresses by City, Town or Locality, plus State, will be acceptable.
- 4.3.3 It is the responsibility of the Contractor to ensure that their Subcontractors are in compliance with the provisions of this law. Also, if a Contractor elects to list themselves as a Subcontractor for any category, they must specifically name themselves on the Bid Form and

be able to document their capability to act as Subcontractor in that category in accordance with this law.

4.4 EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS

4.4.1 During the performance of this contract, the contractor agrees as follows:

- A. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex or national origin. The Contractor will take affirmative action to ensure the applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, sex or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.
- B. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex or national origin."

4.5 PREVAILING WAGE REQUIREMENT

4.5.1 Wage Provisions: In accordance with Delaware Code, Title 29, Section 6960, renovation projects whose total cost shall exceed \$15,000, and \$100,000 for new construction, the minimum wage rates for various classes of laborers and mechanics shall be as determined by the Department of Labor, Division of Industrial Affairs of the State of Delaware.

4.5.2 The prevailing wage shall be the wage paid to a majority of employees performing similar work as reported in the Department's annual prevailing wage survey or in the absence of a majority, the average paid to all employees reported.

4.5.3 The employer shall pay all mechanics and labors employed directly upon the site of work, unconditionally and not less often than once a week and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the specifications, regardless of any contractual relationship which may be alleged to exist between the employer and such laborers and mechanics.

4.5.4 The scale of the wages to be paid shall be posted by the employer in a prominent and easily accessible place at the site of the work.

4.5.5 Every contract based upon these specifications shall contain a stipulation that sworn payroll information, as required by the Department of Labor, be furnished weekly. The Department of Labor shall keep and maintain the sworn payroll information for a period of 6 months from the last day of the work week covered by the payroll.

4.6 SUBMISSION OF BIDS

- 4.6.1 Enclose the Bid, the Bid Security, and any other documents required to be submitted with the Bid in a sealed opaque envelope. Address the envelope to the party receiving the Bids. Identify with the project name, project number, and the Bidder's name and address. If the Bid is sent by mail, enclose the sealed envelope in a separate mailing envelope with the notation "BID ENCLOSED" on the face thereof. The State is not responsible for the opening of bids prior to bid opening date and time that are not properly marked.
- 4.6.2 Deposit Bids at the designated location prior to the time and date for receipt of bids indicated in the Advertisement for Bids. Bids received after the time and date for receipt of bids will be marked "LATE BID" and returned.
- 4.6.3 Bidder assumes full responsibility for timely delivery at location designated for receipt of bids.
- 4.6.4 Oral, telephonic or telegraphic bids are invalid and will not receive consideration.
- 4.6.5 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids, provided that they are then fully in compliance with these Instructions to Bidders.
- 4.7 **MODIFICATION OR WITHDRAW OF BIDS**
- 4.7.1 Prior to the closing date for receipt of Bids, a Bidder may withdraw a Bid by personal request and by showing proper identification to the Architect. A request for withdraw by letter or fax, if the Architect is notified in writing prior to receipt of fax, is acceptable. A fax directing a modification in the bid price will render the Bid informal, causing it to be ineligible for consideration of award. Telephone directives for modification of the bid price shall not be permitted and will have no bearing on the submitted proposal in any manner.
- 4.7.2 Bidders submitting Bids that are late shall be notified as soon as practicable and the bid shall be returned.
- 4.7.3 A Bid may not be modified, withdrawn or canceled by the Bidder during a thirty (30) day period following the time and date designated for the receipt and opening of Bids, and Bidder so agrees in submitting their Bid. Bids shall be binding for 30 days after the date of the Bid opening.

ARTICLE 5: CONSIDERATION OF BIDS

5.1 OPENING/REJECTION OF BIDS

- 5.1.1 Unless otherwise stated, Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids will be made available to Bidders.
- 5.1.2 The Agency shall have the right to reject any and all Bids. A Bid not accompanied by a required Bid Security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.
- 5.1.3 If the Bids are rejected, it will be done within thirty (30) calendar day of the Bid opening.

5.2 COMPARISON OF BIDS

- 5.2.1 After the Bids have been opened and read, the bid prices will be compared and the result of such comparisons will be made available to the public. Comparisons of the Bids may be

based on the Base Bid plus desired Alternates. The Agency shall have the right to accept Alternates in any order or combination.

- 5.2.2 The Agency reserves the right to waive technicalities, to reject any or all Bids, or any portion thereof, to advertise for new Bids, to proceed to do the Work otherwise, or to abandon the Work, if in the judgment of the Agency or its agent(s), it is in the best interest of the State.
- 5.2.3 An increase or decrease in the quantity for any item is not sufficient grounds for an increase or decrease in the Unit Price.
- 5.2.4 The prices quoted are to be those for which the material will be furnished F.O.B. Job Site and include all charges that may be imposed during the period of the Contract.
- 5.2.5 No qualifying letter or statements in or attached to the Bid, or separate discounts will be considered in determining the low Bid except as may be otherwise herein noted. Cash or separate discounts should be computed and incorporated into Unit Bid Price(s).

5.3 DISQUALIFICATION OF BIDDERS

5.3.1 An agency shall determine that each Bidder on any Public Works Contract is responsible before awarding the Contract. Factors to be considered in determining the responsibility of a Bidder include:

- A. The Bidder's financial, physical, personnel or other resources including Subcontracts;
- B. The Bidder's record of performance on past public or private construction projects, including, but not limited to, defaults and/or final adjudication or admission of violations of the Prevailing Wage Laws in Delaware or any other state;
- C. The Bidder's written safety plan;
- D. Whether the Bidder is qualified legally to contract with the State;
- E. Whether the Bidder supplied all necessary information concerning its responsibility; and,
- F. Any other specific criteria for a particular procurement, which an agency may establish; provided however, that, the criteria be set forth in the Invitation to Bid and is otherwise in conformity with State and/or Federal law.

5.3.2 If an agency determines that a Bidder is nonresponsive and/or nonresponsible, the determination shall be in writing and set forth the basis for the determination. A copy of the determination shall be sent to the affected Bidder within five (5) working days of said determination.

5.3.3 In addition, any one or more of the following causes may be considered as sufficient for the disqualification of a Bidder and the rejection of their Bid or Bids.

5.3.3.1 More than one Bid for the same Contract from an individual, firm or corporation under the same or different names.

- 5.3.3.2 Evidence of collusion among Bidders.
- 5.3.3.3 Unsatisfactory performance record as evidenced by past experience.
- 5.3.3.4 If the Unit Prices are obviously unbalanced either in excess or below reasonable cost analysis values.
- 5.3.3.5 If there are any unauthorized additions, interlineation, conditional or alternate bids or irregularities of any kind which may tend to make the Bid incomplete, indefinite or ambiguous as to its meaning.
- 5.3.3.6 If the Bid is not accompanied by the required Bid Security and other data required by the Bidding Documents.
- 5.3.3.7 If any exceptions or qualifications of the Bid are noted on the Bid Form.

- 5.4 ACCEPTANCE OF BID AND AWARD OF CONTRACT
- 5.4.1 A formal Contract shall be executed with the successful Bidder within twenty (20) calendar days after the award of the Contract.
- 5.4.2 Per Section 6962(d)(13) a., Title 29, Delaware Code, "The contracting agency shall award any public works contract within thirty (30) days of the bid opening to the lowest responsive and responsible Bidder, unless the Agency elects to award on the basis of best value, in which case the election to award on the basis of best value shall be stated in the Invitation To Bid."
- 5.4.3 Each Bid on any Public Works Contract must be deemed responsive by the Agency to be considered for award. A responsive Bid shall conform in all material respects to the requirements and criteria set forth in the Contract Documents and specifications.
- 5.4.4 The Agency shall have the right to accept Alternates in any order or combination, and to determine the low Bidder on the basis of the sum of the Base Bid, plus accepted Alternates.
- 5.4.5 The successful Bidder shall execute a formal contract, submit the required Insurance Certificate, and furnish good and sufficient bonds, unless specifically waived in the General Requirements, in accordance with the General Requirement, within twenty (20) days of official notice of contract award. Bonds shall be for the benefit of the Agency with surety in the amount of 100% of the total contract award. Said Bonds shall be conditioned upon the faithful performance of the contract. Bonds shall remain in affect for period of one year after the date of substantial completion.
- 5.4.6 If the successful Bidder fails to execute the required Contract and Bond, as aforesaid, within twenty (20) calendar days after the date of official Notice of the Award of the Contract, their Bid guaranty shall immediately be taken and become the property of the State for the benefit of the Agency as liquidated damages, and not as a forfeiture or as a penalty. Award will then be made to the next lowest qualified Bidder of the Work or readvertised, as the Agency may decide.
- 5.4.7 Each bidder shall supply with its bid its taxpayer identification number (i.e., federal employer identification number or social security number) and a copy of its Delaware

business license, and should the vendor be awarded a contract, such vendor shall provide to the agency the taxpayer identification license numbers of such subcontractors. Such numbers shall be provided on the later of the date on which such subcontractor is required to be identified or the time the contract is executed. The successful Bidder shall provide to the agency to which it is contracting, within 30 days of entering into such public works contract, copies of all Delaware Business licenses of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the Bidder entered the public works contract the Delaware Business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.

- 5.4.8 The Bid Security shall be returned to the successful Bidder upon the execution of the formal contract. The Bid Securities of unsuccessful bidders shall be returned within thirty (30) calendar days after the opening of the Bids.

ARTICLE 6: POST-BID INFORMATION

6.1 CONTRACTOR'S QUALIFICATION STATEMENT

- 6.1.1 Bidders to whom award of a Contract is under consideration shall, if requested by the Agency, submit a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a statement has been previously required and submitted.

6.2 BUSINESS DESIGNATION FORM

- 6.2.1 Successful bidder shall be required to accurately complete an Office of Management and Budget Business Designation Form for Subcontractors.

ARTICLE 7: PERFORMANCE BOND AND PAYMENT BOND

7.1 BOND REQUIREMENTS

- 7.1.1 The cost of furnishing the required Bonds, that are stipulated in the Bidding Documents, shall be included in the Bid.

- 7.1.2 If the Bidder is required by the Agency to secure a bond from other than the Bidder's usual sources, changes in cost will be adjusted as provide in the Contract Documents.

- 7.1.3 The Performance and Payment Bond forms used shall be the standard OMB forms (attached).

7.2 TIME OF DELIVERY AND FORM OF BONDS

- 7.2.1 The bonds shall be dated on or after the date of the Contract.

- 7.2.2 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix a certified and current copy of the power of attorney.

ARTICLE 8: FORM OF AGREEMENT BETWEEN AGENCY AND CONTRACTOR

- 8.1 Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment is a Stipulated Sum.

END OF INSTRUCTIONS TO BIDDERS

HO Brittingham Elementary
400 Mulberry Street Milton, Delaware 19968
Project No. 200-81485-16002

BID FORM

For Bids Due: December 15, 2016

To: Cape Henlopen School District
Attn: Director of Administrative Services
Brian Bassett

Contracts

Clearly Mark Contract you are bidding (Only 1 contract per bid form)

For Bid Package A:

- | | | | |
|--------------------------------------|---|---------------------------------------|---------------------|
| <input type="checkbox"/> Contract #1 | Site Work | <input type="checkbox"/> Contract #9 | Drywall/Metal Stud |
| <input type="checkbox"/> Contract #2 | Concrete Work | <input type="checkbox"/> Contract #10 | Acoustical Work |
| <input type="checkbox"/> Contract #3 | Masonry Work | <input type="checkbox"/> Contract #11 | Floor Covering Work |
| <input type="checkbox"/> Contract #4 | Steel Work | <input type="checkbox"/> Contract #12 | Caulking/Painting |
| <input type="checkbox"/> Contract #5 | Carpentry & General Work | <input type="checkbox"/> Contract #13 | Casework |
| <input type="checkbox"/> Contract #6 | Roofing Work | <input type="checkbox"/> Contract #14 | Kitchen Equipment |
| <input type="checkbox"/> Contract #7 | Furnish Hollow Metal/Doors/Hardware | <input type="checkbox"/> Contract #15 | Mechanical |
| <input type="checkbox"/> Contract #8 | Aluminum Storefront/Windows/
Glass and Glazing | <input type="checkbox"/> Contract #16 | Sprinkler System |
| | | <input type="checkbox"/> Contract #17 | Electrical |

Name of Bidder: _____

Delaware Business License No.: _____ **Taxpayer ID No.:** _____

(A copy of Bidder's Delaware Business License must be attached to this form.)

(Other License Nos.): _____

Phone No.: () _____ - _____ **Fax No.:** () _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

\$ _____
(\$ _____)

BID FORM

ALTERNATES

Alternate prices conform to applicable project specification section. Refer to specifications for a complete description of the following Alternates. An “ADD” or “DEDUCT” amount is indicated by the crossed out part that does not apply.

ADD ALTERNATE ONE – SPECIAL EDUCATION CLASSROOM ON D-WING (Contracts A-1, A-2, A-3, A-4, A-5, A-6, A-7, A-8, A-9, A10, A-11, A-12, A-15, A-16 & A-17.)

1. BASE BID: Provide no cost for Special Education Classroom on D-Wing.
2. ALTERNATE: Provide cost for Special Education Classroom on D-Wing as shown on construction documents.

Add: _____
(\$ _____)

ADD ALTERNATE TWO – CLASSROOM RUBBER FLOORING IN LIUE OF VCT (Contract A-11.)

1. BASE BID: Provide cost for VCT in Classrooms.
2. ALTERNATE: Provide cost for Rubber Tile in lieu of VCT in Classrooms as shown on construction documents.

Add: _____
(\$ _____)

ADD ALTERNATE THREE – UNDER SLAB RADIANT HEAT – AREAS B & E (Contracts A-2, A-15 & A17.)

1. BASE BID: Provide no cost for under slab radiant floor heat.
2. ALTERNATE: Provide cost for under slab radiant floor heat as shown on construction drawings in areas B & E, this shall include, but not limited to heating hot water piping, under slab tubing, zone controllers, sensor, circulation pumps and accessories. Provide 5” thick concrete slab on grade with 6x6 – W2.0x2.0 WWF over 4” crushed stone.

Add: _____
(\$ _____)

ADD ALTERNATE FOUR – MEDIA CENTER OUTDOOR CANOPY (Contracts A-1, A-2, A-3, A-4, A-6 & A-12.)

1. BASE BID: Provide no cost for Media Center Outdoor Canopy
2. ALTERNATE: Provide cost for Media Center Outdoor Canopy at column lines S1A & A11-A13. The foundation , steel, and roofing material as shown on A-111, A-130, A303, S-111 & S-131.

Add: _____
(\$ _____)

ADD ALTERNATE FIVE – CAFETERIA OUTDOOR CANOPY (Contracts A-1, A-2, A-3, A-4, A-6 & A-12.)

1. BASE BID: Provide no cost for Cafeteria Outdoor Canopy.
2. ALTERNATE: Provide cost for Cafeteria Outdoor Canopy at column lines AD-AE & A11-C29, the foundation , steel and roofing material as shown on A-113, A-130, A-202, S-113, S-133 & S-131.

Add: _____
(\$ _____)

BID FORM

ALTERNATES (CON'T)

ADD ALTERNATE SIX – FOLDING GLASS EXTERIOR WALL (Contracts A-4, A-5, A-8, A-12 & A-17.)

1. BASE BID: Provide 24' wide overhead door with required structural elements to support the door along with exterior wall to create the 24' wide opening.
2. ALTERNATE: Provide 32' wide folding glass exterior as shown on A-202, with the required structural elements to support the folding glass wall along with the exterior wall to create the 32' wide opening.

Add: _____
(\$ _____)

ADD ALTERNATE SEVEN – SUN SHADE DEVICE OVER WINDOWS (Contract A-5.)

1. BASE BID: Provide no cost for Sun Shade Devices over Windows.
2. ALTERNATE: Provide cost for Sun Shade Devices over Windows as shown on construction drawings A-202, A-203 & A-205.

Add: _____
(\$ _____)

ADD ALTERNATE EIGHT – LIGHTNING PROTECTION (Contract A-17.)

1. BASE BID: Provide no cost for Lightning Protection.
2. ALTERNATE: Provide cost for Lightning Protection per Section 260601 Lightning Protection Systems.

Add: _____
(\$ _____)

ADD ALTERNATE NINE – ADDITIONAL LANDSCAPING (Contract A-1.)

1. BASE BID: Provide no cost for Landscaping.
2. ALTERNATE: Provide cost for Landscape as shown on construction drawings L-100 and L-101.

Add: _____
(\$ _____)

ADD ALTERNATE TEN – RECOVER BOARD UNDER EDPM (Contract A-6.)

1. BASE BID: Provide no Recover Board under EDPM Roofing.
2. ALTERNATE: Provide cost for Recover Board under EDPM Roofing.

Add: _____
(\$ _____)

ADD ALTERNATE ELEVEN – BUS LOT CANOPY (Contract A-8.)

1. BASE BID: Provide no Bus Lot Canopy.
2. ALTERNATE: Provide cost for Bus Lot Canopy as shown on construction documents.

Add: _____
(\$ _____)

BID FORM

ALTERNATES (CON'T)

ADD ALTERNATE TWELVE – FRONT ENTRANCE CURB CANOPY (Contract A-8.)

1. BASE BID: Provide no Front Entrance Curb Canopy.
2. ALTERNATE: Provide cost for Front Entrance Curb Canopy as shown on construction documents.

Add: _____
(\$ _____)

ADD ALTERNATE THIRTEEN – ROOF DECK PATIO/GARDEN CLASSROOM (Contract A-6.)

1. BASE BID: Provide no Roof Deck Patio/Garden Classroom, structural steel is to be included in base bid.
2. ALTERNATE: Provide cost for Roof Deck Patio/Garden Classroom as shown on construction documents.

Add: _____
(\$ _____)

ADD/DEDUCT ALTERNATE FOURTEEN – USE PVC IN LIEU OF CAST IRON PIPING FOR SANITARY AND STORMWATER UNDERGROUND (Contracts A-1 & A-15.)

1. BASE BID: Provide Cast Iron Piping as shown on construction documents.
2. ALTERNATE: Provide Schedule 40 Polyvinyl Chloride (PVC) Pipe and DWV Fittings: Pipe to conform to ASTM D 1784, ASTM D 1785, ASTM D 2665, FHA UM 79a, Federal Specification L-P-320a and NSF Standard No. 14 and 61. Fittings to conform to ASTM D 1784, ASTM D 2665, ASTM D 3311, ASTM F 1866, FHA UM 79a, Federal specification L-P-320a and NSF Standard No.14.

Add: _____
(\$ _____)

ADD/DEDUCT ALTERNATE FIFTEEN – USE CPVC IN LIEU OF COPPER PIPING FOR DOMESTIC WATER DISTRIBUTION (Contracts A-1 & A-15.)

1. BASE BID: Provide Copper Piping as shown on construction documents.
2. ALTERNATE: Provide Schedule 40 Chlorinated Polyvinyl Chloride (CPVC) Pipe and Fittings: Pipe & fittings to conform to ASTM D 1784, ASTM D 2846, FHA UM-61a, NSF Standard No. 14 and 61. Fittings to be Schedule 40, socket joint or Schedule 80 threaded joint

Add: _____
(\$ _____)

BID FORM

ALLOWANCES

Contract No. 1 Site Work

1 – Include the unit cost of liquid asphalt cement of **\$360.00 per ton** as noted in the Delaware Posted Asphalt price for July of 2016 per Del DOT Program. At the time of production lay down of product, cost will be adjusted per current cost of Delaware Posted Asphalt price. Contractor to provide the amount of tons of liquid asphalt cement to perform the complete project based on the project documents. See attachment: Delaware Posted Asphalt Price Sheet.

_____ total tons of liquid asphalt cement to be provided by Contract No.1 Site Work to complete the project scope.

Contract No. 2 Concrete Work

2 – Include the lump sum of the following amount **\$35,000** in the contract for cold weather protection of concrete work. See Section 012100 Allowances.

Contract No. 3 Masonry Work

3 – Include the lump sum of the following amount **\$35,000** in the contract for cold weather protection of masonry work. See Section 012100 Allowances.

Contract No. 15 Mechanical

4 – Include the lump sum of the following amount **\$100,000** in the contract for the temp heat fuel cost. Cost of work to be determined by fuel company receipts with the amount of fuel and cost per gallon. All equipment and labor for temp heat is part of the contract. This allowance is for fuel cost only. See Section 012100 Allowances.

BID FORM

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

ADD

- UNIT PRICE No. 1.01: **Satisfactory fill in Place:** Indicate cost to provide satisfactory fill in place, furnished, placed and compacted according to [Section 310000, Earthwork](#) `Unit of Measurement: [cubic yards](#)
- Contract A-1.** \$ _____
- UNIT PRICE No. 1.02: **Stone in place:** Indicate cost to provide [stone in place and compacted](#) according to [Section 310000, Earthwork](#). Unit of Measurement: [cubic yards](#)
- Contract A-1.** \$ _____
- UNIT PRICE No. 1.03: **Geo-Fabric in place:** Indicate cost to provide Geo-Fabric in place according to [Section 310000, Earthwork](#). Unit of Measurement: [Square yards](#)
- Contract A-1.** \$ _____
- UNIT PRICE No. 1.04: **Undercut & disposal (mass):** Indicate cost for mass excavation & disposal according to [Section 312300, Excavation and Backfill for Pipeline and Structures](#). Unit of Measurement: [Cubic yards](#)
- Contract A-1/A-15.** \$ _____
- UNIT PRICE No. 1.05: Undercut and disposal (trench) per cubic yard. **Undercut & disposal (trench):** Indicate cost for trench excavation & disposal according to [Section 312300, Excavation and Backfill for Pipeline and Structures](#). Unit of Measurement: [Cubic yards](#).
- Contract A-1/A-15/A-17.** \$ _____
- UNIT PRICE No. 1.06: **Select (trench) Backfill:** Indicate cost to provide satisfactory trench fill furnished, placed and compacted according to [Section 312300, Excavation and Backfill for Pipeline and Structures](#). Unit of Measurement: [cubic yards](#).
- Contract A-1/A-15/A-17.** \$ _____
- UNIT PRICE No. 1.07: **Top soil:** Indicate cost to provide top soil in place and compacted according to [Section 329200, Turf and Grasses](#). Unit of Measurement: [cubic yards](#).
- Contract A-1.** \$ _____
- UNIT PRICE No. 1.08: **Removal of unsuitable soil and replacement of suitable soil,** Indicate cost to remove, disposed of unsuitable unclassified materials, and to provide, place and compact suitable soil according to [Section 310000, Earthwork](#) . Unit of Measurement: [cubic yards](#).
- Contract A-1.** \$ _____

HO Brittingham Elementary
400 Mulberry Street Milton, Delaware 19968
Project No. 200-81485-16002

BID FORM

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for 90 days from the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

Should I/We be awarded this contract, I/We pledge to achieve substantial completion of all the work within _____ calendar days of the Notice to Proceed.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

(State of Corporation)

Business Address: _____

Witness: _____ **By:** _____
(SEAL) (Authorized Signature)

(Title)
Date: _____

ATTACHMENTS

- Sub-Contractor List
- Non-Collusion Statement
- Bid Security
- (Others as Required by Project Manuals)

BID FORM

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor **must be listed for each category** where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the *Owner*, it is **required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

<u>Subcontractor Category</u>	<u>Subcontractor</u>	<u>Address (City & State)</u>	<u>Subcontractors tax payer ID # or Delaware Business license #</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____

BID FORM

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date (*to the Office of Management and Budget, Division of Facilities Management*).

All the terms and conditions of (*Project or Contract Number*) have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20____.

My Commission expires _____ . NOTARY PUBLIC _____ .

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

HO Brittingham Elementary
400 Mulberry Street Milton, Delaware 19968
Project No. 200-81485-16002

BID FORM

AFFIDAVIT OF EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation.

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

Authorized representative (typed or printed): _____

Authorized representative (signature): _____

TITLE: _____

Sworn to and Subscribed before me this _____ day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

STATE OF DELAWARE
OFFICE OF MANAGEMENT AND BUDGET

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____
_____ of _____ in the County of _____
_____ and State of _____ as **Principal**, and _____
_____ of _____ in the County of _____
and State of _____ as **Surety**, legally authorized to do business in the State of Delaware
("State"), are held and firmly unto the **State** in the sum of _____
_____ Dollars (\$_____), or _____ percent not to exceed _____
_____ Dollars (\$_____)
of amount of bid on Contract No. _____, to be paid to the **State** for the use and
benefit of _____ (*insert State agency name*) for which payment
well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and
successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bonded **Principal**
who has submitted to the _____ (*insert State agency name*) a
certain proposal to enter into this contract for the furnishing of certain material and/or services within the
State, shall be awarded this Contract, and if said **Principal** shall well and truly enter into and execute this
Contract as may be required by the terms of this Contract and approved by the _____
_____ (*insert State agency name*) this Contract to be entered into within twenty days after
the date of official notice of the award thereof in accordance with the terms of said proposal, then this
obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____ seal and dated this _____ day of _____ in the year of our Lord two
thousand and _____ (20____).

SEALED, AND DELIVERED IN THE
Presence of

Name of Bidder (Organization)

Corporate
Seal

By:

Authorized Signature

Attest _____

Title

Witness: _____

By:

Name of Surety

Title

 **AIA[®] Document A132[™] – 2009****Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition**

AGREEMENT made as of the day of in the year
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

| blank

The Construction Manager:
(Name, legal status, address and other information)

The Architect:
(Name, legal status, address and other information)

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A232[™]–2009, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition; B132[™]–2009, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132[™]–2009, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

AIA Document A232[™]–2009 is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS
- 10 INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement, if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

If, prior to the commencement of the Work, the Owner requires time to file mortgages, mechanics' liens and other security interests, the Owner's time requirement shall be as follows:

§ 3.2 The Contract Time shall be measured from the date of commencement.

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than () days from the date of commencement, or as follows:

(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

Portion of the Work

Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.
(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor’s performance of the Contract. The Contract Sum shall be one of the following:
(Check the appropriate box.)

- Stipulated Sum, in accordance with Section 4.2 below
- Cost of the Work plus the Contractor’s Fee without a Guaranteed Maximum Price, in accordance with Section 4.3 below
- Cost of the Work plus the Contractor’s Fee with a Guaranteed Maximum Price, in accordance with Section 4.4 below

(Based on the selection above, complete Section 4.2, 4.3 or 4.4 below. Based on the selection above, also complete either Section 5.1.4, 5.1.5 or 5.1.6 below.)

§ 4.2 Stipulated Sum

§ 4.2.1 The Stipulated Sum shall be (\$), subject to additions and deletions as provided in the Contract Documents.

§ 4.2.2 The Stipulated Sum is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 4.2.3 Unit prices, if any:

(Identify and state the unit price, and state the quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
------	-----------------------	-------------------------

§ 4.2.4 Allowances included in the Stipulated Sum, if any:

(Identify allowance and state exclusions, if any, from the allowance price.)

Item	Allowance
------	-----------

§ 4.3 Cost of the Work Plus Contractor’s Fee without a Guaranteed Maximum Price

§ 4.3.1 The Contract Sum is the Cost of the Work as defined in Exhibit A, Determination of the Cost of the Work, plus the Contractor’s Fee.

§ 4.3.2 The Contractor’s Fee:

(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor’s Fee.)

Init.

§ 4.3.3 The method of adjustment of the Contractor's Fee for changes in the Work:

§ 4.3.4 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work:

§ 4.3.5 Rental rates for Contractor-owned equipment shall not exceed percent (%) of the standard rate paid at the place of the Project.

§ 4.3.6 Unit prices, if any:
(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
------	-----------------------	-------------------------

§ 4.3.7 The Contractor shall prepare and submit to the Construction Manager for the Owner, in writing, a Control Estimate within 14 days of executing this Agreement. The Control Estimate shall include the items in Section A.1 of Exhibit A, Determination of the Cost of the Work.

§ 4.4 Cost of the Work Plus Contractor's Fee with a Guaranteed Maximum Price

§ 4.4.1 The Contract Sum is the Cost of the Work as defined in Exhibit A, Determination of the Cost of the Work, plus the Contractor's Fee.

§ 4.4.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee.)

§ 4.4.3 The method of adjustment of the Contractor's Fee for changes in the Work:

§ 4.4.4 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work:

§ 4.4.5 Rental rates for Contractor-owned equipment shall not exceed percent (%) of the standard rate paid at the place of the Project.

§ 4.4.6 Unit Prices, if any:
(Identify and state the unit price, and state the quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
------	-----------------------	-------------------------

§ 4.4.7 Guaranteed Maximum Price

§ 4.4.7.1 The sum of the Cost of the Work and the Contractor's Fee is guaranteed by the Contractor not to exceed (\$), subject to additions and deductions by changes in the Work as provided in the Contract Documents. Such maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.
(Insert specific provisions if the Contractor is to participate in any savings.)

Init.

§ 4.4.7.2 The Guaranteed Maximum Price is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

§ 4.4.7.3 Allowances included in the Guaranteed Maximum Price, if any:
(Identify and state the amounts of any allowances, and state whether they include labor, materials, or both.)

Item	Allowance
------	-----------

§ 4.4.7.4 Assumptions, if any, on which the Guaranteed Maximum Price is based:

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Construction Manager by the Contractor, and upon certification of the Project Application and Project Certificate for Payment or Application for Payment and Certificate for Payment by the Construction Manager and Architect and issuance by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Construction Manager not later than the day of a month, the Owner shall make payment of the certified amount in the Application for Payment to the Contractor not later than the day of the month. If an Application for Payment is received by the Construction Manager after the application date fixed above, payment shall be made by the Owner not later than () days after the Construction Manager receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Progress Payments Where the Contract Sum is Based on a Stipulated Sum

§ 5.1.4.1 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work and be prepared in such form and supported by such data to substantiate its accuracy as the Construction Manager and Architect may require. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.4.2 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.4.3 Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of percent (%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute may be included as provided in Section 7.3.9 of the General Conditions;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of percent (%);
- .3 Subtract the aggregate of previous payments made by the Owner; and

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- .4 Subtract amounts, if any, for which the Construction Manager or Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of the General Conditions.

§ 5.1.4.4 The progress payment amount determined in accordance with Section 5.1.4.3 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to percent (%) of the Contract Sum, less such amounts as the Construction Manager recommends and the Architect determines for incomplete Work and unsettled claims; and
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of the General Conditions.

§ 5.1.4.5 Reduction or limitation of retainage, if any, shall be as follows:

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.4.3.1 and 5.1.4.3.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

§ 5.1.5 Progress Payments Where the Contract Sum is Based on the Cost of the Work without a Guaranteed Maximum Price

§ 5.1.5.1 With each Application for Payment, the Contractor shall submit the cost control information required in Exhibit A, Determination of the Cost of the Work, along with payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached and any other evidence required by the Owner, Construction Manager or Architect to demonstrate that cash disbursements already made by the Contractor on account of the Cost of the Work equal or exceed (1) progress payments already received by the Contractor; less (2) that portion of those payments attributable to the Contractor's Fee; plus (3) payrolls for the period covered by the present Application for Payment.

§ 5.1.5.2 Applications for Payment shall show the Cost of the Work actually incurred by the Contractor through the end of the period covered by the Application for Payment and for which the Contractor has made or intends to make actual payment prior to the next Application for Payment.

§ 5.1.5.3 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take the Cost of the Work as described in Exhibit A, Determination of the Cost of the Work;
- .2 Add the Contractor's Fee, less retainage of percent (%). The Contractor's Fee shall be computed upon the Cost of the Work described in that Section at the rate stated in that Section; or if the Contractor's Fee is stated as a fixed sum, an amount which bears the same ratio to that fixed-sum Fee as the Cost of the Work bears to a reasonable estimate of the probable Cost of the Work upon its completion;
- .3 Subtract retainage of percent (%) from that portion of the Work that the Contractor self-performs;
- .4 Subtract the aggregate of previous payments made by the Owner;
- .5 Subtract the shortfall, if any, indicated by the Contractor in the documentation required by Article 5 or resulting from errors subsequently discovered by the Owner's auditors in such documentation; and
- .6 Subtract amounts, if any, for which the Construction Manager or Architect has withheld or withdrawn a Certificate for Payment as provided in Section 9.5 of AIA Document A232™-2009, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition.

§ 5.1.5.4 The Owner, Construction Manager and Contractor shall agree upon (1) a mutually acceptable procedure for review and approval of payments to Subcontractors and (2) the percentage of retainage held on Subcontracts, and the Contractor shall execute subcontracts in accordance with those agreements.

§ 5.1.5.5 In taking action on the Contractor's Applications for Payment, the Construction Manager and Architect shall be entitled to rely on the accuracy and completeness of the information furnished by the Contractor and shall not be deemed to represent that the Construction Manager and Architect have made a detailed examination, audit or arithmetic verification of the documentation submitted in accordance with Article 5 or other supporting data; that the Construction Manager and Architect have made exhaustive or continuous on-site inspections; or that the Construction Manager and Architect have made examinations to ascertain how or for what purposes the Contractor has used

amounts previously paid on account of the Contract. Such examinations, audits and verifications, if required by the Owner, will be performed by the Owner's auditors acting in the sole interest of the Owner.

§ 5.1.5.6 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.1.6 Progress Payments Where the Contract Sum is Based on the Cost of the Work with a Guaranteed Maximum Price

§ 5.1.6.1 With each Application for Payment, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner or Architect to demonstrate that cash disbursements already made by the Contractor on account of the Cost of the Work equal or exceed (1) progress payments already received by the Contractor; less (2) that portion of those payments attributable to the Contractor's Fee; plus (3) payrolls for the period covered by the present Application for Payment.

§ 5.1.6.2 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work and be prepared in such form and supported by such data to substantiate its accuracy as the Construction Manager and Architect may require. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.6.3 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment. The percentage of completion shall be the lesser of (1) the percentage of that portion of the Work which has actually been completed; or (2) the percentage obtained by dividing (a) the expense that has actually been incurred by the Contractor on account of that portion of the Work for which the Contractor has made or intends to make actual payment prior to the next Application for Payment by (b) the share of the Guaranteed Maximum Price allocated to that portion of the Work in the schedule of values.

§ 5.1.6.4 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Guaranteed Maximum Price properly allocable to completed Work as determined by multiplying the percentage of completion of each portion of the Work by the share of the Guaranteed Maximum Price allocated to that portion of the Work in the schedule of values. Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.10 of AIA Document A232-2009;
- .2 Add that portion of the Guaranteed Maximum Price properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work, or if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing;
- .3 Add the Contractor's Fee, less retainage of percent (%). The Contractor's Fee shall be computed upon the Cost of the Work at the rate stated in Section 4.4.2 or, if the Contractor's Fee is stated as a fixed sum in that Section, shall be an amount that bears the same ratio to that fixed-sum fee as the Cost of the Work bears to a reasonable estimate of the probable Cost of the Work upon its completion;
- .4 Subtract retainage of percent (%) from that portion of the Work that the Contractor self-performs;
- .5 Subtract the aggregate of previous payments made by the Owner;
- .6 Subtract the shortfall, if any, indicated by the Contractor in the documentation required by Section 5.1.6.1 to substantiate prior Applications for Payment, or resulting from errors subsequently discovered by the Owner's auditors in such documentation; and
- .7 Subtract amounts, if any, for which the Construction Manager or Architect have withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A232-2009.

§ 5.1.6.5 The Owner and the Contractor shall agree upon a (1) mutually acceptable procedure for review and approval of payments to Subcontractors and (2) the percentage of retainage held on Subcontracts, and the Contractor shall execute subcontracts in accordance with those agreements.

§ 5.1.6.6 In taking action on the Contractor's Applications for Payment, the Construction Manager and Architect shall be entitled to rely on the accuracy and completeness of the information furnished by the Contractor and shall not be deemed to represent that the Construction Manager or Architect have made a detailed examination, audit or arithmetic verification of the documentation submitted in accordance with Section 5.1.6.1 or other supporting data; that the

Construction Manager or Architect have made exhaustive or continuous on-site inspections; or that the Construction Manager or Architect have made examinations to ascertain how or for what purposes the Contractor has used amounts previously paid on account of the Contract. Such examinations, audits and verifications, if required by the Owner, will be performed by the Owner's auditors acting in the sole interest of the Owner.

§ 5.1.6.7 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2 of AIA Document A232-2009, and to satisfy other requirements, if any, which extend beyond final payment;
- .2 the Contractor has submitted a final accounting for the Cost of the Work, pursuant to Exhibit A, Determination of the Cost of the Work when payment is on the basis of the Cost of the Work, with or without a Guaranteed Maximum payment; and
- .3 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect; such final payment shall be made by the Owner not more than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment, or as follows:

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A232-2009, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A232-2009, the method of binding dispute resolution shall be as follows:

(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.)

- Arbitration pursuant to Section 15.4 of AIA Document A232-2009.
- Litigation in a court of competent jurisdiction.
- Other: *(Specify)*

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 Where the Contract Sum is a Stipulated Sum

§ 7.1.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232-2009.

§ 7.1.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232-2009.

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§ 7.2 Where the Contract Sum is Based on the Cost of the Work with or without a Guaranteed Maximum Price

§ 7.2.1 Subject to the provisions of Section 7.2.2 below, the Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2009.

§ 7.2.2 The Contract may be terminated by the Owner for cause as provided in Article 14 of AIA Document A232–2009; however, the Owner shall then only pay the Contractor an amount calculated as follows:

- .1 Take the Cost of the Work incurred by the Contractor to the date of termination;
- .2 Add the Contractor's Fee computed upon the Cost of the Work to the date of termination at the rate stated in Sections 4.3.2 or 4.4.2, as applicable, or, if the Contractor's Fee is stated as a fixed sum, an amount that bears the same ratio to that fixed-sum Fee as the Cost of the Work at the time of termination bears to a reasonable estimate of the probable Cost of the Work upon its completion; and
- .3 Subtract the aggregate of previous payments made by the Owner.

§ 7.2.3 If the Owner terminates the Contract for cause when the Contract Sum is based on the Cost of the Work with a Guaranteed Maximum Price, and as provided in Article 14 of AIA Document A232–2009, the amount, if any, to be paid to the Contractor under Section 14.2.4 of AIA Document A232–2009 shall not cause the Guaranteed Maximum Price to be exceeded, nor shall it exceed the amount calculated in Section 7.2.2.

§ 7.2.4 The Owner shall also pay the Contractor fair compensation, either by purchase or rental at the election of the Owner, for any equipment owned by the Contractor that the Owner elects to retain and that is not otherwise included in the Cost of the Work under Section 7.2.1. To the extent that the Owner elects to take legal assignment of subcontracts and purchase orders (including rental agreements), the Contractor shall, as a condition of receiving the payments referred to in this Article 7, execute and deliver all such papers and take all such steps, including the legal assignment of such subcontracts and other contractual rights of the Contractor, as the Owner may require for the purpose of fully vesting in the Owner the rights and benefits of the Contractor under such subcontracts or purchase orders.

§ 7.2.5 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2009; in such case, the Contract Sum and Contract Time shall be increased as provided in Section 14.3.2 of AIA Document A232–2009, except that the term 'profit' shall be understood to mean the Contractor's Fee as described in Sections 4.3.2 and 4.4.2 of this Agreement.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A232–2009 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located. *(Insert rate of interest agreed upon, if any.)*

%

§ 8.3 The Owner's representative:
(Name, address and other information)

§ 8.4 The Contractor's representative:
(Name, address and other information)

Init.

§ 8.5 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

§ 8.6 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A132-2009, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition.

§ 9.1.2 The General Conditions are, AIA Document A232-2009, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
----------	-------	------	-------

§ 9.1.4 The Specifications:

(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

Section	Title	Date	Pages
---------	-------	------	-------

§ 9.1.5 The Drawings:

(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

Number	Title	Date
--------	-------	------

§ 9.1.6 The Addenda, if any:

Number	Date	Pages
--------	------	-------

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents are:

- .1 AIA Document A132™-2009, Exhibit A, Determination of the Cost of the Work, if applicable.
- .2 AIA Document E201™-2007, Digital Data Protocol Exhibit, if completed, or the following:

- .3 AIA Document E202™-2008, Building Information Modeling Protocol Exhibit, if completed, or the following:

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User Notes:

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- .4 Other documents, if any, listed below:
(List here any additional documents which are intended to form part of the Contract Documents. AIA Document A232-2009 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A232-2009.

(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A232-2009.)

Type of Insurance or Bond	Limit of Liability or Bond Amount (\$0.00)
---------------------------	--

This Agreement is entered into as of the day and year first written above.

 OWNER *(Signature)*

 CONTRACTOR *(Signature)*

(Printed name and title)

(Printed name and title)

STATE OF DELAWARE
OFFICE OF MANAGEMENT AND BUDGET

PERFORMANCE BOND

Bond Number: _____

KNOW ALL PERSONS BY THESE PRESENTS, that we, _____, as principal (“**Principal**”), and _____, a _____ corporation, legally authorized to do business in the State of Delaware, as surety (“**Surety**”), are held and firmly bound unto the _____ (“**Owner**”) (*insert State agency name*), in the amount of _____ (\$_____), to be paid to **Owner**, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns, jointly and severally, for and in the whole, firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 20__.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if **Principal**, who has been awarded by **Owner** that certain contract known as Contract No. _____ dated the _____ day of _____, 20__ (the “Contract”), which Contract is incorporated herein by reference, shall well and truly provide and furnish all materials, appliances and tools and perform all the work required under and pursuant to the terms and conditions of the Contract and the Contract Documents (as defined in the Contract) or any changes or modifications thereto made as therein provided, shall make good and reimburse **Owner** sufficient funds to pay the costs of completing the Contract that **Owner** may sustain by reason of any failure or default on the part of **Principal**, and shall also indemnify and save harmless **Owner** from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

Surety, for value received, hereby stipulates and agrees, if requested to do so by **Owner**, to fully perform and complete the work to be performed under the Contract pursuant to the terms, conditions and covenants thereof, if for any cause **Principal** fails or neglects to so fully perform and complete such work.

Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of **Surety** and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and **Surety** hereby waives notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other

transferees shall have the same effect as to **Surety** as though done or omitted to be done by or in relation to **Principal**.

Surety hereby stipulates and agrees that no modifications, omissions or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of **Surety** and its bond.

Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to **Surety** or Contractor may be mailed or delivered to them at their respective addresses shown below.

IN WITNESS WHEREOF, **Principal** and **Surety** have hereunto set their hand and seals, and such of them as are corporations have caused their corporate seal to be hereto affixed and these presents to be signed by their duly authorized officers, the day and year first above written.

PRINCIPAL

Name: _____

Witness or Attest: Address: _____

Name:

(Corporate Seal)

By: _____ (SEAL)
Name:
Title:

SURETY

Name: _____

Witness or Attest: Address: _____

Name:

(Corporate Seal)

By: _____ (SEAL)
Name:
Title:

STATE OF DELAWARE
OFFICE OF MANAGEMENT AND BUDGET

PAYMENT BOND

Bond Number: _____

KNOW ALL PERSONS BY THESE PRESENTS, that we, _____, as principal (“**Principal**”), and _____, a _____ corporation, legally authorized to do business in the State of Delaware, as surety (“**Surety**”), are held and firmly bound unto the _____ (“**Owner**”) (*insert State agency name*), in the amount of _____ (\$_____), to be paid to **Owner**, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns, jointly and severally, for and in the whole firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 20__.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if **Principal**, who has been awarded by **Owner** that certain contract known as Contract No. _____ dated the _____ day of _____, 20__ (the “Contract”), which Contract is incorporated herein by reference, shall well and truly pay all and every person furnishing materials or performing labor or service in and about the performance of the work under the Contract, all and every sums of money due him, her, them or any of them, for all such materials, labor and service for which **Principal** is liable, shall make good and reimburse **Owner** sufficient funds to pay such costs in the completion of the Contract as **Owner** may sustain by reason of any failure or default on the part of **Principal**, and shall also indemnify and save harmless **Owner** from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of **Surety** and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and **Surety** hereby waives notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to **Surety** as though done or omitted to be done by or in relation to **Principal**.

Surety hereby stipulates and agrees that no modifications, omission or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of **Surety** and its bond.

Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to **Surety** or Contractor may be mailed or delivered to them at their respective addresses shown below.

IN WITNESS WHEREOF, **Principal** and **Surety** have hereunto set their hand and seals, and such of them as are corporations have caused their corporate seal to be hereto affixed and these presents to be signed by their duly authorized officers, the day and year first above written.

PRINCIPAL

Name: _____

Witness or Attest: Address: _____

Name:

(Corporate Seal)

By: _____(SEAL)

Name:

Title:

SURETY

Name: _____

Witness or Attest: Address: _____

Name:

(Corporate Seal)

By: _____(SEAL)

Name:

Title:



AIA[®] Document G732[™] - 2009

Application and Certificate for Payment, Construction Manager as Adviser Edition

TO OWNER: PROJECT: blank APPLICATION NO: 001 DISTRIBUTION TO: OWNER

FROM: VIA CONSTRUCTION MANAGER ARCHITECT
CONTRACTOR: MANAGER: CONTRACTOR
CONTRACT FOR: VIA ARCHITECT: PROJECT NOS: / / /
OTHER

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
AIA Document G703[™], Continuation Sheet, is attached.

- 1. ORIGINAL CONTRACT SUM \$ 0.00
- 2. NET CHANGES IN THE WORK \$ 0.00
- 3. CONTRACT SUM TO DATE (Line 1 ± 2) \$ 0.00
- 4. TOTAL COMPLETED AND STORED TO DATE (Column G on G703) \$
- 5. RETAINAGE:
 - a. 0 % of Completed Work (Column D + E on G703) \$ 0.00
 - b. 0 % of Stored Material (Column F on G703) \$ 0.00
- Total Retainage (Lines 5a + 5b, or Total in Column I on G703)..... \$ 0.00
- 6. TOTAL EARNED LESS RETAINAGE \$ 0.00
(Line 4 minus Line 5 Total)
- 7. LESS PREVIOUS CERTIFICATES FOR PAYMENT \$
(Line 6 from prior Certificate)
- 8. CURRENT PAYMENT DUE \$ 0.00
- 9. BALANCE TO FINISH, INCLUDING RETAINAGE \$ 0.00
(Line 3 minus Line 6)

SUMMARY OF CHANGES IN THE WORK	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$	\$
Total approved this month including Construction Change Directives	\$	\$
TOTALS	\$ 0.00	\$ 0.00
NET CHANGES IN THE WORK	\$	\$ 0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR: _____ Date: _____
By: _____
State of: _____
County of: _____
Subscribed and sworn to before me this _____ day of _____
Notary Public: _____
My Commission expires: _____

CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on evaluations of the Work and the data comprising this application, the Construction Manager and Architect certify to the Owner that to the best of their knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$ _____
(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)
CONSTRUCTION MANAGER: _____

By: _____ Date: _____
ARCHITECT: (NOTE: If Multiple Prime Contractors are responsible for performing portions of the Project, the Architect's Certification is not required.)
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

SECTION 006300 - STANDARD FORMS CERTIFICATES AND MODIFICATION FORMS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Standard Forms.

1.2 RELATED SECTIONS

- A. General and Supplementary Conditions.

1.3 STANDARD FORMS

- A. Following is a list of the standard Documents published by the American Institute of Architects which will be used during the performance of Work covered by the Contract Documents.
- B. The Contractor shall familiarize himself with the contents of the Documents, as he will not only be required to execute certain Documents, but will be required to prepare certain others in performing his work in accordance with the Contract Documents.
- C. The Contractor will be required to obtain for his own use, those Documents marked with an asterisk (*). The Documents can be obtained, at nominal cost, from the Documents Division, The American Institute of Architects, 1735 New York Avenue, NW, Washington, DC 20006, as well as other local sources.

D. FORMS

A232*	General Conditions of the Contract for Construction Change Order (Architect Form)
G732/CM*	Application and Certificate for Payment
G703*	Continuation Sheet
G704	Certificate of Substantial Completion
G705*	Certificate of Insurance
G706*	Contractor ' s Affidavit of Payment of Debts and Claims
G706A*	Contractor ' s Affidavit of Release of Liens
G707*	Consent of Surety Company to Final Payment
G707A*	Consent of Surety to Reduction in or Partial Release of Retainage
G805*	List of Subcontractors

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 006300

 **AIA[®] Document A232™ – 2009****General Conditions of the Contract for Construction, Construction Manager as Adviser Edition**

for the following PROJECT:

(Name, and location or address)

THE CONSTRUCTION MANAGER:

(Name, legal status and address)

THE OWNER:

(Name, legal status and address)

THE ARCHITECT:

(Name, legal status and address)

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A132™–2009, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132™–2009, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™–2009, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

Init.

TABLE OF ARTICLES

1	GENERAL PROVISIONS
2	OWNER
3	CONTRACTOR
4	ARCHITECT AND CONSTRUCTION MANAGER
5	SUBCONTRACTORS
6	CONSTRUCTION BY OWNER OR BY OTHER CONTRACTORS
7	CHANGES IN THE WORK
8	TIME
9	PAYMENTS AND COMPLETION
10	PROTECTION OF PERSONS AND PROPERTY
11	INSURANCE AND BONDS
12	UNCOVERING AND CORRECTION OF WORK
13	MISCELLANEOUS PROVISIONS
14	TERMINATION OR SUSPENSION OF THE CONTRACT
15	CLAIMS AND DISPUTES

Init.

INDEX

(Topics and numbers in bold are section headings.)

Acceptance of Nonconforming Work

9.6.6, 9.9.3, **12.3**

Acceptance of Work

9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, **12.3**

Access to Work

3.16, 6.2.1, 12.1

Accident Prevention

10

Acts and Omissions

3.2.1, 3.2.2, 3.3.2, 3.12.8, 3.18, 8.3.1, 9.5.1, 10.1, 10.2.5, 13.4.2, 13.7

Addenda

1.1.1, 3.11, 4.2.14

Additional Costs, Claims for

3.2.4, 3.7.4, 3.7.5, 6.1.1, 7.3, 9.10.3, 9.10.4, 10.3, 10.4, 15.1.4

Additional Inspections and Testing

4.2.8, 12.2.1, 13.5

Additional Insured

11.1.4

Additional Time, Claims for

3.7.4, 3.7.5, 6.1.1, 7.3, 8.3, 10.3

Administration of the Contract

3.10, **4.2**

Advertisement or Invitation to Bid

1.1.1

Aesthetic Effect

4.2.19

Allowances

3.8, 7.3.8

All-risk Insurance

11.3.1, 11.3.1.1

Applications for Payment

4.2.7, 4.2.15, 7.3.9, 9.2, **9.3**, 9.4, 9.5.1, 9.7, 9.8.3, 9.10.1, 9.10.3, 9.10.5, 11.1.3, 14.2.4

Approvals

2.1.1, 2.2.2, 2.4, 3.1.4, 3.10.1, 3.10.2, 3.12.4 through 3.12.10, 3.13.2, 3.15.2, 4.2.9, 9.3.2, 13.4.2, 13.5

Arbitration

8.3.1, 11.3.10, 13.1, 15.3.2, **15.4**

ARCHITECT

4

Architect, Certificates for Payment

9.4

Architect, Definition of

4.1.1

Architect, Extent of Authority

5.2, 7.1.2, 7.3.7, 7.4, 9.3.1, 9.4, 9.5, 9.8.3, 9.8.4, 9.10.1, 9.10.3, 12.1, 12.2.1, 13.5.1, 13.5.2, 15.1.3, 15.2.1

Architect, Limitations of Authority and Responsibility

2.1.1, 3.12.8, 4.2.1, 4.2.2, 4.2.8, 4.2.13, 5.2.1, 9.6.4, 15.2

Architect's Additional Services and Expenses

2.4, 11.3.1.1, 12.2.1, 12.2.4, 13.5.2

Architect's Administration of the Contract

4.2, 9.4, 9.5, 15.2

Architect's Approvals

3.12.8

Architect's Authority to Reject Work

4.2.8, 12.1.2, 12.2.1

Architect's Copyright

1.5

Architect's Decisions

4.2.8, 7.3.9, 7.4, 8.1.3, 8.3.1, 9.2, 9.4, 9.5, 9.8.3, 9.9.2, 13.5.2, 14.2.2, 14.2.4, 15.2

Architect's Inspections

3.7.4, 4.2, 9.8.3, 9.9.2, 9.10.1, 13.5

Architect's Instructions

3.2.4, 7.4, 9.4

Architect's Interpretations

4.2.8, 4.2.17, 4.2.18

Architect's On-Site Observations

4.2.2, 9.4, 9.5.1, 9.10.1, 12.1.1, 12.1.2, 13.5

Architect's Project Representative

4.2.16

Architect's Relationship with Contractor

1.1.2, 1.5, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5, 3.7.4, 3.9.2, 3.9.3, 3.10, 3.11, 3.12.8, 3.16, 3.18, 4.2, 5.2, 6.2.2, 8.2, 11.3.7, 12.1, 13.5

Architect's Relationship with Construction Manager

1.1.2, 9.3 through 9.10, 10.3, 13.5.1, 10.3, 11.3.7, 13.4.2, 13.5.4

Architect's Relationship with Subcontractors

1.1.2, 4.2.8, 5.3, 9.6.3, 9.6.4

Architect's Representations

9.4, 9.5, 9.10.1

Architect's Site Visits

4.2.2, 9.4, 9.5.1, 9.8.3, 9.9.2, 9.10.1, 13.5

Asbestos

10.3.1

Attorneys' Fees

3.18.1, 9.10.2, 10.3.3

Award of Other Contracts

6.1.1, 6.1.2

Award of Subcontracts and Other Contracts for Portions of the Work

5.2

Basic Definitions

1.1

Bidding Requirements

1.1.1, 5.2.1, 11.4.1

Binding Dispute Resolution

9.7, 11.3.9, 11.3.10, 13.1, 15.2.5, 15.2.6.1, 15.3.1, 15.3.2, 15.4.1

Boiler and Machinery Insurance

11.3.2

BONDS, INSURANCE AND

11

Bonds, Lien

7.3.7.4, 9.10.3

Bonds, Performance and Payment

7.3.7.4, 9.6.7, 9.10.3, 11.3.9, 11.4

Building Permit

2.2.2, 3.7.1

Capitalization

1.3

Certificate of Substantial Completion

9.8.3, 9.8.4, 9.8.5

Certificates for Payment

4.2.2, 9.3.3, 9.4, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3,

15.1.3

Certificates of Inspection, Testing or Approval

13.5.4

Certificates of Insurance

9.3.2, 9.10.2, 11.1.3

Change Orders

1.1.1, 2.4, 3.4.2, 3.7.4, 3.8.2, 3.11, 3.12.8, 4.2.12,

4.2.13, 4.2.14, 5.2.3, 7.1.1, 7.1.2, 7.2, 7.3.2, 7.3.4,

7.3.6, 7.3.9, 7.3.10, 8.3.1, 9.3.1.1, 9.10.3, 10.3.2,

11.3.1.2, 11.3.4, 11.3.9, 12.1.2, 15.1.3

Change Orders, Definition of

7.2

Changes

7.1

CHANGES IN THE WORK

2.2.1, 3.4.2, 3.11, 3.12.8, 4.2.13, 4.2.14, 7, 8.3.1,

9.3.1.1

Claims, Definition of

15.1.1

CLAIMS AND DISPUTES

1.1.8, 3.2.4, 3.7.5, 6.1.1, 7.3.9, 8.3.2, 9.3.3, 9.10.3,

9.10.4, 10.3.3, 15, 15.4

Claims for Additional Cost

3.2.4, 3.7.5, 6.1.1, 7.3.9, 9.10.3, 9.10.4, 10.3.2, 10.4,

15.1.4

Claims for Additional Time

3.2.4, 3.7.5, 7, 8.3.2, 10.4, **15.1.5**

Concealed or Unknown Conditions, Claims for

3.7

Claims for Damages

3.2.4, 3.18, 6.1.1, 6.2.5, 8.3.2, 9.3.3, 9.5.1.2, 9.10.2,

9.10.5, 10.3.3, 11.1.1, 11.3.5, 11.3.7, 15.1.6

Cleaning Up

3.15, 6.3

Commencement of Statutory Limitation Period

13.7

Commencement of the Work, Definition of

8.1.2

Communications, Owner to Architect

2.2.6

Communications, Owner to Construction Manager

2.2.6

Communications, Owner to Contractor

2.2.6

Communications Facilitating Contract

Administration

3.9.1, 4.2.6

COMPLETION, PAYMENTS AND

9

Completion, Substantial

4.2.15, 8.1.1, 8.1.3, 8.2.3, 9.4.3.3, 9.8, 9.9.1, 9.10.3,

12.2.1, 12.2.2, 13.7

Concealed or Unknown Conditions

3.7.4, 4.2.8, 8.3.1, 10.3

Conditions of the Contract

1.1.1

Consolidation or Joinder

15.4.4

CONSTRUCTION BY OWNER OR BY OTHER

CONTRACTORS

1.1.4, 6

Construction Change Directive, Definition of

7.3.1

Construction Change Directives

1.1.1, 3.4.2, 3.12.8, 4.2.12, 4.2.13, 7.1.1, 7.1.2, 7.1.3,

7.3, 9.3.1.1

Construction Manager, Building Permits

2.2.2

Construction Manager, Communications through

4.2.6

Construction Manager, Construction Schedule

3.10.1, 3.10.3

CONSTRUCTION MANAGER

4

Construction Manager, Definition of

4.1.2

Construction Manager, Documents and Samples at the

Site

3.11

Construction Manager, Extent of Authority

3.12.7, 3.12.8, 4.1.3, 4.2.1, 4.2.4, 4.2.5, 4.2.9, 7.1.2,

7.2, 7.3.1, 8.3, 9.3.1, 9.4.1, 9.4.2, 9.4.3, 9.8.2, 9.8.3,

9.8.4, 9.9.1, 12.1, 12.2.1, 14.2.2, 14.2.4

Construction Manager, Limitations of Authority and

Responsibility

4.2.5, 4.2.8, 13.4.2

Construction Manager, Submittals

4.2.9

Construction Manager's Additional Services and

Expenses

12.2.1

Construction Manager's Administration of the

Contract

4.2, 9.4, 9.5

Construction Manager's Approval

2.4, 3.10.1, 3.10.2

Construction Manager's Authority to Reject Work
4.2.8, 12.2.1

Construction Manager's Decisions
7.3.7, 7.3.9, 9.4.1, 9.5.1

Construction Manager's Inspections
4.2.8, 9.8.3, 9.9.2

Construction Manager's On-Site Observations
9.5.1

Construction Manager's Relationship with Architect
1.1.2, 4.2.1, 4.2.7, 4.2.8, 4.2.9, 4.2.13, 4.2.15, 4.2.16,
4.2.20, 9.2.1, 9.4.2, 9.5, 9.6.1, 9.6.3, 9.8.2, 9.8.3,
9.8.4, 9.9.1, 9.10.1, 9.10.2, 9.10.3, 11.1.3, 12.2.4,
13.5.1, 13.5.2, 13.5.4, 14.2.2, 14.2.4

Construction Manager's Relationship with Contractor
3.2.2, 3.2.3, 3.3.1, 3.5, 3.10.1, 3.10.2, 3.10.3, 3.11,
3.12.5, 3.12.6, 3.12.7, 3.12.8, 3.12.9, 3.12.10, 3.13.2,
3.14.2, 3.15.2, 3.16, 3.17, 3.18.1, 4.2.4, 4.2.5, 4.2.6,
4.2.9, 4.2.14, 4.2.17, 4.2.20, 5.2, 6.2.1, 6.2.2, 7.1.2,
7.2, 7.3.5, 7.3.7, 7.3.10, 8.3.1, 9.2, 9.3.1, 9.4.1, 9.4.2,
9.7, 9.8.2, 9.8.3, 9.8.4, 9.9.1, 9.10.1, 9.10.2, 9.10.3,
10.1, 10.3, 11.3.7, 12.1, 13.5.1, 13.5.2, 13.5.3, 13.5.4

Construction Manager's Relationship with Owner
2.2.2, 4.2.1, 10.3.2

Construction Manager's Relationship with Other
Contractors and Owner's Own Forces
4.2.4

Construction Manager's Relationship with
Subcontractors
4.2.8, 5.3, 9.6.3, 9.6.4

Construction Manager's Site Visits
9.5.1

Construction Schedules, Contractor's
3.10, 3.12.1, 3.12.2, 6.1.2, 15.1.5.2

Contingent Assignment of Subcontracts
5.4, 14.2.2.2

Continuing Contract Performance
15.1.3

Contract, Definition of
1.1.2

**CONTRACT, TERMINATION OR
SUSPENSION OF THE**
5.4.1.1, 11.3.9, 14

Contract Administration
3.1.3, 4.2, 9.4, 9.5

Contract Award and Execution, Conditions Relating
to
3.7.1, 3.10, 5.2, 6.1, 11.1.3, 11.3.6, 11.4.1

Contract Documents, Copies Furnished and Use of
1.5.2, 2.2.5, 5.3

Contract Documents, Definition of
1.1.1

Contract Performance During Arbitration
15.1.3

Contract Sum
3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.2, 7.3, 7.4, 9.1, 9.2,
9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.3.1.1, 12.3, 14.2.4,
14.3.2, 15.1.4, 15.2.5

Contract Time
3.7.4, 3.7.5, 4, 3.10.2, 5.2.3, 7.2.3, 7.3.1, 7.3.5, 7.3.10,
7.4, 8.1.1, 8.2.1, 8.2.3, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1,
14.3.2, 15.1.5.1, 15.2.5

Contract Time, Definition of
8.1.1

CONTRACTOR
3

Contractor, Definition of
3.1.1

Contractor's Construction Schedules
3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.5.2

Contractor's Employees
3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3,
11.1.1, 11.3.7, 14.1, 14.2.1.1

Contractor's Liability Insurance
11.1

Contractor's Relationship with Other Contractors and
Owner's Own Forces
3.12.5, 3.14.2, 4.2.6, 6, 11.3, 12.1.2, 12.2.4

Contractor's Relationship with Subcontractors
1.2.2, 3.3.2, 3.18, 5, 9.6.2, 9.6.7, 9.10.2, 11.3.1.2,
11.3.7, 11.3.8, 14.2.1.2

Contractor's Relationship with the Architect
1.1.2, 1.5, 3.2.2, 3.2.3, 3.2.4, 3.4.2, 3.5, 3.7.4, 3.10.1,
3.11, 3.12, 3.16, 3.18, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4,
9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3.7, 12, 13.5, 15.1.2,
15.2.1

Contractor's Relationship with the Construction
Manager
1.1.2, 3.2.2, 3.2.3, 3.3.1, 3.5, 3.10.1, 3.10.2, 3.10.3,
3.11, 3.12.5, 3.12.7, 3.12.9, 3.12.10, 3.13.2, 3.14.2,
3.15.1, 3.16, 3.17, 3.18.1, 4.2.4, 4.2.5, 5.2, 6.2.1,
6.2.2, 7.1.2, 7.3.5, 7.3.7, 7.3.10, 8.3.1, 9.2, 9.3.1,
9.4.1, 9.4.2, 9.8.2, 9.9.1, 9.10.1, 9.10.2, 9.10.3, 10.1,
10.2.6, 10.3, 11.3.7, 12.1, 13.5.1, 13.5.2, 13.5.3,
13.5.4

Contractor's Representations
3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2

Contractor's Responsibility for Those Performing the
Work
3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8

Contractor's Review of Contract Documents
3.2

Contractor's Right to Stop the Work
9.7

Contractor's Right to Terminate the Contract
14.1

Contractor's Submittals
3.10.2, 3.11, 3.12, 4.2.9, 9.2, 9.3, 9.8.2, 9.9.1, 9.10.2,
9.10.3, 11.1.3, 11.4.2

Contractor's Superintendent
3.9, 10.2.6

Contractor's Supervision and Construction
Procedures
1.2.2, 3.3, 3.4, 4.2.5, 4.2.7, 6.1, 6.2.4, 7.1.3, 7.3.5,
7.3.7, 8.2, 10, 12, 14, 15.1.3

Init.

Contractual Liability Insurance
11.1.1.8, 11.2, 11.3.1.5

Coordination and Correlation
1.2, 3.2, 3.3.1, 3.10, 3.12.6, 6.1.2, 6.2.1

Copies Furnished of Drawings and Specifications
1.5, 2.2.5, 3.11

Copyrights
1.5, 3.17

Correction of Work
2.3, 2.4, 9.4.1, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, **12.2**

Correlation and Intent of the Contract Documents
1.2

Costs
2.4, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3, 7.3.3.3, 7.3.6, 7.3.7, 7.3.8, 7.3.9, 11.3.1.2, 11.3.1.3, 11.3.4, 11.3.9, 12.1, 12.2.1, 13.5, 14

Cutting and Patching
3.14, 6.2.5

Damage to Construction of Owner or Other Contractors
3.14.2, 6.2.4, 9.5.1.5, 10.2.1.2, 10.2.5, 10.4, 11.1.1, 11.3, 12.2.4

Damage to the Work
3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 11.3.1, 12.2.4

Damages, Claims for
3.2.4, 3.18, 6.1.1, 8.3.2, 10.3.3, 11.1.1, 11.3.5, 11.3.7, 14.2.4, 15.1.6

Damages for Delay
6.1.1, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 15.1.5

Date of Commencement of the Work, Definition of
8.1.2

Date of Substantial Completion, Definition of
8.1.3

Day, Definition of
8.1.4

Decisions of the Architect
3.7.4, 4.2.7, 4.2.8, 4.2.10, 4.2.11, 4.2.13, 4.2.15, 4.2.16, 4.2.17, 4.2.18, 4.2.19, 4.2.20, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5, 9.8.3, 9.8.4, 9.9.1, 10.1.2, 13.5.2, 14.2.2, 14.2.4, 15.1, 15.2

Decisions of the Construction Manager
7.3.7, 7.3.8, 7.3.9, 15.1, 15.2

Decisions to Withhold Certification
9.4.1, **9.5**, 9.7, 14.1.1.3

Defective or Nonconforming Work, Acceptance, Rejection and Correction of
2.3, 2.4, 3.5, 4.2.8, 6.2.5, 9.5.1, 9.6.6, 9.8.2, 9.9.3, 9.10.4, 12.2.1, 12.2.2

Definitions
1.1, 2.1.1, 3.1.1, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 4.1.2, 7.2, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1

Delays and Extensions of Time
3.2, 3.7.4, 5.2.3, 7.2, 7.3.1, 7.4, **8.3**, 9.5.1, 9.7, 10.3.2, 10.4, 14.3.2, 15.1.5, 15.2.5

Disputes
7.3.8, 7.3.9, 9.3, 15.1, 15.2

DISPUTES, CLAIMS AND
3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, **15**, 15.4

Documents and Samples at the Site
3.11

Drawings, Definition of
1.1.5

Drawings and Specifications, Ownership and Use
1.1.1, **1.5**, 2.2.5, 3.11, 5.3

Duty to Review Contract Documents and Field Conditions
3.2

Effective Date of Insurance
8.2.2, 11.1.2

Emergencies
10.4, 14.1.1.2, 15.1.4

Employees, Contractor's
3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.1, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3.3, 11.1.1, 11.3.7, 14.1, 14.2.1.1

Equipment, Labor, Materials and or
1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12.2, 3.12.3, 3.13.1, 3.15.1, 4.2.8, 4.2.7, 5.2.1, 6.2.1, 7.3.7, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.2

Execution and Progress of the Work
1.1.3, 1.2.1, 1.2.2, 2.2.3, 2.2.5, 3.1, 3.3.1, 3.4.1, 3.5, 3.7.1, 3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.5, 8.2, 9.5.1, 9.9.1, 10.2, 10.3, 12.2, 14.2, 14.3.1, 15.1.3

Extensions of Time
3.2.4, 3.7.4, 5.2.3, 7.2.3, 7.4, 8.3, 9.5.1, 9.7, 10.3.2, 10.4, 14.3, 15.1.5, 15.2.5

Failure of Payment
9.5.1.3, **9.7**, 13.6, 14.1.1.3, 14.1.3, 14.2.1.2, 15.1.4

Faulty Work (See Defective or Nonconforming Work)

Final Completion and Final Payment
4.2.1, 4.2.15, 9.8.2, **9.10**, 11.1.2, 11.1.3, 11.3.1, 11.3.5, 12.3, 15.2.1

Financial Arrangements, Owner's
2.2.1

GENERAL PROVISIONS
1

Governing Law
13.1

Guarantees (See Warranty and Warranties)

Hazardous Materials
10.2.4, **10.3**

Identification of Contract Documents
1.2.1

Identification of Subcontractors and Suppliers
5.2.1

Indemnification
3.18, 9.10.2, 10.3.3, 10.3.5, 10.3.6, 11.3.1.2, 11.3.7

Information and Services Required of the Owner
2.1.2, **2.2**, 4.2.6, 6.1.2, 6.2.5, 9.6.1, 9.6.4, 9.8, 9.9.1, 9.10.3, 10.3.2, 10.3.3, 11.2, 11.3.4, 13.5.1, 13.5.2, 14.1.1.4, 14.1.3, 15.1.2

Initial Decision
15.2

Initial Decision Maker, Definition of
1.1.8
Initial Decision Maker, Extent of Authority
14.2.2, 14.2.4, 15.1.3, 15.2.2, 15.2.3, 15.2.4, 15.2.5

Injury or Damage to Person or Property
3.18.1, 10.2.1, 10.2.2, **10.2.8**, 10.3, 10.3.3, 10.4, 11.1.1

Inspections
3.1.3, 3.7.1, 4.2.2, 9.8.2, 9.9.2, 9.10.1, 13.5

Instructions to Bidders
1.1.1

Instructions to the Contractor
3.1.4, 3.3.3, 3.7.1, 4.2.4, 5.2.1, 7, 8.2.2, 12.1, 13.5.2

Instruments of Service, Definition of
1.1.7, 1.5, 1.6

Insurance
6.1.1, 7.3.7, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5, 11

Insurance, Boiler and Machinery
11.3.2

Insurance, Contractor's Liability
11.1
Insurance, Effective Date of
8.2.2, 11.1.2

Insurance, Loss of Use
11.3.3

Insurance, Owner's Liability
11.2

Insurance, Property
10.2.5, **11.3**

Insurance, Stored Materials
9.3.2, 11.3.1

INSURANCE AND BONDS
11
Insurance Companies, Consent to Partial Occupancy
9.9.1, 11.3.1.5

Insurance Companies, Settlement with
11.3.10

Intent of the Contract Documents
1.2, 4.2.18, 4.2.19, 7.4

Interest
9.7, **13.6**

Interpretation
1.4, 4.2.8, 4.2.17, 4.2.18

Interpretations, Written
4.2.17, 4.2.18, 4.2.20

Joinder and Consolidation of Claims Required
15.4.4

Judgment on Final Award
15.4.2

Labor and Materials, Equipment
1.1.3, 1.1.6, 3.4, 3.8.2, 3.8.3, 3.12.2, 3.12.3, 3.12.6, 3.12.10, 3.13.1, 3.15.1, 5.2.1, 6.2.1, 7.3.7, 9.3.2, 9.3.3, 9.5.1.3, 9.6, 9.10.2, 10.2.1.2, 11.3.1, 14.2.1, 14.2.2

Labor Disputes
8.3.1

Laws and Regulations
3.2.3, 3.2.4, 3.7, 3.13.1, 10.2.2, 10.2.3, 13.5.1, 14.2.1

Liens
2.1.2, 9.3.3, 9.10.2, 9.10.4, 15.2.8

Limitation on Consolidation or Joinder
15.4.4

Limitations, Statutes of
15.4.1

Limitations of Authority
3.12.4, 4.1.3, 4.2.16

Limitations of Liability
9.6.7, 11.1.1, 12.2

Limitations of Time
3.10.1, 4.2.17, 4.2.20, 8.2.1, 9.3.3, 9.6.1, 9.8.4, 9.10.2, 10.2, 11.1.3, 12.1.1, 12.2.2.2, 12.2.5, 13.7, 14.1.1, 15.2.6.1

Loss of Use Insurance
11.3.3

Material Suppliers
1.5.1, 1.5.2, 3.12, 4.2.6, 4.2.8, 9.3.1, 9.3.1.2, 9.3.3, 9.5.3, 9.6.4, 9.6.5, 9.6.7, 9.10.5, 11.3.1

Materials, Hazardous
10.2.4, **10.3**

Materials, Labor, Equipment and
1.1.3, 1.1.6, 1.5.1, 1.5.2, 3.4, 3.5, 3.8.2, 3.8.3, 3.12.2, 3.12.3, 3.12.6, 3.12.10, 3.13.1, 5.2.1, 6.2.1, 9.3.1, 9.3.2, 9.3.3, 9.5.1, 9.5.3, 9.6.4, 9.6.5, 9.6.7, 9.10.2, 9.10.5, 10.2.1, 10.2.4, 10.3

Means, Methods, Techniques, Sequences and
Procedures of Construction
3.3.1, 3.12.10, 4.2.5, 4.2.11

Mechanic's Lien
2.1.2, 15.2.8

Mediation
8.3.1, 10.3.5, 15.2.1, 15.2.5, 15.2.6, **15.3**, 15.4.1

Minor Changes in the Work
1.1.1, 3.12.8, 4.2.13, 7.1, 7.4

MISCELLANEOUS PROVISIONS
13
Modifications, Definition of
1.1.1

Modifications to the Contract
1.1.1, 1.1.2, 3.11, 4.1.3, 4.2.14, 5.2.3, 7, 11.3.1

Mutual Responsibility
6.2

Nonconforming Work, Acceptance of
9.4.3, 9.8.3, **12.3**

Nonconforming Work, Rejection and Correction of
2.3, 2.4, 3.2.3, 3.7.3, 9.4.3.3, 9.8.2, 9.8.3, 9.9.1, 11.1.1, 12.2.2.1, 12.2.3, 12.2.4, 12.2.5

Notice
1.5, 2.1.2, 2.2.1, 2.4, 3.2.4, 3.3.1, 3.7.1, 3.7.2, 3.7.5, 3.9.2, 3.12.9, 5.2.1, 6.3, 9.4.1, 9.7, 9.10.1, 9.10.2, 10.2.2, 10.2.6, 10.2.8, 10.3.2, 11.3.6, 12.2.2.1, 13.3, 13.5.1, 13.5.2, 14.1.2, 14.2.2, 14.4.2, 15.1.2, 15.1.4, 15.1.5.1, 15.2, 15.4.1

Notice of Claims
 3.7.2, 10.2.8, **15.1.2**, 15.4.1
Notice of Testing and Inspections
 13.5.1, 13.5.2
Notices, Permits, Fees and
 3.7, 7.3.7, 10.2.2
Observations, On-Site
 3.2.1, 9.5.1, 12.1.1
Occupancy
 2.2.2, 9.6.6, 9.9, 11.3.1.5
On-Site Inspections
 4.2.2, 9.10.1, 9.4.4, 9.5.1
Orders, Written
 4.2.7, 4.2.18, 4.2.20
Other Contracts and Contractors
 1.1.4, 3.14.2, 4.2.9, 6, 11.3.7, 12.1.2
OWNER
2
Owner, Definition of
 2.1.1
Owner, Information and Services Required of the
 2.1.2, **2.2**, 4.2, 6.1.2, 6.1.3, 6.2.5, 9.3.2, 9.6.1, 9.6.4,
 9.9.2, 9.10.2, 10.3.3, 11.2, 11.3, 13.5.1, 13.5.2, 14.1.1,
 14.1.3, 15.1.3
Owner's Authority
 1.5, 2.1.1, 2.3, 2.4, 3.4.2, 3.12.10, 3.14.2, 4.1.2, 4.1.3,
 4.2.8, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2, 7.3.1,
 8.2.2, 9.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2, 10.3.2,
 11.3.3, 11.3.10, 12.2.2.1, 12.3, 13.5.2, 14.2, 14.3.1,
 14.4, 15.2.7
Owner's Financial Capability
 2.2.1, 13.2.2, 14.1.1
Owner's Liability Insurance
11.2
Owner's Relationship with Subcontractors
 1.1.2, 5.2.1, 5.3, 5.4.1, 9.6.4, 9.10.2, 14.2.2
Owner's Right to Carry Out the Work
 2.4, 12.2.4, 14.2.2
Owner's Right to Clean Up
6.3
Owner's Right to Perform Construction with Own
Forces and to Award Other Contracts
6.1
Owner's Right to Stop the Work
2.3
Owner's Right to Suspend the Work
 14.3
Owner's Right to Terminate the Contract
 14.2
Ownership and Use of Drawings, Specifications
and Other Instruments of Service
 1.1.1, 1.1.5, **1.5**, 1.6, 3.11, 3.12.10, 3.17, 4.2.14,
 4.2.18, 4.2.20
Partial Occupancy or Use
9.9, 11.3.1.5
Patching, Cutting and
3.14, 6.2.5

Patents and Copyrights, Royalties
3.17
Payment, Applications for
 4.2.1, 4.2.7, 4.2.15, 7.3.9, 9.2, **9.3**, 9.4, 9.5, 9.7, 9.10.1,
 9.10.3, 9.10.5, 11.1.3
Payment, Certificates for
 4.2.15, 7.3.9, 9.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1,
 9.10.3, 14.1.1.3, 15.1.3
Payment, Failure of
 9.4.1, 9.5, **9.7**, 14.1.1.3
Payment, Final
 4.2.1, 9.8.2, **9.10**, 11.1.2, 11.3.1, 11.3.5, 12.3, 15.2.1
Payment Bond, Performance Bond and
 5.4.1, 7.3.7, 9.6.7, 9.10.2, 9.10.3, 11, **11.4**
Payments, Progress
 9.3.1, 9.4.2, **9.6**
PAYMENTS AND COMPLETION
9, 14
Payments to Subcontractors
 5.4.2, 9.3, 9.5.1.3, 9.5.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7,
 9.10.5, 14.2.1.2
PCB
 10.3.1
Performance Bond and Payment Bond
 5.4.1, 7.3.7, 9.6.7, 9.10.2, 9.10.3, 11, **11.4**
Permits, Fees, Notices and Compliance with Laws
 2.2.2, **3.7**, 7.3.7.4, 10.2.2
PERSONS AND PROPERTY, PROTECTION OF
10
Polychlorinated Biphenyl
 10.3.1
Product Data, Definition of
 3.12.2
Product Data and Samples, Shop Drawings
 3.11, **3.12**, 4.2.9, 4.2.10, 4.2.14
Progress and Completion
8.2, 9.3.1, 9.4.2, 9.6, 9.8, 9.10, 14.2.4, 15.1.6
Progress Payments
 9.3.1, 9.4.2, **9.6**
Project, Definition of
1.1.4
Project Representatives
 4.2.16
Property Insurance
 10.2.5, **11.3**
Project Schedule
 3.10.1, 3.10.3, 3.10.4, 4.2.2, 4.2.3, 4.2.4
PROTECTION OF PERSONS AND PROPERTY
10
Regulations and Laws
 1.5, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 4.1.1, 9.6.4, 9.9.1,
 10.2.2, 11.1, 11.4, 13.1, 13.4, 13.5.1, 13.5.2, 13.6,
 14.1.1, 14.2.1, 15.2.8, 15.4
Rejection of Work
 3.5, 4.2.8, 12.2.1
Releases of and Waivers and of Liens
 9.10.2

Representations
 1.3, 2.2.1, 3.5, 3.12, 6.2.2, 8.2.1, 9.3.3, 9.4.3, 9.5.1,
 9.8.2, 9.10.1
 Representatives
 2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.1, 4.2.2, 4.2.10, 5.1.1,
 5.1.2, 13.2.1
 Requests for Information
 4.2.20
 Resolution of Claims and Disputes
 15
 Responsibility for Those Performing the Work
 3.3.2, 3.7.3, 3.12.8, 3.18, 4.2.2, 4.2.5, 4.2.8, 5.3, 6.1.2,
 6.2, 6.3, 9.5.1, 9.8.2, 10
 Retainage
 9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3
**Review of Contract Documents and Field
 Conditions by Contractor**
 1.2.2, 3.2, 3.7.3, 3.12.7
 Review of Contractor's Submittals by Owner,
 Construction Manager and Architect
 3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 5.2, 9.2, 9.8.2
 Review of Shop Drawings, Product Data and Samples
 by Contractor
 3.12.5
Rights and Remedies
 1.1.2, 2.3, 2.4, 3.7.4, 3.15.2, 4.2.8, 5.3, 5.4, 6.1, 6.3,
 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.2,
 12.2.4, 13.4, 14, 15.4
Royalties, Patents and Copyrights
 3.17
 Rules and Notices for Arbitration
 15.4
Safety of Persons and Property
 10.2, 10.3, 10.4
Safety Precautions and Programs
 3.3.1, 3.12, 4.2.5, 5.3, 10.1, 10.2, 10.3, 10.4
 Samples, Definition of
 3.12.3
Samples, Shop Drawings, Product Data and
 3.11, 3.12, 4.2.9, 4.2.10
Samples at the Site, Documents and
 3.11
Schedule of Values
 9.2, 9.3.1
 Schedules, Construction
 3.10, 3.12.1, 3.12.2, 6.1.2, 15.1.5.2
 Separate Contracts and Contractors
 1.1.4, 3.12.5, 3.14.2, 4.2.6, 4.2.11, 6, 8.3.1, 12.1.2
 Shop Drawings, Definition of
 3.12.1
Shop Drawings, Product Data and Samples
 3.11, 3.12, 4.2.9, 4.2.10, 4.2.14
Site, Use of
 3.13, 6.1.1, 6.2.1
 Site Inspections
 3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2.2, 4.2.3, 4.2.15, 9.4.3.3,
 9.8.3, 9.9.2, 9.10.1, 13.5

Site Visits, Architect's
 3.7.4, 4.2.2, 4.2.15, 9.8.3, 9.9.2, 9.10.1, 13.5
 Special Inspections and Testing
 4.2.8, 12.2.1, 13.5
 Specifications, Definition of
 1.1.6
Specifications
 1.1.1, 1.1.6, 1.2.2, 1.5, 3.11, 3.12.10, 3.17, 4.2.14
 Staffing Plan
 4.2.3
 Statute of Limitations
 12.2.5, 13.7, 15.4.1.1
 Stopping the Work
 2.3, 9.7, 10.3, 14.1
 Stored Materials
 6.2.1, 9.3.2, 10.2.1.2, 10.2.4
 Subcontractor, Definition of
 5.1.1
SUBCONTRACTORS
 5
 Subcontractors, Work by
 1.2.2, 3.3.2, 3.12.1, 4.2.5, 5.2.3, 5.3, 5.4, 9.3.1.2, 9.6.7
Subcontractual Relations
 5.3, 5.4, 9.3.1.2, 9.6.2, 9.6.3, 9.10, 10.2.1, 14.1, 14.2
 Submittals
 3.2.3, 3.10, 3.11, 3.12, 4.2.9, 4.2.10, 4.2.11, 5.2.1,
 5.2.3, 7.3.7, 9.2, 9.3, 9.8, 9.9.1, 9.10.2, 9.10.3, 11.1.3
 Submittal Schedule
 3.10.2, 3.12.5, 4.2.9, 4.2.10
Subrogation, Waivers of
 6.1.1, 11.3.7
Substantial Completion
 8.1.1, 8.1.3, 8.2.3, 9.4.3.3, 9.8, 9.9.1, 9.10.3, 12.2.1,
 12.2.2, 13.7
 Substantial Completion, Definition of
 9.8.1
 Substitution of Subcontractors
 5.2.3, 5.2.4
 Substitution of Architect
 4.1.4
 Substitution of Construction Manager
 4.1.4
 Substitutions of Materials
 3.4.2, 3.5, 7.3.8
 Sub-subcontractor, Definition of
 5.1.2
 Subsurface Conditions
 3.7.4
Successors and Assigns
 13.2
Superintendent
 3.9, 10.2.6
Supervision and Construction Procedures
 1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.3, 4.2.5, 4.2.8, 4.2.9,
 4.2.10, 4.2.11, 6.1.3, 6.2.4, 7.1.3, 7.3.7, 8.2, 8.3.1,
 9.4.3.3, 10, 12, 14, 15.1.3

Init.

Surety
5.4.1.2, 9.8.5, 9.10.2, 9.10.3, 14.2.2, 15.2.7

Surety, Consent of
9.10.2, 9.10.3

Surveys
1.1.7, 2.2.3

Suspension by the Owner for Convenience
14.3

Suspension of the Work
5.4.2, 14.3

Suspension or Termination of the Contract
5.4.1.1, 14

Taxes
3.6, 3.8.2.1, 7.3.7.4

Termination by the Contractor
14.1, 15.1.6

Termination by the Owner for Cause
5.4.1.1, 14.2, 15.1.6

Termination by the Owner for Convenience
14.4

Termination of the Contractor
14.2.2

TERMINATION OR SUSPENSION OF THE CONTRACT
14

Tests and Inspections
3.1.4, 3.3.3, 4.2.2, 4.2.6, 4.2.8, 9.4.3.3, 9.8.3, 9.9.2, 9.10.1, 10.3.2, 12.2.1, 13.5

TIME
8

Time, Delays and Extensions of
3.2.4, 3.7.4, 5.2.3, 7.2, 7.3.1, 7.4, 8.3, 9.5.1, 10.3.2, 14.3.2, 15.1.5, 15.2.5

Time Limits
2.1.2, 2.2, 2.4, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.1, 5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.4.2, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 11.1.3, 11.4, 12.2, 13.5, 13.7, 14, 15

Time Limits on Claims
3.7.4, 10.2.8, 13.7, 15.1.2

Title to Work
9.3.2, 9.3.3

Transmission of Data in Digital Form
1.6

UNCOVERING AND CORRECTION OF WORK
12

Uncovering of Work
12.1

Unforeseen Conditions, Concealed or Unknown
3.7.4, 8.3.1, 10.3

Unit Prices
7.3.3.2, 7.3.4

Use of Documents
1.1.1, 1.5, 2.2.5, 3.12.6, 5.3

Use of Site
3.13, 6.1.1, 6.2.1

Values, Schedule of
9.2, 9.3.1

Waiver of Claims by the Architect
13.4.2

Waiver of Claims by the Construction Manager
13.4.2

Waiver of Claims by the Contractor
9.10.5, 13.4.2, 15.1.6

Waiver of Claims by the Owner
9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.4.2, 14.2.4, 15.1.6

Waiver of Consequential Damages
14.2.4, 15.1.6

Waiver of Liens
9.10.2, 9.10.4

Waivers of Subrogation
6.1.1, 11.3.7

Warranty
3.5, 4.2.15, 9.3.3, 9.8.4, 9.9.1, 9.10.4, 12.2.2

Weather Delays
15.1.5.2

Work, Definition of
1.1.3

Written Consent
1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.3, 9.3.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 10.3.2, 11.4.1, 13.2, 13.4.2, 15.4.4.2

Written Interpretations
4.2.17, 4.2.18

Written Notice
2.3, 2.4, 3.3.1, 3.9, 3.12.9, 3.12.10, 5.2.1, 5.3, 5.4.1.1, 8.2.2, 9.4, 9.5.1, 9.7, 9.10, 10.2.2, 10.3, 11.1.3, 12.2.2, 12.2.4, 13.3, 13.5.2, 14, 15.4.1

Written Orders
1.1.1, 2.3, 3.9, 7, 8.2.2, 12.1, 12.2, 13.5.2, 14.3.1, 15.1.2

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 **The Contract Documents.** The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement), and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of addenda relating to bidding requirements).

§ 1.1.2 **The Contract.** The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and the Construction Manager or the Construction Manager's consultants, (3) between the Owner and the Architect or the Architect's consultants, (4) between the Contractor and the Construction Manager or the Construction Manager's consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties.

§ 1.1.3 **The Work.** The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 **The Project.** The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by other Multiple Prime Contractors and by the Owner's own forces, including persons or entities under separate contracts not administered by the Construction Manager.

§ 1.1.5 **The Drawings.** The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 **The Specifications.** The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 **Instruments of Service.** Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 **Initial Decision Maker.** The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect, or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 Transmission of Data in Digital Form

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Article 4, the Construction Manager and the Architect do not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Information and Services Required of the Owner

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the

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portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities. Unless otherwise provided under the Contract Documents, the Owner, through the Construction Manager, shall secure and pay for the building permit.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.2.6 The Owner shall endeavor to forward all communications to the Contractor through the Construction Manager and shall contemporaneously provide the same communications to the Architect about matters arising out of or relating to the Contract Documents.

§ 2.3 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Construction Manager's and Architect's and their respective consultants' additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect, after consultation with the Construction Manager. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The plural term "Multiple Prime Contractors" refers to persons or entities who perform construction under contracts with the Owner that are administered by the Construction Manager. The term does not include the Owner's own forces, including persons or entities under separate contracts not administered by the Construction Manager.

§ 3.1.3 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.4 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Architect in their administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construction Manager and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Construction Manager and Architect any nonconformity discovered by or made known to the Contractor as a request for information submitted to Construction Manager in such form as the Construction Manager and Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instruction concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner, the Construction Manager, and the Architect and shall not proceed with that portion of the Work without further written instructions from the Architect, through the Construction Manager. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of the Project already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect, in consultation with the Construction Manager, and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

The Contractor warrants to the Owner, Construction Manager, and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform with the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Construction Manager or Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices, and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Owner, through the Construction Manager, shall secure and pay for the building permit. The Contractor shall secure and pay for other permits, fees, licenses and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 **Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner, Construction Manager, and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect and Construction

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Manager will promptly investigate such conditions and, if the Architect, in consultation with the Construction Manager, determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect, in consultation with the Construction Manager, determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner, Construction Manager, and Contractor in writing, stating the reasons. If the Owner or Contractor disputes the Architect's determination or recommendation, either party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner, Construction Manager, and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents:

- .1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner and Architect through the Construction Manager, the name and qualifications of a proposed superintendent. The Construction Manager may reply within 14 days to the Contractor in writing stating (1) whether the Owner, the Construction Manager, or the Architect has reasonable objection to the proposed superintendent or (2) that any of them require additional time to review. Failure of the Construction Manager to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner, Construction Manager or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information and the Construction Manager's approval a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project schedule to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Multiple Prime Contractors or the construction or operations of the Owner's own forces.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter update it as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Construction Manager's and Architect's approval. The Architect and Construction Manager's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Construction Manager and Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall participate with other Contractors, the Construction Manager and Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

§ 3.10.4 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner, Construction Manager and Architect and incorporated into the approved Project schedule.

§ 3.11 Documents and Samples at the Site

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These documents shall be available to the Architect and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect and Construction Manager is subject to the limitations of Sections 4.2.9 through 4.2.11. Informational submittals upon which the Construction Manager and Architect are not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Construction Manager or Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Construction Manager Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the Project submittal schedule approved by the Construction Manager and Architect, or in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Multiple Prime Contractors or the Owner's own forces. The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor's Shop Drawings, Product Data, Samples and similar submittals with related documents submitted by other Multiple Prime Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner, Construction Manager, and Architect, that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked

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and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been reviewed and approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Construction Manager and Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Construction Manager and Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 Use of Site

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.13.2 The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Construction Manager before using any portion of the site.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner's own forces or of other Multiple Prime Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner's own forces or by other Multiple Prime Contractors except with written consent of the Construction Manager,

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Owner and such other Multiple Prime Contractors; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the other Multiple Prime Contractors or the Owner the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner's approval, may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner, Construction Manager and Architect access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner, Construction Manager and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner, Architect, or Construction Manager. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect through the Construction Manager.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Construction Manager, Architect, Construction Manager's and Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT AND CONSTRUCTION MANAGER

§ 4.1 General

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 The Owner shall retain a construction manager lawfully licensed to practice construction management or an entity lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.3 Duties, responsibilities and limitations of authority of the Construction Manager and Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Construction Manager, Architect and Contractor. Consent shall not be unreasonably withheld.

§ 4.1.4 If the employment of the Construction Manager or Architect is terminated, the Owner shall employ a successor construction manager or architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Construction Manager or Architect, respectively.

§ 4.2 Administration of the Contract

§ 4.2.1 The Construction Manager and Architect will provide administration of the Contract as described in the Contract Documents and will be the Owner's representatives during construction until the date the Architect issues the final Certificate for Payment. The Construction Manager and Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner and Construction Manager (1) known deviations from the Contract Documents and from the most recent Project schedule prepared by the Construction Manager, and (2) defects and deficiencies observed in the Work.

§ 4.2.3 The Construction Manager shall provide a staffing plan to include one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner reasonably informed of the progress of the Work, and will report to the Owner and Architect (1) known deviations from the Contract Documents and the most recent Project schedule, and (2) defects and deficiencies observed in the Work.

§ 4.2.4 The Construction Manager will schedule and coordinate the activities of the Contractor and other Multiple Prime Contractors in accordance with the latest approved Project schedule.

§ 4.2.5 The Construction Manager, except to the extent required by Section 4.2.4, and Architect will not have control over, or charge of, construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of or be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work.

§ 4.2.6 **Communications Facilitating Contract Administration.** Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Construction Manager, and shall contemporaneously provide the same communications to the Architect about matters arising out of or relating to the Contract Documents. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with other Multiple Prime Contractors shall be through the Construction Manager and shall be contemporaneously provided to the Architect if those communications are about matters arising out of or related to the Contract Documents. Communications by and with the Owner's own forces shall be through the Owner.

§ 4.2.7 The Construction Manager and Architect will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents and will notify each other about the rejection. The Construction Manager shall determine in general

whether the Work of the Contractor is being performed in accordance with the requirements of the Contract Documents and notify the Owner, Contractor and Architect of defects and deficiencies in the Work. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require additional inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, upon written authorization of the Owner, whether or not such Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing any of the Work.

§ 4.2.9 The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data and Samples. Where there are Multiple Prime Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from Contractor and other Multiple Prime Contractors, and transmit to the Architect those recommended for approval. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Construction Manager represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

§ 4.2.10 The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Upon the Architect's completed review, the Architect shall transmit its submittal review to the Construction Manager.

§ 4.2.11 Review of the Contractor's submittals by the Construction Manager and Architect is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Construction Manager and Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Construction Manager and Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Construction Manager and Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.12 The Construction Manager will prepare Change Orders and Construction Change Directives.

§ 4.2.13 The Construction Manager and the Architect will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7, and the Architect will have authority to order minor changes in the Work as provided in Section 7.4. The Architect, in consultation with the Construction Manager, will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.14 Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor, and will be delivered to the Owner upon completion of the Project.

§ 4.2.15 The Construction Manager will assist the Architect in conducting inspections to determine the dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Section 9.8; and receive and forward to the Owner written warranties and related

documents required by the Contract and assembled by the Contractor pursuant to Section 9.10. The Construction Manager will forward to the Architect a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.

§ 4.2.16 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.17 The Architect will interpret and decide matters concerning performance under, and requirements of the Contract Documents on written request of the Construction Manager, Owner or Contractor through the Construction Manager. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.18 Interpretations and decisions of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith.

§ 4.2.19 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.20 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Architect, with the Construction Manager's recommendation. The Architect will review and respond in writing to the Construction Manager to requests for information about the Contract Documents. The Construction Manager's recommendation and the Architect's response to each request will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include other Multiple Prime Contractors or subcontractors of other Multiple Prime Contractors.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Construction Manager for review by the Owner, Construction Manager and Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Construction Manager may reply within 14 days to the Contractor in writing stating (1) whether the Owner, the Construction Manager or the Architect has reasonable objection to any such proposed person or entity or, (2) that the Construction Manager, Architect or Owner requires additional time for review. Failure of the Construction Manager, Owner, or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner, Construction Manager or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner, Construction Manager or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Construction Manager or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change,

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and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner, Construction Manager or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner, Construction Manager and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity. If the Owner assigns the subcontract to a successor Contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor Contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY OTHER CONTRACTORS

§ 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, which include persons or entities under separate contracts not administered by the Construction Manager, and to award other contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When the Owner performs construction or operations with the Owner's own forces including persons or entities under separate contracts not administered by the Construction Manager, the Owner shall provide for coordination of such forces with the Work of the Contractor, who shall cooperate with them.

§ 6.1.3 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11 and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner's own forces, Construction Manager and other Multiple Prime Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner's own forces or other Multiple Prime Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Construction Manager and Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's own forces or other Multiple Prime Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a separate contractor or to other Multiple Prime Contractors because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of delays, improperly timed activities, damage to the Work or defective construction by the Owner's own forces or other Multiple Prime Contractors.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner, separate contractors, or other Multiple Prime Contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and other Multiple Prime Contractors shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, other Multiple Prime Contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Construction Manager, with notice to the Architect, will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Construction Manager, Architect and Contractor; a Construction Change Directive requires agreement by the Owner, Construction Manager and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 Change Orders

A Change Order is a written instrument prepared by the Construction Manager and signed by the Owner, Construction Manager, Architect and Contractor, stating their agreement upon all of the following:

- .1 The change in the Work;

- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Construction Manager and signed by the Owner, Construction Manager and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Construction Manager and Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Construction Manager shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers compensation insurance;
- .2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Construction Manager and Architect. When

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both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Construction Manager and Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager and Architect determine to be reasonably justified. The interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Construction Manager and Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Construction Manager shall prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order issued through the Construction Manager and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner, Owner's own forces, Construction Manager, Architect, any of the other Multiple Prime Contractors or an employee of any of them, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration, or by other causes that the Architect, based on the recommendation of the Construction Manager, determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 Schedule of Values

Where the Contract is based on a Stipulated Sum or Guaranteed Maximum Price, the Contractor shall submit to the Construction Manager, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Construction Manager and Architect may require. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. In the event there is one Contractor, the Construction Manager shall forward to the Architect the Contractor's schedule of values. If there are Multiple Prime Contractors responsible for performing different portions of the Project, the Construction Manager shall forward the Multiple Prime Contractors' schedules of values only if requested by the Architect.

§ 9.3 Applications for Payment

§ 9.3.1 At least fifteen days before the date established for each progress payment, the Contractor shall submit to the Construction Manager an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner, Construction Manager or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Construction Manager and Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 Where there is only one Contractor, the Construction Manager will, within seven days after the Construction Manager's receipt of the Contractor's Application for Payment, review the Application, certify the amount the Construction Manager determines is due the Contractor, and forward the Contractor's Application and Certificate for Payment to the Architect. Within seven days after the Architect receives the Contractor's Application for Payment from the Construction Manager, the Architect will either issue to the Owner a Certificate for Payment, with a copy to the Construction Manager, for such amount as the Architect determines is properly due, or notify the Construction Manager and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided

in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the Architect's notice of withholding certification.

§ 9.4.2 Where there are Multiple Prime Contractors performing portions of the Project, the Construction Manager will, within seven days after the Construction Manager receives the Multiple Prime Contractors' Applications for Payment: (1) review the Applications and certify the amount the Construction Manager determines is due each of the Multiple Prime Contractors; (2) prepare a Summary of Contractors' Applications for Payment by combining information from each Multiple Prime Contractors' application with information from similar applications for progress payments from other Multiple Prime Contractors; (3) prepare a Project Application and Certificate for Payment; (4) certify the amount the Construction Manager determines is due all Multiple Prime Contractors; and (5) forward the Summary of Contractors' Applications for Payment and Project Application and Certificate for Payment to the Architect.

§ 9.4.3 Within seven days after the Architect receives the Project Application and Project Certificate for Payment and the Summary of Contractors' Applications for Payment from the Construction Manager, the Architect will either issue to the Owner a Project Certificate for Payment, with a copy to the Construction Manager, for such amount as the Architect determines is properly due, or notify the Construction Manager and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1. The Construction Manager will promptly forward the Architect's notice of withholding certification to the Contractors.

§ 9.4.4 The Construction Manager's certification of an Application for Payment or, in the case of Multiple Prime Contractors, a Project Application and Certificate for Payment shall be based upon the Construction Manager's evaluation of the Work and the information provided as part of the Application for Payment. The Construction Manager's certification will constitute a representation that, to the best of the Construction Manager's knowledge, information and belief, the Work has progressed to the point indicated and the quality of the Work is in accordance with the Contract Documents. The certification will also constitute a recommendation to the Architect and Owner that the Contractor be paid the amount certified.

§ 9.4.5 The Architect's issuance of a Certificate for Payment or in the case of Multiple Prime Contractors, Project Application and Certificate for Payment, shall be based upon the Architect's evaluation of the Work, the recommendation of the Construction Manager, and information provided as part of the Application for Payment or Project Application for Payment. The Architect's certification will constitute a representation that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated, that the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified.

§ 9.4.6 The representations made pursuant to Sections 9.4.4 and 9.4.5 are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Construction Manager or Architect.

§ 9.4.7 The issuance of a separate Certificate for Payment or a Project Certificate for Payment will not be a representation that the Construction Manager or Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed the Contractor's construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Construction Manager or Architect may withhold a Certificate for Payment or Project Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager's or Architect's opinion the representations to the Owner required by Section 9.4.4 and 9.4.5 cannot be made. If the Construction Manager or Architect is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.3. If the Contractor, Construction Manager and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Construction Manager or Architect may also withhold a Certificate for Payment or, because of

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subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment or Project Certificate for Payment previously issued, to such extent as may be necessary in the Construction Manager's or Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from the acts and omissions described in Section 3.3.2 because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a separate contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect or Construction Manager withholds certification for payment under Section 9.5.1, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Construction Manager and both will reflect such payment on the next Certificate for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment or Project Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Construction Manager and Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Construction Manager will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner, Construction Manager and Architect on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner, Construction Manager nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary

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liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 Failure of Payment

If the Construction Manager and Architect do not issue a Certificate for Payment or a Project Certificate for Payment, through no fault of the Contractor, within fourteen days after the Construction Manager's receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Construction Manager and Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner, Construction Manager and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify the Construction Manager, and the Contractor and Construction Manager shall jointly prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the list, the Architect, assisted by the Construction Manager, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the list, which is not sufficiently complete in accordance with the requirements of the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect, assisted by the Construction Manager, to determine Substantial Completion.

§ 9.8.4 When the Architect, assisted by the Construction Manager, determines that the Work or designated portion thereof is substantially complete, the Construction Manager will prepare, and the Construction Manager and Architect shall execute a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor and Construction Manager shall jointly prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall

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be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect after consultation with the Construction Manager.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Construction Manager, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon completion of the Work, the Contractor shall forward to the Construction Manager a written notice that the Work is ready for final inspection and acceptance and shall also forward to the Construction Manager a final Contractor's Application for Payment. Upon receipt, the Construction Manager will evaluate the completion of Work of the Contractor and then forward the notice and Application, with the Construction Manager's recommendations, to the Architect who will promptly make such inspection. When the Architect, finds the Work acceptable under the Contract Documents and the Contract fully performed, the Construction Manager and Architect will promptly issue a final Certificate for Payment or Project Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Construction Manager's and Architect's final Certificate for Payment or Project Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect through the Construction Manager (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Construction Manager and Architect so confirm, the Owner shall, upon application by the Contractor and certification by the Construction Manager and Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect through the Construction Manager prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

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§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other Contractors.

The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors;
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and
- .4 construction or operations by the Owner or other Contractors.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4, except damage or loss attributable to acts or omissions of the Owner, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner, Construction Manager and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured,

shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to, asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner, Construction Manager and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify a presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor, Construction Manager and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor, the Construction Manager and the Architect will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor, Construction Manager or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor, the Construction Manager and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resumed upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Construction Manager, Architect, their consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is not due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Liability Insurance

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set

Init.

forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle; and
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be submitted to the Construction Manager for transmittal to the Owner with a copy to the Architect prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Construction Manager, the Construction Manager's consultants, the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 Owner's Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 Property Insurance

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for the Architect's, Contractor's, and Construction Manager's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 **Boiler and Machinery Insurance.** The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Construction Manager, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 **Loss of Use Insurance.** The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, adjoining or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 **Waivers of Subrogation.** The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees each of the other, and (2) the Construction Manager,

Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as the Owner and Contractor may have to the proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Construction Manager, Construction Manager's consultants, Architect, Architect's consultants, Owner's separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or distribution of insurance proceeds in accordance with the direction of the arbitrators.

§ 11.4 Performance Bond and Payment Bond

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Construction Manager's or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their observation and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered which the Construction Manager or Architect has not specifically requested to observe prior to its being covered, the Construction Manager or Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or one of the other Contractors in which event the Owner shall be responsible for payment of such costs.

§ 12.2 Correction of Work

§ 12.2.1 Before or After Substantial Completion

The Contractor shall promptly correct Work rejected by the Construction Manager or Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors or other Multiple Prime Contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in

Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 Written Notice

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity or to an officer of the corporation for which it was intended; or if delivered at or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 Rights and Remedies

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Construction Manager, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

§ 13.5 Tests and Inspections

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Construction Manager and Architect timely notice of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Construction Manager, Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Construction Manager and Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Construction Manager and Architect of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. Such costs except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Construction Manager's and Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Construction Manager for transmittal to the Architect.

§ 13.5.5 If the Construction Manager or Architect is to observe tests, inspections or approvals required by the Contract Documents, the Construction Manager or Architect will do so promptly and, where practicable, at the normal place of testing.

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§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 Time Limits on Claims

The Owner and the Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and the Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- .3 Because the Construction Manager has not certified or the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, after consultation with the Construction Manager, and upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and the Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of this Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 Notice of Claims. Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Construction Manager and Architect, if the Construction Manager and or Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 Continuing Contract Performance. Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Construction Manager will prepare Change Orders and the Architect will issue a Certificate for Payment or Project Certificate for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 Claims for Additional Cost. If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.3.

§ 15.1.5 Claims for Additional Time

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 Claims for Consequential Damages. The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision

Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect and Construction Manager, if the Architect or Construction Manager is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a

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notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

SECTION 007300 - SUPPLEMENTARY GENERAL CONDITIONS A232-2009

The following supplements modify the "General Conditions of the Contract for Construction," AIA Document A201-1997. Where a portion of the General Conditions is modified or deleted by the Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

TABLE OF ARTICLES

1. GENERAL PROVISIONS
2. OWNER
3. CONTRACTOR
4. ADMINISTRATION OF THE CONTRACT
5. SUBCONTRACTORS
6. CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7. CHANGES IN THE WORK
8. TIME
9. PAYMENTS AND COMPLETION
10. PROTECTION OF PERSONS AND PROPERTY
11. INSURANCE AND BONDS
12. UNCOVERING AND CORRECTION OF WORK
13. MISCELLANEOUS PROVISIONS
14. TERMINATION OR SUSPENSION OF THE CONTRACT
15. ATTACHMENT A – CONSTRUCTION MANAGEMENT GENERAL CONDITIONS

ARTICLE 1: GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

Delete the last sentence in its entirety and replace with the following:

“The Contract Documents also include Advertisement for Bid, Instructions to Bidder, sample forms, the Bid Form, the Contractor’s completed Bid and the Award Letter.”

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

Add the following Paragraphs:

1.2.2 In the case of an inconsistency between the Drawings and the Specifications, or within either document not clarified by addendum, the better quality or greater quantity of work shall be provided in accordance with the Architect’s interpretation.

1.2.3 The word “PROVIDE” as used in the Contract Documents shall mean “FURNISH AND INSTALL” and shall include, without limitation, all labor, materials, equipment, transportation, services and other items required to complete the Work.

1.2.4 The word “PRODUCT” as used in the Contract Documents means all materials, systems and equipment.

1.5.3 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

Add the following paragraphs:

“All pre-design studies, drawings, specifications and other documents, including those in electronic form, prepared by the Architect under this Agreement are, and shall remain, the property of the Owner whether the Project for which they are made is executed or not. Such documents may be used by the Owner to construct one or more like Projects without the approval of, or additional compensation to, the Architect. The Contractor, Subcontractors, Sub-subcontractors and Material or Equipment Suppliers are authorized to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect and the Architect’s consultants appropriate to and for use in the execution of their Work under the Contract Documents. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or Material and Equipment Supplier on other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and Architect’s consultants.

The Architect shall not be liable for injury or damage resulting from the re-use of drawings and specifications if the Architect is not involved in the re-use Project. Prior to re-use of construction documents for a Project in which the Architect is not also involved, the Owner will remove from such documents all identification of the original Architect, including name, address and professional seal or stamp.”

ARTICLE 2: OWNER

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

To Subparagraph 2.2.3 – Add the following sentence:

“The Contractor, at their expense shall bear the costs to accurately identify the location of all underground utilities in the area of their excavation and shall bear all cost for any repairs required, out of failure to accurately identify said utilities.”

Delete Subparagraph 2.2.5 in its entirety and substitute the following:

2.2.5 The Contractor shall be furnished free of charge up to one (1) set of the Drawings and Project Manuals. Additional sets will be furnished at the cost of reproduction, postage and handling.

ARTICLE 3: CONTRACTOR

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

Amend Paragraph 3.2.2 to state that any errors, inconsistencies or omissions discovered shall be reported to the Architect and Owner immediately.

3.2.5 The Contractor shall own all entities (products, materials, equipment and systems) identified in the Project Manual (Specifications) and drawings, regardless of whether said entities are only referenced in either the Project Manual or the drawings. Failure of the successful low bidder to identify all required quantities and locations of all project entities in the bidding period will not exempt the low bidder from the contractual responsibility for these items. In the event of a conflict between the Project Manual and the drawings, the Contractor shall own the more costly of the conflicting scenarios. The conflict, once identified and reported by the Contractor, will be resolved by the Architect.”

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

Add the following Paragraphs:

3.3.2.1 The Contractor shall immediately remove from the Work, whenever requested to do so by the Owner, any person who is considered by the Owner or Construction Manager to be incompetent or disposed to be so disorderly, or who for any reason is not satisfactory to the Owner, and that person shall not again be employed on the Work without the consent of the Owner or the Architect.

3.3.4 The Contractor must provide suitable storage facilities at the Site for the proper protection and safe storage of their materials. Consult the Owner and the Construction Manager before storing any materials.

3.3.5 When any room is used as a shop, storeroom, office, etc., by the Contractor or Subcontractor(s) during the construction of the Work, the Contractor making use of these areas will be held responsible for any repairs, patching or cleaning arising from such use.

3.4 LABOR AND MATERIALS

Add the Following Paragraphs:

3.4.4 Before starting the Work, each Contractor shall carefully examine all preparatory Work that has been executed to receive their Work. Check carefully, by whatever means are required, to insure that its Work and adjacent, related Work, will finish to proper contours, planes and levels. Promptly notify the Construction Manager of any defects or imperfections in preparatory Work which will in any way affect satisfactory completion of its Work. Absence of such notification will be construed as an acceptance of preparatory Work and later claims of defects will not be recognized.

3.4.5 Under no circumstances shall the Contractor's Work proceed prior to preparatory Work having been completely cured, dried and/or otherwise made satisfactory to receive this Work. Responsibility for timely installation of all materials rests solely with the Contractor responsible for that Work, who shall maintain coordination at all times.

3.5 WARRANTY

Add the following Paragraphs:

3.5.1 The Contractor will guarantee all materials and workmanship against original defects, except injury from proper and usual wear when used for the purpose intended, for two (2) years after Acceptance by the Owner, and will maintain all items in perfect condition during the period of guarantee.

3.5.2 Defects appearing during the period of guarantee will be made good by the Contractor at his expense upon demand of the Owner, it being required that all work will be in perfect condition when the period of guarantee will have elapsed.

3.5.3 In addition to the General Guarantee there are other guarantees required for certain items for different periods of time than the two (2) years as above, and are particularly so stated in that part of the specifications referring to same. The said guarantees will commence at the same time as the General Guarantee.

3.5.4 If the Contractor fails to remedy any failure, defect or damage within a reasonable time after receipt of notice, the Owner will have the right to replace, repair, or otherwise remedy the failure, defect or damage at the Contractor's expense.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

Add the following Paragraphs:

3.11.1 During the course of the Work, the Contractor shall maintain a record set of drawings on which the Contractor shall mark the actual physical location of all piping, valves, equipment, conduit, outlets, access panels, controls, actuators, including all appurtenances that will be concealed once construction is complete, etc., including all invert elevations.

- 3.11.2 At the completion of the project, the Contractor shall obtain a set of reproducible drawings from the Architect, and neatly transfer all information outlined in 3.11.1 to provide a complete record of the as-built conditions.
- 3.11.3 The Contractor shall provide two (2) prints of the as-built conditions, along with the reproducible drawings themselves, to the Owner and one (1) set to the Architect. In addition, attach one complete set to each of the Operating and Maintenance Instructions/Manuals.

ARTICLE 4: ADMINISTRATION OF THE CONTRACT

4.2

Add the following Paragraph:

- 4.2.16.1 There will be no full-time project representative provided by the Owner or Architect on this project. The construction manager will be the owner's representative.

ARTICLE 5: SUBCONTRACTORS

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

Delete Paragraph 5.2.3 in its entirety and replace with the following:

- 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection, subject to the statutory requirements of 29 Delaware Code § 6962(d)(10)b.3, 4.

ARTICLE 7: CHANGES IN THE WORK

(SEE ARTICLE 7: CHANGES IN WORK OF THE GENERAL REQUIREMENTS)

ARTICLE 8: TIME

8.2 PROGRESS AND COMPLETION

Add the following Paragraphs:

- 8.2.1.1 Refer to Specification Section SUMMARY OF WORK for Contract time requirements.
- 8.2.4 If the Work falls behind the Progress Schedule as submitted by the Contractor, the Contractor shall employ additional labor and/or equipment necessary to bring the Work into compliance with the Progress Schedule at no additional cost to the Owner.

8.3 DELAYS AND EXTENSION OF TIME

Add the following Paragraph:

- 8.3.2.1 The Contractor shall update the status of the suspension, delay, or interruption of the Work with each Application for Payment. (The Contractor shall report the termination of such cause immediately upon the termination thereof.) Failure to comply with this procedure shall constitute a waiver for any claim for adjustment of time or price based upon said cause.

Delete Paragraph 8.3.3 in its entirety and replace with the following:

- 8.3.3 Except in the case of a suspension of the Work directed by the Owner, an extension of time under the provisions of Paragraph 8.3.1., shall be the Contractor's sole remedy in the progress of the Work and there shall be no payment or compensation to the Contractor for any expense or damage resulting from the delay.

Add the following Paragraph:

- 8.3.4 By permitting the Contractor to work after the expired time for completion of the project, the Owner does not waive their rights under the Contract.

ARTICLE 9: PAYMENTS AND COMPLETION

9.2 SCHEDULE OF VALUES

Add the following Paragraphs:

- 9.2.1 The Schedule of Values shall be submitted using AIA Document G702, Continuation Sheet to G703.
- 9.2.2 The Schedule of Values is to include a line item for Project Closeout Document Submittal. The value of this item is to be no less than 1% of the initial contract amount.

9.3 APPLICATIONS FOR PAYMENT

Add the following Paragraph:

- 9.3.1.3 Application for Payment shall be submitted on AIA Document G702 "Application and Certificate for Payment", supported by AIA Document G703 "Continuation Sheet". Said Applications shall be fully executed and notarized.

Add the following Paragraphs:

- 9.3.4 Until Closeout Documents have been received and outstanding items completed the Owner will pay 95% (ninety-five percent) of the amount due the Contractor on account of progress payments.
- 9.3.5 The Contractor shall provide a current and updated Progress Schedule to the Architect with each Application for Payment. Failure to provide Schedule will be just cause for rejection of Application for Payment.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

Add the following to 9.5.1:

- .8 failure to provide a current Progress Schedule;
- .9 a lien or attachment is filed;
- .10 failure to comply with mandatory requirements for maintaining Record Documents.

9.6 PROGRESS PAYMENTS

Delete Paragraph 9.6.1 in its entirety and replace with the following:

- 9.6.1 After the Architect has approved and issued a Certificate for Payment, payment shall be made by the Owner within 30 days after Owner's receipt of the Certificate for Payment.

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

Add the following Paragraphs:

- 10.1.2 Each Contractor shall develop a safety program in accordance with the Occupational Safety and Health Act of 1970. A copy of said plan shall be furnished to the Owner and Architect prior to the commencement of that Contractor's Work.
- 10.1.3 Each Contractor shall appoint a Safety Representative. Safety Representatives shall be someone who is on site on a full time basis. If deemed necessary by the Owner, Construction Manager or Architect, Contractor Safety meetings will be scheduled. The attendance of all Safety Representatives will be required. Minutes will be recorded of said meetings by the Contractor and will be distributed to all parties as well as posted in all job offices/trailers etc.

10.2 SAFETY OF PERSONS AND PROPERTY

Add the following Paragraph:

- 10.2.4.1 As required in the Hazardous Chemical Act of June 1984, all vendors supplying any material that may be defined as hazardous, must provide Material Safety Data Sheets for those products. Any chemical product should be considered hazardous if it has a caution warning on the label relating to a potential physical or health hazard, if it is known to be present in the work place, and if employees may be exposed under normal conditions or in foreseeable emergency situations. Material Safety Data Sheets shall be provided directly to the Owner, along with the shipping slips that include those products.

ARTICLE 11: INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.4 Strike "the owner" immediately following "(1)" and strike "and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations."

11.2 OWNER'S LIABILITY INSURANCE

Delete Paragraph 11.2 in its entirety.

11.3 PROPERTY INSURANCE

Delete Paragraph 11.3 in its entirety and replace with the following:

11.3 The Owner will not provide Builder's All Risk Insurance for the Project. The Contractor and all Subcontractors shall provide property coverage for their tools and equipment, as necessary. Any mandatory deductible required by the Contractor's Insurance shall be the responsibility of the Contractor.

11.4 PERFORMANCE BOND AND PAYMENT BOND

Add the following sentence: "The bonds will conform to those forms approved by the Office of Management and Budget."

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

12.2.2 AFTER SUBSTANTIAL COMPLETION

Add the following Paragraph:

12.2.2.1.1 At any time during the progress of the Work, or in any case where the nature of the defects will be such that it is not expedient to have corrected, the Owner, at its option, will have the right to deduct such sum, or sums, of money from the amount of the Contract as it considers justified to adjust the difference in value between the defective work and that required under contract including any damage to the structure.

12.2.2.1 Strike "one" and insert "two".

12.2.2.2 Strike "one" and insert "two".

12.2.2.3 Strike "one" and insert "two".

12.2.5 In second sentence, strike "one" and insert "two".

ARTICLE 13: MISCELLANEOUS PROVISIONS

Add the following Paragraph:

13.1 GOVERNING LAW

Strike "except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4."

13.6 INTEREST

Strike "the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located." Insert "30 days of presentment of the authorized Certificate of Payment at the annual rate of 12% or 1% per month.

13.8 CONFLICTS WITH FEDERAL STATUTES OR REGULATIONS

13.8.1 If any provision, specifications or requirement of the Contract Documents conflict or is inconsistent with any statute, law or regulation of the government of the United State of America, the Contractor shall notify the Architect and Owner immediately upon discovery.

ARTICLE 14: TERMINATION OR SUSPENSION OF THE CONTRACT

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

Delete Paragraph 14.4.3 in its entirety and replace with the following:

14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and cost incurred by reason of such termination along with reasonable overhead.

END OF SUPPLEMENTARY GENERAL CONDITIONS

**SECTION 007300 - ATTACHMENT A - CONSTRUCTION MANAGER GENERAL
CONDITIONS**

COORDINATION OF THE CONTRACT

1. The Construction Manager will provide general coordination of all contracts between the Owner and Contractors, including the functions hereinafter described.
2. Coordinator, and in addition, home office executive, technical and clerical support for management, communications, documentation, inspection, planning, scheduling, estimating and accounting. He will furnish, maintain and operate a temporary field office and telephone.
3. The Construction Manager will provide support for the Contractors by providing the following General Condition Construction Items: ceremonies construction work; temporary toilets; first aid stations; bulletin board; job signs; temporary fire extinguishers.

Temporary heat provided by Mechanical Contractor is space heat for certain finish trades unless otherwise specifically required by the trade specification. In no way should the contractor misconstrue this item to include weather protection for concrete or masonry.

4. The Construction Manager will establish a reference point and benchmark for layout and engineering. Further actual layout and engineering required on the site to accomplish this Bid Pac work shall be the responsibility of the Contractor.
5. The Construction Manager will:
 - (a) Review all changes proposed by the Contractor, Architect or Owner and make recommendations to the Architect and Owner on the schedule and cost implications and may initiate requests for changes in its opinion required by field conditions or progress of the work.
 - (b) Review the adequacy of each Contractor's personnel and equipment and the availability of necessary materials and supplies. If, in the opinion of the Construction Manager, a Contractor's personnel or equipment or the availability of necessary materials and supplies is inadequate, the Construction Manager shall give written notice to the Contractor specifying such inadequacy. If such inadequacy is not cured within five (5) working days after receipt of such notice, the Construction Manager shall have the right to order the Contractor and all of his subcontractors to stop work until the inadequacy is cured. Such a work stoppage shall not entitle the Contractor or any subcontractors to any extension of the schedule, and the Contractor shall remain responsible for completing its work on time.
 - (c) Establish and maintain a complete onsite library of all Contract Documents, approved shop drawings and approved material samples. Maintain an onsite directory which includes contracts for all sources of materials, labor and services relating to the project, and maintain at the job site a current marked record set of the contract drawings and specifications.

- (d) Conduct pre-construction conferences with successful bidders. Schedule and conduct job meetings to be attended by the Contractors and representatives of the Owner to discuss such matters as procedures, progress, problems and scheduling. Distribute minutes of such meetings to all parties.
- 6. Construction Manager's Daily Inspection Review:
 - (a) The Construction Manager will make daily review of work. In the event the interpretation of the meaning and intent of the plans and specifications becomes necessary during construction, he will consult with the Architect, request the Architect's interpretation in writing and transmit same to the appropriate Contractor. Pending receipt of such interpretation from the Architect, the Construction Manager shall have the right to stop the work of the Contractor. These reviews are intended to supplement but not replace those inspections that are the responsibility of the Architects and their consultants. These reviews do not relieve the Contractor from his responsibility to the Owner.
- 7. Construction Manager's Review of Safety Program:
 - (a) The Construction Manager will review the safety program as developed by each Contractor. (The Performance of such services by the Construction Manager shall not relieve the Contractor of his responsibilities for the safety of persons or property, and compliance with statutes, rules regulations and orders applicable to the conduct of the work.)
- 8. Construction Manager – Submittals Expediting Schedule:
 - (a) The Construction Manager will prepare and maintain a separate Submittals Expediting Schedule which schedules construction items requiring submission to Architect or Owner for review and approval prior to ordering, fabrication or delivery, such as: shop drawings preparation, submission of shop drawings samples – color schedules, templates, coordination drawings, equipment and fixture schedules, manufacturer literature, review and approval of submittal items, fabrication of equipment and products, shipping and delivery.
- 9. Construction Manager – Contractor's Progress Payments:
 - (a) The Construction Manager will review application for each Contractor's Progress Payments for compliance with the value of work accomplished and submit recommendations to the Architect.
- 10. Construction Manager – Change Orders:
 - (a) The Construction Manager will review all change order requests and submit recommendations to the Architect.
- 11. Construction Manager – Expansion of the Construction Schedule:

- (a) The Construction Manager will meet with each Contractor who receives an award to expand the construction schedule to include: shop drawings preparation, samples, review and approvals, fabrication, equipment and product delivery and testing activities. He will monitor schedule periodically to identify slippage. He will recommend to each Contractor corrective action as required to maintain schedule compliance.

12. Construction Manager – Master Schedule Bar Chart:

- (a) The Construction Manager will display a Master Schedule Bar Chart in the job office showing the duration and location of each activity and a summary bar chart depicting each major construction activity time scaled to a calendar. He will also furnish identical information to the Architect and Owner.

RECORD DRAWINGS

13. All Contractors shall report to the Construction Manager all changes, deviations, additions or deletions related to the contract documents along with dimensional locations of underground utilities and other items which will be hidden from view in the completed construction. The Construction Manager will maintain a complete set of sepia reproducible of the contract documents upon which these items shall be recorded. At the completion of the project their record drawings will be turned over to the Owner for his use in building maintenance.

COOPERATION OF PRIME CONTRACTORS

14. In as much as the completion of the building within the prescribed time is dependent very largely upon the close and active cooperation of all those engaged therein, it is, therefore, expressly understood and agreed that each Contractor will layout and install his work as such time or times and in such manner as consistent with the Master Schedule Bar Chart to permit the carrying forward of the work of other Contractors.

JOB MEETINGS

15. A meeting shall be conducted bi-weekly by the Construction Manager for the purpose of coordinating and expediting the work. It shall be mandatory that each Contractor and/or his Superintendent be in attendance. Also, from time to time, the Construction Manager will designate certain subcontractors to attend. Additional mandatory meetings may be called by the Construction Manager. Such as weekly progress meetings on Mondays with the onsite Superintendent or others needed to attend for all trades working on the site to discuss job problems.

CONTRACTOR'S PLANT AND PERSONNEL

16. Each Contractor shall provide for his own forces the following as necessary:

- (a) Job Site Office with telephone.
- (b) Personnel/Tool Locker.
- (c) Equipment and Material Storage Facilities.

- (d) Onsite supervision of personnel and plant acceptable to the Construction Manager. Supervisions shall not be changed during the project duration without approval of the Construction Manager. If required by the Construction Manager, the Contractor shall immediately remove any personnel from the project and replace same with approved personnel.
- (e) The Contractor shall provide drinking water in accordance with Public Health requirements.
- (f) Provide any additional temporary lighting as required and protection for new or existing finishes.
- (g) Extension cords and light bulbs.
- (h) The Contractor shall at the completion of his work remove all such temporary utilities.
- (i) Pay for all power consumed.

SAFETY

- 17. The Construction Manager will have the right to correct any unsafe project conditions that exist due to the negligence of any Contractor and may reduce the Contractor's payments in the amount required to make necessary safe project conditions. In no way does this mean that the Construction Manager has the responsibility for any safety requirements that are specifically that of the Contractor.
- 17.1 Prime Contractor acknowledges that it is solely responsible for the health and safety of its employees, agents, subcontractors, and other persons on the adjacent to the Work Site. Prime contractor agrees that it shall be liable for any violation of any law, regulation, statute or ordinance applicable to Prime Contractor's work. The Prime Contractor shall be liable to the Owner and Construction Manager for all loss, cost and expense attributable to any act or omission by the Prime Contractor, or anyone acting on its behalf, including but not limited to any fines, penalties or assessments levied against the Owner and/or Construction Manager, and agrees that any such amounts may be deducted from any payment due to the Prime Contractor.
- 18. The Carpentry and General Work Contract will provide and install temporary safety rails for guarding any floor and wall openings during construction.

SCHEDULE

- 19. If the project progresses well and the project is ahead of schedule, the Contractor must take this point into consideration. At no time shall a Contractor use the Schedule Advancement as a reason for not completing work.

CONSTRUCTION MANAGER'S AUTHORITY REGARDING CLEANUP

- 20. The site and all portions of the work in progress shall be cleaned up daily.

21. In the event that any contractor fails to properly do his cleanup work during the construction period (as noted in subparagraph 4.15.1), the Construction Manager shall, after giving the contractor a 48 hour written notice, hire a clean up crew to do the necessary cleanup and then back-charge the contractor for doing this cleanup work. Note that when performing his required cleanup, the contractor shall deposit all debris at a place designated by the Construction Manager, or remove debris from the site. No burning will be permitted on this site.
22. The contractor shall furnish, at the construction manager's discretion, one (1) man for two (2) hours per week to police the construction site clean up of miscellaneous debris.

END CM GENERAL CONDITIONS

STATE OF DELAWARE
DEPARTMENT OF LABOR
DIVISION OF INDUSTRIAL AFFAIRS
OFFICE OF LABOR LAW ENFORCEMENT
PHONE: (302) 451-3423

Mailing Address:
225 CORPORATE BOULEVARD
SUITE 104
NEWARK, DE 19702

Located at:
225 CORPORATE BOULEVARD
SUITE 104
NEWARK, DE 19702

PREVAILING WAGES FOR BUILDING CONSTRUCTION EFFECTIVE MARCH 15, 2016

CLASSIFICATION	NEW CASTLE	KENT	SUSSEX
ASBESTOS WORKERS	22.58	27.81	40.47
BOILERMAKERS	67.59	34.29	50.41
BRICKLAYERS	50.49	50.49	50.49
CARPENTERS	52.81	52.81	41.97
CEMENT FINISHERS	70.82	30.05	21.89
ELECTRICAL LINE WORKERS	44.90	38.50	29.36
ELECTRICIANS	65.10	65.10	65.10
ELEVATOR CONSTRUCTORS	83.06	63.69	31.54
GLAZIERS	69.30	69.30	55.95
INSULATORS	54.38	54.38	54.38
IRON WORKERS	61.20	61.20	61.20
LABORERS	43.60	43.60	43.60
MILLWRIGHTS	66.83	66.83	53.40
PAINTERS	46.72	46.72	46.72
PILEDRIVERS	72.97	38.86	31.43
PLASTERERS	29.47	29.47	21.84
PLUMBERS/PIPEFITTERS/STEAMFITTERS	65.95	50.85	55.34
POWER EQUIPMENT OPERATORS	61.36	61.36	43.28
ROOFERS-COMPOSITION	23.49	23.40	20.87
ROOFERS-SHINGLE/SLATE/TILE	18.16	18.07	16.98
SHEET METAL WORKERS	65.14	65.14	65.14
SOFT FLOOR LAYERS	49.77	49.77	49.77
SPRINKLER FITTERS	54.57	54.57	54.57
TERRAZZO/MARBLE/TILE FNRS	55.72	55.72	46.92
TERRAZZO/MARBLE/TILE STRS	63.98	63.98	54.33
TRUCK DRIVERS	28.39	27.10	20.68

CERTIFIED: 7/26/2016

BY: *Daniel M. Khan* /for
ADMINISTRATOR, OFFICE OF LABOR LAW ENFORCEMENT

NOTE: THESE RATES ARE PROMULGATED AND ENFORCED PURSUANT TO THE PREVAILING WAGE REGULATIONS ADOPTED BY THE DEPARTMENT OF LABOR ON APRIL 3, 1992.

CLASSIFICATIONS OF WORKERS ARE DETERMINED BY THE DEPARTMENT OF LABOR. FOR ASSISTANCE IN CLASSIFYING WORKERS, OR FOR A COPY OF THE REGULATIONS OR CLASSIFICATIONS, PHONE (302) 451-3423.

NON-REGISTERED APPRENTICES MUST BE PAID THE MECHANIC'S RATE.

PROJECT: H O Brittingham Elementary School-Cape Henlopen, Sussex County

ACORD CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.	
	INSURERS AFFORDING COVERAGE	NAIC #
INSURED	INSURER A:	
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REG. REMER. TBY OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR ADD'LTR	INSRC	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
		GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO. <input type="checkbox"/> LOC.				EACH OCCURRENCE DAMAGE TO RENTED PREMISES (EA OCCURRENCE) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMPROP AGG \$
		AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS <input type="checkbox"/> NON-OWNED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS				COMBINED SINGLE LIMIT (EA accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
		GARAGE LIABILITY <input type="checkbox"/> FOR AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN AUTO ONLY: EA ACC \$ AGG \$
		EXCESS/UMBRELLA LIABILITY <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$
		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER ENCLOSED? If yes, specify in SPECIAL PROVISIONS below OTHER				WC STATUTORY LIMITS: DISEASE \$ E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

CERTIFICATE HOLDER	CANCELLATION
	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL _____ DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES. AUTHORIZED REPRESENTATIVE

SECTION 008000 - GENERAL REQUIREMENTS

TABLE OF ARTICLES

1. GENERAL PROVISIONS
2. OWNER
3. CONTRACTOR
4. ADMINISTRATION OF THE CONTRACT
5. SUBCONTRACTORS
6. CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7. CHANGES IN THE WORK
8. TIME
9. PAYMENTS AND COMPLETION
10. PROTECTION OF PERSONS AND PROPERTY
11. INSURANCE AND BONDS
12. UNCOVERING AND CORRECTION OF WORK
13. MISCELLANEOUS PROVISIONS
14. TERMINATION OR SUSPENSION OF THE CONTRACT

ARTICLE 1: GENERAL

1.1 CONTRACT DOCUMENTS

1.1.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary and what is required by one shall be as binding as if required by all. Performance by the Contractor shall be required to an extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results. In the case of conflict, the most expensive combination of quality and quantity shall govern.

1.1.2 Work shall not begin until the Contractor is in receipt of a bonafide Contract.

1.2 EQUALITY OF EMPLOYMENT

1.2.1 For Public Works Projects financed in whole or in part by state appropriation the Contractor agrees that during the performance of this contract.

1. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex or national origin. The Contractor will take positive steps to ensure that applicants are employed and that employees are treated during employment without regard to their race, creed, color, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.

2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex or national origin."

ARTICLE 2: OWNER
(NOT ADDENDED)

ARTICLE 3: CONTRACTOR

3.1 Schedule of Values: The successful Bidder shall within twenty (20) days after receiving notice to proceed with the work, furnish to the Owner a complete schedule of values on the various items comprising the work.

3.2 Subcontracts: Upon approval of Subcontractors, the Contractor shall award their Subcontracts as soon as possible after the signing of their own contract and see that all material, their own and those of their Subcontractors, are promptly ordered so that the work will not be delayed by failure of materials to arrive on time.

3.3 Before commencing any work or construction, the Trade Contractor is to consult with the Construction Manager as to matters in connection with access to the site and the allocation of Ground Areas for the various features of hauling, storage, etc.

- 3.4 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions.
- 3.5 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.
- 3.6 The Contractor warrants to the Owner that materials and equipment furnished will be new and of good quality, unless otherwise permitted, and that the work will be free from defects and in conformance with the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved, may be considered defective. If required by the Owner, the Contractor shall furnish evidence as to the kind and quality of materials and equipment provided.
- 3.7 Unless otherwise provided, the Contractor shall pay all sales, consumer, use and other similar taxes, and shall secure and pay for required permits, fees, licenses, and inspections necessary for proper execution of the Work.
- 3.8 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work. The Contractor shall promptly notify the Construction Manager if the Drawings and Specifications are observed to be at variance therewith.
- 3.9 The Contractor shall be responsible to the Owner for the acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under contract with the Contractor.
- 3.10 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project all waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials. The Contractor shall be responsible for returning all damaged areas to their original conditions.
- 3.11 STATE LICENSE AND TAX REQUIREMENTS
- 3.11.1 Each Contractor and Subcontractor shall be licensed to do business in the State of Delaware and shall pay all fees and taxes due under State laws. In conformance with Section 2503, Chapter 25, Title 30, Delaware Code, "the Contractor shall furnish the State Tax Department within ten (10) days after award of the Contract, a statement of the total values of each contract and Subcontract, together with the names and addresses of the contracting parties "
- 3.12 PREFERENCE FOR DELAWARE LABOR
- 3.12.1 The Contractor shall comply with all requirements set forth in Section 6962, Chapter 69, Title 29 of the Delaware Code.
- 3.13 During the contract Work, the Contractor and each listed Subcontractor, shall implement an Employee Drug Testing Program in accordance with OMB Regulation 4104 'Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on "Large Public Works Projects". "Large Public Works" is based upon the current

threshold required for bidding Public Works as set by the Purchasing and Contracting Advisory Council.

ARTICLE 4: ADMINISTRATION OF THE CONTRACT

4.1 CONTRACT SURETY

4.1.1 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

4.1.2 All bonds will be required as follows unless specifically waived elsewhere in the Bidding Documents.

4.1.3 Contents of Performance Bonds – The bond shall be conditioned upon the faithful compliance and performance by the successful bidder of each and every term and condition of the contract and the proposal, plans, specifications, and bid documents thereof. Each term and condition shall be met at the time and in the manner prescribed by the Contract, Bid documents and the specifications, including the payment in full to every person furnishing material or performing labor in the performance of the Contract, of all sums of money due the person for such labor and material. (The bond shall also contain the successful bidder's guarantee to indemnify and save harmless the Owner from all costs, damages and expenses growing out of or by reason of the Contract in accordance with the Contract.)

4.1.4 Invoking a Performance Bond – The owner may, when it considers that the interest of the Owner so require, cause judgement to be confessed upon the bond.

4.1.5 Within twenty (20) days after the date of notice of award of contract, the Bidder to whom the award is made shall furnish a Performance Bond and Labor and Material Payment Bond, each equal to the full amount of the Contract price to guarantee the faithful performance of all terms, covenants and conditions of the same. The bonds are to be issued by an acceptable Bonding Company licensed to do business in the State of Delaware and shall be issued in duplicate.

4.1.6 Performance and Payment Bonds shall be maintained in full force (warranty bond) for a period of two (2) years after the date of the Certificate for Final Payment. The Performance Bond shall guarantee the satisfactory completion of the Project and that the Contractor will make good any faults or defects in his work which may develop during the period of said guarantees as a result of improper or defective workmanship, material or apparatus, whether furnished by themselves or their Sub-Contractors. The Payment Bond shall guarantee that the Contractor shall pay in full all persons, firms or corporations who furnish labor or material or both labor and material for, or on account of, the work included herein. The bonds shall be paid for by this Contractor. The Owner shall have the right to demand that the proof parties signing the bonds are duly authorized to do so.

4.2 FAILURE TO COMPLY WITH CONTRACT

4.2.1 If any firm entering into a contract with the Owner that neglects or refuses to perform or fails to comply with the terms thereof, the Owner which signed the Contract may terminate the Contract and proceed to award a new contract in accordance with this Chapter 69, Title 29 of the Delaware Code or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the Performance Bond. Nothing herein shall preclude the Agency from pursuing additional remedies as otherwise provided by law.

4.3 CONTRACT INSURANCE AND CONTRACT LIABILITY

4.3.1 In addition to the bond requirements stated in the Bid Documents, each successful Bidder shall purchase adequate insurance for the performance of the Contract and, by submission of a Bid, agrees to indemnify and save harmless and to defend all legal or equitable actions brought against the Owner, officer and/or employee of the Owner, for and from all claims of liability which is or may be the result of the successful Bidder's actions during the performance of the Contract.

4.3.2 The purchase or nonpurchase of such insurance or the involvement of the successful Bidder in any legal or equitable defense of any action brought against the successful Bidder based upon work performed pursuant to the Contract will not waive any defense which the Owner, its agencies and their respective officers, employees and agents might otherwise have against such claims, specifically including the defense of sovereign immunity, where applicable, and by the terms of this section, the Owner and all agencies, officers and employees thereof shall not be financially responsible for the consequences of work performed, pursuant to said contract.

4.4 RIGHT TO AUDIT RECORDS

4.4.1 The Owner shall have the right to audit the books and records of a Contractor or any Subcontractor under any Contract or Subcontract to the extent that the books and records relate to the performance of the Contract or Subcontract.

4.4.2 Said books and records shall be maintained by the Contractor for a period of seven (7) years from the date of final payment under the Prime Contract and by the Subcontractor for a period of seven (7) years from the date of final payment under the Subcontract.

ARTICLE 5: SUBCONTRACTORS

5.1 SUBCONTRACTING REQUIREMENTS

5.1.1 All contracts for the construction, reconstruction, alteration or repair of any public building (not a road, street or highway) shall be subject to the following provisions:

1. A contract shall be awarded only to a Bidder whose Bid is accompanied by a statement containing, for each Subcontractor category, the name and address (city or town and State only – street number and P.O. Box addresses not required) of the subcontractor whose services the Bidder intends to use in performing the Work and providing the material for such Subcontractor category.
2. A Bid will not be accepted nor will an award of any Contract be made to any Bidder which, as the Prime Contractor, has listed itself as the Subcontractor for any Subcontractor unless:
 - A. It has been established to the satisfaction of the awarding Agency that the Bidder has customarily performed the specialty work of such Subcontractor category by artisans regularly employed by the Bidder's firm;
 - B. That the Bidder is duly licensed by the State to engage in such specialty work, if the State requires licenses; and

- C. That the Bidder is recognized in the industry as a bona fide Subcontractor or Contractor in such specialty work and Subcontractor category.

5.1.2 The decision of the awarding Agency as to whether a Bidder who list itself as the Subcontractor for a Subcontractor category shall be final and binding upon all Bidders, and no action of any nature shall lie against any awarding agency or its employees or officers because of its decision in this regard.

5.1.3 After such a Contract has been awarded, the successful Bidder shall not substitute another Subcontractor for any Subcontractor whose name was set forth in the statement which accompanied the Bid without the written consent of the awarding Agency.

5.1.4 No Agency shall consent to any substitution of Subcontractors unless the Agency is satisfied that the Subcontractor whose name is on the Bidders accompanying statement:

- A. Is unqualified to perform the work required;
- B. Has failed to execute a timely reasonable Subcontract;
- C. Has defaulted in the performance on the portion of the work covered by the Subcontract; or
- D. Is no longer engaged in such business.

5.1.5 Should a Bidder be awarded a contract, such successful Bidder shall provide to the agency the taxpayer identification license numbers of such subcontractors. Such numbers shall be provided on the later of the date on which such subcontractor is required to be identified or the time the contract is executed. The successful Bidder shall provide to the agency to which it is contracting, within 30 days of entering into such public works contract, copies of all Delaware Business licenses of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the Bidder entered the public works contract the Delaware Business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.

5.2 PENALTY FOR SUBSTITUTION OF SUBCONTRACTORS

5.2.1 Should the Contractor fail to utilize any or all of the Subcontractors in the Contractor's Bid statement in the performance of the Work on the public bidding, the Contractor shall be penalized in the amount of (project specific amount*). The Owner may determine to deduct payments of the penalty from the Contractor or have the amount paid directly to the Owner. Any penalty amount assessed against the Contractor may be remitted or refunded, in whole or in part, by the Agency awarding the Contract, only if it is established to the satisfaction of the Agency that the Subcontractor in question has defaulted or is no longer engaged in such business. No claim for the remission or refund of any penalty shall be granted unless an application is filed within one year after the liability of the successful Bidder accrues. All penalty amounts assessed and not refunded or remitted to the contractor shall be reverted to the State.

*one (1) percent of contract amount not to exceed \$10,000

5.3 ASBESTOS ABATEMENT

- 5.3.1 The selection of any Contractor to perform asbestos abatement for the State-funded projects shall be approved by the Office of Management and Budget, Division of Facilities Management pursuant to Chapter 78 of Title 16.
- 5.4 STANDARDS OF CONSTRUCTION FOR THE PROTECTION OF THE PHYSICALLY HANDICAPPED
- 5.4.1 All Contracts shall conform with the standard established by the Delaware Architectural Accessibility Board unless otherwise exempted by the Board.
- 5.5 CONTRACT PERFORMANCE
- 5.5.1 Any firm entering into a Contract that neglects or refuses to perform or fails to comply with its terms, the Agency may terminate the Contract and proceed to award a new Contract or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the performance Bond.

ARTICLE 6: CONSTRUCTION BY OWNER OR SEPARATE CONTRACTORS

- 6.1 The Owner reserves the right to simultaneously perform other construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other Projects at the same site.
- 6.2 The Contractor shall afford the Owner and other Contractors reasonable opportunity for access and storage of materials and equipment, and for the performance of their activities, and shall connect and coordinate their activities with other forces as required by the Contract Documents.

ARTICLE 7: CHANGES IN THE WORK

- 7.1 The Owner, without invalidating the Contract, may order changes in the Work consisting of Additions, Deletions, Modifications or Substitutions, with the Contract Sum and Contract completion date being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Professional, as the duly authorized agent, the Contractor and the Owner.
- 7.2 The Contract Sum and Contract Completion Date shall be adjusted only by a fully executed Change Order.
- 7.3 The additional cost, or credit to the Owner resulting from a change in the Work shall be by mutual agreement of the Owner, Contractor and the Architect. In all cases, this cost or credit shall be based on the 'DPE' wages required and the "invoice price" of the materials/equipment needed.
- 7.3.1 "DPE" shall be defined to mean "direct personnel expense". Direct payroll expense includes direct salary plus customary fringe benefits (prevailing wage rates) and documented statutory costs such as workman's compensation insurance, Social Security/Medicare, and unemployment insurance (a maximum multiplier of 1.35 times DPE).

7.3.2 "Invoice price" of materials/equipment shall be defined to mean the actual cost of materials and/or equipment that is paid by the Contractor, (or subcontractor), to a material distributor, direct factory vendor, store, material provider, or equipment leasing entity. Rates for equipment that is leased and/or owned by the Contractor or subcontractor(s) shall not exceed those listed in the latest version of the "Means Building Construction Cost Data" publication.

7.3.3 In addition to the above, the Prime Contractor is allowed a fifteen percent (15%) markup for overhead and profit for additional work performed by the Prime Contractor's own forces. For additional subcontractor work, the Subcontractor is allowed a fifteen percent overhead and profit on change order work above and beyond the direct costs stated previously. To this amount, the Prime Contractor will be allowed a mark-up not exceeding seven point five percent (7.5%) on the subcontractors work. These mark-ups shall include all costs including, but not limited to: overhead, profit, bonds, insurance, supervision, etc. No additional costs shall be allowed for changes related to the Contractor's onsite superintendent/staff, or project manager, unless a change in the work changes the project duration and is identified by the CPM schedule. There will be no other costs associated with the change order.

ARTICLE 8: TIME

8.1 Time limits, if any, are as stated in the Project Manual. By executing the Agreement, the Contractor confirms that the stipulated limits are reasonable, and that the Work will be completed within the anticipated time frame.

8.2 If progress of the Work is delayed at any time by changes ordered by the Owner, by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions, unavoidable casualties or other causes beyond the Contractor's control, the Contract Time shall be extended for such reasonable time as the Owner may determine.

8.3 Any extension of time beyond the date fixed for completion of the construction and acceptance of any part of the Work called for by the Contract, or the occupancy of the building by the Owner, in whole or in part, previous to the completion shall not be deemed a waiver by the Owner of his right to annul or terminate the Contract for abandonment or delay in the matter provided for, nor relieve the Contractor of full responsibility.

8.4 SUSPENSION AND DEBARMENT

8.4.1 Per Section 6962(d)(14), Title 29, Delaware Code, "Any Contractor who fails to perform a public works contract or complete a public works project within the time schedule established by the Agency in the Invitation To Bid, may be subject to Suspension or Debarment for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the Project."

8.4.2 "Upon such failure for any of the above stated reasons, the Agency that contracted for the public works project may petition the Director of the Office of Management and Budget for Suspension or Debarment of the Contractor. The Agency shall send a copy of the petition to the Contractor within three (3) working days of filing with the Director. If the Director concludes that the petition has merit, the Director shall schedule and hold a hearing to determine whether to suspend the Contractor, debar the Contractor or deny the petition. The Agency shall have the burden of proving, by a preponderance of the evidence, that

the Contractor failed to perform or complete the public works project within the time schedule established by the Agency and failed to do so for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the project. Upon a finding in favor of the Agency, the Director may suspend a Contractor from Bidding on any project funded, in whole or in part, with public funds for up to 1 year for a first offense, up to 3 years for a second offense and permanently debar the Contractor for a third offense. The Director shall issue a written decision and shall send a copy to the Contractor and the Agency. Such decision may be appealed to the Superior Court within thirty (30) days for a review on the record.”

8.5 RETAINAGE

8.5.1 Per Section 6962(d)(5) a.3, Title 29, Delaware Code: The Agency may at the beginning of

each public works project establish a time schedule for the completion of the project. If the project is delayed beyond the completion date due to the Contractor's failure to meet their responsibilities, the Agency may forfeit, at its discretion, all or part of the Contractor's retainage.

8.5.2 This forfeiture of retainage also applies to the timely completion of the punchlist. A punchlist will only be prepared upon the mutual agreement of the Owner, Architect and Contractor. Once the punchlist is prepared, all three parties will by mutual agreement, establish a schedule for its completion. Should completion of the punchlist be delayed beyond the established date due to the Contractor's failure to meet their responsibilities, the Agency may hold permanently, at its discretion, all or part of the Contractor's retainage.

ARTICLE 9: PAYMENTS AND COMPLETION

9.1 APPLICATION FOR PAYMENT

9.1.1 Applications for payment shall be made upon AIA Document G702. There will be a five percent (5%) retainage on all Contractor's monthly invoices until completion of the project. This retainage will become payable upon receipt of all required closeout documentation, provided all other requirements of the Contract Documents have been met.

9.1.2 A date will be fixed for the taking of the monthly account of work done. Upon receipt of Contractor's itemized application for payment, such application will be audited, modified, if found necessary, and approved for the amount. Statement shall be submitted to the Owner.

9.1.3 “Article 6516, Chapter 65, Title 29 of the Delaware Code stipulates annualized interest not to exceed 12% per annum beginning thirty (30) days after the “presentment” (as opposed to the date) of the invoice.”

9.2 PARTIAL PAYMENTS

9.2.1 Any Contract executed by the Owner may provide for partial payments at the option of the Owner with respect to materials placed along or upon the sites or stored at secured locations, which are suitable for use in the performance of the contract.

9.2.2 When approved by the owner, partial payment may include the values of tested and acceptable materials of a nonperishable or noncontaminative nature which have been

produced or furnished for incorporation as a permanent part of the work yet to be completed, provided acceptable provisions have been made for storage.

9.2.2.1 Any allowance made for materials on hand will not exceed the delivered cost of the materials as verified by invoices furnished by the Contractor, nor will it exceed the contract bid price for the material complete in place.

9.2.3 If requested by the Owner, receipted bills from all Contractors, Subcontractors, and material, men, etc., for the previous payment must accompany each application for payment. Following such a request, no payment will be made until these receipted bills have been received by the Owner.

9.3 SUBSTANTIAL COMPLETION

9.3.1 When the building has been made suitable for occupancy, but still requires small items of miscellaneous work, the Owner will determine the date when the project has been substantially completed.

9.3.2 If, after the Work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and without terminating the Contract, the Owner may make payment of the balance due for the portion of the Work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment that it shall not constitute a waiver of claims.

9.3.3 On projects where commissioning is included, the commissioning work as defined in the specifications must be complete prior to the issuance of substantial completion.

9.4 FINAL PAYMENT

9.4.1 Final payment, including the five percent (5%) retainage, shall be made within thirty (30) days after the Work is fully completed and the Contract fully performed and provided that the Contractor has submitted the following closeout documentation (in addition to any other documentation required elsewhere in the Contract Documents):

9.4.1.1 Evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the work have been paid,

9.4.1.2 An acceptable RELEASE OF LIENS,

9.4.1.3 Copies of all applicable warranties,

9.4.1.4 As-built drawings,

9.4.1.5 Operations and Maintenance Manuals,

9.4.1.6 Instruction Manuals,

9.4.1.7 Consent of Surety to final payment.

9.4.1.8 The Owner reserves the right to retain payments, or parts thereof, for its protection until the foregoing conditions have been complied with, defective work corrected and all unsatisfactory conditions remedied.

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

- 10.1 The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take all reasonable precautions to prevent damage, injury or loss to: workers, persons nearby who may be affected, the Work, materials and equipment to be incorporated, and existing property at the site or adjacent thereto. The Contractor shall give notices and comply with applicable laws ordinances, rules regulations, and lawful orders of public authorities bearing on the safety of persons and property and their protection from injury, damage, or loss. The Contractor shall promptly remedy damage and loss to property at the site caused in whole or in part by the Contractor, a Subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.
- 10.2 The Contractor shall notify the Owner in the event any existing hazardous material such as lead, PCBs, asbestos, etc. is encountered on the project. The Owner will arrange with a qualified specialist for the identification, testing, removal, handling and protection against exposure or environmental pollution, to comply with applicable regulation laws and ordinances. The Contractor and Architect will not be required to participate in or to perform this operation. Upon completion of this work, the Owner will notify the Contractor and Architect in writing the area has been cleared and approved by the authorities in order for the work to proceed. The Contractor shall attach documentation from the authorities of said approval.
- 10.3 As required in the Hazardous Chemical Information Act of June 1984, all vendors supplying any materials that may be defined as hazardous, must provide Material Safety Data Sheets for those products. Any chemical product should be considered hazardous if it has a warning caution on the label relating to a potential physical or health hazard, if it is known to be present in the work place, and if employees may be exposed under normal conditions or in any foreseeable emergency situation. Material Safety Data Sheets must be provided directly to the Owner along with the shipping slips that include those products.
- 10.4 The Contractor shall certify to the Owner that materials incorporated into the Work are free of all asbestos. This certification may be in the form of Material Safety Data Sheet (MSDS) provided by the product manufacturer for the materials used in construction, as specified or as provided by the Contractor.

ARTICLE 11: INSURANCE AND BONDS

- 11.1 The Contractor shall carry all insurance required by law, such as Unemployment Insurance, etc. The Contractor shall carry such insurance coverage as they desire on their own property such as a field office, storage sheds or other structures erected upon the project site that belong to them and for their own use. The Subcontractors involved with this project shall carry whatever insurance protection they consider necessary to cover the loss of any of their personal property, etc.
- 11.2 Upon being awarded the Contract, the Contractor shall obtain a minimum of two (2) copies of all required insurance certificates called for herein, and submit one (1) copy of each certificate, to the Owner, within 20 days of contract award.
- 11.3 Bodily Injury Liability and Property Damage Liability Insurance shall, in addition to the coverage included herein, include coverage for injury to or destruction of any property arising out of the collapse of or structural injury to any building or structure due to demolition work and evidence of these coverages shall be filed with and approved by the Owner.

11.4 The Contractor's Property Damage Liability Insurance shall, in addition to the coverage noted herein, include coverage on all real and personal property in their care, custody and control damaged in any way by the Contractor or their Subcontractors during the entire construction period on this project.

11.5 Builders Risk (including Standard Extended Coverage Insurance) on the existing building during the entire construction period, shall not be provided by the Contractor under this contract. The Owner shall insure the existing building and all of its contents and all this new alteration work under this contract during entire construction period for the full insurable value of the entire work at the site. Note, however, that the Contractor and their Subcontractors shall be responsible for insuring building materials (not yet installed and stored) and their tools and equipment whenever in use on the project, against fire damage, theft, vandalism, etc.

11.6 Certificates of the insurance company or companies stating the amount and type of coverage, terms of policies, etc., shall be furnished to the Owner, within 20 days of contract award.

11.7 The Contractor shall, at their own expense, (in addition to the above) carry the following forms of insurance:

11.7.1 Contractor's Contractual Liability Insurance

Minimum coverage to be:

Bodily Injury	\$ 500,000	for each person
	\$1,000,000	for each occurrence
	\$1,000,000	aggregate
Property Damage	\$ 500,000	for each occurrence
	\$1,000,000	aggregate

11.7.2 Contractor's Protective Liability Insurance

Minimum coverage to be:

Bodily Injury	\$ 500,000	for each person
	\$1,000,000	for each occurrence
	\$1,000,000	aggregate
Property Damage	\$ 500,000	for each occurrence
	\$500,000	aggregate

11.7.3 Automobile Liability Insurance

Minimum coverage to be:

Bodily Injury	\$1,000,000	for each person
	\$1,000,000	for each occurrence
Property Damage	\$ 500,000	per accident

11.7.4 Prime Contractor's and Subcontractors' policies shall include contingent and contractual liability coverage in the same minimum amounts as 11.7.1 above.

- 11.7.5 Workmen's Compensation (including Employer's Liability):
- 11.7.5.1 Minimum Limit on employer's liability to be as required by law.
- 11.7.5.2 Minimum Limit for all employees working at one site.
- 11.7.6 Certificates of Insurance must be filed with the Owner guaranteeing fifteen (15) days prior notice of cancellation, non-renewal, or any change in coverages and limits of liability shown as included on certificates. A certificate of insurance with the job name specified in the description, Cape Henlopen School District is the certificate holder. Also state that Cape Henlopen School District and Richard Y. Johnson & Son, Inc. are additional insured.
- 11.7.7 Social Security Liability
- 11.7.7.1 With respect to all persons at any time employed by or on the payroll of the Contractor or performing any work for or on their behalf, or in connection with or arising out of the Contractor's business, the Contractor shall accept full and exclusive liability for the payment of any and all contributions or taxes or unemployment insurance, or old age retirement benefits, pensions or annuities now or hereafter imposed by the Government of the United States and the State or political subdivision thereof, whether the same be measured by wages, salaries or other remuneration paid to such persons or otherwise.
- 11.7.7.2 Upon request, the Contractor shall furnish Owner such information on payrolls or employment records as may be necessary to enable it to fully comply with the law imposing the aforesaid contributions or taxes.
- 11.7.7.3 If the Owner is required by law to and does pay any and/or all of the aforesaid contributions or taxes, the Contractor shall forthwith reimburse the Owner for the entire amount so paid by the Owner.

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

- 12.1 The Contractor shall promptly correct Work rejected by the Owner or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed, and shall correct any Work found to be not in accordance with the requirements of the Contract Documents within a period of one year from the date of Substantial Completion, or by terms of an applicable special warranty required by the Contract Documents. The provisions of this Article apply to work done by Subcontractors as well as to Work done by direct employees of the Contractor.
- 12.2 At any time during the progress of the work, or in any case where the nature of the defects shall be such that it is not expedient to have them corrected, the Owner, at their option, shall have the right to deduct such sum, or sums, of money from the amount of the contract as they consider justified to adjust the difference in value between the defective work and that required under contract including any damage to the structure.

ARTICLE 13: MISCELLANEOUS PROVISIONS

- 13.1 CUTTING AND PATCHING
- 13.1.1 The Contractor shall be responsible for all cutting and patching. The Contractor shall coordinate the work of the various trades involved.

13.2 DIMENSIONS

13.2.1 All dimensions shown shall be verified by the Contractor by actual measurements at the project site. Any discrepancies between the drawings and specifications and the existing conditions shall be referred to the Owner for adjustment before any work affected thereby has been performed.

13.3 LABORATORY TESTS

13.3.1 Any specified laboratory tests of material and finished articles to be incorporated in the work shall be made by bureaus, laboratories or agencies approved by the Owner and reports of such tests shall be submitted to the Owner. The cost of the testing shall be paid for by the Contractor.

13.3.2 The Contractor shall furnish all sample materials required for these tests and shall deliver same without charge to the testing laboratory or other designated agency when and where directed by the Owner.

13.4 ARCHAEOLOGICAL EVIDENCE

13.4.1 Whenever, in the course of construction, any archaeological evidence is encountered on the surface or below the surface of the ground, the Contractor shall notify the authorities of the Delaware Archaeological Board and suspend work in the immediate area for a reasonable time to permit those authorities, or persons designated by them, to examine the area and ensure the proper removal of the archaeological evidence for suitable preservation in the State Museum.

13.5 GLASS REPLACEMENT AND CLEANING

13.5.1 The Aluminum storefront, window, glass and glazing Contractor shall replace without expense to the Owner all glass broken during the construction of the project. If job conditions warrant, at completion of the job the Aluminum Storefront Contractor shall have all glass cleaned and polished.

13.6 WARRANTY

13.6.1 For a period of two (2) years from the date of substantial completion, as evidenced by the date of final acceptance of the work, the contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect of equipment, material or workmanship performed by the contractor or any of his subcontractors or suppliers. However, manufacturer's warranties and guarantees, if for a period longer than two (2) years, shall take precedence over the above warranties. The contractor shall remedy, at his own expense, any such failure to conform or any such defect. The protection of this warranty shall be included in the Contractor's Performance Bond.

ARTICLE 14: TERMINATION OF CONTRACT

14.1 If the Contractor defaults or persistently fails or neglects to carry out the Work in accordance with the Contract Documents or fails to perform a provision of the Contract, the Owner, after seven days written notice to the Contractor, may make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor. Alternatively, at the Owner's option, and the Owner may terminate the Contract and take possession of the site and of all materials, equipment, tools, and machinery thereon owned

by the Contractor and may finish the Work by whatever method the Owner may deem expedient. If the costs of finishing the Work exceed any unpaid compensation due the Contractor, the Contractor shall pay the difference to the Owner.

- 14.2 "If the continuation of this Agreement is contingent upon the appropriation of adequate state, or federal funds, this Agreement may be terminated on the date beginning on the first fiscal year for which funds are not appropriated or at the exhaustion of the appropriation. The Owner may terminate this Agreement by providing written notice to the parties of such non-appropriation. All payment obligations of the Owner will cease upon the date of termination. Notwithstanding the foregoing, the Owner agrees that it will use its best efforts to obtain approval of necessary funds to continue the Agreement by taking appropriate action to request adequate funds to continue the Agreement."

ARTICLE 15: PREFERENCE FOR DELAWARE LABOR

- 15.1 In the construction of all public works for the State or any political subdivision thereof or by firms contracting with the State or any political subdivision thereof, preference in employment of laborers, workers or mechanics shall be given to bono fide legal citizens of the State who have established citizenship by residence of at least 90 days in the State. Each public works contract for the construction of public works for the State or any political subdivision thereof shall contain a stipulation that any person, company or corporation who violates this section shall pay a penalty to the Secretary of Finance equal to the amount of compensation paid to any person in violation of this section.

END SECTION 008000 - GENERAL REQUIREMENTS

EMPLOYEE DRUG TESTING REPORT FORM

Period Ending: _____

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds submit Testing Report Forms to the Owner no less than quarterly.

Project Number: _____

Project Name: _____

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

Number of employees who worked on the jobsite during the report period: _____

Number of employees subject to random testing during the report period: _____

Number of Negative Results _____ Number of Positive Results _____

Action taken on employee(s) in response to a failed or positive random test:

Authorized Representative of Contractor/Subcontractor: _____
(typed or printed)

Authorized Representative of Contractor/Subcontractor: _____
(signature)

Date: _____

**EMPLOYEE DRUG TESTING
REPORT OF POSITIVE RESULTS**

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds to notify the Owner in writing of a positive random drug test.

Project Number: _____

Project Name: _____

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

Name of employee with positive test result: _____

Last 4 digits of employee SSN: _____

Date test results received: _____

Action taken on employee in response to a positive test result:

Authorized Representative of Contractor/Subcontractor: _____
(typed or printed)

Authorized Representative of Contractor/Subcontractor: _____
(signature)

Date: _____

This form shall be sent by mail to the Owner within 24 hours of receipt of test results.

Enclose this test results form in a sealed envelope with the notation "Drug Testing Form – DO NOT OPEN" on the face thereof and place in a separate mailing envelope.

SECTION 009300 - REFERENCE MATERIAL

The information described herein is believed to be accurate and representative, but no guarantee can be made that actual conditions encountered during construction will not vary or be changed.

1. GEOTECHNICAL REPORT (Boring Logs):

2. SURVEY:

These property surveys are included in the drawings as reference information.

Survey and their interpretation are to serve as the Contractor's basis in bidding excavation, grading requirements and other site related work. **Contractors shall field verify all existing conditions and immediately report any discrepancies to the Owner's representative.** Removal of unsuitable soils, if any, will be done under the direction of the Owner's Soils Engineer Consultant.

3. CADD FILES

Electronic Media (CADD files) drawings will be provided for contractors' reference subject to the terms and conditions outlined in Tetra Tech's "Release Form for Electronic Files" in Section 013301.

Upon request contractor shall sign a release form provided by the Architect and payment of \$200 processing fee for each consultant drawings requested.

CADD files shall be provided for use as background plans only. Contractors shall be responsible verifications of all dimensions and revisions. Contractor shall not copy or reproduce details, elevations, sections, schedules or other similar data.

Electronic Media (CADD files) drawings will be provided for contractors' reference subject to the terms and conditions outlined in Tetra Tech's "Release Form for Electronic Files".

4. WAGE DETERMINATION

Wage Rates and Payroll Reporting: Contractors shall comply with all requirements of the State of Delaware regarding wage rates and payroll reporting. These requirements include, but are not limited to, the following:

- a. **Wage Rates:** The wage rates that shall be used for this project are attached to this Section. This scale of wages shall be posted in a prominent and easily accessible location on the job site. All employees shall be paid directly upon the site of the work, not less often than once a week.
- b. **Payroll Reporting:** Per Section 6912 of Title 29, payroll information shall be reported weekly to the Owner (refer to Section 01311 "Schedules and Reports"). Contractors shall retain copies Payroll Reports for inspection upon request by Delaware Department of Labor.

END OF SECTION



TETRA TECH

Geotechnical Subsurface Investigation Report

H.O. BRITTINGHAM ELEMENTARY SCHOOL

Mulberry Street
Milton, Delaware



Prepared for:

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1270 Kings Highway
Lewes, Delaware 19958

103IS4565

August 2016

Geotechnical Subsurface Investigation Report

H.O. Brittingham Elementary School

Mulberry Street
Milton, Delaware

PRESENTED TO

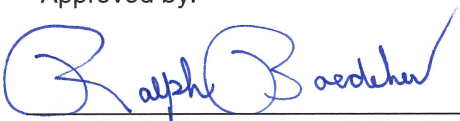
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August 8, 2016

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TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 INTRODUCTION.....	1
2.0 DESCRIPTIONS, INVESTIGATIONS, AND SUBSURFACE CONDITIONS.....	2
2.1 General Site Description and Proposed Facility Development	2
2.2 Geotechnical Subsurface Investigation Program	2
2.3 Subsurface Conditions.....	4
2.4 Infiltration Testing	4
3.0 GEOTECHNICAL EVALUATION AND DESIGN RECOMMENDATIONS.....	6
3.1 Shallow Foundation Systems.....	6
3.2 Ground-Supported Floor Slabs	7
3.3 Retaining Walls (If Required)	7
3.4 Seismic Design.....	9
3.5 Pavement Design	9
4.0 GENERAL CONSTRUCTION RECOMMENDATIONS	11
4.1 Site Preparation.....	11
4.2 Engineered Fill.....	11
4.3 Shallow Foundation Construction	12
4.4 Site Work Quality Control and Assurance	13
5.0 REPRESENTATIONS	14

APPENDICES

Appendix A	Site Development Plans and Test Boring Locations
Appendix B	Test Boring Logs
Appendix C	Laboratory Testing Summary
Appendix D	Infiltration Testing Tables

TABLES

Table 1	Summary of Results from Infiltration Investigation and Testing.....	5
Table 2	Soil Parameters for Lateral Earth Loads	8

H.O. Brittingham Elementary School

1.0 INTRODUCTION

This report presents results of a geotechnical subsurface investigation regarding the new H.O. Brittingham Elementary School off Mulberry Street, Milton, Delaware. Purposes of this study were to investigate subsurface conditions within the project site, formulate foundation design criteria for the proposed site development, and offer pertinent geotechnical site recommendations for construction.

This geotechnical study evaluated subsurface conditions within the project site, and the report offers recommendations based on an exploration of subsurface soil conditions by means of Standard Penetration Test (SPT) Borings (ASTM International [ASTM] D1586). The scope of this investigation included a test boring program, infiltration testing in support of stormwater management design activities, laboratory testing of representative soil samples, engineering analyses of the available data, and preparation of this engineering report.

These services were provided under the supervision of a professional geotechnical engineer registered in the State of Delaware.

H.O. Brittingham Elementary School

2.0 DESCRIPTIONS, INVESTIGATIONS, AND SUBSURFACE CONDITIONS

The following sections include a site description and discussions regarding proposed development of the facility, the geotechnical subsurface investigation program, subsurface conditions, and infiltration testing.

2.1 *General Site Description and Proposed Facility Development*

The new elementary school will be constructed within a relatively flat, open grass field area, west and behind the current school. Several underground utilities are present within the proposed addition area. Preliminary site development plans are in Appendix A. The school building will consist of a 72,060-square-foot (plan view area) one- and two-story structure with a slab-on-grade (i.e., no basement). Proposed finished floor elevation is to be 34.0, requiring net fills of approximately 0 to 3 feet. The one-story portions of the building are proposed to consist of roof trusses on bearing walls, and the two-story portions are proposed to consist of composite steel frame construction. Estimated structural loads provided by the project structural engineer are as follows:

- Exterior Bearing Walls: 3.0 kips per lineal foot (klf)
- Interior Bearing Walls: 3.5 klf
- Cafeteria and gymnasium area Bearing Walls: 5.0 klf
- Interior Column Loads for two-story building areas: 100 to 200 kips.

If actual design values vary appreciably from the above values, the project geotechnical engineer should be notified to determine if additional analyses are warranted.

Parking lots are proposed on the east side of the school, and a bus parking lot is proposed south of the school. A main access drive will extend from Mulberry Street, and proceed south of the existing school to the proposed parking lots.

2.2 *Geotechnical Subsurface Investigation Program*

On June 27 and 28, 2016, 25 SPT borings were advanced to collect representative soil samples and identify conditions of subsurface soil and groundwater. Approximate locations of the borings are depicted in Appendix A. Nine borings (SB-01 through SB-09) were advanced within proposed building areas to final depth of 25 feet below ground surface (bgs). Four borings (PB-01 through

H.O. Brittingham Elementary School

PB-04) were advanced within proposed parking lot and access road areas to final depth of 6 feet bgs. Twelve borings (IT-01 through IT-12) were advanced as off-sets at proposed infiltration testing locations, to depths ranging from 8 to 13.5 feet bgs.

Advancements of borings proceeded by use of a trailer-mounted drilling rig. SPT split-spoon samples (ASTM D1586) within the building areas were collected from each boring at 2.5-foot intervals to depth of 10 feet, and thereafter at 5-foot intervals. SPT split-spoon samples at infiltration test and pavement areas were continuously collected. In the SPT procedure, a 2-inch-outside diameter (O.D.) split-barrel sampler is driven into the soil a distance of 18 or 24 inches by a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler from the 6- to 18-inch interval is termed the Standard Penetration Resistance (SPR) N-value. This value can be used as a qualitative indication of the in-place relative density of cohesionless (e.g., granular) soils. It is also a secondary indicator of consistency of cohesive soils. Gravel, cobbles, and boulders may induce high blow counts not representative of the soil's relative density/consistency. This indication is qualitative because many factors can significantly affect the SPR value (i.e., drilling crew procedures, drill rigs, and hammer-rod assemblies, etc.).

Performances of the test borings were reviewed by a Tetra Tech geotechnical technician. Test boring logs (Appendix B) include soil and groundwater data obtained from the explorations. After completion of the borings, they were backfilled with the auger soil cuttings. Approximate test boring surface elevations were determined by referencing available topographic information at the site.

All soil samples collected during this investigation were inspected and described visually in Tetra Tech's geotechnical laboratory. Thirty-seven Water Content Tests (ASTM: D2216) and Percent Finer than a No. 200 Sieve Tests (ASTM: D1140) were performed to assist in determining the general site stratigraphy, and to measure the amount of silt and clay particulate in the soil samples. Results of the grain-size analyses were referenced to estimate the Unified Soil Classification System (USCS) designation for the soils encountered, which provides information regarding soil engineering behavior. A summary of the laboratory testing results appears in Appendix C. The soil samples collected during this investigation will be retained for a period of 2 months, after which they will be discarded unless further instructions are received regarding their disposition.

2.3 Subsurface Conditions

Subsurface conditions encountered at boring locations are described in detail in the test boring logs (Appendix B). Subsurface conditions between boring locations were interpolated, and may not reflect actual conditions.

Beneath a surficial layer of topsoil, the predominant subsurface conditions within the investigation area can generally be described as a variable brown fine to medium sand, with a trace to a little fine sand, and trace fine gravel, with a USCS of SM (visual). Also present to a lesser extent are variable and intermittent layers and/or lenses of sands with USCS classifications of SW, SP, SP-SM, SW-SM, SC, and SC-SM (visual). SPR values within the proposed building area indicate a very loose relative density within the upper 15 feet of the subsurface. Deeper, SPR values indicate a loose to medium-dense relative density.

Apparent groundwater was encountered within each of the deeper test borings advanced within the proposed building area, ranging in depth from 18 to 23 feet bgs. Possibly, localized perched water conditions at shallower depths will be encountered during excavations. Groundwater elevations fluctuate throughout a given year, depending on actual field porosity and seasonal and annual variations of precipitation. Groundwater fluctuations of several feet should be anticipated.

2.4 Infiltration Testing

Based on review of off-set borings logs at infiltration test locations, the project Civil Engineer requested infiltration testing at nine locations to aid in stormwater management design efforts (locations IT-02 through IT-07, and IT-10 through IT-12). Test locations are depicted in Appendix A. Facility bottom depths were determined by reference to proposed facility bottom and existing grade elevations provided by the project Civil Engineer. Logs for the previously advanced SPT borings are in Appendix B; these borings were advanced to minimum depth of 3 feet below stormwater management feature bottom elevations. Soil boring logs and soil classifications represent our interpretation of the field data based on visual examination and selected laboratory testing. Soil mottling was not apparent in the soil boring samples, and groundwater was not encountered within 3 feet of the bottom of the stormwater management features. Deeper SPT borings advanced within the proposed building area encountered groundwater at depths ranging from 18 to 23 feet bgs.

H.O. Brittingham Elementary School

Infiltration testing was performed at each requested location on July 15 and 18, 2016, by application of a single-ring, falling head testing method in accordance with ASTM D5126. Detailed results of the infiltration testing are listed in the Infiltration Testing Tables in Appendix D. Table 1 below lists investigation and testing depths, results of the infiltration testing, USCS classification of soils at the infiltration test depths, and proposed infiltration design infiltration values.

**TABLE 1
SUMMARY OF RESULTS FROM INFILTRATION INVESTIGATION AND TESTING**

Infiltration Test Location	SWM Facility Depth (ft)	Depth of Off-Set Soil Boring (ft)	Infiltration Test Depth (ft)	Infiltration Test Results		USCS Classification at Approx. Test Depth	Proposed Infiltration Design Values (in/hr)
				Time Weighted Avg. (in/hr)	Final Test Hour (in/hr)		
IT-02	4.5	8.0	4.4	13.80	7.80	SM	3.90
IT-03	4.9	8.0	5.2	6.36	15.48	SM	3.18
IT-04	5.2	9.0	6.4	11.85	8.76	SC	4.38
IT-05	7.6	10.5	8.0	5.61	10.44	SM	2.81
IT-06	5.2	9.0	5.5	18.99	14.16	SM	7.08
IT-07	6.0	9.0	6.0	33.54	30.96	SP-SM	15.48
IT-10	6.8	13.5	7.0	11.43	7.56	SM	3.78
IT-11	8.6	13.5	8.4	12.12	11.52	SM	5.76
IT-12	8.2	13.5	8.5	15.06	10.56	SM	5.28

Proposed Infiltration Design Values are determined by applying a safety factor of 2.0 to the lower value between the time weighted average and final test hour result at each test location. The above infiltration design values are recommendations based on actual field data collected at the localized test locations. Variation between test locations should be anticipated. Final project infiltration design values for the various stormwater management features should be determined by the project Civil Engineer, based on layout and functioning of the features, final depths, and data provided herein.

3.0 GEOTECHNICAL EVALUATION AND DESIGN RECOMMENDATIONS

Tetra Tech evaluated subsurface conditions at the project site for suitability of the proposed site development. Tetra Tech believes that site subsurface conditions are suitable for placement of the proposed elementary school within certain limitations.

Design of building foundations and other aspects of the proposed site development that would be influenced by geotechnical conditions are discussed in the following sections. Recommendations regarding general site construction are offered in Section 4.0. Foundation evaluations and recommendations presented herein assume adherence to the construction recommendations.

3.1 *Shallow Foundation Systems*

After completion of all site preparation work as recommended herein (Section 4.0), shallow foundations will be placed within the properly prepared natural soils encountered at the site, or within properly placed structural fill used to bring building areas to design grades. Based on results of field and laboratory testing of soils encountered during this evaluation, as well as foundation and foundation loading information provided by the structural engineer, an engineering analysis indicates that shallow spread and continuous foundations may be designed for a maximum total allowable bearing capacity of 2,500 pounds per square foot (psf).

Estimates of foundation settlement were developed to evaluate effects of building loads on subsurface conditions. The following estimates assume a total allowable bearing capacity of 2,500 psf: maximum total foundation settlement for the proposed structure on the order of 1.25 inch or less, with post-construction settlement of 0.75 inch or less; and differential settlement over a 25-foot distance on the order of 0.5 inch or less.

Because of the encountered subsurface granular soils, settlement is expected to occur quickly (elastic settlement), and is largely expected to be “built out” during construction and final loading of foundations. These magnitudes of total and differential settlement are generally considered within tolerable limits for structures such as the proposed school. However, settlement tolerance of the proposed building should be verified by the project’s structural engineer.

Exterior footings exposed to freezing conditions should be placed at least 32 inches below finished exterior grade. To provide the aforementioned allowable bearing capacity, interior footings should be placed at least 24 inches below finished floor elevations. Because of the very

H.O. Brittingham Elementary School

loose relative density of the subsurface sands, shallow-spread and continuous footings should have *minimum widths of 4.0 and 2.5 feet*, respectively, regardless of bearing pressure. Masonry walls, if designed, should be provided with frequent control joints at architecturally convenient locations, to provide preferred locations for differential settlements.

3.2 Ground-Supported Floor Slabs

All ground-supported floor slabs should be designed as free-floating and not connected to other structural elements. The slab may bear on footing projections, but isolation joints should be utilized to accommodate potential differential settlement between the floor slab and adjacent columns or walls. Control joints should also be provided in floor slabs, as required, to provide a preferred location for possible differential slab settlement. All floor slabs should be structurally reinforced to control cracking, more evenly distribute applied loads, and bridge localized zones of lower density material. Placement of a minimum 4 inches of poorly graded, free draining stone aggregate (e.g., American Association of State Highway and Transportation Officials [AASHTO] No. 57 Stone) under all floor slabs is also recommended to provide a uniform bearing surface with all-weather support, and to serve as a capillary break. To preclude floor dampness, placement of a minimum 10-mil polyethylene membrane or equivalent vapor barrier beneath the floor slab is recommended.

Actual stress distribution and settlement response under the floor slabs will be a function of the structural rigidity of the slab and uniformity of the applied loads. Individual equipment, machinery, and tanks should be supported on their own foundations and isolated from the floor slab to avoid localized cracking of the floor slab.

For floor slabs installed as recommended herein, a modulus of subgrade reaction (Ks) of 100 pounds per cubic inch (pci) is estimated for use in concrete slab-on-grade design.

3.3 Retaining Walls (If Required)

Determination of lateral earth pressures on retaining walls depends on (1) height and intended yield (i.e., deflection) of the wall, (2) physical properties (i.e., c , ϕ , and γ) and geometry of the soil fill/backfill behind and in front of the wall, and (3) drainage conditions. Retaining walls allowed to adequately deflect at the top (e.g., a cantilever retaining wall)—causing the soil behind the wall to adequately deflect with the wall—may be designed for the “active” condition of lateral earth

H.O. Brittingham Elementary School

pressure. “Passive” lateral earth pressures may be used in front of the wall where the wall adequately deflects and pushes into the soil on the toe side. Rigid retaining walls or walls designed not to deflect at the top during filling/backfilling should be designed for the “at-rest” condition of lateral earth pressure.

To facilitate construction, to minimize lateral earth pressures, and to preclude hydrostatic pressure buildup behind retaining walls, filling/backfilling behind and in front of retaining walls should proceed with use of a granular, free-draining material (with less than 25% passing a No. 200 sieve). Placement and compaction of fill/backfill material should accord with engineered fill recommendations offered in subsequent sections.

The following soil parameters for lateral earth loads are recommended (Table 2):

**TABLE 2
SOIL PARAMETERS FOR LATERAL EARTH LOADS**

Backfill Materials	Imported Granular Fill (<25% passing No. 200 Sieve)	In-situ Condition Onsite Granular Soils
Moist Unit Weight (pounds per cubic foot [pcf])	130	120
At Rest Earth Pressure Coefficient (K_0)	0.44	0.53
Active Earth Pressure Coefficient (K_A)	0.28	0.36
Passive Earth Pressure Coefficient (K_P)	3.5	2.77
Coefficient of Sliding Friction (concrete to soil)	0.42	0.34

Soil parameters in Table 2 are based on the subsurface profile observed in the test borings, and are estimated from our experience with soils in the Atlantic Coastal Plain province. Although general index testing was performed on representative samples, no specific laboratory testing was conducted to determine actual soil strength characteristics.

To minimize buildup of potential hydrostatic pressures, a 4-inch-diameter subdrain should be placed behind retaining walls, along and on top of the wall foundation. The subdrain should consist of a perforated drainage pipe surrounded by a minimum of 12 inches of graded aggregate

H.O. Brittingham Elementary School

free of fines, such as AASHTO No. 57 Stone, wrapped with a nonwoven geotextile fabric (Geotex 501, or equivalent). The subdrain should be sloped and should lead to a gravity outfall and/or an active dewatering sump.

3.4 Seismic Design

Based on subsurface conditions encountered during the test boring program, Tetra Tech recommends utilization of a site Class D for seismic design purposes. The site class definition is in Section 1613.3.2 of the 2012 International Building Code.

3.5 Pavement Design

The granular shallow soils within proposed pavement areas are generally considered “good” subgrade soils per AASHTO (i.e., maximum of 35% passing a No. 200 sieve). “Good” soils are considered better draining and less susceptible to frost than fine-grained “poor” subgrade materials.

Tetra Tech recommends placement of a non-woven geotextile fabric (Geotex 601 or equivalent) between the pavement section aggregate base course and prepared subgrade. This geotextile would serve as a separator between the base course aggregate and the subgrade to maintain the integrity of the pavement base course aggregate and reduce pavement maintenance costs. The fabric should be placed in a stretched condition (no wrinkles), directly over the carefully prepared and reviewed subgrade (discussed in Section 4.0).

Recommendations for pavement sections are as follows, and are based on proper site preparation (Section 4.0) and anticipated traffic loading. For passenger car parking areas, we have assumed primarily passenger vehicles with limited numbers of delivery trucks, trash collection vehicles, and other trucks or buses.

Passenger Car Parking Areas

1.5 inches	Bituminous Surface Course, DeIDOT Type C
2.5 inches	Bituminous Base Course, DeIDOT Type B
8 inches	Graded Aggregate Base Course, DeIDOT Type B Geotextile Fabric (Geotex 601 or equivalent)
12 inches	Total Depth

Geotechnical Subsurface Investigation

H.O. Brittingham Elementary School

Significant Bus Traffic Areas (Bus Lanes and Lots), Entrances, and Service/Access Roads

1.5 inches	Bituminous Surface Course, DelDOT Type C
3.5 inches	Bituminous Base Course, DelDOT Type B
10 inches	Graded Aggregate Base Course, DelDOT Type B <u>Geotextile Fabric (Geotex 601 or equivalent)</u>
15 inches	Total Depth

All pavement section materials and construction should conform to the Delaware Department of Transportation's "Standard Specifications for Construction and Materials, August 2001."

4.0 GENERAL CONSTRUCTION RECOMMENDATIONS

The following sections discuss preparation of the site, engineered fill, construction of the shallow foundation, and quality control and quality assurance of site work.

4.1 Site Preparation

At start of construction, all pavements, topsoil, vegetation, and roots should be stripped and entirely removed from all proposed building and pavement areas. Prior to placement of fill, the subgrade of building and pavement fill areas should be proof-rolled with a minimum 15-ton vibratory smooth-wheeled roller in the presence of a qualified soils technician. Proof-rolling will increase the density of exposed subgrade areas that will have been loosened or disturbed during stripping and clearing operations. Proof-rolling will also expose potential localized soft and yielding areas. The exposed surfaces should be compacted to a visually firm and stable condition. Subgrade compaction will facilitate placement and compacting of engineered fill at the required densities. Proof-rolling should also occur at final “cut” or “at grade” areas to ensure a firm and stable subgrade. Because of the loose relative density of the shallow subsurface soils, subgrade of fill areas, as well as final cut areas, should be compacted with a minimum four passes with the aforementioned roller.

Any localized soft and unstable areas encountered during the proof-rolling program that cannot be adequately stabilized and compacted should be undercut and replaced via procedures discussed in Section 4.2. Because ponding water may destabilize soil during construction, soil subgrade disturbance should be minimized by providing positive surface drainage and limiting construction traffic on exposed subgrade soils.

4.2 Engineered Fill

During bulk grading activities, engineered fill required to bring structural building areas to grade should be a well-graded granular material containing no organic or other deleterious materials. Engineered fill should also be used to backfill foundations and retaining walls. The granular in-situ soils at the site are considered suitable for use as engineered fill. Interbeds of silt and clay, if encountered, should be segregated and not used as engineered fill. If sufficient quantities of on-site materials are not available for engineered fills, imported borrow material should meet the USCS classifications of SW, SM, SC, or GW, with no more than 35% passing a No. 200 sieve (ASTM D1140), and a plasticity index (ASTM D4318) not exceeding 6.

H.O. Brittingham Elementary School

Engineered fill material should be placed in horizontal thin lifts with compacted thickness no greater than 8 inches. Engineered fill lifts for hand tampers should not exceed 4 inches. Each thin lift of fill/backfill material placed below structural elements (i.e., foundations and floor slabs) and pavements should be compacted to the following criteria:

- Within proposed building area (defined as the area extending at least 5 feet beyond the foundation element perimeters), compaction should be to at least 95% of maximum dry density, as determined by the Modified Proctor Test (ASTM D1557).
- Within proposed pavement areas and utility trenches outside of the building area, compaction should be to at least 90% of maximum dry density, as determined by the Modified Proctor Test (ASTM D1557).

Engineered fill should be placed at moisture contents that facilitate compaction (typically at +/- 2-3% of optimum moisture, per ASTM D1557). Placement and compaction of engineered fill should be monitored and tested on a full-time basis by a qualified geotechnical technician.

4.3 Shallow Foundation Construction

All foundations should be placed on dry, non-frozen, firm soil. When excessively soft, wet, or frozen soil is encountered at the foundation base, this material should be undercut to suitable bearing materials. The undercut zone may be replaced in accordance with engineered fill recommendations. AASHTO No. 57 Stone could also be used as backfill within foundation undercut zones—placed in maximum 12-inch lifts and compacted by use of a vibratory plate compactor.

During excavation of foundations, disturbance of the subgrade soils may occur; therefore, compaction of the foundation subgrades should occur prior to placement of any reinforcing steel or concrete. Because of the very loose relative density of shallow subsurface soils, all footing subgrades should be compacted to a minimum 93% of maximum dry density, as determined by the Modified Proctor Test (ASTM D1557). All foundation excavations should be reviewed to verify the quality of the bearing material—by a qualified geotechnical technician working under the supervision of a geotechnical engineer familiar with the recommendations of this report. Subgrade review should occur prior to placement of reinforcing steel or concrete, and should verify presence of suitable bearing soils.

H.O. Brittingham Elementary School

All foundation excavations should be protected from ponding water and freezing conditions, and backfilled as soon as practical after placement of the foundation concrete. Backfilling should accord with recommendations regarding engineered fill compaction offered in Section 4.2.

4.4 Site Work Quality Control and Assurance

All site clearing, grading, proofrolling, fill placement, and foundation excavation/construction should be monitored by a qualified geotechnical technician working under the supervision of a geotechnical engineer. The technician should observe and document site preparation and proofrolling, engineered fill construction, foundation subgrades, and foundation construction—and should conduct appropriate field tests, as necessary, to verify that construction proceeds in accordance with applicable plans, specifications, and acceptable construction practice. Conclusions and recommendations in this report are based on the premise of competent field engineering and monitoring during construction. A pre-bulk grading meeting is recommended to review recommendations of this report so that the Earthwork Contractor understands the requirements for site preparation and foundation subgrade preparation at the site.

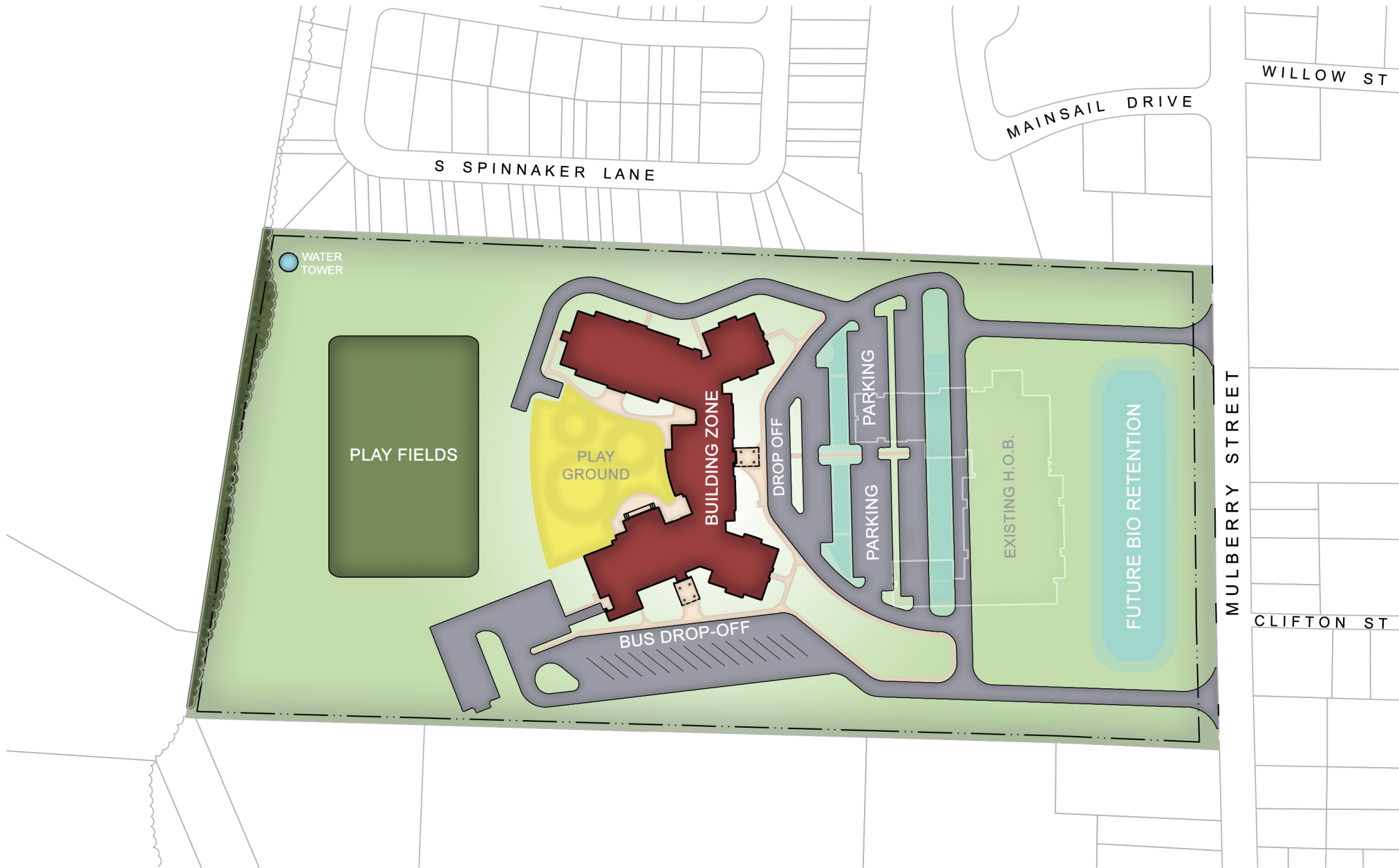
5.0 REPRESENTATIONS

This report was prepared in accordance with generally accepted engineering principles and practices, and is based on soil and groundwater conditions encountered during the field exploration. No warranty, expressed or implied, is made. Although generalized subsurface conditions have been inferred through interpolation and/or extrapolation of acquired field and laboratory data, actual subsurface conditions between soil boring locations are unknown. As a result, recommendations in this report may require modifications based on subsurface conditions actually encountered during construction. Tetra Tech should be notified if conditions encountered during construction differ from those shown by the test borings, thus possibly requiring re-evaluation of recommendations offered in this report.

Construction bidders should thoroughly familiarize themselves with the on-site subsurface soil and groundwater conditions described herein. Tetra Tech or the Cape Henlopen School District assumes no responsibility for interpretation or deductions by the awarded contractor based on information in this report. Variations in subsurface conditions are expected.

APPENDIX A

Site Development Plans and Test Boring Locations

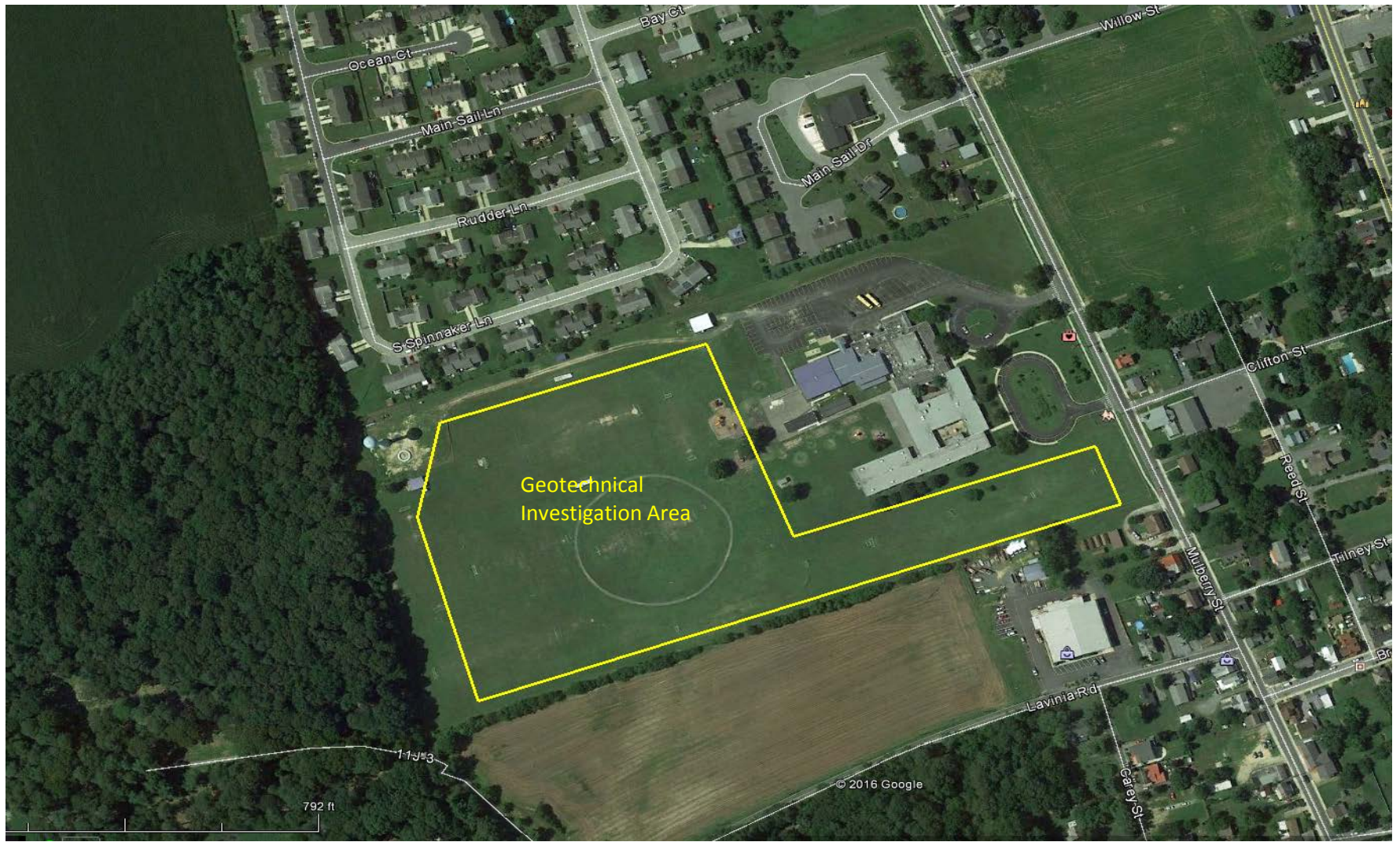


H. O. BRITTINGHAM ELEMENTARY SCHOOL

CAPE HENLOPEN SCHOOL DISTRICT

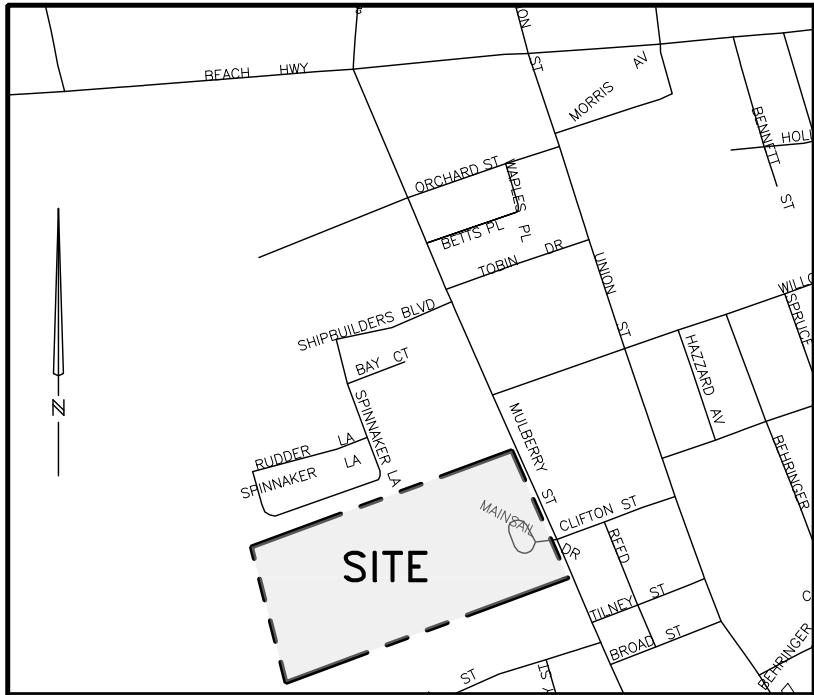


TETRA TECH



**GEOTECHNICAL INVESTIGATION AREA
PROPOSED H.O. BRITTINGHAM ELEMENTARY SCHOOL**

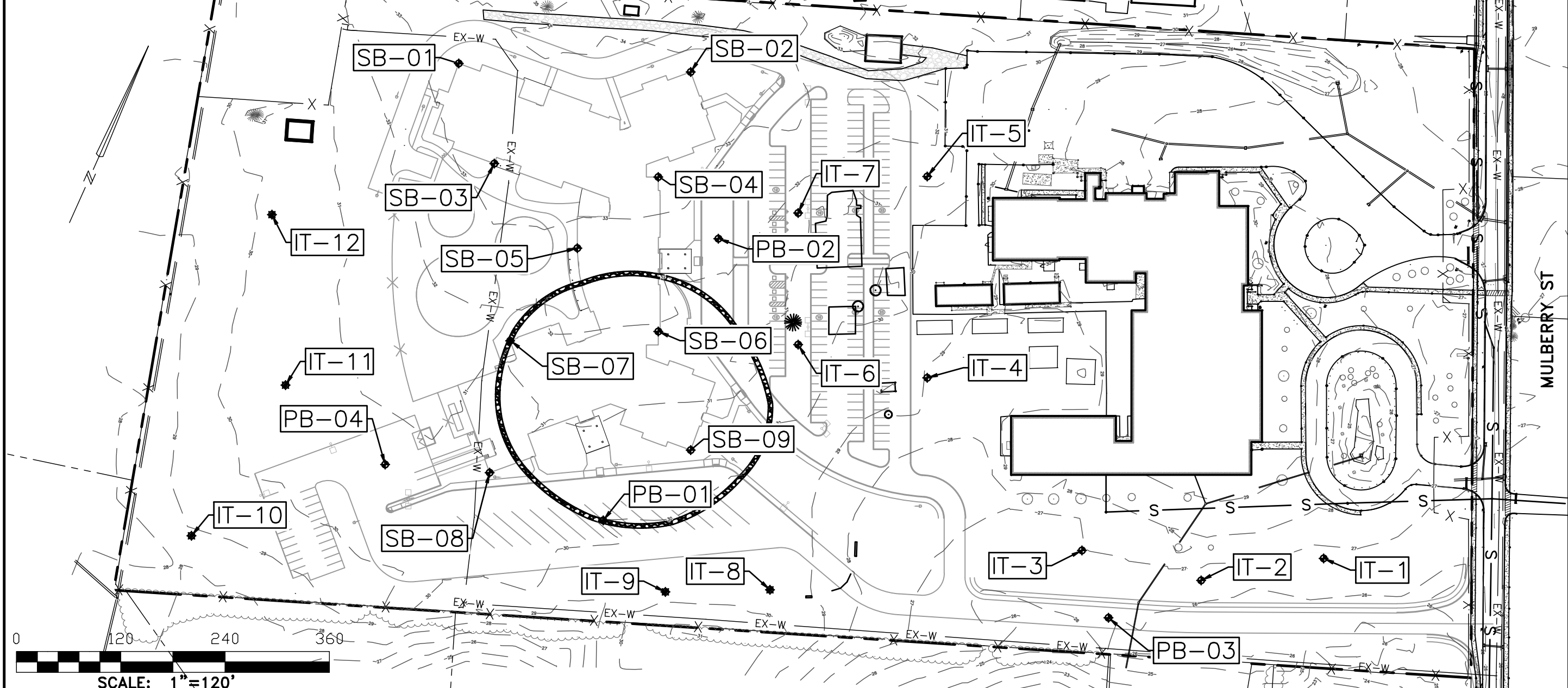
\\m10\m11\civ\letra\letra\Elementary\Design\SSM\U\14AUZ4 HUB SWM SOIL INVESTIGATION PLAN.dwg Jun 17 10:20:16 - 4:20pm



VICINITY MAP SCALE: 1" = 1000'

BORING SCHEDULE				
Description	Northing	Easting	Elevation	Depth
IT-1	284323.4194	684965.8786	26.7	8.0
IT-2	284242.8612	684847.5534	26.5	8.0
IT-3	284218.5519	684708.2690	26.9	8.0
IT-4	284327.4317	684464.7435	28.9	8.0
IT-5	284538.9934	684370.3214	31.3	8.0
IT-6	284301.7192	684313.6004	30.7	8.0
IT-7	284440.0657	684251.8550	31.5	8.0
IT-8	284030.8811	684398.9895	29.5	8.0
IT-9	283979.6724	684290.0977	29.5	8.0
IT-10	283816.4030	683765.9507	28.8	13.0
IT-11	284018.8327	683794.0880	30.6	13.0
IT-12	284191.6483	683699.8472	30.2	13.0

BORING SCHEDULE			
Description	Northing	Easting	Elevation
PB_01	284025.6270	684191.2818	30.0
PB_02	284375.6590	684180.0389	32.4
PB_03	284160.1662	684767.6566	26.1
PB_04	283982.1109	683935.9390	30.7
SB_01	284438.1561	683825.1816	33.5
SB_02	284537.8556	684072.8088	33.8
SB_03	284349.5816	683909.5257	33.3
SB_04	284412.3076	684088.0649	33.5
SB_05	284299.5386	684036.3685	32.7
SB_06	284249.9902	684160.5088	31.9
SB_07	284170.7517	684009.1960	31.3
SB_08	284022.5206	684049.5407	30.7
SB_09	284140.5522	684250.1175	30.7



dbf
DAVIS, BOWEN & FRIEDEL, INC.
 ARCHITECTS, ENGINEERS & SURVEYORS
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H.O. BRITTINGHAM ELEMENTARY SCHOOL
SOIL INVESTIGATION PLAN
 CAPE HENLOPEN SCHOOL DISTRICT
 TOWN OF MILTON, SUSSEX COUNTY, DELAWARE

Date: 6/17/16
 Scale: 1"=120'
 Dwn.By: JEB
 Proj.No.: 0774A024
 Dwg.No.:

SI-1

APPENDIX B

Test Boring Logs

FIELD DESCRIPTION AND LOGGING SYSTEM FOR SOIL EXPLORATION

GRANULAR SOILS

(Sand, Gravel & Combinations)

<u>Density</u>	<u>N (blows)*</u>
Very Loose	5 or less
Loose	6 to 10
Medium Dense	11 to 30
Dense	31 to 50
Very Dense	51 or more

Particle Size Identification

Boulders	8 in. diameter or more
Cobbles	3 to 8 in. diameter
Gravel	Coarse (C) 3 in. to ¾ in. sieve
	Fine (F) ¾ in. to No. 4 sieve
Sand	Coarse (C) No. 4 to No. 10 sieve (4.75mm-2.00mm)
	Medium (M) No. 10 to No. 40 sieve (2.00mm – 0.425mm)
	Fine (F) No. 40 to No. 200 sieve (0.425 – 0.074mm)
Silt/Clay	Less Than a No. 200 sieve (<0.074mm)

Relative Proportions

<u>Description Term</u>	<u>Percent</u>
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

COHESIVE SOILS

(Silt, Clay & Combinations)

<u>Consistency</u>	<u>N (blows)*</u>
Very Soft	3 or less
Soft	4 to 5
Medium Stiff	6 to 10
Stiff	11 to 15
Very Stiff	16 to 30
Hard	31 or more

Plasticity

<u>Degree of Plasticity</u>	<u>Plasticity Index</u>
None to Slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	> 22

ROCK

(Rock Cores)

<u>Rock Quality Designation (RQD), %</u>	<u>Rock Quality Description</u>
0-25	Very Poor
25-50	Poor
50-75	Fair
75-90	Good
90-100	Excellent

RQD: Rock Quality Designation

TCR: Total Core Recovery

SCR: Solid Core Recovery

***N - Standard Penetration Resistance.** Driving a 2.0" O.D., 1-3/8" I.D. sampler a distance of 18 inches into undisturbed soil with a 140 pound hammer free falling a distance of 30.0 inches. The number of hammer blows to drive the sampler through each 6 inch interval is recorded; the number of blows required to drive the sampler through the final 12 inch interval is termed the Standard Penetration Resistance (SPR) N-value. For example, blow counts of 6/8/9 (through three 6-inch intervals) results in an SPR N-value of 17 (8+9).

Groundwater observations were made at the times indicated. Groundwater elevations fluctuate throughout a given year, depending on actual field porosity and variations in seasonal and annual precipitation.



TETRA TECH

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 Newark, Delaware 19713
 302.738.7551
 fax: 302.454.5988

TEST BORING LOG

Project Name: H.O. BRITTINGHAM ELEMENTARY SCHOOL			Project No.: 103IS4565		
Project Location: MULBERRY STREET, MILTON, DE			Page 1 of 1		
Boring No.: IT-05		Dates(s) Drilled: 06/28/16 & 07/15/16		Inspector: S. SZMYD	
Surface Elevation: 31.3		Drilling Method: SPT - ASTM D1586		Driller: M. HYNES	
Drilling Contractor: HYNES		Groundwater Depth (ft): NOT ENCOUNTERED		Total Depth (ft): 8.0	

Sample No.	Sample Depth (ft)		Strata Depth (ft)		Recov. (ft)	Strata (USCS)	Description of Materials	6" Increment Blows *				N	
	From	To	From	To									
			0.0	0.8			TOPSOIL (10")						
1	0.0	2.0	0.8		20	SM	BROWN FINE SAND WITH A LITTLE TO SOME SILT.	4	6	6	6	12	
2	2.0	4.0			13		LIGHT BROWN FINE TO MEDIUM SAND WITH A LITTLE SILT.	5	5	7	9	12	
3	4.0	6.0			15		LIGHT BROWN FINE TO MEDIUM SAND WITH A LITTLE SILT, WITH TRACE CLAYEY SAND INTERBEDS, TRACE FINE GRAVEL.	5	7	5	5	12	
4	6.0	8.0			13		LIGHT BROWN FINE TO MEDIUM SAND WITH A LITTLE SILT.	9	5	4	6	9	
	8.0	9.0		9.0			YELLOWISH BROWN FINE TO MEDIUM SAND, TRACE SILT						
	9.0	9.5	9.0	9.5			SC LIGHT BROWN CLAYEY SAND.						
	9.5	10.5	9.5	10.5			SM YELLOWISH BROWN FINE TO MEDIUM SAND, TRACE SILT						
							BORING ADVANCEMENT BETWEEN 8' AND 10.5' PERFORMED BY HAND AUGERING.						
							CAVED AND DRY AT 6'.						

Notes/Comments:
Pocket Pentrometer Testing

Strata (USCS) Designations are approximated based on visual review, except where indicated in Description of Materials.

* Number of blows of 140 lb. Hammer dropped 30 in. required to drive 2 in. split-spoon sampler in 6 in. increments.
 N: Number of blows to drive spoon from 6" to 18" interval.

APPENDIX C

Laboratory Testing Summary

**LABORATORY TESTING SUMMARY
H.O. BRITTINGHAM ELEMENTARY SCHOOL
MILTON, DELAWARE**

Test Boring No.	Sample No.	Depth of Sample (ft.)		Water Content, % (ASTM D2216)	Percent Silts/Clays, % (ASTM D1140)
		From	To		
SB-01	S2	3.0	5.0	11.1	18.7
	S3	6.0	8.0	10.1	18.9
	S4	8.0	10.0	8.6	9.0
SB-02	S2	3.0	5.0	8.5	12.3
	S3	6.0	8.0	11.7	25.9
	S4	8.0	10.0	14.3	30.5
SB-03	S2	3.0	5.0	11.8	22.3
	S3	6.0	8.0	7.1	9.7
	S4	8.0	10.0	9.5	11.5
SB-04	S2	3.0	5.0	8.0	12.7
	S3	6.0	8.0	14.1	19.8
	S4	8.0	10.0	17.2	24.3
SB-05	S2	3.0	5.0	7.6	11.9
	S3	6.0	8.0	19.9	46.7
	S4	8.0	10.0	15.8	28.0
SB-06	S1	1.0	3.0	8.6	20.3
	S2	3.0	5.0	8.1	12.8
	S3	6.0	8.0	11.8	18.7
	S4	8.0	10.0	14.3	18.7
SB-07	S2	3.0	5.0	15.2	25.5
	S3	6.0	8.0	10.9	17.6
	S4	8.0	10.0	11.5	16.2
SB-08	S2	3.0	5.0	13.1	24.2
	S3	6.0	8.0	12.5	21.2
	S4	8.0	10.0	11.8	14.0
SB-09	S2	3.0	5.0	11.2	12.6
	S3	6.0	8.0	9.3	12.7
	S4	8.0	10.0	8.9	12.4
IT-02	S3	4.0	6.0	12.1	18.4
IT-03	S3	4.0	6.0	11.2	19.3
IT-04	S4	6.0	8.0	11.8	16.1
IT-05	S4	6.0	8.0	15.2	19.8
IT-06	S3	4.0	6.0	10.1	12.5
IT-07	S4	6.0	8.0	7.9	9.2
IT-10	S4	6.0	8.0	12.1	18.6
IT-11	S5	8.0	10.0	14.8	14.8
IT-12	S5	8.0	10.0	15.3	16.1

Notes:

- 1) Sample depths based on feet below grade at time of exploration.

APPENDIX D

Infiltration Testing Tables

INFILTRATION TEST DATA SHEET

JOB NAME: H.O Brittingham Elementary School

PROJECT NUMBER: 103IS4565 **TEST LOCATION:** IT-2

TEST DATE: July 15, 2016 **TEST DEPTH:** 4.40 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K _m)		COMMENTS
Test Hour 1	9:30	2.43 ft	1.97 ft				
	9:45	3.30 ft	1.10 ft	0.87 ft			Refilled to 2.35 feet BGS
	10:00	3.00 ft	1.40 ft	0.65 ft			Refilled to 2.30 feet BGS
	10:15	2.81 ft	1.59 ft	0.51 ft			
	10:30	3.35 ft	1.05 ft	0.54 ft	2.57 ft/hr	30.84 in/hr	Refilled to 2.40 feet BGS
Test Hour 2	10:45	2.97 ft	1.43 ft	0.57 ft			
	11:00	3.45 ft	0.95 ft	0.48 ft			Refilled to 2.30 feet BGS
	11:15	2.66 ft	1.74 ft	0.36 ft			
	11:30	3.05 ft	1.35 ft	0.39 ft	1.80 ft/hr	21.60 in/hr	
Test Hour 3	11:45	3.35 ft	1.05 ft	0.30 ft			
	12:00	3.65 ft	0.75 ft	0.30 ft			Refilled to 2.35 feet BGS
	12:15	2.75 ft	1.65 ft	0.40 ft			
	12:30	3.17 ft	1.23 ft	0.42 ft	1.42 ft/hr	17.04 in/hr	
Test Hour 4	12:45	3.41 ft	0.99 ft	0.24 ft			
	13:00	3.65 ft	0.75 ft	0.24 ft			
	13:15	3.75 ft	0.65 ft	0.10 ft			
	13:30	3.90 ft	0.50 ft	0.15 ft	0.73 ft/hr	8.76 in/hr	
Test Hour 5	13:45	4.06 ft	0.34 ft	0.16 ft			
	14:00	4.20 ft	0.20 ft	0.14 ft			Refilled to 2.35 feet BGS
	14:15	2.51 ft	1.89 ft	0.16 ft			
	14:30	2.70 ft	1.70 ft	0.19 ft	0.65 ft/hr	7.80 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:

1. Time Weighted Average: 13.80 in/hr
2. Final Test Hour Reading: 7.80 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: H.O Brittingham Elementary School

PROJECT NUMBER: 103IS4565 **TEST LOCATION:** IT-3

TEST DATE: July 15, 2016 **TEST DEPTH:** 5.15 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K _m)		COMMENTS
Test Hour 1	9:30	3.05 ft	2.10 ft				
	9:45	3.30 ft	1.85 ft	0.25 ft			
	10:00	3.40 ft	1.75 ft	0.10 ft			
	10:15	3.44 ft	1.71 ft	0.04 ft			
	10:30	3.48 ft	1.67 ft	0.04 ft	0.43 ft/hr	5.16 in/hr	
Test Hour 2	10:45	3.51 ft	1.64 ft	0.03 ft			
	11:00	3.55 ft	1.60 ft	0.04 ft			
	11:15	3.61 ft	1.54 ft	0.06 ft			
	11:30	3.65 ft	1.50 ft	0.04 ft	0.17 ft/hr	2.04 in/hr	
Test Hour 3	11:45	3.67 ft	1.48 ft	0.02 ft			
	12:00	3.70 ft	1.45 ft	0.03 ft			
	12:15	3.75 ft	1.40 ft	0.05 ft			
	12:30	3.80 ft	1.35 ft	0.05 ft	0.15 ft/hr	1.80 in/hr	
Test Hour 4	12:45	3.80 ft	1.35 ft	0.00 ft			
	13:00	3.81 ft	1.34 ft	0.01 ft			
	13:15	4.00 ft	1.15 ft	0.19 ft			
	13:30	4.31 ft	0.84 ft	0.31 ft	0.51 ft/hr	6.12 in/hr	
Test Hour 5	13:45	4.35 ft	0.80 ft	0.04 ft			
	14:00	4.80 ft	0.35 ft	0.45 ft			Refilled to 3.20 feet BGS
	14:15	3.40 ft	1.75 ft	0.40 ft			
	14:30	3.80 ft	1.35 ft	0.40 ft	1.29 ft/hr	15.48 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:

1. Time Weighted Average: 6.36 in/hr
2. Final Test Hour Reading: 15.48 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: H.O Brittingham Elementary School

PROJECT NUMBER: 103IS4565 **TEST LOCATION:** IT-4

TEST DATE: July 15, 2016 **TEST DEPTH:** 6.40 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K _m)		COMMENTS
Test Hour 1	9:30	4.25 ft	2.15 ft				
	9:45	5.00 ft	1.40 ft	0.75 ft			
	10:00	5.40 ft	1.00 ft	0.40 ft			
	10:15	5.63 ft	0.77 ft	0.23 ft			
	10:30	5.90 ft	0.50 ft	0.27 ft	1.65 ft/hr	19.80 in/hr	
Test Hour 2	10:45	6.10 ft	0.30 ft	0.20 ft			
	11:00	6.30 ft	0.10 ft	0.20 ft			Refilled to 4.30 feet BGS
	11:15	4.72 ft	1.68 ft	0.42 ft			
	11:30	5.10 ft	1.30 ft	0.38 ft	1.20 ft/hr	14.40 in/hr	
Test Hour 3	11:45	5.36 ft	1.04 ft	0.26 ft			
	12:00	5.64 ft	0.76 ft	0.28 ft			
	12:15	5.84 ft	0.56 ft	0.20 ft			
	12:30	6.05 ft	0.35 ft	0.21 ft	0.95 ft/hr	11.40 in/hr	Refilled to 4.25 feet BGS
Test Hour 4	12:45	4.56 ft	1.84 ft	0.31 ft			
	13:00	4.90 ft	1.50 ft	0.34 ft			
	13:15	5.10 ft	1.30 ft	0.20 ft			
	13:30	5.32 ft	1.08 ft	0.22 ft	1.07 ft/hr	12.84 in/hr	
Test Hour 5	13:45	5.52 ft	0.88 ft	0.20 ft			
	14:00	5.71 ft	0.69 ft	0.19 ft			
	14:15	5.83 ft	0.57 ft	0.12 ft			
	14:30	6.05 ft	0.35 ft	0.22 ft	0.73 ft/hr	8.76 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:

1. Time Weighted Average: 11.85 in/hr
2. Final Test Hour Reading: 8.76 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: H.O Brittingham Elementary School

PROJECT NUMBER: 103IS4565 **TEST LOCATION:** IT-5

TEST DATE: July 15, 2016 **TEST DEPTH:** 8.00 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K _m)		COMMENTS
Test Hour 1	9:30	6.00 ft	2.00 ft				
	9:45	7.90 ft	0.10 ft	1.90 ft			Refilled to 6.00 feet BGS
	10:00	6.20 ft	1.80 ft	0.20 ft			
	10:15	6.36 ft	1.64 ft	0.16 ft			
	10:30	6.55 ft	1.45 ft	0.19 ft	2.45 ft/hr	29.40 in/hr	
Test Hour 2	10:45	6.69 ft	1.31 ft	0.14 ft			
	11:00	6.85 ft	1.15 ft	0.16 ft			
	11:15	6.91 ft	1.09 ft	0.06 ft			
	11:30	7.00 ft	1.00 ft	0.09 ft	0.45 ft/hr	5.40 in/hr	
Test Hour 3	11:45	7.10 ft	0.90 ft	0.10 ft			
	12:00	7.20 ft	0.80 ft	0.10 ft			
	12:15	7.25 ft	0.75 ft	0.05 ft			
	12:30	7.30 ft	0.70 ft	0.05 ft	0.30 ft/hr	3.60 in/hr	
Test Hour 4	12:45	7.37 ft	0.63 ft	0.07 ft			
	13:00	7.45 ft	0.55 ft	0.08 ft			
	13:15	7.50 ft	0.50 ft	0.05 ft			
	13:30	7.55 ft	0.45 ft	0.05 ft	0.25 ft/hr	3.00 in/hr	
Test Hour 5	13:45	7.64 ft	0.36 ft	0.09 ft			
	14:00	7.72 ft	0.28 ft	0.08 ft			Refilled to 5.80 feet BGS
	14:15	6.12 ft	1.88 ft	0.32 ft			
	14:30	6.50 ft	1.50 ft	0.38 ft	0.87 ft/hr	10.44 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:

1. Time Weighted Average: 5.61 in/hr
2. Final Test Hour Reading: 10.44 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: H.O Brittingham Elementary School

PROJECT NUMBER: 103IS4565 **TEST LOCATION:** IT-6

TEST DATE: July 18, 2016 **TEST DEPTH:** 5.50 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K _m)		COMMENTS
Test Hour 1	10:00	3.25 ft	2.25 ft				
	10:15	5.20 ft	0.30 ft	1.95 ft			Refilled to 3.65 feet BGS
	10:30	5.00 ft	0.50 ft	1.35 ft			Refilled to 3.50 feet BGS
	10:45	4.30 ft	1.20 ft	0.80 ft			Refilled to 3.40 feet BGS
	11:00	3.95 ft	1.55 ft	0.55 ft	4.65 ft/hr	55.80 in/hr	
Test Hour 2	11:15	4.50 ft	1.00 ft	0.55 ft			Refilled to 3.55 feet BGS
	11:30	4.09 ft	1.41 ft	0.54 ft			
	11:45	4.70 ft	0.80 ft	0.61 ft			Refilled to 3.50 feet BGS
	12:00	4.02 ft	1.48 ft	0.52 ft	2.22 ft/hr	26.64 in/hr	
Test Hour 3	12:15	4.50 ft	1.00 ft	0.48 ft			
	12:30	4.87 ft	0.63 ft	0.37 ft			
	12:45	5.20 ft	0.30 ft	0.33 ft			Refilled to 3.50 feet BGS
	13:00	3.91 ft	1.59 ft	0.41 ft	1.59 ft/hr	19.08 in/hr	
Test Hour 4	13:15	4.35 ft	1.15 ft	0.44 ft			
	13:30	4.64 ft	0.86 ft	0.29 ft			
	13:45	4.90 ft	0.60 ft	0.26 ft			Refilled to 3.50 feet BGS
	14:00	3.85 ft	1.65 ft	0.35 ft	1.34 ft/hr	16.08 in/hr	
Test Hour 5	14:15	4.20 ft	1.30 ft	0.35 ft			
	14:30	4.53 ft	0.97 ft	0.33 ft			
	14:45	4.72 ft	0.78 ft	0.19 ft			
	15:00	5.03 ft	0.47 ft	0.31 ft	1.18 ft/hr	14.16 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:

1. Time Weighted Average: 18.99 in/hr
2. Final Test Hour Reading: 14.16 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: H.O Brittingham Elementary School

PROJECT NUMBER: 103IS4565 **TEST LOCATION:** IT-7

TEST DATE: July 18, 2016 **TEST DEPTH:** 6.00 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K _m)		COMMENTS
Test Hour 1	10:00	3.90 ft	2.10 ft				
	10:15	5.15 ft	0.85 ft	1.25 ft			Refilled to 3.80 feet BGS
	10:30	4.90 ft	1.10 ft	1.10 ft			
	10:45	5.75 ft	0.25 ft	0.85 ft			Refilled to 3.95 feet BGS
	11:00	4.68 ft	1.32 ft	0.73 ft	3.93 ft/hr	47.16 in/hr	
Test Hour 2	11:15	5.37 ft	0.63 ft	0.69 ft			Refilled to 3.90 feet BGS
	11:30	4.60 ft	1.40 ft	0.70 ft			
	11:45	5.35 ft	0.65 ft	0.75 ft			Refilled to 3.75 feet BGS
	12:00	4.49 ft	1.51 ft	0.74 ft	2.88 ft/hr	34.56 in/hr	
Test Hour 3	12:15	5.30 ft	0.70 ft	0.81 ft			Refilled to 3.80 feet BGS
	12:30	4.56 ft	1.44 ft	0.76 ft			
	12:45	5.25 ft	0.75 ft	0.69 ft			Refilled to 5.25 feet BGS
	13:00	4.56 ft	1.44 ft	0.71 ft	2.97 ft/hr	35.64 in/hr	
Test Hour 4	13:15	5.35 ft	0.65 ft	0.79 ft			Refilled to 3.85 feet BGS
	13:30	4.53 ft	1.47 ft	0.63 ft			
	13:45	5.25 ft	0.75 ft	0.72 ft			Refilled to 3.90 feet BGS
	14:00	4.51 ft	1.49 ft	0.61 ft	2.75 ft/hr	33.00 in/hr	
Test Hour 5	14:15	5.18 ft	0.82 ft	0.67 ft			Refilled to 3.85 feet BGS
	14:30	4.51 ft	1.49 ft	0.66 ft			
	14:45	5.10 ft	0.90 ft	0.59 ft			
	15:00	5.76 ft	0.24 ft	0.66 ft	2.58 ft/hr	30.96 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:

1. Time Weighted Average: 33.54 in/hr
2. Final Test Hour Reading: 30.96 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: H.O Brittingham Elementary School

PROJECT NUMBER: 103IS4565 **TEST LOCATION:** IT-10

TEST DATE: July 18, 2016 **TEST DEPTH:** 7.00 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K _m)		COMMENTS
Test Hour 1	10:00	4.95 ft	2.05 ft				
	10:15	5.35 ft	1.65 ft	0.40 ft			
	10:30	5.65 ft	1.35 ft	0.30 ft			
	10:45	5.95 ft	1.05 ft	0.30 ft			
	11:00	6.21 ft	0.79 ft	0.26 ft	1.26 ft/hr	15.12 in/hr	
Test Hour 2	11:15	6.45 ft	0.55 ft	0.24 ft			Refilled to 4.90 feet BGS
	11:30	5.23 ft	1.77 ft	0.33 ft			
	11:45	5.56 ft	1.44 ft	0.33 ft			
	12:00	5.81 ft	1.19 ft	0.25 ft	1.15 ft/hr	13.80 in/hr	
Test Hour 3	12:15	6.10 ft	0.90 ft	0.29 ft			
	12:30	6.32 ft	0.68 ft	0.22 ft			
	12:45	6.58 ft	0.42 ft	0.26 ft			Refilled to 4.85 feet BGS
	13:00	5.15 ft	1.85 ft	0.30 ft	1.07 ft/hr	12.84 in/hr	
Test Hour 4	13:15	5.45 ft	1.55 ft	0.30 ft			
	13:30	5.72 ft	1.28 ft	0.27 ft			
	13:45	5.95 ft	1.05 ft	0.23 ft			
	14:00	6.11 ft	0.89 ft	0.16 ft	0.96 ft/hr	11.52 in/hr	
Test Hour 5	14:15	6.30 ft	0.70 ft	0.19 ft			
	14:30	6.45 ft	0.55 ft	0.15 ft			
	14:45	6.60 ft	0.40 ft	0.15 ft			
	15:00	6.74 ft	0.26 ft	0.14 ft	0.63 ft/hr	7.56 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:

1. Time Weighted Average: 11.43 in/hr
2. Final Test Hour Reading: 7.56 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: H.O Brittingham Elementary School

PROJECT NUMBER: 103IS4565 **TEST LOCATION:** IT-11

TEST DATE: July 18, 2016 **TEST DEPTH:** 8.35 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K _m)		COMMENTS
Test Hour 1	10:00	6.20 ft	2.15 ft				
	10:15	6.85 ft	1.50 ft	0.65 ft			
	10:30	7.25 ft	1.10 ft	0.40 ft			
	10:45	7.60 ft	0.75 ft	0.35 ft			Refilled to 6.20 feet BGS
	11:00	6.58 ft	1.77 ft	0.38 ft	1.78 ft/hr	21.36 in/hr	
Test Hour 2	11:15	7.00 ft	1.35 ft	0.42 ft			
	11:30	7.27 ft	1.08 ft	0.27 ft			
	11:45	7.55 ft	0.80 ft	0.28 ft			
	12:00	7.75 ft	0.60 ft	0.20 ft	1.17 ft/hr	14.04 in/hr	
Test Hour 3	12:15	7.93 ft	0.42 ft	0.18 ft			Refilled to 6.20 feet BGS
	12:30	6.51 ft	1.84 ft	0.31 ft			
	12:45	6.80 ft	1.55 ft	0.29 ft			
	13:00	7.05 ft	1.30 ft	0.25 ft	1.03 ft/hr	12.36 in/hr	
Test Hour 4	13:15	7.30 ft	1.05 ft	0.25 ft			
	13:30	7.47 ft	0.88 ft	0.17 ft			
	13:45	7.65 ft	0.70 ft	0.18 ft			Refilled to 6.20 feet BGS
	14:00	6.48 ft	1.87 ft	0.28 ft	0.88 ft/hr	10.56 in/hr	
Test Hour 5	14:15	6.75 ft	1.60 ft	0.27 ft			
	14:30	6.96 ft	1.39 ft	0.21 ft			
	14:45	7.20 ft	1.15 ft	0.24 ft			
	15:00	7.44 ft	0.91 ft	0.24 ft	0.96 ft/hr	11.52 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:

1. Time Weighted Average: 12.12 in/hr
2. Final Test Hour Reading: 11.52 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: H.O Brittingham Elementary School

PROJECT NUMBER: 103IS4565 **TEST LOCATION:** IT-12

TEST DATE: July 18, 2016 **TEST DEPTH:** 8.50 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K _m)		COMMENTS
Test Hour 1	10:00	6.50 ft	2.00 ft				
	10:15	7.08 ft	1.42 ft	0.58 ft			
	10:30	7.64 ft	0.86 ft	0.56 ft			
	10:45	8.15 ft	0.35 ft	0.51 ft			Refilled to 6.50 feet BGS
	11:00	7.01 ft	1.49 ft	0.51 ft	2.16 ft/hr	25.92 in/hr	
Test Hour 2	11:15	7.50 ft	1.00 ft	0.49 ft			
	11:30	7.96 ft	0.54 ft	0.46 ft			
	11:45	8.38 ft	0.12 ft	0.42 ft			Refilled to 6.50 feet BGS
	12:00	6.88 ft	1.62 ft	0.38 ft	1.75 ft/hr	21.00 in/hr	
Test Hour 3	12:15	7.24 ft	1.26 ft	0.36 ft			
	12:30	7.59 ft	0.91 ft	0.35 ft			
	12:45	7.89 ft	0.61 ft	0.30 ft			
	13:00	8.18 ft	0.32 ft	0.29 ft	1.30 ft/hr	15.60 in/hr	Refilled to 6.50 feet BGS
Test Hour 4	13:15	6.83 ft	1.67 ft	0.33 ft			
	13:30	7.10 ft	1.40 ft	0.27 ft			
	13:45	7.36 ft	1.14 ft	0.26 ft			
	14:00	7.59 ft	0.91 ft	0.23 ft	1.09 ft/hr	13.08 in/hr	
Test Hour 5	14:15	7.80 ft	0.70 ft	0.21 ft			
	14:30	8.01 ft	0.49 ft	0.21 ft			
	14:45	8.23 ft	0.27 ft	0.22 ft			
	15:00	8.47 ft	0.03 ft	0.24 ft	0.88 ft/hr	10.56 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:

1. Time Weighted Average: 15.06 in/hr
2. Final Test Hour Reading: 10.56 in/hr

SECTION 011100 – SUMMARY OF WORK

PART 1 – GENERAL

1.1 Drawings and general provisions of contract, including General and Supplementary Conditions and other Division – 1 Specifications Sections, apply to this Section.

1.2 PROJECT DESCRIPTION

A. This part of the project consists of the Bid Pac A Contracts, No. 1 through No. 17. The description of the contracts are as follows:

Bid Pac A

Contract 1	Site Work
Contract 2	Concrete Work
Contract 3	Masonry Work
Contract 4	Steel Work
Contract 5	Carpentry & General Work
Contract 6	Roofing Work
Contract 7	Furnish Hollow Metal/Doors/Hardware
Contract 8	Aluminum Storefront/Windows/Glass and Glazing
Contract 9	Drywall/Metal Stud
Contract 10	Acoustical Work
Contract 11	Floor Covering Work
Contract 12	Caulking/Painting
Contract 13	Casework
Contract 14	Kitchen Equipment
Contract 15	Mechanical
Contract 16	Sprinkler System
Contract 17	Electrical

1.3 CONTRACTOR USE OF PREMISES

A. General: During the construction period the contractor will be allowed reasonable use of the premises. However, the contractors use of the premises will not limit the Owners use of premises.

1.4 The Construction Managers scope of work is part of this section and denotes the work to be performed.

1.5 MISCELLANEOUS PROVISIONS

A. Miscellaneous Provision

1. The construction will start in January 2017 Note that weekend and evening work may be required to meet the schedule. All materials may be procured early so that they are readily available. The Owner will pay ninety-five percent (95%) of stored materials providing they are properly insured, stored and can be verified.

B. Project Meetings

1. Pre-Construction Conference: Attendance by Owner, Architect, Engineers, Construction Manager, Contractor, major Subcontractors, and Suppliers.
2. Progress Meetings: Bi-weekly; attendance by Owner, Architect, Engineers, Construction Manager, Contractor, applicable Subcontractors, and Suppliers.

NOTE: Meetings may be held more frequently as required. Must attend these meetings and missing meetings will not be tolerated from Primary Contractors. Missing meetings will result in a penalty of \$200.00 dollars per meeting if your firm was requested to attend at the previous progress meeting.

C. Record Drawings

1. The contractors of the respective Contract 1 thru Contract 17 shall be responsible for maintaining record "as built" throughout construction as indicated in Section 017000.

D. Schedule

Construction starts January 2017. Project has to be finished by June 2018.
Please provide sufficient manpower in your cost to meet the completion date of June 1, 2018.

Bid Pac A

Contract 1	Site Work
Contract 2	Concrete Work
Contract 3	Masonry Work
Contract 4	Steel Work
Contract 5	Carpentry & General Work
Contract 6	Roofing Work
Contract 7	Furnish Hollow Metal/Doors/Hardware
Contract 8	Aluminum Storefront/Windows/Glass and Glazing
Contract 9	Drywall/Metal Stud
Contract 10	Acoustical Work
Contract 11	Floor Covering Work
Contract 12	Caulking/Painting
Contract 13	Casework
Contract 14	Kitchen Equipment
Contract 15	Mechanical
Contract 16	Sprinkler System
Contract 17	Electrical

Bid Pac A

The following parts of the specifications are to be considered part of each and every one of the contracts of Bid Pac A, Contracts No. 1 through 17. However, they shall not be listed with the Scope of Work for each of the Scopes of Work for the contracts. They will be referred to as the Administrative Sections with each of the Scope of Work for the contracts.

INTRODUCTORY INFORMATION

000101	TITLE PAGE/CONSULTANT DIRECTORY
000110	TABLE OF CONTENTS
000115	LIST OF DRAWINGS
001116	ADVERTISEMENT FOR BID

PROCUREMENT INFORMATION

002113	INSTRUCTIONS TO BIDDERS
004126	BID FORMS INCLUDING: BID FORM SUB LISTING NON-COLLUSION STATEMENT AFFIDAVIT OF EMPLOYEE DRUG TESTING PROGRAM
004313	STATE OF DELAWARE BID BOND

CONTRACTING INFORMATION

005226	AGREEMENT INCLUDING STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR (AIA A132 – 2009)
006113.13	STATE OF DELAWARE PERFORMANCE BOND FORM
006113.16	STATE OF DELAWARE PAYMENT BOND FORM
006276	APPLICATION OF PAYMENT (SAMPLE AIA G702 & G703)
006276	MONTHLY REQUISITION & CONTINUATION SHEET (AIA G732-2009 & G703-1992)
006300	STANDARD FORMS CERTIFICATES AND MODIFICATION FORMS

007226 GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION (AIA A232-2009)
007300 SUPPLEMENTARY GENERAL CONDITIONS A232-2009 INCLUDING ATTACHMENT "A"
CONSTRUCTION MANAGER GENERAL CONDITIONS
007346 DELAWARE PREVAILING WAGE RATES
007316 INSURANCE INCLUDING SAMPLE CERTIFICATE OF INSURANCE
008000 GENERAL REQUIREMENTS
008050 REGULATIONS FOR DRUG TESTING ON STATE OF DELAWARE PUBLIC WORKS
PROJECT
008114 DRUG TESTING FORMS
009300 REFERENCE MATERIALS
GEOTECHNICAL REPORT (BORING LOGS)
PAYROLL REPORT FORM

DIVISION 01 - GENERAL REQUIREMENTS

011100 SUMMARY OF WORK
011200 MULTIPLE CONTRACT SUMMARY
011216 ALTERATION PROJECT PROCEDURES
011400 WORK RESTRICTIONS
012000 PRICE AND PAYMENT PROCEDURES
012100 ALLOWANCES
012200 UNIT PRICES
012300 ALTERNATES
012500 SUBSTITUTION PROCEDURES
012501 SUBSTITUTION REQUEST SAMPLE FORM
012600 CONTRACT MODIFICATION PROCEDURES
012900 PAYMENT PROCEEDURES
012973 SCHEDULE OF VALUES
013100 PROJECT MANAGEMENT AND COORDINATION
013113 PROJECT COORDINATION
013216 CONSTRUCTION SCHEDULE
013233 CONSTRUCTION PROGRESS DOCUMENTATION
013300 SUBMITTAL PROCEDURES
013301 CADD RELEASE FORM
013319 FIELD ENGINEERING
013500 SAFETY
014000 QUALITY CONTROL
014100 REGULATORY REQUIREMENTS
014200 REFERENCES
014219 REFERENCE STANDARDS
015000 TEMPORARY CONSTRUCTION UTILITIES, FACILITIES & CONTROLS
016000 MATERIALS AND EQUIPMENT PRODUCT REQUIREMENTS
017000 CONTRACT CLOSEOUT
017329 CUTTING AND PATCHING
017418 CONSTRUCTION WASTE MANAGEMENT
017500 FACILITY STARTUP/COMMISSIONING
017700 CLOSEOUT PROCEDURES
017836 WARRANTIES
018000 STATEMENT OF SPECIAL INSPECTIONS
019110 COMMISSIONING REQUIREMENTS

SCOPE OF WORK - Bid Pac A
CONTRACT NO.1 SITE WORK

- A. The administrative sections, prints, addendums, and technical specifications 033000, 079200, 090000, 111200, 221113, 221313, 221413, 310000, 311000, 311100, 312300, 312500, 313200, 315000, 321126, 321136, 321216, 321313, 321600, 323000, 323100, 329000, 329100, 329200, 331000, 333000, 334000 & 334700.
- B. Provide all layout work required to accomplish this Contract work. A Licensed surveyor must perform the layout work.
- C. Provide topsoil stripping as required. Retain and stockpile all topsoil or soil needed to re-grade the site. Any soils not needed will be disposed of offsite by this contract in a proper manner. This is inclusive of all new and existing building area footprints.
- D. Provide all grading and fine grading of sub-grades for swales, berms, walks, pavement and play fields.
- E. Provide all site select fill for the building, site concrete and parking areas. Include excavation and grading of any crawlspaces or basements if noted in project documents.
- F. Provide all storm drainage and storm water control for a complete system including manholes, ponds and catch basins, bio filtration areas, infiltration ponds, catch basins, filter strips, under drains and inlet protection as shown.
- G. Provide Sanitary Sewerage System complete including traffic control as needed.
- H. Provide all crusher run for paving and site concrete.
- I. Provide hot mix asphalt paving including mill and overlay of existing paving.
- J. Provide all stripping of paving and signage required including the painting of curbs. Also include parking bumpers.
- K. Provide all lawns, grasses, hydro seeding, sodding, turf relocation and erosion control materials complete. Provide lawn maintenance (grass cutting) within the limits of disturbance for the entire construction schedule.
- L. Provide all sediment and erosion control, including the installation, maintenance, and removal after construction of the silt fence and construction entrance. Restore areas where sediment and erosion control has been removed after construction. Also, provide all bio-retention areas, detention basins complete. Maintain the construction entrance and a clean roadway and street.
- M. Provide all water lines, fire water lines, and site fire hydrants. Provide lines to within five (5) feet of the building with the exception of the fire water line. The fire water line is to be provided with the flange 8" above the finish floor in the fire pump room and other locations. See location on the architectural prints. Restore all areas disturbed by the installation of the new water lines. Coordinate the work with Contract No. 16 Sprinkler System. Provide flushing and testing of fire water line from street to floor flange. Flange must be capped after flushing to maintain a clean system. Provide tie bolts from underground to flange above the floor. Also, provide

- identification of fire hydrants per the Fire Marshal requirements. Provide temporary water for other trades during construction. Provide water meter pit and meter complete. Provide the disinfection of the domestic water system. Provide relocation of fire hydrants.
- N. Provide any temporary seeding required for erosion control.
- O. Coordinate all construction work with other utilities and notify Miss Utility prior to the start of work to locate existing underground utilities. All other existing utilities on site to be located under this contract, including data communication lines if any. Any damage to the existing utilities will be repaired under this contract at no additional cost to the owner.
- P. Provide all excavation and backfill required to accomplish the work of this Contract, including the proper compaction of all backfill materials. Provide the removal off site of any and all excess fill. Provide compaction testing. Provide all final grading of site.
- Q. Each prospective bidder must visit the site to familiarize themselves with the current existing conditions.
- R. Provide all of gas lines, valves, meters complete.
- S. Provide the relocation or adjustment of existing utility lines as necessary to install new lines or need to be relocated due to the construction of the new building.
- T. Install all bollards furnished by Contract No.4 Steel Work. Include concrete in fill as required.
- U. Provide all site concrete work as shown. Run all concrete work to the face of the buildings to meet interior concrete work performed by the Contract No. 2 Concrete Work. Provide all concrete slab work that is under a canopy or roof that is not fully enclosed. Provide all stone bases and preparation work to install the site concrete. Provide all pads, loading areas and frost walls at exterior. Provide colored and patterned concrete if noted in contract documents.
- V. This Contract is responsible for all concrete pads and frost walls up to the face of building including all exterior steps and ramps. Any foundation footers for columns or walls to be provided by Contract No. 2 Concrete Work.
- W. This contract is to provide the building, step and ramp fill to an elevation of plus or minus one (1") inch.
- X. Construction Manager will provide all temporary fencing.
- Y. Provide exterior caulking of expansion joints at all concrete locations including sidewalks and curbs.
- Z. Electrical service to your construction trailer and removal of electric service at completion of project is to be provided by this contract.
- AA. Provide all highway entrances per DELDOT specifications complete, including traffic control. Replace or relocate obstructions in the roadway including mailboxes, signs, landscaping, lights, plantings, culverts, driveways, curbs, gutters, fence, etc.. to complete entrances and force main work.

- BB. Provide all underground roof and gutter drain lines, and roof drain curb outlets complete, including connections to downspouts and splash blocks. Provide the rainwater conductor and the cast iron rainwater boots.
- CC. Provide the demolition of all trees, shrubs and existing stumps as required. Provide offsite deposit of all demolition material.
- DD. Provide CCR Reports, soil testing and all license and permits to perform the Site Work scope of work. Owner will obtain the building permit.
- EE. Provide site furnishings including bike racks, gates, trash receptors and all associated foundations for a complete installation.
- FF. All electric lines, data lines, phone lines, etc.. are to be provided by Contract No. 17 Electrical.
- GG. This contract is responsible for all demolition that pertains to your scope of work.
- HH. Provide all demolition required to install new work and shown on drawings. We suggest that the site work bidders visit the job site and note the extent of the demolition required. Also protect existing trees.
- II. Provide the relocation or adjustment of existing utility lines as necessary to install new lines.
- JJ. Provide flag poles, base and flag complete.
- KK. Provide all dumpster enclosures complete, including: floor pads, gates and bollards. Footers and masonry walls provided by other contracts.
- LL. Provide all soil and compaction testing including any other testing or inspections noted in your related specifications or noted on the project drawings that relates to your scope of work. Contractor to provide all testing whether noted otherwise in other locations in the documents.
- MM. Provide all fencing complete including all footings and hardware complete. Also provide all gates as shown.
- NN. Provide testing of trenches that are opened and backfilled pertaining to your scope of work.
- OO. Provide dewatering if needed for your scope of work.
- PP. Provide swing arm and sliding gates and all associated foundations for a complete system.
- QQ. Provide any boring under roadways for sewer, water, gas and storm sewer systems.
- RR. Provide all fine grading of landscape beds.
- SS. Provide all soil amendments and fertilizers and the blending of these items into the top soil.
- TT. Provide weed-control barriers and mulches complete.

- UU. Provide all landscaping, trees and shrubs and the planting and pruning of these items complete.
- VV. Provide plant maintenance and watering of landscaping for a period noted in the project documents.
- WW. Provide planting bed irrigation complete if noted.
- XX. Provide grading for truck loading dock. Concrete contract will provide concrete wall, foundation and concrete pads.
- YY. Provide shared use path complete if shown.
- ZZ. Provide required a Type B Transportation Management Plan (TMP), which is a detailed analysis of the maintenance of traffic during construction and coordinate with DelDOT for all work to be performed on state roadways and project entrance.
- AAA. See section 012300 Alternates and bid form for your responsibility for the alternates.
- BBB. The intent of the scope is **NOT** to denote every minute detail but to create an awareness of the scope of work for the project.
- CCC. It is the contractor's responsibility to review all other contract scopes of work**

SCOPE OF WORK - Bid Pac A
CONTRACT NO. 2 CONCRETE WORK

- A. The administrative sections, prints, addendums, and technical specifications 033000, 072100, 078413, 079200, 090000, 310000, 313116 & 315000.
- B. Provide all layout for the building foundations, locations and elevations by a registered surveyor complete. **NOTE:** The site work layout will be provided by the site work contractor (coordinate with Bid Pac A Contract No. 1 Site Work).
- C. Install all anchor bolts and the leveling, grouting and setting of the bearing plates for the structural steel material furnished by Contract No. 4 Steel Work and Contract No. 9 Drywall/Metal Stud materials. Steel and metal stud shop drawings to be used for layout of anchor bolts.
- D. Provide all perimeter insulation under concrete slabs and foundation walls.
- E. Provide the concrete infill for metal stairs and platforms.
- F. Provide sufficient layout work in regards to the foundation so that the masonry contract can provide wall foundations. Maintain batter boards and lines until masonry contractor starts work after the masonry contract accepts layout and starts work. It is the masonry Contractors responsibility to maintain work from that point forward.
- G. Provide all grading and grading of sub-grades for footings, foundation, floors and cast in place walls.
- H. Provide all excavation required for foundation work and the backfill required to do the poured in place concrete work.
- I. Provide all concrete foundations and rebar complete including any foundations outside the building foot print including planters, canopies, retaining walls, piers, transformer screens, truck loading dock, etc..
- J. Compact and backfill all trenches, foundations and other concrete work associated with this work only. Provide removal off-site of all excess soils due to excavation of your work.
- K. Provide all floor slabs complete including weather (hot and cold) protection, mesh, vapor barriers, water proof barriers, composite waterproof membrane, expansion and control joints, caulking and perimeter insulation under slab for a complete system. Refer to Division 9 Flooring Sections in reference to floor finish tolerances. Concrete sealers and curing Compounds must be compatible with flooring adhesives. Any irregularities in concrete surfaces at expansion joints to be ground flat to meet flooring contractor's specifications. Provide all concrete floor slab infill areas where demolished masonry wall is removed below finish floor. Refer to Division 9 Flooring Sections in reference to floor finish tolerances.
- L. Provide all concrete slab work to the exterior face of the enclosed building area, including of the loading dock and retaining wall complete. The site contract will pick it up from that point.

- M. Provide stone drainage fill under all concrete slabs within the building footprint or under exterior concrete provided by this contract.
- N. Provide all concrete bases required for all the locker installation. See prints for location and details. Coordinate with Contract No. 5 Carpentry and General Work for wood sleepers.
- O. **NOTE:** The item 'W' in the site work contract scope of work. All fill in the building, step and ramps are to be plus or minus one (1") inch. This Contract is responsible to handle the preparation from that point to the completion of the concrete work.
- P. Provide all depressed concrete for floor mats at entrance and all other items that need concrete depressions. Locations and sized to be coordinated with other contracts.
- Q. All cast in place concrete beams, lintels and walls to be included in this contract. Bond beams and CMU grouting is responsibility of Masonry Scope.
- R. It is the responsibility of this contract to coordinate with the Mechanical and Electrical Contractors, the elevation and locations of all imbedded items, at the time of pour including the proper sloping of floors to floor drains and troughs.
- S. Concrete footings to be clean of all debris and dirt prior to sign off to Masonry Contractor.
- T. Temporary electrical service to your construction trailer to be provided by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- U. Provide all concrete testing or inspections as noted in related sections of this manual including retaining services from the geotechnical engineer for testing of soil as noted. All testing is by contractor whether noted otherwise in other locations in the documents.
- V. Notify mechanical and electrical contractors with a schedule of when the concrete is to be poured so these contractors can verify their equipment locations.
- W. Provide concrete footers for trash enclosure.
- X. Provide installation and concrete fill of all bollards if any shown under roof area. Steel bollards to be provided by Steel Work Contract No. 4.
- Y. Provide colored concrete finish complete and pattern concrete if noted in finish schedule and specifications.
- Z. Provide an allowance of \$35,000 for cold weather protection. All protection to be approved by construction manager before work is performed.
- AA. Provide the interior concrete ramps and pads complete. Exterior ramps and steps by Contract No. 1 Site Work.
- BB. All concrete debris to be disposed of off-site in a required manner meeting all local, state and federal laws.

- CC. Provide installation of steel edging in concrete as noted. Contract No. 4 Steel Work will furnish.
- DD. Provide all caulking and sealants for concrete slabs provided by this contract.
- EE. The concrete contractor is to coordinate with surveyor on the amount of locations and elevations the surveyor is to locate. Concrete contractor is responsible for accuracy of the layout.
- FF. Provide testing of trenches that are opened and backfilled pertaining to your scope of work.
- GG. Provide dewatering if needed for your scope of work.
- HH. Provide reinforcement for all concrete provided by this contract.
- II. Provide self adhering sheet waterproofing and composite waterproofing complete.
- JJ. Provide all concrete work for the elevators and shafts complete.
- KK. Provide termite control system.
- LL. Provide concrete retaining walls and loading dock concrete walls complete including pad and trench drain.
- MM. Provide concrete wash out station.
- NN. Provide exterior concrete stage platform and steps complete.
- OO. Provide insulation that is under concrete pads.
- PP. See section 012300 Alternates and bid form for your responsibility for the alternates.
- QQ. The intent of the scope is **NOT** to denote every minute detail but to create an awareness of the scope of work for the project.
- RR. It is the contractor's responsibility to review all other contract scopes of work.**

SCOPE OF WORK – Bid Pac A
CONTRACT NO. 3 – MASONRY WORK

- A. The administrative sections, prints, addendums, and technical specification sections 033000, 042000, 047200, 071353, 072100, 072726, 076200, 078413 & 090000.
- B. Provide all masonry work complete including cmu block and brickwork, and including sound block, preferred cmu units, decorative block, jack arches, quoin corners, dumpster walls, screenwalls, signage walls, etc. All hollow metal doors and frames are to be stored and set by Contract No.5 Carpentry and General Work.
- C. Provide all concealed and thru wall flashings.
- D. Provide cavity wall insulation and other insulation attached between masonry walls and masonry veneer including spray applied insulation. Perimeter foundation wall insulation to be provided by Contract No. 2 Concrete Work. Provide cavity drainage mat system. Provide all ridged insulation that is located between masonry and masonry veneer. Contract No. 9 Drywall/Metal Stud will provide ridged insulation where attached to metal stud framing or masonry wall and no masonry veneer is located.
- E. Provide the installation of all bearing plates and bolts associated with the masonry for the steelwork and cold formed metal framing. The plates and bolts will be furnished by Contract No. 4 Steel Work. Steel contractor and masonry contractor to coordinate locations and placement of items at the time of masonry construction.
- F. Install all steel lintels attached or resting on masonry work finished by contract No. 4 Steel Work. Provide masonry pockets and grout filling of masonry cores where steel beams are attached or resting on masonry work. All structural steel beams provided and installed by Contract No. 4 Steel Work.
- G. Provide all cast stone and architectural precast concrete as shown including window sills, bands, accents and modular units including surround around outdoor stage opening and loading dock.
- H. Provide the concrete and rebar for all the filling of block cores, bond beams and bearing points. Include all reinforcements, wall anchors and fasteners to attach to sub surface.
- I. Install joist bearing plates furnished by Contract No. 4 Steel Work. Coordinate with Contract No. 4 Steel Work.
- J. See Item F Contract No. 2 Concrete Work for the layout and maintenance responsibility. This contract is responsible for layout of their portion of their work.
- K. Provide all grouting of masonry walls required. Also provide grouting of new doors and frames in openings.
- L. Temporary electrical service to your construction trailer to be provided by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.

- M. Provide fire stopping and protection for masonry walls including fire safing with mineral wool insulation. Provide wall markings for masonry fire and smoke partitions. Provide fire or acoustical sealant where wall intersects with floor or roof deck.
- N. All masonry debris to be disposed of off-site in a required manner meeting all local, state and federal laws.
- O. Provide masonry opening required for mechanical and electrical equipment. Location and sizes must be coordinated with each contractor. Also include masonry openings for other trades and access panels and doors as noted by these trades.
- P. Provide an allowance of \$35,000 for cold weather protection. All protection to be approved by construction manager before work is performed.
- Q. All wall penetrations to be patched prior to painting or cost of touch up painting to be deducted from contract.
- R. Provide bituminous damp proofing, sheet waterproofing and all related accessories as noted on the project documents that is attached to masonry.
- S. Furnish all wall anchors that are welded to steel beams and coordinate with Contract No. 4 Steel Work for the welding of these anchors only. All other wall anchors are to be furnished by the mason.
- T. All anchor bolts set in CMU is to be furnished by Contract A-4 Steel Work and installed by Contract A-3 Masonry. Any fasteners required other than anchor bolts provided by each contractor for their scope of work.
- U. Provide cement plaster if noted in project documents.
- V. Masonry contractor to coordinate the cleaning of debris from the foundation with the concrete contractor in a timely manner. Concrete contractor to clean foundation one time.
- W. Provide date stones and time capsule complete.
- X. Provide all masonry and grout testing and inspections including all other testing noted in your related specifications or noted on project drawings that relate to your scope of work. Contractor to provide all testing whether noted otherwise in other locations in the documents.
- Y. Provide all masonry work for the elevator and shafts complete.
- Z. See section 012300 Alternates and bid form for your responsibility for the alternates.
- AA. The intent of the scope is **NOT** to denote every minute detail but to create an awareness of the scope of for the project.
- BB. **It is this contractor's responsibility to review all other contract scopes of work.**

SCOPE OF WORK – Bid Pac A
CONTRACT NO. 4 STEEL WORK

- A. The administrative sections, prints, addendums, and technical specification sections 051200, 052100, 053100, 055000, 055113, 055200, 060660 & 090000.
- B. Provide and install all structural steel, steel joist, bridging, decking, and other miscellaneous steel for a complete job. Touch up with metal primer all areas required caused by welding. Provide structural steel framing and supports for mechanical and electrical equipment.
- C. Furnish all steel lintels, bearing plates or bolts shown to install in the masonry by Contract No. 3 Masonry. Steel contractor is responsible for verifying dimensions and elevations of these items prior to setting steel.
- D. Furnish all anchor bolts and bearing plates to be installed in concrete by Contract No. 2 Concrete Work. Steel contractor is responsible for verifying dimensions and elevations of these items prior to setting steel.
- E. Provide all railings at ramps or steps complete. Rails are to be core bored into concrete pads or masonry. Provide aluminum or steel rails, posts and hardware as shown. Provide translucent resin panels on guardrails.
- F. Furnish all bollards required on the site to Contract No. 1 Site Work and Contract No. 2 Concrete Work for their installation.
- G. Provide all miscellaneous steel items along with support system for each item including wall termination plates and angles where walls terminate next to steel decking. Provide miscellaneous steel framing for overhead coiling doors, operable partitions and other suspension systems. Provide all gauge bent plate and continuous gauge plate. Provide elevator sump pit cover.
- H. Provide all steel framing for the canopies complete. Prefabricated canopies provided by Contract No. 8 Aluminum Storefront/Windows/Glass and Glazing.
- I. Provide all railings complete including sleeves if required.
- J. Provide all stairs, ladders, safety cages, rails, railings, guardrails, steel corner guards, steel stair nosing and any other aluminum or steel products shown.
- K. Temporary electrical service to your construction trailer to be provided by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- L. Provide all steel products that are anchored in to the walls. Provide steel post supports in stud walls complete. Also provide top of wall steel angle bracing, grating, edge guards, SST mesh for signage and metal nosing. Provide metal fabrication complete.
- M. Provide all steel decking, including any decking that maybe fastened to cold form metal trusses if shown. See specification for different types of decking.

- N. Provide welding of wall anchors furnished and located by Contract No. 3 Masonry Work that are attached to steel.
- O. Provide miscellaneous steel for the elevator and shaft complete..
- P. Provide all structural steel testing and inspections including all other testing noted in your related specifications or noted on project drawings that relate to your scope of work. Contractor to provide all testing whether noted otherwise in other locations in the documents.
- Q. Furnish steel plate and fasteners that sets on top of parapet walls. Carpentry contract will install.
- R. Provide 3" pipe stud at cold formed framed half wall locations and coordinate with meta stud/drywall contract.
- S. See section 012300 Alternates and bid form for your responsibility for the alternates.
- T. The intent of the scope is **NOT** to denote every minute detail but to create an awareness of the scope of work for the project.
- U. **It is this contractor's responsibility to review all other contract scopes of work.**

SCOPE OF WORK – Bid Pac A
CONTRACT NO. 5 CARPENTRY & GENERAL WORK

- A. The administrative sections, prints, addendums, and technical specification sections 061000, 061600, 061800, 064600, 078446, 079500, 081113, 081416, 081613, 083113, 083313, 083323, 083326, 087100, 089000, 090000, 101100, 102113, 102123, 102226, 102800, 104413, 104416, 105113, 107113, 108200, 111300, 113100, 115213, 116143, 116623, 122413 & 142400.
- B. Provide the installation and proper storage of all hollow metal frames furnished by Contract No. 7 Furnish Hollow Metal/Doors Hardware. These items will be tailgate delivery.
- C. Provide the installation and the proper storage of all wood, fiberglass and hollow metal doors furnished by Contract No. 7 Furnish Hollow Metal/Doors Hardware. These items will be tailgate delivery.
- D. Provide the installation and the proper storage of all hardware furnished by Contract No. 7 Furnish Hollow Metal/Doors Hardware. These items will be tailgate delivery.
- E. Provide all toilet partitions and wood blocking required in walls to install the toilet partitions.
- F. Provide wood door jambs complete.
- G. Provide all lockers and benches including wood blocking required to install the lockers. The concrete bases are provided by Contract No. 2 Concrete Work. Coordinate work with this Contract.
- H. Provide fire extinguishers, cabinets, and accessories including any wood blocking required to install the cabinets and extinguishers.
- I. Provide all toilet accessories and mirrors including all concealed wood blocking to install the toilet accessories and mirrors or cutting of masonry to install toilet accessories. Contract No. 15 Mechanical will provide lavatory shields at required locations.
- J. Provide all miscellaneous specialties complete plus all suspension systems complete to install the miscellaneous items. The extent of miscellaneous specialties is indicated on the drawings, but are not limited to the following: display cases, projection monitoring brackets.
- K. Provide all wood window stools complete plus any wood blocking required to install the stools.. Provide wall caps for intermediate height walls. Contract No. 5 Carpentry & General Works provides wood wall caps on half walls. P-lam or solid surface wall caps and sills provided by Contract No. 13 Casework.
- L. Provide all wood trims complete including blocking required. Provide wood wall caps as noted.
- M. Provide all expansion and architectural control joint covers assemblies as shown. Coordinate with other contracts involved. Roof joint covers provided by roofing contract.
- N. Provide all plywood sheathing and wood framing required. Include all hurricane ties as shown. Provide fire rated plywood and lumber if noted in project documents. Provide wood blocking and

- furring for roof curbs. Provide wood glulam beams and all associated connections and fasteners complete.
- O. Provide all visual display boards, display cases, tack boards, tack strips, tackable surfaces, cubicle curtains and tracks and wood blocking required. Also provide exterior chalk board surface. Owner to supply smart boards.
- P. Provide all wood blocking required on the project whether shown on the contract documents or not, including casework blocking and kitchen equipment blocking.
- Q. Provide all architectural louvers that are required other than the louvers required by the mechanical equipment provided by Contract No.15 Mechanical. Louvers that is required for mechanical systems to be provided by Contract No. 15 Mechanical Complete. Contract No. 5 Carpentry and General Work to provide all other louvers complete that are not required for mechanical equipment.
- R. Temporary electrical service to your construction trailer to be provided by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- S. Provide all wood and metal storage shelving in closets and other areas. P-lam shelving provided by Contract No. 13 Casework.
- T. Provide all wood blocking required at roofing locations so that the roofer can install his work. **NOTE:** all locations included but not limited to skylights, roof hatches, roof curbs and other items. This includes rooftop mechanical items and wood roof curbs as required.
- U. Provide overhead, security grills and coiling doors complete, including openers and all related items. Provide stainless steel counters associated with doors noted above including stainless jambs.
- V. Provide wall corner guards, and all blocking required.
- W. Provide roof, wall and floor access doors or panels and materials to install compete. Mechanical, Sprinkler, and Electrical contractors to provide access panels or doors for their portion of work. All other panels or doors by this contract if shown on drawings.
- X. Provide projection screens including electric operating screens and all blocking and accessories for a complete system.
- Y. Provide window roller shades and blinds including electric roller shades at all windows noted.
- Z. Provide athletic equipment including wall pads, basketball and volleyball and blocking complete.
- AA. Provide knox box complete.
- BB. Provide custom display case and all glass, tracks, shelving complete.
- CC. Provide decorative formed & metal closures, trims and all related items for complete systems. Also provide decorative formed metal closures and trims complete.

- DD. Provide gym divider curtains and all associated fasteners, tracks and support system for a complete system.
- EE. Provide all wood trims, azek, moldings, field built columns, FRP panels and blocking required complete.
- FF. Provide all wood framing for floor, walls, stairs, ceilings and roof. Provide gluelam beams and fasteners complete.
- GG. Provide asphalt felt barrier between all treated wood blocking that comes in contact with steel or cold formed framing.
- HH. Provide the elevator system complete. Coordination with the Concrete, Masonry, Mechanical and Electrical Contracts 2, 3, 15 and 17 is the responsibility of this contract. During construction the owner will need use of the elevator for the placement of furniture and supplies. Contractor is to provide access and temporary wall protection. Warranty will start at substantial completion.
- II. Contract No. 17 Electrical will supply power to the elevator. Elevator contractor is to provide all other low voltage control work that pertains to the elevator installation.
- JJ. Furnish the elevator sill angles and fasteners to be installed by Contract No. 2 Concrete.
- KK. Furnish the anchors for the elevator rail to be installed in the masonry walls by Contract No. 3 Masonry.
- LL. No elevator equipment to be stored in building.
- MM. Provide coordination of all trades for elevator installation and inspection.
- NN. Provide residential and commercial appliances complete. Electrical and plumbing hook ups and venting by Contracts 15 and 17. Contract No. 14 Kitchen Equipment will provide kitchen equipment.
- OO. Provide water wall complete.
- PP. Provide operable partition and all associated fasteners, tracks and support system for a complete system.
- QQ. Provide all signage and cast letters, ADA signage, directories, site LED signs and plaques for a complete system including wood blocking.
- RR. Provide wood stage flooring front edge, steps and wall complete including all fasteners and support systems.
- SS. Provide stage curtains and rigging and batten system and all associated fasteners and equipment for a complete system.
- TT. Provide impact wall protection and corner guards complete.
- UU. Provide dock bumpers and associated fasteners complete.

- VV. Install steel plate furnished by steel contract on top of parapet walls to fasten wood blocking.
- WW. Provide louvered roof top equipment screens complete.
- XX. See section 012300 Alternates and bid form for your responsibility for the alternates.
- YY. The intent of the scope is **NOT** to denote every minute detail but to create an awareness of the scope of for the project.
- ZZ. It is this contractor's responsibility to review all other contract scopes of work.**

SCOPE OF WORK Bid Pac A
CONTRACT NO. 6 ROOFING

- A. The administrative sections, prints, addendums, and technical specification sections 061600, 072100, 074113, 074213, 074213.23, 075323, 076200, 077100, 077200, 079200, 079500, 084523 & 090000.
- B. Provide all roof membrane and all other roofing complete including all ridged insulation, tapered insulation and dens deck cover board and all composite and nail board insulation. This includes metal roofing.
- C. Provide all flashing required to make a complete roof system including fiberglass and hypalon flashing. Also, include any flashing necessary for the waterproofing of new mechanical and electrical equipment. Provide EPDM flashing with termination bar and sealants as noted in the project documents. Also provide all roof expansion joint covers.
- D. Provide all aluminum fascia, trim, soffit, parapet wall caps, roof accessories, traffic pads, walkways, ridge vent, gutters and downspouts, roof hatches, fire and smoke vents, splash blocks, roof curbs and roof accessories as shown.
- E. Temporary electrical service to your construction trailer to be provided by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- F. Provide all caulking sealants that are related to roofing that is provided under this contract. Provide reglets and counter flashings for all roof locations and Masonry Contract No. 3 will provide thru-wall flashings. Coordinate with Contract No. 3 Masonry for flashing compatibility.
- G. Provide all flashing for prefabricated roof curbs to make water proof.
- H. Provide bituminous damp proofing and self adhering sheet waterproofing on roofing areas complete. Masonry Contract 3 will provide bituminous damp proofing applied to masonry and Contract No. 2 Concrete will provide waterproof barriers and composite waterproof membrane under concrete.
- I. Provide all types of metal wall panels, metal composite panels and metal trims complete including all flashings, connections, joint sealants and accessories. Also provide insulated metal wall panels.
- J. Coordinate final connections of downspouts to underground piping with site contractor.
- K. Provide the metal soffits and all other soffits including all accessories for a complete system.
- L. Provide steel composite and fiberglass sandwich panel canopy roofing and all accessories for a complete system. Note: all prefabricated aluminum canopies to be provided by Contract No. 8 Aluminum Storefront/Windows complete.
- M. Carpentry contract to provide floor, wall and ceiling expansion joint covers. Roofing contract to provide roof expansion joint cover.

- N. See section 012300 Alternates and bid form for your responsibility for the alternates.
- O. The intent of the scope is **NOT** to denote every minute detail but to create an awareness of the scope for the project.
- P. It is this contractor's responsibility to review all other contract scopes of work.**

SCOPE OF WORK Bid Pac A

CONTRACT NO. 7 FURNISH HOLLOW METAL/DOORS/HARDWARE

- A. The administrative sections, prints, addendums, and technical specification sections 081113, 081416, 081613, 087100 & 090000.
- B. Furnish all hollow metal frames, hollow metal barrow lites, all hollow metal doors, all wood doors, all fiberglass doors and all hardware complete. Furnish wood infill panels window and door and louvers mullions that are fastened in hollow metal frames. Contract No.5 is responsible to place material in their storage area. Contract No. 7 to tailgate deliver to storage area. All materials need to be properly marked and identified for installation by Contract No. 5 Carpentry and General Work. Develop a sign-off system so that both parties of Contract No. 5 Carpentry and General Work and Contract No. 7 Furnish Hollow Metal/Doors Hardware agree the correct amount of material has been delivered.
- C. Provide all required hardware templates and reference material so that Contract No. 5 Carpentry may install the material. Contract No. 7 Furnish Hollow Metal/Doors Hardware will be responsible for providing and coordinating information with all other trades that interfaces such as Contract No. 5 Carpentry and General Work and Contract No. 8 Aluminum Storefront/Windows/Glass and Glazing and Contract No. 17 Electrical.
- D. Furnish the hardware to Contract No. 8 Aluminum Storefront/Windows/Glass and Glazing Contractor to install.
- E. Access control system is to be provided by owner, doors/frames are to be prepped for them under your contract. Provide all hardware accept card readers as noted in the hardware specifications.
- F. Electrical service to your construction trailer to be provided by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- G. Furnish fiberglass doors complete.
- H. See section 012300 Alternates and bid form for your responsibility for the alternates.
- I. The intent of the scope is **NOT** to denote every minute detail but to create an awareness of the scope of work for the project.
- J. It is this contractor's responsibility to review all other contract scopes of work.**

SCOPE OF WORK Bid Pac A
CONTRACT NO. 8 ALUMINUM STOREFRONT/WINDOWS/GLASS AND GLAZING

- A. The administrative sections, prints, addendums, and technical specification sections 079200, 081613, 083513, 084113, 084413, 084523, 085113, 087100, 087400, 088000 & 090000.
- B. Provide all aluminum entrances, storefront, spandrel glass, aluminum windows, aluminum window sills, translucent assemblies, kalwall, curtain walls, and doors complete. Provide all break metal around new windows and doors complete. Provide all window and door mullions that are attached to aluminum windows and doors. Also provide window panning, low pressure foam insulation around window units, and simulated divided lite with applied grids if shown.
- C. Install all hardware for the aluminum doors. Coordinate with Contract No.7 Furnish Hollow Metal/Doors/Hardware.
- D. Provide all glass and glazing. Include all doors and windows furnished by Contract No. 7 Furnish Hollow Metal/Doors/Hardware. Also include applied grids for simulated divided lite if shown. Provide structural silicone joints complete. Provide mirror walls in fitness rooms. Provide fire and insulated glazing and fire rated aluminum door and window panels.
- E. Provide all caulking for work installed by this contract interior and exterior complete.
- F. Temporary electrical service to your construction trailer to be provided by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- G. Provide cleaning of glass and frames at completion of project.
- H. Provide all prefabricated canopies and all fasteners and hardware for a complete system.
- I. Temporary closures may not be necessary during the period of construction. Once the interior finishes are to begin installation; temporary closures will be needed. If windows and doors are not available for installation when openings are ready; Contract No. 8 Aluminum Storefront is to provide temporary closures for the openings until finished windows and doors are installed.
- J. Provide aluminum head and sill flashings and all other associated flashings for your product for a complete system.
- K. Provide fire rated joint system for aluminum entrances, curtain wall and storefront complete.
- L. Provide sliding glass storefront operative glass wall system complete.
- M. See section 012300 Alternates and bid form for your responsibility for the alternates.
- N. The intent of the scope is **NOT** to denote every minute detail but to create an awareness of the scope of work for the project.
- O. It is this contractor's responsibility to review all other contract scopes of work.**

SCOPE OF WORK Bid Pac A
CONTRACT NO. 9 DRYWALL/METAL STUD

- A. The administrative sections, prints, addendums, and technical specification sections 054000, 061600, 072100, 072500, 078413, 078446, 083113, 090000, 092216, 092900 & 092400.
- B. Provide all batt insulation (walls and ceilings). Provide ridged insulation that attaches to all metal framing and masonry walls that has metal siding veneer and no masonry veneer..
- C. Provide all metal stud, framing, furring and drywall work complete. Provide metal furring at all locations including masonry walls for attachment of metal sidings or other substrates. Also provide all cold formed metal trusses and all brackets and clips complete. Provide all tile backer board complete. Provide sealants to top and bottom of partitions and at penetrations to seal.
- D. Provide all metal blocking required.
- E. Coordinate with Contract No. 5 Carpentry so that they can install any wood blocking required in the metal stud walls.
- F. Provide all bulkhead, soffit framing, parapet wall framing and framing for cants at roof complete.
- G. Provide all gypsum sheathing work complete, including all vapor barrier and air infiltration barriers and building wrap or building paper. This contractor is responsible for maintaining the proper attachment of the barriers and building paper to the building until the final veneer covers the area.
- H. Provide all drywall suspended ceilings, walls, shaft walls, fascias and soffits called for on the prints complete including all framing required. Coordinate with Contract No. 15 Mechanical, No. 16 Sprinkler System and No. 17 Electrical. Provide framing for access panels supplied by this contract.
- I. Provide all expansion control required for drywall and all gypsum board moldings and Z reveal trim. Provide sealant and caulk for the Z reveal trim.
- J. Temporary electrical service to your construction trailer to be provided by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- K. Provide fire protection for metal stud walls or ceilings as shown including fire safing mineral wool insulation and fire or acoustical sealant.
- L. Provide all hurricane ties and clips complete that are fastened to cold form framing.
- M. As part of the warranty portion. Provide an inspection of drywall and plaster with the owner after 1 year of substantial completion and identify locations to be re pointed due to flaws and cracks in the drywall and plaster. Repair all areas and repaint as needed. Any defect caused by abuse will be charged to the owner.
- N. Provide wall labeling for smoke and fire walls for drywall/metal stud walls or ceilings.

- O. Provide all cold from steel testing and inspection including all other testing noted in your related specifications or noted on project drawings that relate to your scope of work. Contractor to provide all testing whether noted otherwise in other locations in the documents.
- P. Provide all spray applied cellulosic and polyurethane foam insulation complete if noted.
- Q. Provide wall tile cement backer board in areas where tile wainscot is shown.
- R. Install 3" pipe stud furnished by steel contract at cold formed framed half wall locations. Coordinate with steel contractor.
- S. Provide insulated air barrier system to the complete exterior of the building including masonry and metal framed wall systems.
- T. Provide portland cement plaster at all designated ceiling areas complete.
- U. See section 012300 Alternates and bid form for your responsibility for the alternates.
- V. The intent of the scope is **NOT** to denote every minute detail but to create an awareness of the scope of for the project.
- W. It is this contractor's responsibility to review all other contract scopes of work.**

SCOPE OF WORK Bid Pac A
CONTRACT NO. 10 ACOUSTICAL WORK

- A. The administrative sections, prints, addendums, and technical specification sections 090000, 095113, 095450 & 098433.
- B. Provide all the new acoustical and lay-in ceilings required including the hangers for a complete system. Also include all acoustical wall and ceiling panels, suspended decorative grid clouds and specialty ceilings. Provide aluminum fascias and trims as noted.
- C. Temporary electrical service to your construction trailer to be provided by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- D. Provide all insulation if shown above the acoustical ceilings.
- E. Provide metal and reflection lay in ceilings and egg create panels complete if noted in project documents.
- F. Provide specialties ceilings, wood clouds and curved wood slat ceiling complete.
- G. Provide fabric wrapped panels complete.
- H. Provide sound absorbent panels complete.
- I. See section 012300 Alternates and bid form for your responsibility for the alternates.
- J. The intent of the scope is **NOT** to denote every minute detail but to create an awareness of the scope of work for the project.
- K. It is this contractor's responsibility to review all other contract scopes of work**

SCOPE OF WORK Bid Pac A
CONTRACT NO. 11 FLOOR COVERING WORK

- A. The administrative sections, prints, addendums, and technical specification sections 090000, 093013, 096513, 096519, 096813 & 124813.
- B. Provide all preparation of walls and floors to receive the new base and floor tile.
- C. Provide all base complete except the wood bases. Provide rubber profile base complete.
- D. Provide all resilient tile flooring complete including the concrete floor preparation and patching to receive the new material. This includes all VCT, rubber, luxury vinyls and VSF flooring.
- E. Refer to the Finish Schedule noted on project documents for the scope of work.
- F. Provide all carpet and carpet tile complete and all floor preparation and patching to receive the new material.
- G. Provide all rubber floor tile, including rubber treads and risers for all stairs and landings as shown.
- H. Temporary electrical service to your construction trailer to be provided by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- I. Provide vinyl tile, walk off mats and grills and all associated accessories for a complete system. Include floor preparation and patching to receive the new material.
- J. Provide resilient sheet flooring and all associated materials including floor prep for a complete system.
- K. Provide all preparation of walls and floors to receive the new base, floor tile, and carpet.
- L. Provide final cleaning, waxing and sealing of all floor coverings furnished by this contract per manufacturers' recommendations and project specifications. Provide protection of finished floor coverings until completion of the project.
- M. Provide new court stripping and new resilient floor system, tile and sheet goods complete.
- N. Provide all transitions for all the flooring types needed for the project complete.
- O. Provide schluter systems metal edge guards at all outside wall corners of ceramic tile walls as noted in documents.
- P. Provide abrasion nosing on first and last tread of all stairs as noted on the documents.
- Q. Provide all preparation of walls and floors to receive the new wall and floor tile.
- R. Provide ceramic, porcelain and quarry tile and all associated accessories for a complete system. Include floor preparation and patching to receive the new material. Provide stair tread tile.

- S. See section 012300 Alternates and bid form for your responsibility for the alternates.
- T. The intent of the scope is **NOT** to denote every minute detail but to create an awareness of the scope of work for the project.
- U. **It is this contractor's responsibility to review all other contract scopes of work.**

SCOPE OF WORK Bid Pac A
CONTRACT NO. 12 CAULKING/PAINTING

- A. The administrative sections, prints, addendums, and technical specification sections 079200, 090000, 099113 & 099123.
- B. Provide all exterior and interior caulking required except the caulking required by Contract No. 8 Aluminum Storefront/Windows/Glass and Glazing, Contract No. 1 Sitework, Contract No. 2 Concrete Work. Prepare the surfaces to receive the new caulking. Also, include any location where dissimilar materials meet. Caulk for expansion and contraction or concealment of joint including masonry and cast stone joint sealant complete. Provide caulking for cast stone/concrete veneers, masonry veneers, metal wall panels and all other areas of construction except those contracts listed above.
- C. Provide all exterior and interior painting including the preparation of new surfaces to receive the new paint. Provide painted graphics as noted in project documents.
- D. Provide the cleaning and painting of all exterior lintels, steel rails and other metals including bollards and exposed ceilings.
- E. Reference the finish schedules for the scope of work as well as the prints.
- F. Provide all epoxy, high performance coatings, painting, concrete sealer paint and exposed ceiling and structure painting including the preparation of the areas to receive painting. See the finish schedule.
- G. Painters option to apply finish coat of paint after all finishes are installed or be responsible for ALL touch up necessary.
- H. Electrical service to your construction trailer to be provided by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- I. Provide all caulking that is required where casework meets walls, floors or ceilings if required. Also provide caulking of drywall trim/block interface as noted on the reveal details on the project documents
- J. Provide interior caulking to all windows and door frames except where aluminum windows and aluminum doors meet finished masonry. Drywall returns, sills and etc. would be the responsibility of this contract to caulk. Caulk between the top of wood base and wall.
- K. Provide the painting of exposed conduit, sprinkler, plumbing and mechanical piping and duct work. Painting Contractor shall coordinate work with Sprinkler, Mechanical and Electrical Contractors.
- L. Provide color graphic in gym as noted in the documents.
- M. Provide staining and varnishing of job site finished wood products include prep of material complete.

- N. See section 012300 Alternates and bid form for your responsibility for the alternates.
- O. The intent of the scope is **NOT** to denote every minute detail but to create an awareness of the scope of work for the project.
- P. It is this contractor's responsibility to review all other contract scopes of work.**

SCOPE OF WORK Bid Pac A
CONTRACT NO. 13 CASEWORK

- A. The administrative sections, prints, addendums, and technical specification section 064116, 064600, 090000, 123623.13 & 123661.16.
- B. Provide all casework in the office area, work room, classrooms, library, bathrooms, reception desk, circulation desk and other areas noted on drawings.
- C. This Contract is responsible to have personnel on the jobsite to receive material being shipped to the jobsite, and climate controlled storage units for temporary storage.
- D. Provide and coordinate all casework that required mechanical and electrical connection and cut outs with Contract No. 15 Mechanical and Contract No. 17 Electrical.
- E. Provide all counters for casework and stationary counters as shown. Provide metal counter supports as shown.
- F. Provide all casework and counter tops and p-lam and solid surface wall caps that are noted in section 064023 and in the drawings. This contract to provide cut outs of all sinks, faucets and accessories. Templates to be provided by associated contractors. Wood, stained or painted, wall caps to be provided by Contract No. 6 Carpentry & General Work.
- G. Temporary electrical service to your construction trailer to be provided by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- H. Provide all solid surface counter tops and wall caps as shown.
- I. Provide any bath accessories that are built in to casework.
- J. Provide p-lam shelving in closets and all other shelving, casework and counters for this project.
- K. Provide manufactured laminate and wood casework, mail and literature distribution equipment, custom casework, media shelving and casework including all accessories and connections complete.
- L. Provide all modular casework and all fixtures as noted in the specification section.
- M. Carpentry Contract No. 5 to provide wood shelving in closets only. All other shelving, casework and counters by this contract.
- N. Provide plam or solid surface window sills and aprons complete.
- O. See section 012300 Alternates and bid form for your responsibility for the alternates.
- P. The intent of this scope is **NOT** to denote every minute detail but to create an awareness of the scope of work for the project.
- Q. It is this contractor's responsibility to review all other contracts scopes of work.**

SCOPE OF WORK BID PAC A
CONTRACT NO. 14 KITCHEN EQUIPMENT

- A. The administrative sections, prints, addendums, and technical specification section 114000.
- B. Trash can be placed in the jobsite dumpster provided by Construction manager.
- C. The kitchen equipment contractor is responsible for coordinating with all related trades. (i.e. mechanical, sprinkler, electrical and flooring).
- D. The kitchen equipment contractor shall provide all kitchen equipment noted on the plans and specifications. Furnish and install complete.
- E. This contractor is responsible for placing all equipment and receiving all equipment at the jobsite.
- F. Provide all stainless steel work in the kitchen area.
- G. This contract is responsible for coordinating installation of imbedded items with Contract No. 2 Concrete Work.
- H. Temporary electrical service to your construction trailer to be powered by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- I. Mechanical, Sprinkler and Electrical contractors to provide hook up of equipment to their scope of work.
- J. See section 012300 Alternates and bid form for your responsibility for the alternates.
- K. The intent of this scope is **NOT** to denote every minute detail but to create an awareness of the scope of work for the project.
- L. **It is this contractor's responsibility to review all other contract scopes of work.**

SCOPE OF WORK – Bid Pac A
CONTRACT NO. 15 MECHANICAL

- A. The administrative sections, prints, addendums and technical specification sections 033000, 078413, 083113, 089000, 090000, 102800, 142400, 220513, 220517, 220518, 220519, 220523.12, 220523.13, 220523.14, 220523.15, 220529, 220553, 220719, 221113, 221116, 221119, 221123, 221313, 221316, 221319, 221413, 221423, 221429, 221623, 223400, 224213.13, 224213.16, 224216.13, 224216.16, 224223, 224500, 224716, 230200, 230210, 230215, 230230, 230300, 230400, 230410, 230411, 230450, 230500, 230505, 230510, 230600, 230605, 230725, 230726, 230730, 230760, 230900, 230950, 235123, 310000, 312300 & 315000. Technical specifications are noted on mechanical and plumbing contract drawings. Also, refer to electrical drawings for any mechanical or plumbing equipment.
- B. Provide all plumbing complete including hook up to residential and commercial equipment including grease interceptor system, washer extractor pit, trench drains and dryer vents. Also provide caulking of plumbing fixtures to countertops, walls or other surfaces. Provide lavatory shields complete.
- C. Provide all testing and permits for the plumbing work. Provide chlorination on all water lines.
- D. Provide all HVAC work complete including all required louvers for the mechanical work. Provide fire dampers as required by all codes that apply. Louvers that is required for mechanical systems to be provided by Contract No. 15 Mechanical Complete. Contract No. 12 Caulking/Painting is responsible for the caulking of the louvers. Contract No. 5 Carpentry and General Work to provide all other louvers complete that are not required for mechanical equipment.
- E. Provide all testing and balancing of the HVAC system.
- F. Provide Fire stopping and patching of wall, floor and ceiling areas that require mechanical penetration. Coordinate with other trades. Provide access panels and doors as required. This contract to install the access doors.
- G. Provided all roof curbs for all mechanical items. Provide metal and gypsum chimney stack liners complete.
- H. Provide all final connections from 5' outside of building to building for all site utilities. Includes water, sewer, and storm sewer.
- I. It is the responsibility of the mechanical contractor to coordinate and inspect at the time of pour all imbedded mechanical items in concrete or masonry units for proper elevations and locations.
- J. This contract is responsible to restore sub-grade to within 1" + / - of final grade. Provide compaction and testing as required.
- K. This contract is responsible for all temporary heat as needed through duration of construction. See allowances.

- L. Temporary electrical service to your construction trailer to be provided by this contract. A localized electrical panel will be provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- M. Provide gas piping and final connections and all related items.
- N. Provide coordination of all mechanical penetrations with all trades involved. Hammer penetrations will not be tolerated. All wall penetrations to be patched prior to painting or cost for touch up paint to be deducted from contract.
- O. Provide all concrete housekeeping pads for mechanical equipment as required.
- P. Provide duct mounted smoke and heat detectors including all control wiring as needed for a complete system as required by all codes that apply.
- Q. Provide all mechanical and plumbing for elevator and shafts that pertain to your scope of work.
- R. Provide hook-ups and connections of kitchen equipment complete.
- S. Coordinate the hook up with the storm water system provided by Contract No. 1 Site Work. Provide all final connections from 5' outside of building to building for all site utilities. Includes water, sewer, and storm sewer. Contract No. 1 Site Work will provide rain water conductor and cast iron rainwater boots.
- T. Provide the allowance of \$100,000 in the contract for temporary heat fuel cost. Cost of work to be determined by fuel company receipts with amount of fuel and cost per gallon. All equipment and labor for temporary heat is part of the contract. This allowance is for fuel cost only.
- U. Provide painting of roof top equipment if noted.
- V. Provide elevator sump pumps and piping and connections complete.
- W. Provide rooftop units, acoustical package, inertia pads, fire and smoke dampers, heat pumps, chilled beam, chillers, radiant floor heat, boilers, energy recovery ventilation, make-up air unit, ductless split system, air curtains, fans, cabinet heaters, compressed air system, pumps, heat exchanger, finned tube radiation , unit heaters, sound attenuating unit and all other mechanical equipment complete.
- X. Provide the mechanical controls system complete including low voltage wiring. Electrical contractor will provide power only.
- Y. See section 012300 Alternates and bid form for your responsibility for the alternates.
- Z. The intent of this scope is **NOT** to denote every minute detail but to create an awareness of the scope of work for the project.
- AA. It is this contractor's responsibility to review all other contract scopes of work.**

SCOPE OF WORK Bid Pac A
CONTRACT NO. 16 SPRINKLER SYSTEM

- A. The administrative sections, prints, addendums, and technical specifications sections 033000, 078413, 083113, 090000, 142400, 210513, 210517, 210518, 210523, 210553, 211100, 211119, 211200, 211313, 213113, 213400, 213500, 310000 & 315000. Technical specifications are noted on the mechanical and plumbing contract drawings. Also, refer to electrical drawings for any sprinkler equipment.
- B. Provide any fire stopping required where your work penetrated walls. Provide access panels and doors as required. This contract is to install their own panels.
- C. Provide all fire sprinkler/protection including, but not limited to, backflow preventers, sprinkler heads, piping, fittings, standpipe, fire department connection and fire pumps.
- D. Submit all required signed and sealed calculations and applications for review and approval by Sussex County and State of Delaware Fire Marshals Office.
- E. Provide all required flow switches, alarms, tamper switches, alarm clock valves, pipe, hangers, inserts, valves, fittings, fire department hose valves, access panels and access doors associated with your scope of work.
- F. Coordinate with all effected trades', provide coordination information to other contracts.
- G. Fire sprinkler contractor shall pick up all new water services from a flange 8" above finish floor in the fire pump room and other locations throughout the building.
- H. Temporary electrical service to your trailer to be provided by this contract. A localized electrical panel will provided for your power source. Removal of temporary electric is the responsibility of this contract at completion of job.
- I. Provide flushing for all interior and exterior fire water lines complete, including site water lines installed by site work contractor.
- J. Provide coordination of all sprinkler penetrations with all trades involved. Hammer penetrations will not be tolerated. All wall penetrations to be patched prior to painting or cost of touch up painting to be deducted from this contract. Provide sleeve firestopping as required.
- K. Provide for sprinkler work for elevator and shaft complete.
- L. See section 012300 Alternates and bid form for your responsibility for the alternates.
- M. The intent of this scope is **NOT** to denote every minute detail but to create an awareness of the scope of work for the project.
- N. **It is this contractor's responsibility to review all other contract scopes of work.**

SCOPE OF WORK Bid Pac A
CONTRACT NO. 17 ELECTRICAL

- A. The administrative sections, prints, addendums, and technical specification sections 033000, 078413, 083113, 090000, 111200, 142400, 213113, 213400, 230730, 260000, 260055, 260110, 260120, 260121, 260130, 260131, 260135, 260140, 260155, 260160, 260165, 260170, 260180, 260190, 260195, 260400, 260452, 260460, 260470, 260471, 260472, 260475, 260510, 260520, 260601, 260740, 260772, 260773, 260774, 260851, 262933, 280721, 280724, 280727, 280728, 310000, 315000, 330930, 330931, 330932, 330933, 330934, 330935 & 330936. Technical specifications are noted on the electrical contract drawings. Also, refer to mechanical and plumbing drawings for any technical equipment.
- B. Provide temporary lighting as required for all areas of construction. Provide temporary electric service to all construction managers' office trailers. Trench wire in ground. Remove temporary service at completion of job.
- C. Provide the patching and fire stopping required for any electrical penetration thru walls, ceilings and floors. Provide access doors and panels as required. This contract is to install their own panels.
- D. Provide all rough-in and final connections to the commercial and residential equipment, kitchen equipment and mechanical equipment, elevator system, etc...
- E. Provide all equipment, material, testing, permits, and inspections required for a complete electrical system for the entire project.
- F. Provide all concrete work for the installation of all electrical equipment.
- H. Electrical contractor shall provide power to duct mounted smoke detectors as required by code.
- I. Electrical contractor shall provide power to all electric door hardware. This shall include wall boxes and conduit where necessary. Electrical contractor shall coordinate with Hardware contract and alarm company. This shall include wall boxes, conduit and installation of control boxes. Low voltage wiring by others; electrical contractor is to provide line voltage to all electric door hardware.
- J. Provide temporary distribution panel with six (6) 60-amp, 120/240 volt, single phase, 3-wire power for construction trailers for other contractors. Electrical hook-up, including conduit and wiring to trailer location shall be the responsibility of the Contractor requesting power not the Electrical Contract.
- K. This contract is responsible to restore sub-grade to within 1" + / - of final grade.
- L. If the Electrical contractor requires power for his construction trailer, he shall provide power to his trailer from the temporary distribution panel provided. Electrical contractor is responsible for all material, labor, and equipment necessary to extend power from panel to electrical site trailer. Electrical contractor shall make connection to panel
- M. Provide all heat and smoke detector power wiring per all codes that apply.

- N. Provide electrical connections for owner purchased equipment.
- O. Provide final connection of all power wiring from building to the utility company connection point including generator switch and equipment.
- P. Provide all conduits, wire and all related material to install all underground electric utilities complete.
- Q. Provide all site lighting complete including concrete bases, conduit, wire and fixtures.
- R. Provide proper compaction and testing of all trenches associated with electrical work.
- S. Provide coordination of all electrical penetrations with all trades involved. Hammer penetrations will not be tolerated. All wall penetrations to be patched prior to painting or cost of touch up painting to be deducted from this contract.
- T. Provide lightning protection system complete.
- U. Provide heat terminals complete.
- V. Provide the patching and fire stopping required for any electrical penetration thru walls.
- W. Provide pathways, conduit, boxes, raceways, cable trays, floor boxes, distribution backboards, electrical protection and power supplies only for Security and Structured Cabling. Also provide site conduit and pull boxes for technology and communications systems. Structured Cabling and Security systems provided by others.
- X. Provide underground and overhead exterior electrical work including conduit, manholes and hand holes complete.
- Y. Provide white board electrical requirements complete.
- Z. Provide the fire alarm system and all hardware for a complete system.
- AA. Provide electrical power to water wall complete.
- BB. Provide analysis and coordination study of electrical system.
- CC. Provide electrical power to electric hand dryers.
- DD. Provide all lighting for project.
- EE. Provide classroom audio equipment including sound reinforcement system, amplifier/receivers, transmitters, speakers and microphones for a complete system.
- FF. Provide specialized audio and sound systems and all associated hardware and cabling for a complete system.
- GG. Provide auxiliary sound systems including all cabling, input/output outlets, speakers, racks and cabinets, electronics and all hardware for a complete system.

- HH. Provide intercom and clock system including speakers, public address system, paging horns, clocks, cabling and hardware for a complete system.
- II. Provide electrical power to security gates.
- JJ. Provide relocation of utility poles and equipment complete. Coordinate with the utility company and include cost for utility company's fees for relocation.
- KK. Provide generator, area pole lights, antenna tower, variable frequency drives, control panels, electrical instrumentation and all electrical requirements for pump station complete.
- QQ. See section 012300 Alternates and bid form for your responsibility for the alternates.
- RR. The intent of this scope is **NOT** to denote every minute detail but to create an awareness of the scope of work for the project.
- SS. It is this contractor's responsibility to review all other contract scopes of work.**

END OF SECTION 011100

SECTION 011200 – MULTIPLE CONTRACT SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

- A. This section describes certain responsibilities of the Contractors. These instructions shall be strictly followed unless more stringent requirements are contained within other Specification sections or written directions from the Construction Manager state otherwise.

- Protection of Existing Conditions
- Project Supervision
- Project Coordination
- Protection of Existing Conditions
- Systems Coordination Drawings
- Field Engineering
- Testing
- Fees, Licenses, and Permits
- Sleeves, Hangers, and Inserts
- Chases and Recesses
- New and Existing Openings
- Penetrations
- Fireproof Repair
- Equipment Foundations
- Cutting and Patching
- Access Doors and Panels
- Touch-up Painting
- Starters and Disconnects
- Final Cleaning

1.2 PROTECTION OF EXISTING CONDITIONS

- A. Existing finished surfaces to remain in place in the existing site, shall be protected by the Trade Contractor performing the work in that area, by whatever materials and means are required to prevent any damage. Other surfaces shall be protected with tarpaulins, drop cloths, and similar coverings, as required.
- B. At the completion of the work, or when protection is no longer required, temporary enclosures, tarpaulins, building paper, drop cloths and other temporary materials, shall be removed and existing work and finishes in altered portions of the existing site shall be cleaned and left in condition acceptable to the Owner, Architect, and the Construction Manager.

1.3 PROJECT SUPERVISION

- A. Every Trade Contractor shall be responsible for the supervision of their work. Adequate supervision as required to maintain the progress schedule, shall be required within the scope of work within the contracts. When more than one major building phase is being constructed at different locations on the project site, separate supervision must be assigned to each phase when work of that contract is being performed. When performing construction work to maintain the progress schedule requires extended hours, multiple shifts, and/or additional work days, adequate

separate supervision shall be required for each Trade Contractor during these times. The competence level and ability of supervisory personnel must be adequate to perform the construction activities involved.

- B. Although these various second level supervision personnel may be reassigned from time to time, each contractor shall retain one superintendent with full responsibility while performing work on the project.
- C. The Construction Manager shall have the authority to direct the Trade Contractor to assign additional supervisory personnel to ensure compliance with the contract schedule and quality requirements at no addition to the contract price.

1.4 PROJECT COORDINATION

- A. Every Trade Contractor shall be responsible for the coordination of the progress of their work with the progress of all other Trade Contractors work.
- B. Inasmuch as Project completion within the time limit is dependent upon cooperation of those engaged therein, it is imperative that each Trade Contractor perform his work at such time and in such a manner as not to delay or otherwise interfere with work progress of other Trade Contractors. If any Trade Contractor's work depends upon proper execution or results of another Trade Contractor's work, the former shall inspect the work and report any defects therein to the Construction Manager.
- C. Trade Contractors shall afford each other every reasonable opportunity for installation of their work, and shall work in conjunction with each other in order to facilitate proper and intelligent execution of work.
- D. Plans are generally diagrammatic, and each Trade Contractor shall coordinate his work with the work of others, so that interference between mechanical, electrical, architectural and structural work does not occur. Each Trade Contractor shall furnish and install offsets, bends, turns, and the like in connection with his work to avoid interference with work of other Trade Contractors, to conceal work where required, and to secure necessary clearance and access for operation and maintenance. In case of interference or lack of clearance and access, the Construction Manager will be notified immediately, and shall, in turn, notify the Architect. The Architect will decide which work shall be relocated, regardless of which was installed first.
- E. Coordinate scheduling, submittals, and Work of the various sections of the Project Manual to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- F. Verify utility requirements and characteristics of operating equipment are compatible with utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.
- G. Coordinate completion and clean up of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.
- H. After Owner occupancy, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.5 FIELD ENGINEERING

H. Inspection:

1. Each Trade Contractor shall confirm locations of survey control points prior to starting work. Promptly notify Construction manager of any discrepancies discovered.
2. The Trade Contractor shall verify all measurements of the site and shall be responsible for the correctness of same. No extra charge or compensation will be allowed on account of differences between actual dimensions and the measurements indicated on the Drawings; any difference which may be found should be submitted to the Architect for consideration before proceeding with the work.

I. The Owner shall secure a professional engineer or surveyor licensed in the State of Delaware to perform the following:

1. Provide benchmark elevation to serve as the basis for the construction layout of the project.

J. Construction Layout:

1. The Sitework Trade Contractor shall be responsible to perform the layout and elevations required to complete his work.
2. The Site Concrete Work Trade Contractor shall layout to complete the scope of their work.
3. Each Trade Contractor shall layout the remainder of his own work and be responsible for all lines, levels, grades, elevations, and measurements.

1.6 TESTING

- A. The owner shall employ and pay for the services of a testing agency to perform the required construction material testing for specification divisions 1 through 3. Refer to section 014000 Quality Control for testing agency qualifications and test reporting requirements.

1.8 FEES, LICENSES, AND PERMITS

A. The following permits shall be purchased by the Owner:

1. Building Permit

B. All remaining fees, licenses, and permits shall be obtained and paid for by the trade contractor requiring them at no additional cost to the Owner to complete their work.

1. All Trade Contractors are advised that the Owner has reached an agreement with the County of Sussex and the Town of Lewes to pay for the following permit fees: Building Construction.
2. Each respective contractor will still be required to obtain license from the County of Sussex and the Town of Lewes.
3. Additionally, all contractors are still responsible to coordinate required applicable inspections.

1.9 SLEEVES, HANGERS, AND INSERTS

- A. Each Trade Contractor shall furnish sleeves and inserts required to accommodate his work, together with instructions regarding their placement and location in the structure. Sleeves and inserts shall be furnished promptly in accordance with the established construction schedule so that they may be built-in as construction progresses.
- B. Trade Contractors to furnish all embeds, sleeves, inserts, etc., that are to be cast in concrete or built in masonry to the appropriate Trade Contractor for installation.
- C. Each Trade Contractor shall furnish and install hangers required to accommodate his work.

1.10 CHASES AND RECESSES

- A. Each Trade Contractor shall provide all blockouts shown on the Contract Documents and having either or both dimensions greater than 10" to the appropriate Trade Contractor for installation into his work. Any openings with dimensions smaller than 10" or not shown on drawings but required by a Trade Contractor shall be furnished and installed by the Trade Contractor requiring the same.
- B. It is the responsibility of the Trade Contractors requiring openings, chases, etc., to furnish information regarding size and location promptly in accordance with the established construction schedule, so that they may be built-in as construction progresses and avoid delays. Failure to provide the information promptly will result in the responsible Trade Contractor incurring any cost associated with the delay and the installation.
- C. Trade Contractors shall cooperate fully with each other in the performance of above work, as cutting and patching of new work is neither contemplated nor will it be tolerated.

1.11 NEW AND EXISTING OPENINGS

- A. Upon removal of existing work, which penetrates floors, walls, or ceilings, openings shall be immediately closed with material matching that adjacent to the opening. This shall include whatever structural support is required. The closing of existing openings shall be performed by the Trade Contractor who is responsible to perform this work as if it is new construction.
- B. Each Trade Contractor shall be responsible to install any new openings required to install his works in any existing construction and to furnish and install any additional structural support. All cutting and patching must be performed by journeymen or master trade mechanics for the trade work of the cutting/patching. Costs for all patching work are the responsibility of the trade contractor requiring the new opening.
- C. This structural support shall maintain the structural integrity of the building.
- D. Prior to cutting or drilling of any new openings that require additional structural support, the contractor shall submit a shop drawing to the Construction manager for review and acceptance by the Architect prior to demolition.
- E. Openings required by any Trade Contractor in new construction shall be coordinated with the Trade Contractor(s) performing adjacent work.

1.12 PENETRATIONS

- A. Each Trade Contractor shall be responsible to seal his own penetrations in walls, floors, and ceilings, using fire resistant materials, as required.
- B. All roofing work shall be performed by the Roofing Trade Contractor, including patching penetrations made by the other Trade Contractors. Unless assigned specifically in section 011100 the cutting of roof openings, structural reinforcement, roof curbs, and counter flashing, shall be provided and installed by each Trade Contractor whose work penetrates the roofing surface, including all additional blocking associated with penetration.

1.13 FIREPROOF REPAIR

- A. Existing and new spray-on fireproofing which is damaged by Trade Contractors shall be repaired by the Trade Contractor who caused the damage. The repair work shall be performed by tradesman qualified and certified to perform the repair.

1.14 EQUIPMENT FOUNDATIONS

- B. The Concrete Work Trade Contractor shall provide all interior foundations and housekeeping pads indicated on the Contract Documents. The Sitework Concrete Contractor shall place all exterior equipment foundations and housekeeping pads indicated on the Contract Documents. All other foundations, equipment, and housekeeping pads not shown, but required, shall be by the Trade Contractor requiring the same.
- C. Each Trade Contractor shall furnish anchor bolts and other accessories required to anchor his equipment in place, together with instructions regarding their placement and location in the foundation. Anchor bolts and other accessories shall be furnished promptly in accordance with the established construction schedule so that they may be built-in as construction progresses.

1.15 CUTTING AND PATCHING

- A. Responsibility: A Trade Contractor requiring the cutting of openings in new work, or in the existing work installed by others shall have such openings cut and patched by the trade which installed the original work and such cutting and patching shall be at the expense of the Trade Contractor requiring the opening.
- B. Approval: Approval to do such cutting and patching shall be received from the Architect through the Construction Manager prior to proceeding with the work. Approval of any structural cutting must be received from the structural engineer and architect before proceeding.
- C. Inspection:
 - 1. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
 - 2. After uncovering, inspect conditions affecting performance of work.
 - 3. If, in the course of cutting and patching the existing building for alteration work, a material is uncovered which appears to contain asbestos, the Contractor shall immediately notify the Construction Manager. Contractors shall perform other construction activities until the area in question can be cleared.

D. Preparation:

1. Provide supports to assure structural integrity of surroundings, devices, and methods, to protect other portions of Project from damage.
2. Provide protection from elements for areas which may be exposed by uncovering work.

E. Performance:

1. Execute work by methods to avoid damage to other work and which provide proper surfaces to receive patching and finishing.
2. Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements and sight-exposed surfaces.
3. Restore work with new products in accordance with requirements of Contract Documents.
4. Fit work tightly to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
5. At penetrations of fire-rated wall, ceiling or floor construction, completely seal voids with fire-resistant materials as required to achieve fire-rating indicated.
6. Where fire protection materials are damaged or removed, reapply fire protection materials to achieve a rating equivalent to existing construction or as noted.
7. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

1.16 ACCESS DOOR AND PANELS

- A. Access doors and panels, shown on architectural drawings, shall be furnished and installed by each Trade's Contractor whose product needs to be accessible.
- B. Access doors and panels shall be furnished by the trade contractor requiring access and delivered to the Drywall and Metal Studs Trade Contractor for installation.

1.17 FINAL CLEANING

- A. Trade Cleaning: Each contractor is responsible for final cleaning their own work as outlined in Section 011100 - Summary of Work. This initial cleaning must be completed before requesting inspection for Certification of Substantial Completion. This cleaning shall include, but not be limited to:
 1. Clean surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces.
 2. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned. Comply with Product manufacturer instruction and recommendations.
 3. Within limits of Contract, clean site, sweep paved areas, rake clean landscaped surfaces.
 4. Provide additional cleaning as required within individual Specification sections.
 5. Remove waste and surplus materials, rubbish and construction facilities from the site. Dispose of in a legal manner.
 6. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
 7. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.

8. Wipe down all walls, equipment, fixtures, casework and shelving to a dust-free sanitary condition.
9. Sweep, vacuum and mop all floors.
10. Clean all windows, glass and glazing.

1.18 TOUCH-UP PAINTING

- A. The Caulking and Painting Contractor shall coordinate and schedule his final coat as directed by the Construction Manager to reduce the amount of touch-up painting required.
- B. After the final coat has been applied, all touch-up paint and patching required to repair damage caused by other trade shall be reviewed by the Construction Manager and paid for from the construction contingency or back charged to the Trade Contractor who the Construction Manager determines is responsible.

1.19 STARTERS AND DISCONNECTS

- A. The Electrical Contractor shall furnish and install starters, power and starter control wiring per the electrical drawings and the specifications. The Electrical Contractor shall furnish and install starters in the motor control center.
- B. Individual starters and disconnects shown on other drawings and specifications shall be furnished by that Trade Contractor and will be installed and connected by the Electrical Contractor.

END OF SECTION 011200

SECTION 011216 - ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Products and installation for patching and extending work.
- B. Transition and adjustments.
- C. Repair of damaged surfaces, finishes, and cleaning.

1.2 RELATED SECTIONS

- A. Section 013100 – Project Management and Coordination: Work sequence, owner occupancy, maintenance of utility services.
- B. Section 017329 - Cutting and Patching: Cutting and patching.
- C. Section 015000 – Temporary Construction Facilities and Temporary Controls: Temporary enclosures, protection of installed work, and cleaning during construction.
- D. Section 024119 – Selective Demolition

PART 2 - PRODUCTS

2.1 PRODUCTS FOR PATCHING AND EXTENDING WORK

- A. New Materials: As specified in product sections; match existing Products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing Products where necessary, referring to existing Work as a standard.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that demolition is complete and areas are ready for installation of new Work.
- B. Beginning of restoration Work means acceptance of existing conditions.

3.2 PREPARATION

- A. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.
- B. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

- C. Remove debris and abandoned items from area and from concealed spaces.
- D. Prepare surface and remove surface finishes to provide for proper installation of new work and finishes.
- E. Close openings in exterior surfaces to protect existing work and salvage items indicated from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.

3.3 INSTALLATION

- A. Coordinate work of alterations and renovations to expedite completion sequentially and to accommodate Owner occupancy.
- B. Remove, cut and patch work in a manner to minimize damage and to provide a means of restoring Products and finishes to original condition in accordance with Section 024500.
- C. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes in accordance with Section 024500.
- D. Project, Designated Areas, Rooms and Spaces, and Finishes: Complete including operational mechanical and electrical work.
- E. In addition to specified replacement of equipment and fixtures, restore existing plumbing, heating, ventilation, air conditioning, electrical, and other systems to full operational condition.
- F. Re-cover and refinish work that exposes mechanical and electrical work exposed accidentally during the work.
- G. Install Products as specified in individual sections.

3.4 TRANSITIONS

- A. Where new work abuts or aligns with existing, perform a smooth and even transition. Patch Work to match existing adjacent work in texture and appearance.
- B. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect/Engineer.

3.5 ADJUSTMENTS

- A. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
- B. Where a change of plane of 1/4 inch or more occurs, submit recommendation for providing a smooth transition for Architect/Engineer review.

- C. Trim existing doors as necessary to clear new floor finish. Refinish trim as required.
- D. Fit work at penetrations of surfaces as specified in Section 01045.

3.6 REPAIR OF DAMAGED SURFACES

- A. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- B. Repair substrate prior to patching finish.

3.7 FINISHES

- A. Finish surfaces as specified in individual Product sections.
- B. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.8 CLEANING

- A. In addition to cleaning specified in Section 015000, clean Owner occupied areas of work.

END OF SECTION 011216

SECTION 011400 - WORK RESTRICTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 USE OF PREMISES

- A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
 - 1. Owner Occupancy: Allow for Owner occupancy of site.
 - 2. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.3 OCCUPANCY REQUIREMENTS

- A. Partial Owner Occupancy: Owner reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
 - 1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
 - 2. Obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.
 - 3. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will provide, operate, and maintain mechanical and electrical systems serving occupied portions of building.
 - 4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011400

SECTION 012000 – PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Measurement and payment criteria applicable to portions of the Work performed under a unit price payment method.
- B. Defect assessment and non-payment for rejected work.

1.2 AUTHORITY

- A. Measurement methods delineated in the individual specification sections complement the criteria of this section.
- B. Take all measurements and compute quantities. The Construction Manager will verify measurements and quantities.
- C. Assist by providing necessary equipment, workers, and survey personnel as required.

1.3 UNIT QUANTITIES SPECIFIED

- A. Quantities indicated in the Bid Form as defined in individual Specification sections are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Construction Manager shall determine payment.
- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit sum/prices contracted.
- C. If the actual Work requires a 10 percent or greater change in quantity than those quantities indicated, the Owner may claim for a Contract Price adjustment.

1.4 MEASUREMENT OF QUANTITIES

- A. Measurement Devices:
 - 1. Weigh Scales: Inspected, tested and certified by the applicable state Weights and Measures department within the past year.
 - 2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.
 - 3. Metering Devices: Inspected, tested and certified by the applicable State department within the past year.
- B. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
- C. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.

- D. Measurement by Area: Measured by square dimension using mean length and width or radius.
- E. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.
- F. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

1.5 PAYMENT

- A. Payment Includes: Full compensation for all required labor, Products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item or the Work; overhead and profit.
- B. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Architect/Engineer multiplied by the unit sum/price for Work which is incorporated in or made necessary by the Work.

1.6 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Architect, it is not practical to remove and replace the Work, the Architect will direct one of the following remedies:
 - 1. The defective Work may remain, but the unit sum/price will be adjusted to a new sum/price at the discretion of the Architect.
 - 2. The defective Work will be partially repaired to the instructions of the Architect, and the unit sum/price will be adjusted to a new sum/price at the discretion of the Architect.
- C. The individual specification sections may modify these options or may identify a specific formula or percentage sum/price reduction.
- D. The authority of the Architect to assess the defect and identify payment adjustment is final.

1.7 NON-PAYMENT FOR REJECTED PRODUCTS

- A. Payment will not be made for any of the following:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from the transporting vehicle.
 - 4. Products placed beyond the lines and levels of the required Work.
 - 5. Products remaining on hand after completion of the Work.
 - 6. Loading, hauling, and disposing of rejected Products.

1.8 SCHEDULE OF UNIT PRICES

UNIT PRICE No. 1.01:	Satisfactory fill in place per cubic yard.
UNIT PRICE No. 1.02:	Stone in place per cubic yard.
UNIT PRICE No. 1.03:	Geo-fabric in place per square yard.
UNIT PRICE No. 1.04:	Undercut and disposal (mass) per cubic yard.
UNIT PRICE No. 1.05:	Undercut and disposal (trench) per cubic yard.
UNIT PRICE No. 1.06:	Select (trench) backfill per cubic yard.
UNIT PRICE No. 1.07:	Topsoil per cubic yard.
UNIT PRICE No. 1.08:	Removal of unsuitable soil and replacement of suitable soil per cubic yard.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 012000

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements due to unknown conditions or to defer selection of actual materials and equipment and/or installation to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
 - 2. Unit-cost allowances.
 - 3. Quantity allowances.
 - 4. Contingency allowances.
 - 5. Testing and inspecting allowances.
- C. Related Sections include the following:
 - 1. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders for allowances.
 - 2. Division 1 Section "Unit Prices" for procedures for using unit prices.
 - 3. Division 1 Section "Quality Requirements" for procedures governing the use of allowances for testing and inspecting.
 - 4. Divisions 2 through 35 Sections for items of Work covered by allowances.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.4 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 LUMP-SUM ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials selected by Architect or specified herein and shall include taxes, freight, and delivery to Project site.
- B. Related costs for Supervision, field operation and temporary facilities; general overhead; profit; bond premiums; and taxes. costs are part of the Contract Sum.

1.7 TESTING AND INSPECTING ALLOWANCES

- A. Testing and inspecting allowances include the cost of engaging testing agencies, actual tests and inspections, and reporting results.
- B. The allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspections result in failure. The cost for incidental labor to assist the testing agency shall be included in the Contract Sum.
- C. Costs of services not required by the Contract Documents are not included in the allowance.
- D. At Project closeout, credit unused amounts remaining in the testing and inspecting allowance to Owner by Change Order.

1.8 UNUSED MATERIALS

- A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Architect, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1. Include the unit cost of liquid asphalt cement of \$360.00 per ton as noted in the Delaware Posted Asphalt price for July of 2016 per Del DOT Program. At the time of production lay down of product, cost will be adjusted per current cost of Delaware Posted Asphalt price. Contractor to provide the amount of tons of liquid asphalt cement to perform the complete project based on the project documents. See attachment: Delaware Posted Asphalt Price Sheet.

_____ total tons of liquid asphalt cement to be provided by Contract No.1 Site Work to complete the project scope.

- B. Allowance No. 2: Include the lump sum of following amount \$35,000 in the contract for cold weather protection of concrete work. Cost of work to be determined on a time and material basis.
- C. Allowance No. 3: Include the lump sum of following amount \$35,000 in the contract for cold weather protection of masonry work. Cost of work to be determined on a time and material basis.
- D. Allowance No. 4: Include the lump sum of following amount \$100,000 in the contract for temp. heat fuel cost. Cost of work to be determined by fuel company receipts with the amount of fuel and cost per gallon. All equipment and labor for temp heat is part of the contract. This allowance is for fuel cost only.

END OF SECTION 012100

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Related Sections include the following:
 - 1. Division 1 Section "Allowances" for procedures for using unit prices to adjust quantity allowances.
 - 2. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.3 DEFINITIONS

- A. Unit price is **an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased. Owner reserves the right to reject unit prices submitted with bid deemed unreasonable.**
- B. Unit prices include necessary material, overhead, profit and applicable taxes.
- C. Unit price shall include all costs related or required for the complete installation, including the cost of material and delivery; installation labor including fringe benefits, insurance, social security, workmens' compensation; rental value of equipment and machinery; incidental expense, supervision, field operation and temporary facilities; general overhead; profit; bond premiums; and taxes.
- D. Material only unit price shall include the cost of material and shipping. All other Contractor's costs including storage, handling, labor; equipment and machinery; supervision; temporary facilities; general overhead; profit; bond premiums; and taxes shall be included in the contract sum and not the allowance.
- E. Refer to individual Sections for construction activities requiring establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, **applicable taxes**, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A "**Unit Price Schedule**" is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials and methods described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

- A. Unit Price No. 1.01, **Satisfactory fill in Place**: Indicate cost to provide satisfactory fill in place, furnished, placed and compacted according to [Section 310000, Earthwork](#)
Unit of Measurement: [cubic yards](#)
- B. Unit Price No. 1.02, **Stone in place**: Indicate cost to provide [stone in place and compacted](#) according to [Section 310000, Earthwork](#). Unit of Measurement: [cubic yards](#)
- C. Unit Price No. 1.03, **Geo-Fabric in place**: Indicate cost to provide Geo-Fabric in place according to [Section 310000, Earthwork](#). Unit of Measurement: [Square yards](#)
- D. Unit Price No. 1.04, **Undercut & disposal (mass)**: Indicate cost for mass excavation & disposal according to [Section 312300, Excavation and Backfill for Pipelines and Structures](#). Unit of Measurement: [Cubic yards](#)
- E. Unit Price No. 1.05, **Undercut & disposal (trench)**: Indicate cost for trench excavation & disposal according to [Section 312300, Excavation and Backfill for Pipelines and Structures](#). Unit of Measurement: [Cubic yards](#).
- F. Unit Price No. 1.06, **Select (trench) Backfill**: Indicate cost to provide satisfactory trench fill furnished, placed and compacted according to [Section 312300, Excavation and Backfill for Pipelines and Structures](#). Unit of Measurement: [cubic yards](#).

- G. Unit Price No. 1.07, **Top soil:** Indicate cost to provide top soil **in place and compacted** according to [Section 329200](#), Turf and Grasses. Unit of Measurement: **cubic yards**.

- H. Unit price 1.08, **Removal of unsuitable soil and replacement of suitable soil,** Indicate cost to remove, disposed of unsuitable unclassified materials, and to provide, place and compact suitable soil according to [Section 310000](#), **Earthwork** . Unit of Measurement: **cubic yards**.

END OF SECTION 012200

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

- 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

- 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- 2. Include as part of each alternate all costs of related coordination, modification or adjustment.

- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

- C. Execute accepted alternates under the same conditions as other work of the Contract.

- D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. ADD ALTERNATE ONE – SPECIAL EDUCATION CLASSROOM ON D-WINGS

1. BASE BID: Provide no cost for Special Education Classroom on D-Wing.
2. ALTERNATE: Provide cost for Special Education Classroom on D-Wing as shown on construction documents.

B. ADD ALTERNATE TWO – CLASSROOM RUBBER FLOORING IN LIEU OF VCT

1. BASE BID: Provide cost for VCT in Classrooms. VCT colors need to match the rubber floor color in specs.
2. ALTERNATE: Provide cost for Rubber Tile in lieu of VCT in Classrooms as shown on construction documents.

C. ADD ALTERNATE THREE – UNDER SLAB RADIANT HEAT – AREAS B & E

1. BASE BID: Provide no cost for under slab radiant floor heat.
2. ALTERNATE: Provide cost for under slab radiant floor heat as shown on construction drawings in areas B & E, this shall include, but not limited to heating hot water piping, under slab tubing, zone controllers, sensor, circulation pumps and accessories. Provide 5” thick concrete slab on grade with 6x6 – W2.0x2.0 WWF over 4” crushed stone.

D. ADD ALTERNATE FOUR – MEDIA CENTER OUTDOOR CANOPY

1. BASE BID: Provide no cost for Media Center Outdoor Canopy
2. ALTERNATE: Provide cost for Media Center Outdoor Canopy at column lines S1A & A11-A13. The foundation , steel, and roofing material as shown on A-111, A-130, A303, S-111 & S-131.

E. ADD ALTERNATE FIVE – CAFETERIA OUTDOOR CANOPY

1. BASE BID: Provide no cost for Cafeteria Outdoor Canopy.
2. ALTERNATE: Provide cost for Cafeteria Outdoor Canopy at column lines AD-AE & A11-C29, the foundation , steel and roofing material as shown on A-113, A-130, A-202, S-113, S-133 & S-131.

F. ADD ALTERNATE SIX – FOLDING GLASS EXTERIOR WALL

1. BASE BID: Provide 24’ wide overhead door with required structural elements to support the door along with exterior wall to create the 24’ wide opening.
2. ALTERNATE: Provide 32’ wide folding glass exterior as shown on A-202, with the required structural elements to support the folding glass wall along with the exterior wall to create the 32’ wide opening.

G. ADD ALTERNATE SEVEN – SUN SHADE DEVICE OVER WINDOWS

1. BASE BID: Provide no cost for Sun Shade Devices over Windows.
2. ALTERNATE: Provide cost for Sun Shade Devices over Windows as shown on construction drawings A-202, A-203 and A-205.

H. ADD ALTERNATE EIGHT – LIGHTNING PROTECTION

1. BASE BID: Provide no cost for Lightning Protection.
2. ALTERNATE: Provide cost for Lightning Protection per Section 260601 Lightning Protection Systems.

I. ADD ALTERNATE NINE – ADDITIONAL LANDSCAPING

1. BASE BID: Provide no cost for Landscaping.
2. ALTERNATE: Provide cost for Landscape as shown on construction drawings L-100 and L-101.

J. ADD ALTERNATE TEN – RECOVER BOARD UNDER EDPM

1. BASE BID: Provide no Recover Board under EDPM Roofing.
2. ALTERNATE: Provide cost Recover Board under EDPM Roofing.

K. ADD ALTERNATE ELEVEN – BUS LOT CANOPY

1. BASE BID: Provide no Bus Lot Canopy
2. ALTERNATE: Provide cost for Bus Lot Canopy as shown on construction documents.

L. ADD ALTERNATE TWELVE – FRONT ENTRANCE CURB CANOPY

1. BASE BID: Provide no Front Entrance Curb Canopy.
2. ALTERNATE: Provide cost for Front Entrance Curb Canopy as shown on construction documents.

M. ADD ALTERNATE THIRTEEN – ROOF DECK PATIO/GARDEN CLASSROOM

1. BASE BID: Provide no Roof Deck Patio/Garden Classroom, structural steel is to be included in Base Bid.
2. ALTERNATE: Provide cost for Roof Deck Patio/Garden Classroom as shown on construction documents.

N. ADD/DEDUCT ALTERNATE FOURTEEN – USE PVC IN LIEU OF CAST IRON PIPING FOR SANITARY AND STORMWATER UNDERGROUND

1. BASE BID: Provide Cast Iron Piping as shown on construction documents.
2. ALTERNATE: Provide Schedule 40 Polyvinyl Chloride (PVC) Pipe and DWV Fittings: Pipe to conform to ASTM D 1784, ASTM D 1785, ASTM D 2665, FHA UM 79a, Federal Specification L-P-320a and NSF Standard No. 14 and 61. Fittings to conform to ASTM D 1784, ASTM D 2665, ASTM D 3311, ASTM F 1866, FHA UM 79a, Federal specification L-P-320a and NSF Standard No.14.

O. ADD/DEDUCT ALTERNATE FIFTEEN – USE CPVC IN LIEU OF COPPER PIPING FOR DOMESTIC WATER DISTRIBUTION

1. BASE BID: Provide Copper Piping as shown on construction documents.
2. ALTERNATE: Provide Schedule 40 Chlorinated Polyvinyl Chloride (CPVC) Pipe and Fittings: Pipe & fittings to conform to ASTM D 1784, ASTM D 2846, FHA UM-61a, NSF Standard No. 14 and 61. Fittings to be Schedule 40, socket joint or Schedule 80 threaded joint.

END OF SECTION 012300

SECTION 012500 – SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for handling requests for substitutions made after award of the Contract.
 - 1. Multiple Prime Contracts: Provisions of this Section apply to the construction activities of each prime contractor.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Reference Standards and Definitions" specifies the applicability of industry standards to products specified.
 - 2. Division 1 Section "Submittals" specifies requirements for submitting the Contractor's Construction Schedule and the Submittal Schedule.
 - 3. Division 1 Section "Materials and Equipment" specifies requirements governing the Contractor's selection of products and product options.

1.3 DEFINITIONS

- A. Definitions in this Article do not change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the Contractor after award of the Contract are considered to be requests for substitutions. The following are not considered to be requests for substitutions:
 - 1. Substitutions requested during the bidding period, and accepted by Addendum prior to award of the Contract, are included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.
 - 2. Revisions to the Contract Documents requested by the Owner or Architect.
 - 3. Specified options of products and construction methods included in the Contract Documents.
 - 4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

- A. Substitution Request Submittal: The Architect will consider requests for substitution if received within 60 days after commencement of the Work. Requests received more than 60 days after commencement of the Work may be considered or rejected at the discretion of the Architect.

1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and according to procedures required for change-order proposals.
2. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers.
3. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
 - a. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate contractors that will be necessary to accommodate the proposed substitution.
 - b. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements, such as performance, weight, size, durability, and visual effect.
 - c. Product Data, including Drawings and descriptions of products and fabrication and installation procedures.
 - d. Samples, where applicable or requested.
 - e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
 - f. Cost information, including a proposal of the net change, if any in the Contract Sum.
 - g. The Contractor's certification that the proposed substitution conforms to requirements in the Contract Documents in every respect and is appropriate for the applications indicated.
 - h. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.
4. Architect's Action: If necessary, the Architect will request additional information or documentation for evaluation within one week of receipt of a request for substitution. The Architect will notify the Contractor of acceptance or rejection of the substitution within 2 weeks of receipt of the request, or one week of receipt of additional information or documentation, whichever is later. Acceptance will be in the form of a change order.
 - a. Use the product specified if the Architect cannot make a decision on the use of a proposed substitute within the time allocated.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Conditions: The Architect will receive and consider the Contractor's request for substitution when one or more of the following conditions are satisfied, as determined by the Architect. If the following conditions are not satisfied, the Architect will return the requests without action except to record noncompliance with these requirements.
1. Extensive revisions to the Contract Documents are not required.
 2. Proposed changes are in keeping with the general intent of the Contract Documents.
 3. The request is timely, fully documented, and properly submitted.
 4. The specified product or method of construction cannot be provided within the Contract Time. The Architect will not consider the request if the product or method cannot be provided as a result of

- failure to pursue the Work promptly or coordinate activities properly.
5. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.
 6. The requested substitution offers the Owner a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the Owner must assume. The Owner's additional responsibilities may include compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner, and similar considerations.
 7. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
 8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials and where the Contractor certifies that the substitution will overcome the incompatibility.
 9. The specified product or method of construction cannot be coordinated with other materials and where the Contractor certifies that the proposed substitution can be coordinated.
 10. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.
 11. Where a proposed substitution involves more than one prime contractor, each contractor shall cooperate with the other contractors involved to coordinate the Work, provide uniformity and consistency, and assure compatibility of products.
- B. The Contractor's submittal and the Architect's acceptance of Shop Drawings, Product Data, or Samples for construction activities not complying with the Contract Documents do not constitute an acceptable or valid request for substitution, nor do they constitute approval.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 012500



SUBSTITUTION REQUEST

Project: _____ Substitution Request Number: _____

 From: _____
 To: _____ Date: _____

 A/E Project Number: _____
 Re: _____ Contract For: _____

Specification Title: _____ Description: _____
 Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____
 Manufacturer: _____ Address: _____ Phone: _____
 Trade Name: _____ Model No.: _____
 Installer: _____ Address: _____ Phone: _____
 History: New product 2-5 years old 5-10 yrs old More than 10 years old
 Differences between proposed substitution and specified product: _____

Point-by-point comparative data attached - REQUIRED BY A/E

Reason for not providing specified item: _____

Similar Installation:
 Project: _____ Architect: _____
 Address: _____ Owner: _____
 _____ Date Installed: _____

Proposed substitution affects other parts of Work: No Yes; explain _____

Savings to Owner for accepting substitution: _____ (\$ _____).

Proposed substitution changes Contract Time: No Yes [Add] [Deduct] _____ days.

Supporting Data Attached: Drawings Product Data Samples Tests Reports _____

SUBSTITUTION REQUEST (Continued)

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

Telephone: _____

Attachments: _____

A/E's REVIEW AND ACTION

- Substitution approved - Make submittals in accordance with Specification Section 01330.
- Substitution approved as noted - Make submittals in accordance with Specification Section 01330.
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

Additional Comments: Contractor Subcontractor Supplier Manufacturer A/E _____

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Division 1 Section "Unit Prices" for administrative requirements for using unit prices.
 - 2. Division 1 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Architect or Construction Manager will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - 5. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

- C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Division 1 Section "Unit Prices" for administrative requirements governing use of unit prices.
 - 2. Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 3. Division 1 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.3 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - 2. Submit the Schedule of Values to Architect through the construction manager at earliest possible date but no later than 14 days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.

2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value.
 - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and Construction Manager and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Forms: Use AIA Document G702/CMa and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Construction Manager will return incomplete applications without action.
 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.

2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit 4 signed and notarized original copies of each Application for Payment to Construction Manager by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Delays: Submit each Application for Payment with Contractor's waiver of mechanic's lien for construction period covered by the application.
 - a. Submit final Application for Payment with or proceeded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Products list.
 5. Submittals Schedule (preliminary if not final).
 6. List of Contractor's staff assignments.
 7. List of Contractor's principal consultants.
 8. Copies of building permits.
 9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 10. Initial progress report.
 11. Report of preconstruction conference.
 12. Certificates of insurance and insurance policies.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 9. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 012973 – SCHEDULE OF VALUES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-0 Specification Sections, apply to this section.

1.2 CONTRACT SUM BREAKDOWN

- A. Within ten (10) days of receipt of Contract, each Trade Contractor shall submit to the Construction Manager for review a Contract Sum Breakdown, the total of which shall be equal to the initial contract sum.
- B. The General Trade Contractor shall list quantities and unit prices that correspond to the activities he is responsible for. All unit prices should include labor, tools, equipment, overhead, and profit required to perform a complete installation.

1.3 FORM AND CONTENT

- A. The breakdown shall be prepared on the forms provided with this Section. The schedule shall also indicate:
 - 1. Title of project and location
 - 2. Architect's name
 - 3. Name and address of Contractor
 - 4. Date of submission
- B. Provide a separate line item for General Conditions which would include home office support, bonds, insurance premiums, mobilization, field supervision, temporary construction utilities, facilities, and controls.
 - 1. Contractor must include line item amounts for General Condition Requirements as follows:
 - Submittals
 - Progress Meetings
 - Clean up
 - Progress Schedule Development
 - Coordination Drawing
 - Project Record Drawings
 - 2. Breakdown of major construction activities shall be submitted per building wing, per floor, separating labor and material values.

END OF SECTION 012973

SECTION 013100 – PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Coordination.
- B. Field engineering.
- C. Preconstruction meeting.
- D. Site mobilization meeting.
- E. Progress meetings.
- F. Preinstallation meetings.
- G. Examination.
- H. Preparation.

1.2 RELATED SECTIONS

- A. Section 011200 – Multiple Contract Summary
- B. Section 013113 –Project Coordination
- C. Section 017329 – Cutting and Patching

1.3 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Verify utility requirements and characteristics of operating equipment are compatible with utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. In finished areas, except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- E. Coordinate completion and clean up of work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.
- F. After Owner occupancy, co-ordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.4 FIELD ENGINEERING

- A. Contractor to locate and protect survey control and reference points.
- B. Control datum for survey is that established by Owner and shown on drawings.

- C. Verify set-backs and easements, confirm drawing dimensions and elevations.
- D. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

1.5 PRECONSTRUCTION MEETING

- A. Construction Manager will schedule a meeting after Notice of Award.
- B. Attendance Required: Owner, Architect/Engineer, Contractors.
- C. Agenda:
 - 1. Submission of executed bonds and insurance certificates.
 - 2. Distribution of Contract Documents.
 - 3. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule not previously required.
 - 4. Designation of personnel representing the parties in contract, Architect and other Consultants.
 - 5. Procedures and processing of field decisions, submittals, substitutions, Applications for Payments.
 - 6. Scheduling.
 - 7. Scheduling activities of inspection and testing service.
- D. Construction Manager will record minutes and distribute copies within two days after meeting to participants, with copies to those affected by decisions made.

1.6 SITE MOBILIZATION MEETING

- A. Construction Manager shall schedule a meeting at the project site prior to Contractor occupancy.
- B. Attendance Required: Owner, Architect/Engineer, Special Consultants, Contractor, Contractors Superintendent, major Subcontractors, and other parties as required.
- C. Agenda:
 - 1. Use of premises by Owner and Contractor.
 - 2. Owner's requirements and occupancy.
 - 3. Construction facilities and controls provided by Owner.
 - 4. Temporary utilities provided by Owner.
 - 5. Survey and layout.
 - 6. Security and housekeeping procedures.
 - 7. Schedules.
 - 8. Procedures for testing.
 - 9. Procedures for maintaining record documents.
 - 10. Requirements for start-up of equipment.
 - 11. Inspection and acceptance of equipment put into service during construction period.

- D. Construction Manager shall record minutes and distribute copies within two days after meeting to participants, with copies to Architect/Engineer, Owner, participants, and those affected by decisions made.

1.7 PROGRESS MEETINGS

- A. Construction Manger shall schedule and administer meetings throughout progress of the work at weekly intervals unless otherwise required by the work.
- B. Construction Manger shall make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
- C. Attendance Required: Job superintendents, Prime Trade Contractors, Owner, Architect/Engineer, Special Consultants as required and parties as appropriate to agenda topics for each meeting.
- D. Agenda
 - 1. Review minutes of previous meetings.
 - 2. Review work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems which impede planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of delivery schedules.
 - 7. Maintenance of progress schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding work period.
 - 10. Coordination of projected progress.
 - 11. Maintenance of quality and work standards.
 - 12. Effect of proposed changes on progress schedule and coordination.
 - 13. Current safety changes.
 - 14. Other business relating to Work.
- E. Construction Manager shall record minutes and distribute copies within two days after meeting to participants, with copies to Architect / Engineer, Owner, participants, and those affected by decisions made

1.8 PREINSTALLATION MEETING

- A. When required in individual specification sections, the respective Contractor shall convene a preinstallation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting or affected by, work of the specific section.
- C. Notify Architect, Owner and Construction Manager four days in advance of meeting date.
- D. Contractor shall prepare agenda and preside at meeting:
 - 1. Review conditions of installation, preparation and installation procedures.
 - 2. Review coordination with related work.

- E. Record minutes and distribute copies within five days after meeting to participants, with copies to Architect, Owner, Construction Manager, participants, and those affected by decisions made.

1.9 ADDITIONAL MEETING

- A. The Construction Manager may conduct additional meetings as required by the Project conditions or changes. All contractors must attend these meetings at no additional cost to the Owner.
- B. Daily Coordination meeting of approximately 15 minute duration will be conducted by the Construction Manager for all Contractor's superintendents on site.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Beginning new work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specifications sections.
- D. Verify that utility services are available, of the correct characteristics, and in the correct location.

3.2 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply any manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

END OF SECTION 013100

SECTION 013113- PROJECT COORDINATION

PART I - GENERAL

1.1 SECTION INCLUDES

- A. Project coordination by the Project Coordinator.
- B. Construction Mobilization.
- C. Schedules.
- D. Submittals.
- E. Coordination drawings.
- F. Closeout procedures.

1.2 RELATED SECTIONS

- A. Document 007226- General Conditions – AIA G232-2009 CM/A: Duties of the Construction Manager.
- B. Document 007300- Supplementary Conditions of the Contract.
- C. Section 011100 - Summary of Work: Work covered by each Contract. Work sequence. Owner occupancy.
- D. Section 013100 – Project Management and Coordination: Project meetings. Pre-construction Meetings. Progress meetings.
- F. Section 013300 - Submittals: Submittal procedures.
- F. Section 017700- Contract Closeout: Contract Closeout Procedures.

1.3 PROJECT COORDINATOR

- A. Project Coordinator: Construction Manager.

1.4 CONSTRUCTION MOBILIZATION

- A. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field office and sheds, for construction and Owner access, traffic, and parking facilities.
- B. During construction, coordinate use of site and facilities through the Project Coordinator.
- C. Comply with Project Coordinator's procedures for intraproject communications; submittals, reports and records, schedules, coordination drawings and recommendations; and resolution of ambiguities and conflicts.
- D. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.

- F. Coordinate field engineering and layout work under instructions of the Project Coordinator.

1.5 SCHEDULES

- A. Submit preliminary manpower loaded bar chart schedule in accordance with Section 01310.
- B. After review, revise and resubmit schedule to comply with revised Project schedule.
- C. During progress of work, revise and resubmit with Applications for Payment or as directed.

1.6 SUBMITTALS

- A. Provide submittals to Project Coordinator for review and transmittal to Architect / Engineer.
- B. Submit requests for interpretation of Contract Documents, and obtain instructions through the Project Coordinator.
- C. Process requests for substitutions, and change orders, through the Project Coordinator.
- D. Deliver closeout submittals for review and preliminary inspection reports, for transmittal to

I.7 COORDINATION DRAWINGS

- A. Provide information required by Project Coordinator for preparation of coordination drawings.
- B. Systems Coordination Drawings are required from the Mechanical, Electrical, Plumbing and General Trade Contractors with the lead role assigned to the Mechanical Trade Contractor.
- C. The Mechanical Trade Contractor shall prepare 1/4" = 1 ft. scale Reproducible Systems Drawings for all areas with piping and ductwork. Drawings to indicate spatial relationship HVAC piping and ductwork.
- D. The Mechanical Trade Contractor shall prepare and submit to the Construction Manager a regularly updated schedule indicating the development and review of these drawings with other Trade Contractors. The drawing development and review schedule must follow the project construction schedule.
- E. The Mechanical Trade Contractor shall provide the Reproducible Systems Coordination the other Trade Contractors for their input and review. The routing is as follows: HVAC Ductwork / Piping, Plumbing, General Trades with the drawings being reamed to be Contractor.

- F. Each Trade Contractor will add the work of his Contract on the Systems Coordination Drawings to -avoid interferences. All piping, equipment, light fixtures and in-ceiling equipment, such as rolling gates, must be shown on these drawings to include elevations and dimensions.
- G. Prior to forwarding the Systems Coordination Drawings to the next Trade Contractor, an approval stamp, initialed and dated, should be affixed by the reviewing Trade Contractor. This approval by the reviewing Trade Contractor will install his work accordingly.
- H. During the Systems Coordination Drawing process, the Construction Manager will conduct regularly scheduled meetings. Each Trade Contractor is required to attend these meetings. The Construction Manager is responsible for recording and distributing meeting minutes to all Trade Contractors and the Architect / Engineer. The purpose of the meetings will be to review and discuss interferences and conflicts as well as any modifications to the Systems Coordination Drawings, All resolutions of interferences and conflicts which required modifications shall be initiated by the appropriate Trade Contractors on the Systems Coordination Drawings. At each meeting, the General Trade Contractors will review and update the Systems Coordination Drawing Schedule.
- I. Once reviewed and approved by each General Trade Contractor, the Mechanical Trade Contractor will prepare the Final Reproducible Systems Coordination Drawings with the work of all trades included. Submit the Reproducible Drawings along with two (2) prints to the Construction Manager who will forward to the Architect for his review.
- J. The Mechanical Trade Contractor shall indicate any unresolved conflicts or interferences on the Systems Coordination Drawings. Those should be delineated by clouding, numbering and referencing to he affected contract drawings,
- K. Review drawings prior to submission to Architect / Engineer.
- L. The Architect will review and return drawings to the Construction Manager. The Construction Manager will distribute the number of drawings to the Trade Contractors for installation of their work.
- M. The Systems Coordination Drawings DO NOT REPLACE any fabrication and layout drawings required by individual Specification Sections.

1.8 CLOSEOUT PROCEDURES

- A. Notify Project Coordinator when work is considered ready for Substantial Completion. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in Contractors Notice of Substantial Completion.
- B. Comply with Project Coordinator's instructions to correct items of work listed in executed Certificates of Substantial Completion and for access to Owner occupied areas.
- C. Notify Project Coordinator when Work is considered finally complete. Accompany

Project Coordinator on preliminary final inspection.

- D. Comply with Project Coordinators instructions for completion of items of Work determined by Architect / Engineers final inspection.

PART 2 - PRODUCTS – (NOT USED)

PARTS - EXECUTION— (NOT USED)

END OF SECTION 013113

SECTION 013216 - CONSTRUCTION SCHEDULE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Scheduling requirements and coordination.
- B. Construction Phasing Plans
- C. Construction Milestone Schedules (by Phase and by Trade)

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this section.

1.3 DEFINITIONS

- A. Activity: An activity is any single identifiable step in the Project. It depends upon preceding and succeeding activities.

1.4 CONSTRUCTION SCHEDULE

- A. The Construction Schedule, as reviewed by the Construction Manager and Owner, will be an integral part of the Contract, and will establish interim work completion dates for the various activities. Each Trade Contractor shall be responsible to achieve Starting Dates, Milestones or Target Dates, and Completion Dates established for each Phase of the overall Project.
- B. The Construction Schedule may vary in accordance with construction conditions. Each Contractor shall delay or expedite material and equipment deliveries, and modify the required labor forces to accommodate these varying conditions.
- C. This is a phased project. Multiple trips may be required to complete this Project.
- D. Within fifteen (15) days after receipt of Notice of Intent to Award, each Contractor shall submit a preliminary Construction Schedule, in accordance with the milestone construction schedule included in these documents under the summary of work, to the Construction Manager. The schedule will include breakdowns of total man days of field labor into major categories of work, time estimates of various categories of work, crew size for each category, and quantity and type of equipment to be utilized.
- E. Each Contractor shall provide to the Construction Manager a separate list of critical submittal dates for Shop Drawings, Product Data, and Samples, indicating delivery dates/lead times that may impact the construction schedule or completion of the Work. The critical submittal list shall accompany the Preliminary Submittal List as identified in Section 013300 - Submittals.
- F. Each Contractor shall organize his Construction Schedule per Phase, Building, Wing, Floor, and

Area as required by the Construction Manager.

- G. The Construction Manager shall schedule a meeting with the Contractors, to review the contents of each Contractor's preliminary Construction Schedule, review the sequence of Work, and make all revisions required. The Construction manager shall have the final authority concerning the sequence of Work and durations of each activity. Each Contractor shall revise his schedule in accordance with that meeting and submit his schedule to the Construction Manager for review. The Construction Manager will then develop the Project Construction Schedule. Each Contractor shall schedule and perform his work in compliance with the Construction Manager's Project Construction Schedule.
 - H. The Schedule shall be the basis for the dates to start and complete Work for the various portions of each Contract, and to complete Work (including changes) for the Project. IT shall be the duty of the Contractor to conform to the current Schedule and to arrange his work in such a manner that it will be installed in accordance with the Schedule.
 - I. Each Contractor shall submit two (2) copies of a monthly updated Construction Schedule comparing the original schedule to actual work in progress and project work along with the Application for Payment.
 - J. As required, a representative of each Contractor shall meet with the Construction Manager and furnish to him information necessary for such re-evaluating and updating of the Project schedule. Information with regard to changes in the work and the Contractor's proposed effort to overcome any delays incurred shall be provided (in writing) to the Construction Manager.
 - K. Two (2) days after the Contractor has failed to Start on Schedule, Meet Assigned Milestone or Target Dates, or Completion of items such as Shop Drawing Submissions, Material - Equipment Deliveries, or Tasks according to the Master Construction Schedule or Revised Master Construction Schedule, the Construction Manager will forward a letter of Non-Conformance, via Facsimile Transmission and/or forward a letter of Non-Conformance, via Facsimile Transmission and/or Express Mail, to the Contractor and a copy to the Owner. Upon receipt of this notice, the Contractor is required to execute whatever measures as so directed by the Contract Manager including, but not specifically, assigning additional labor, shifts, overtime, materials, expediting of submittals or deliveries, equipment, scaffold, or any combination of these as deemed appropriate and necessary by the Construction Manager to return the above referenced activities back on schedule, without additional compensation to the Contractor.
 - L. Costs incurred by the Construction Manager in connection with maintaining the Construction Schedule, caused by the Contractor's noncompliance with the scheduling requirements, shall be reimbursed to the Construction Manager by the Contractor.
 - M. It is expressly understood and agreed that failure by the Construction Manager to exercise the option to either order the Contractor to expedite work, or to expedite the work by other means, shall not be considered precedent-setting for any other activities.
- 1.5 SCHEDULE COMPUTERIZATION
- A. All Trade Contractors shall provide all their scheduling information via a computer assisted

scheduling program, acceptable to the Construction Manager. Format to be Bar Chart.

- B. All schedule information and updates for the above Contractors shall be provided to the Construction Manager on 3.5" diskettes in format and density as required.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

PART 4 – SCHEDULE

Construction starts February 2017. Project has to be finished by June 2018.
Please provide sufficient manpower in your cost to meet the completion date of June 1,
2018.

END OF SECTION 013216

SECTION 013233 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

- 1. Preliminary Construction Schedule.
- 2. Contractor's Construction Schedule.
- 3. Submittals Schedule.
- 4. Daily construction reports.
- 5. Field condition reports.
- 6. Special reports.
- 7. Construction photographs.

- B. Related Sections include the following:

- 1. Division 1 Section "Payment Procedures" for submitting the Schedule of Values.
- 2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
- 3. Division 1 Section "Submittal Procedures" for submitting schedules and reports.
- 4. Division 1 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

- 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
- 2. Predecessor activity is an activity that must be completed before a given activity can be started.

- B. Event: The starting or ending point of an activity.

- C. Float: The measure of leeway in starting and completing an activity.

- 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- D. Fragment: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- E. Major Area: A story of construction, a separate building, or a similar significant construction element.
- F. Milestone: A key or critical point in time for reference or measurement.
- G. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

1.4 SUBMITTALS

- A. Qualification Data: For firms and persons specified in "Quality Assurance" Article and in-house scheduling personnel to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- B. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:
1. Scheduled date for first submittal.
 2. Specification Section number and title.
 3. Submittal category (action or informational).
 4. Name of subcontractor.
 5. Description of the Work covered.
 6. Scheduled date for Architect's and Construction Manager's final release or approval.
- C. Preliminary Construction Schedule: Submit three printed copies.
- D. Contractor's Construction Schedule: Submit two printed copies of initial schedule, one a reproducible print and one a blue- or black-line print, large enough to show entire schedule for entire construction period.
- E. Daily Construction Reports: Submit two copies at weekly intervals.
- F. Field Condition Reports: Submit two copies at time of discovery of differing conditions.
- G. Special Reports: Submit two copies at time of unusual event.

1.5 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting.

- B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:
1. Review software limitations, content, and format for reports.
 2. Verify availability of qualified personnel needed to develop and update schedule.
 3. Discuss constraints, including phasing, work stages, area separations, and interim milestones.
 4. Review delivery dates for Owner-furnished products.
 5. Review schedule for work of Owner's separate contracts.
 6. Review time required for review of submittals and resubmittals.
 7. Review requirements for tests and inspections by independent testing and inspecting agencies.
 8. Review time required for completion and startup procedures.
 9. Review and finalize list of construction activities to be included in schedule.
 10. Review submittal requirements and procedures.
 11. Review procedures for updating schedule.

1.6 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
1. Secure time commitments for performing critical elements of the Work from parties involved.
 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.
- C. Auxiliary Services: Cooperate with photographer and provide auxiliary services requested, including access to Project site and use of temporary facilities including temporary lighting.
- D. Each trade contractor is to submit preliminary manpower loaded bar chart schedule in accordance with section 013100.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead-time for manufacture or fabrication.
 - a. At Contractor's option, show submittals on the Preliminary Construction Schedule, instead of tabulating them separately.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
- B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
 1. Activity Duration: Define activities so no activity is longer than 120 days, unless specifically allowed by Architect.
 2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and resubmittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
 4. Startup and Testing Time: Include not less than 7 days for startup and testing.
 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect and Construction Manager's administrative procedures necessary for certification of Substantial Completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
 1. Phasing: Arrange list of activities on schedule by phase.
 2. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 3. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.

4. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Mockups.
 - e. Fabrication.
 - f. Sample testing.
 - g. Deliveries.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - l. Startup and placement into final use and operation.
 5. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Permanent space enclosure.
 - c. Completion of mechanical installation.
 - d. Completion of electrical installation.
 - e. Substantial Completion.
 - E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
 - F. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.
 1. Refer to Division 1 Section "Payment Procedures" for cost reporting and payment procedures.
 - G. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragments to demonstrate the effect of the proposed change on the overall project schedule.
 - H. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.
- 2.3 PRELIMINARY CONSTRUCTION SCHEDULE
- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within 14 days of date established for the Notice to Proceed.
 - B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60

days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 - 1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.5 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
 - 1. List of subcontractors at Project site.
 - 2. List of separate contractors at Project site.
 - 3. Approximate count of personnel at Project site.
 - 4. High and low temperatures and general weather conditions.
 - 5. Accidents.
 - 6. Meetings and significant decisions.
 - 7. Unusual events (refer to special reports).
 - 8. Stoppages, delays, shortages, and losses.
 - 9. Meter readings and similar recordings.
 - 10. Emergency procedures.
 - 11. Orders and requests of authorities having jurisdiction.
 - 12. Change Orders received and implemented.
 - 13. Construction Change Directives received.
 - 14. Services connected and disconnected.
 - 15. Equipment or system tests and startups.
 - 16. Partial Completions and occupancies.
 - 17. Substantial Completions authorized.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit with a request for information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.6 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report.

List chain of events, persons participating, and response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate Actual Completion percentage for each activity.

- B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013233

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
- B. Related Sections include the following:
 - 1. Division 1 Section "Payment Procedures" for submitting Applications for Payment.
 - 2. Division 1 Section "Project Coordination" for submitting Coordination Drawings.
 - 3. Division 1 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
 - 4. Division 1 Section "Quality Control" for submitting test and inspection reports and Delegated-Design Submittals.
 - 5. Division 1 Section "Closeout Procedures" for submitting warranties Project Record Documents and operation and maintenance manuals.
 - 6. Division 1 Section "Closeout Procedures" for submitting Record Drawings, Record Specifications, Record Product Data, and operation and maintenance manual requirements.
 - 7. Division 1 Section "Substitutions for submitting products substitutions during bidding and after Award of Contract.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's approval. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. General: **Upon request**, Architect will provide electronic copies of CAD Drawings of the Contract Drawings for Contractor's use in preparing submittals. **Contractor shall sign a release form provided by the Architect and payment of \$200 processing fee for each consultant's CADD files. Only plan drawings and backgrounds to be provided**

- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
 3. **All submittals by suppliers and fabricators shall be reviewed by Installing Contractor for compliance and coordination with other work prior to submission to the architect. Contractor's failure to review shop drawings and product data will be cause for rejection.**
- C. Submittals Schedule: Comply with requirements in Division 1 Sections "Construction Progress Documentation" and "Construction Schedules" for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal.
1. Initial Review: Allow not less than 15 working days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Concurrent Review: Where concurrent review of submittals by Architect's consultants, Owner, or other parties is required, allow not less than 21 working days for initial review of each submittal.
 3. If intermediate submittal is necessary, process it in same manner as initial submittal.
 4. Allow 15 working days for processing each re-submittal.
 5. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
 6. All contractors to provide all submittals and color samples to the Construction Manager within 45 days of your contract date. Any rejected submittals to be resubmitted within 15 days. A penalty of \$100.00 per calendar day will be assessed for late submittals and color samples.
- E. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 4 by 5 inches (100 by 125 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Include the following information on label for processing and recording action taken:

- a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal tracking number based on specification section
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Other necessary identification.
- F. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- G. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
 2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, received from sources other than Contractor.
1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
 2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
 3. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Submittal tracking number based on specification section
 - g. Category and type of submittal.
 - h. Submittal purpose and description.
 - i. Submittal and transmittal distribution record.
 - j. Remarks.
 - k. Signature of transmitter.

- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
 - 1. Number of Copies: Submit number of copies requested but not less than seven copies of each submittal, unless otherwise indicated. Architect will return two copies plus copies for maintenance binders. Mark up and retain one returned copy as a Project Record Document.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams.
 - i. Mill reports.
 - j. Standard product operating and maintenance manuals.
 - k. Compliance with recognized trade association standards.
 - l. Compliance with recognized testing agency standards.
 - m. Application of testing agency labels and seals.
 - n. Notation of coordination requirements.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.

- d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Design calculations.
 - j. Compliance with specified standards.
 - k. Notation of coordination requirements.
 - l. Notation of dimensions established by field measurement.
2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
 3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 42 inches (750 by 1000 mm).
- D. Coordination Drawings: Comply with requirements in Division 1 Section "Project Management and Coordination."
- E. Samples: Prepare physical units of materials or products, including the following:
1. Comply with requirements in Division 1 Section "Quality Requirements" for mockups.
 2. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side that includes the following:
 - a. Generic description of Sample.
 - b. Product name or name of manufacturer.
 - c. Sample source
 - d. Project Name
 - e. Date.
 4. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
 - a. If variation in color, pattern, texture, or other characteristic is inherent in the product represented by a Sample, submit at least three sets of paired units that show approximate limits of the variations.
 - b. Refer to individual Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections,

operation, and similar construction characteristics.

5. Number of Samples for Verification: Submit minimum three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.
 - a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
- F. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product.
 2. Number and name of room or space.
 3. Location within room or space.
 4. Project identification as described in submittal procedures above.
- G. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
1. Name, address, and telephone number of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
 3. Drawing number and detail references, as appropriate, covered by subcontract.
 4. Project identification as described in submittal procedures above.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."
- B. Contractor's Construction Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- J. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.
- K. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- L. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.
- M. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

- N. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
1. Name of evaluation organization.
 2. Date of evaluation.
 3. Time period when report is in effect.
 4. Product and manufacturers' names.
 5. Description of product.
 6. Test procedures and results.
 7. Limitations of use.
- O. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures Operation and Maintenance Data."
- P. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- Q. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
1. Preparation of substrates.
 2. Required substrate tolerances.
 3. Sequence of installation or erection.
 4. Required installation tolerances.
 5. Required adjustments.
 6. Recommendations for cleaning and protection.
- R. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.

- S. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- T. Within 15 working days of award of contract and notice to proceed each prime the contractor shall provide written confirmation that Contractor shall comply with requirements contained herein. Architect of record shall then provide (1) six pack of beer as selected by the contractor.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 01 33 01 – CADD RELEASE

Use and Indemnification Agreement - INSTRUCTIONS

USE AND INDEMNIFICATION AGREEMENT

Please be aware that Tetra Tech charges contractor(s) for electronic files (this applies to files in AutoCAD (or similar) format).

PDF's, which are simply an electronic scan of the drawings, do not require the use of the indemnification form; however we charge \$50 per PDF to cover our expenses. Tetra Tech must receive the contractor's check prior to sending PDF's.

For AutoCAD type files, the cost is \$100 per electronic drawing, regardless of the number of drawings they are requesting. The Use and Indemnification Agreement is to be signed by the Prime Contractor. Should a subcontractor, such as a steel fabricator, ductwork detailer, desire electronic files, they would need to pursue this request through their Prime Contractor who has the contract with the Client.

Due to the inherent value to the company of our typical details and our other standards, we limit the drawings types that we will release via this indemnification form to plan type drawings. Typical detail sheets are not to be released in the form of an electronic AutoCAD drawing file.

In addition, our internal individual Base Plans will not be released; we limit what the contractor can purchase to the actual individual contract drawings.

After the Prime Contractor has determined the number of drawings that they will need, fill out the following two pages. The second page of the form, marked Use and Indemnification Agreement – Business Office, needs to be sent to the Business Office with the Contractor check made out to Tetra Tech. We will not release electronic files until we receive this form and the check.



240 Continental Drive, Suite 200
Newark, Delaware 19713
Tel. (302) 738-7551
Fax (302) 454-5980

Use and Indemnification Agreement

Re: Cape Henlopen School District – HO Brittingham Elementary School Tt Project No. 200-81485-16002

Whereas, _____ (hereinafter the "Contractor"), acknowledges that it has requested certain electronic files and/or media of the Drawings and/or Specifications for the above-referenced Project which are the property of Tetra Tech Engineers, Architects & Landscape Architects, P.C. d/b/a Tetra Tech Architects & Engineers (hereinafter "Tetra Tech").

Whereas, Contractor further acknowledges all requests for electronic files require a pre-payment of \$100/file (Each individual drawing in the set of Contract Documents represents 1 file), regardless of the number of files requested, prior to receiving said files from Tetra Tech.

Now, therefore, Contractor hereby warrants and covenants that it will abide by the following provisions:

A. Indemnification

- 1. In consideration of permission to use electronic files or media, including but not limited to electronic files of drawings created by use of computer, for the Work of this Project only, and which the Contractor has requested from Tetra Tech, the Contractor, to the fullest extent permitted by law, hereby agrees to indemnify and hold harmless Tetra Tech, its agents, employees, officers, directors and consultants from and against any and all claims, damages, losses and expenses, including any attorneys' fees, arising out of, resulting from or in connection with any and all use of said electronic materials, but only if such claim, damage, loss or expense is caused in whole or in part by the Contractor, its employees, agents, officers, directors, or any other party directly or indirectly employed by any of them or any party for whose acts any of them may be liable, regardless of whether or not it is caused by a party indemnified hereunder. Such obligation shall not be construed to reduce or negate any other right or obligation of indemnification that would otherwise exist as to any party hereto. This indemnification shall not apply to the liability of the indemnitee arising out of its own negligence. This indemnification shall not be limited in any way because of any limitation on damages, compensation or benefits under any statute, law or governmental requirement of any sort.
- 2. The following shall be included within the definition of "expenses" herein: (a) any time expended by the indemnified party of its employees, agents, officers and directors at their usual and customary billing rates, as well as all out-of-pocket expenses such as long-distance telephone calls, costs of reproduction, expenses of travel and lodging; (b) all costs and expenses of experts, consultants, engineers, and any other party retained by the indemnified party reasonably required to defend the claim; (c) all costs, including reasonable attorneys' fees, incurred in bringing any action to enforce the provisions of this indemnification. The following shall be included within the definition of "action" herein: any case brought in any state or federal court, any arbitration, any mediation, and any similar forum for resolution of any dispute herein, and shall also include any counterclaim or third-party action in any such forum.

B. Use and Compatibility

- 1. Tetra Tech' instruments of service are furnished without guarantee of compatibility with the Contractor's software or hardware, and Tetra Tech' sole responsibility for the electronic media is to furnish a replacement for defective disks within thirty (30) days after delivery to Contractor.
- 2. Because data stored on electronic media can deteriorate undetected or be modified without Tetra Tech' knowledge, the Contractor agrees that Tetra Tech will not be held liable for the completeness or correctness of the electronic media after an acceptance period of thirty (30) days after delivery of the electronic files. Tetra Tech does confirm the accuracy of the final sealed hard copy drawings, previously submitted pursuant to the Prime Agreement for this Project.
- 3. The electronic files are submitted to the Contractor for a thirty (30) day acceptance period. During this period, the Contractor may review and examine these files, and any errors detected during this time will be corrected by Tetra Tech. Any changes requested after the acceptance period will be considered additional services to be performed on a time and materials basis, at Tetra Tech's standard cost plus terms and conditions.
- 4. Tetra Tech retains ownership of the printed hard copy Drawings and Specifications and the electronic media. The Contractor is granted a license for their use, but only in the operation and maintenance of the Project. Use of these materials for modification, extension, or expansion of this Project or on any other project, unless under the direction of Tetra Tech, shall be without liability to Tetra Tech and Tetra Tech's consultants.

IN WITNESS WHEREOF:

Contractor: _____
Signed name: _____
Printed Name: _____
Title: _____
Date: _____

If transmission is not received as noted, kindly notify us at once.



TETRA TECH

240 Continental Drive, Suite 200
Newark, Delaware 19713
Tel. (302) 738-7551
Fax (302) 454-5980

Use and Indemnification Agreement – Business Office

Electronic Drawing Files

Prime Contractor Name

Prime Contractor Address

Contact to Receive Invoices

Project Name Cape Henlopen School District – HO Brittingham Elementary School

Project Number 200-81485-16002

Number of Drawing Files (Each individual drawing in the set of Contract Documents represents 1 file)

List each Drawing # Requested

Contractor Signature _____

SECTION 013319 FIELD ENGINEERING

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work on this section.
- B. Throughout the specifications, types of materials may be specified by manufacturer's name and catalogue number in order to establish standards of quality and performance and not for the purpose of limiting competition. Alternate methods and/or materials may be submitted to the Architect for consideration. Those judged to be equal to that specified will receive written approval.
- C. Delaware Department of Transportation Specifications for Road and Bridge Construction, August 2001 and as amended.
- D. Delaware Department of Natural Resources and Environmental Control (DNREC) Sediment and Stormwater Regulations.

1.2 SUMMARY

Work included: Provided at the Contractor's expense, such field engineering services as are required for proper completion of the Work including, but not necessarily limited to:

- A. The Contractor shall be responsible for all stakeouts and elevation checks required for construction. All such Work shall be performed by a professional land surveyor. The surveyor shall verify adequacy of benchmarks before starting construction.
- B. Before the start of any building construction, the Contractor shall have a professional land surveyor locate and stake building corners, driveway entrances, driveways, parking areas and playfields. If there are any discrepancies between the actual layout and the project site plan, they shall be brought to the attention of the Architect and resolved before Work proceeds. A building and site stake out drawing stamped and signed by a professional land surveyor may be submitted in lieu of this preliminary stake out.
- C. After the corners of the exterior walls have been started, the Contractor shall obtain a wall check survey certificate made by a professional land surveyor. This survey shall show the accurate location of the building with reference to property lines.
- D. After the first sections of slab-on-grade have been placed in the building, the Contractor shall have a professional land surveyor verify and record the finish floor elevations on the wall check survey.
- E. At the end of the project, the Contractor shall have a professional land surveyor prepare and certify an as-built survey showing the accurate horizontal and vertical locations of all building corners, paved areas, sidewalks, utilities (including inverts), fencing, site walls, etc. located within the project area.

- F. As-Built survey shall be included in a standard C.A.D. format such as AutoCad and/or MicroStation and shall include 2-foot contours within the project limits.
- G. A complete stormwater management as-built shall also be completed in accordance with DNREC's Standard Stormwater Management checklist. The Contractor's shall have a professional land surveyor prepare and certify an interim and final as-built, and the testing and inspection agent shall have a professional engineer certify the construction checklist at the interim and final stages of stormwater management facility construction.
- H. The contractor will be responsible for preparing and submitting to the project engineer five (5) copies of the interim and final stormwater management facility as-built, and additional facility information in accordance with the requirements set forth by DNREC.

1.3 RELATED WORK

- A. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
- B. Additional requirements for field engineering also may be described in other Sections of these Specifications.

1.4 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.5 SUBMITTALS

- A. Comply with pertinent provisions of Section 013300-Submittals.
- B. Upon request of the Architect, submit;
 - 1. Data demonstrating qualifications of persons proposed to be engaged for field engineering services.
 - 2. Documentation verifying accuracy of field engineering work.
 - 3. Certifications, signed by the Contractor's retained field engineer, certifying that elevations and locations of improvements are in conformance with requirements of the Contract Documents.
 - 4. All certifications and surveys described in the Summary section of this specification.

1.6 PROCEDURES

- A. In addition to procedures directed by the Contractor for the proper performance of the Contractor's responsibilities:
1. Locate and protect control points before starting Work on the site.
 2. Preserve permanent reference points during process of the Work.
 3. Do not change or relocate reference points or items of the Work without specific approval from the Architect.
 4. Promptly advise the Architect when a reference point is lost or destroyed, or requires relations because of other changes in the Work.
 - a) Upon direction of the Architect, require the field engineer to replace reference stakes or markers.
 - b) Locate such replacements according to the original survey control.

PART 2 PRODUCTS

Not Applicable

PART 3 EXECUTION

Not Applicable

END OF SECTION 013319

SECTION 013500 - SAFETY

1.1 SAFETY REQUIREMENTS

- A. All work shall be performed in accordance with rules, regulations, procedures and safe practices and/or OSHA and all other Government agencies having jurisdiction over the project.

1.2 SAFETY PRECAUTIONS AND PROGRAMS:

- A. Each Contractor shall be responsible for initiating, maintaining and supervising safety precautions and programs in connection with the work. The name of the safety officer for each contractor shall be provided to the Construction Manager.
- B. All Contractors shall comply with the provisions of the "Occupational Safety and Health Act" and Federal, State and local requirements.
- C. If a Contractor fails to maintain the safety precautions required by law or directed by the Construction Manager, the Construction Manager may take such action as necessary and charge the Contractor therefore. The failure of the Construction Manager to take any such action shall not relieve the Contractor of his obligations.
- D. The Contractor individually shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods and for any damage which may result from their failure or their improper construction, maintenance or operation.
- E. Prior to mobilizing to the job, the Contractor shall submit to the Construction Manager in writing, a description of his safety program for review and comment. Failure of the Construction Manager to make any changes shall not relieve the contractor of his obligations. During the conduct of the work, the Contractor shall immediately notify the Construction Manager in writing of all accidents and shall submit a written report describing in detail the circumstances of each accident within 24 hours of its occurrence.
- F. All Contractors shall notify the Construction Manager of any flammable, combustible and/or toxic materials intended for use on the project and shall furnish the Construction Manager with literature pertinent to the use and control of all materials, including, but not limited to M.S.D.S. sheets.
- G. Each Contractor shall delegate one representative who shall be responsible to maintain all safety requirements of the Contractor, and shall attend all project meetings scheduled by the Construction Manager.

1.3 SAFETY OF PERSONS AND PROPERTY:

- A. The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage or loss to:
 - 1. All Cape Henlopen School District personnel and all other persons who may be affected thereby.

2. All the work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-Subcontractors.
 3. Other property at the site or adjacent thereto, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction and underground property.
- B. The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority, including the Owner's requirements bearing on the Safety of persons or property or their protection from damage, injury or loss.
 - C. The Contractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection, including danger signs and other warnings against hazards. He shall comply with safety regulations and notify the Construction Manager, until he is in compliance.
 - D. The Contractor shall promptly remedy all damage or loss to any property caused in whole or in part by the Contractor, his Subcontractors, his Sub-Subcontractors, or anyone directly employed by any of them, or by anyone for whose acts any of them be liable.
 - E. The Contractor shall not load or permit any part of the work to be loaded so as to endanger its integrity and safety.
 - F. Contractors using a method of blasting to perform work on the project shall use all proper methods, including adequate safety matting and/or overburden, progressive time sequences and scaled distances, in accordance with all governmental regulations.
 - G. The use of audio equipment and headsets will not be permitted on the construction site.

1.4 PERSONAL PROTECTION REQUIREMENTS

- A. All persons entering the project shall wear hard hats in good condition and meet ANSI Z89.1-1981 and ANSI Z89.2-1971. The hats shall be worn in the proper manner.
- B. All persons entering the project shall wear proper work boots, clothing attire including long trousers and shirts.
- C. All job site personnel are expected to strictly adhere to the following rules and regulations:
 1. Use of approved eye protection by all Company personnel shall be required during all types of percussions and reciprocating work or when owner requirements govern.
 2. Approved respiratory equipment shall be worn by all personnel exposed to hazardous volumes of toxic or noxious dusts, fumes, mists, or gases. Check M.S.D.S. if not sure.

3. Personal protective equipment is to be used under unusual conditions, such as high temperature work, handling caustic or corrosive liquids, or molten metals.
4. When lifting material, keep back straight, bend knees, and lift with your legs. Get help if the load is too heavy.
5. Work clear of suspended loads. If a load is moved above where you are working or walking, stand clear until it has passed.
6. Unless it is part of your regular work, do not attempt to repair or adjust any electrical equipment.
7. Kill any circuit before attempting to work on it. Even voltages lower than 110 will cause death under certain conditions.
8. Treat all electric wires as live. Do not touch exposed wires. Report them immediately to your supervisor.
9. The Contractor is responsible for providing safety training to all of his employees.
10. All shipments to the site shall have the required documentation and labels attached and the documentation and labels shall be maintained while the material is on site.
11. As defined in the occupational Safety & Health Act, safety belts, complete with lanyards, or parachute-style harness, complete with lanyard, are to be used where there is a danger of falling.

1.5 HOUSEKEEPING

- A. Materials and equipment must be piled up or stored in a safe manner. Aisles must be kept clear.
- B. All drop cables/extension cords shall be elevated above the ground or protected in such a way to allow traffic to pass.
- C. Smoking will only be permitted in designated areas.
- D. Consumption of food and beverages in other than Company-designated areas and at specified times.
- E. Glass-bottled refreshments will not be allowed in the workplace.
- F. Graffiti will not be tolerated on the jobsite.
- G. All compressed gas cylinders must be stored in an upright position and tied off with the cap placed on top.

- H. The cords and connections at temporary panels must be maintained in an orderly fashion at all times to prevent tripping.
- I. Welding stubs and shells from explosive activated tools shall be collected and properly disposed of by Contractor.
- J. Nails are to be bent over and/or removed from wood.
- K. Aisles and stairwells as well as base areas of ladders are to be kept clear at all times.

1.6 M.S.D.S.-CONTROLLED PRODUCTS

- A. The Contractor is responsible for notifying R.Y. Johnson & Son, Inc of any controlled products that they bring or cause to have brought onto the site. The Contractor shall provide R.Y. Johnson & Son, Inc. with a copy of the Material Safety Data Sheet (M.S.D.S.) for the controlled product, and the Contractor shall retain a copy of the M.S.D.S. on site for their reference. The legal storage, use, and disposal of any controlled product is the responsibility of the Contractor.
- B. The Contractor shall comply with OSHA Communications' Standards 29 CFR 1910-1200 for hazardous materials. The Contractor shall maintain a Material Safety Data Sheet on file at the jobsite for each chemical brought to the site. M.S.D.S. sheets shall be submitted to R.Y. Johnson & Son, Inc. for record purposes.
- C. Temporary storage of hazardous materials shall be located in containment dikes provided by the Contractor requiring same in area identified by the Construction Manager. All tanks, drums, and containers are to be labeled with appropriate warnings (i.e., flammable, no smoking). Periodic inspections for leakage shall be the responsibility of the Contractor. Final cleanup and removal shall be by the Contractor.

1.7 EMERGENCIES

- A. In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss and shall immediately notify the Construction Manager of such emergency conditions. Any claims made by the Contractor for additional compensation or extension of time on account of emergency work shall be processed in accordance with Article 7, of the Supplementary Conditions.

1.8 ACCIDENT INVESTIGATION AND REPORTING

- A. All accident/incidents shall be reported.
- B. The Contractor shall submit an accident/incident report to R.Y. Johnson & Son, Inc. no later than 10 hours on the working day following the incident. A detailed report is to follow within 24 hours.

1.9 FIRST AID PROCEDURE

- A. The Contractor is to provide his own First Aid service.
- B. Each Contractor shall supply to R.Y. Johnson & Son, Inc. a list of their qualified First Aid personnel. Each Contractor is to have a minimum of one full-time qualified First Aid personnel on site. Contractor First Aid certificates shall be posted in the Contractor's site office and photocopies supplied to R.Y. Johnson & Son, Inc.

1.10 INDEMNIFICATION

- A. Contractors shall indemnify and hold harmless the Owner, the Construction Manager and the Architect/Engineer, all municipal authorities, and their agents and employees from and against all claims, damages, losses, and expenses including, but not limited to attorney's fees arising out of or resulting from the performance of the work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other work than the work itself) including the loss of use resulting therefrom, and (2) is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not is caused in part by a party indemnified hereunder.
- B. In any and all claims against the Owner, the Construction Manager or the Architect/Engineer or any of their agents or employees by any employee of a Contractor, and Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this paragraph shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the type of damages, compensation or any Subcontractor under workmen's compensation acts, disability benefit acts or other employee benefit acts.
- C. To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Construction Manager, the Owner, and the Architect and their agents and employees from and against all claims, including citations and penalties imposed by the Occupational Safety and Health Administration, damages, losses, expenses and judgments including, but not limited to attorneys' fees, arising out of or resulting from performance of the work in an area which is unsafe, harmful, dangerous, or hazardous and which is caused in whole or in part by any act or omission of the Contractor, anyone directly or indirectly employed by it, or anyone for whose acts it may be liable, regardless of whether the claim, citation, penalty, damage, loss, expense or judgment results from unsafe, harmful, dangerous, hazardous or toxic materials or substances or whether from any other unsafe, harmful, dangerous or hazardous conditions.
- D. The obligations of the Contractor under this paragraph shall not extend to the liability of the Architect/Engineer or the Construction Manager, his agents or employees arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, design or specifications, or (2) the giving of or the failure to give directions or instructions by the Architect/Engineer of the Construction Manager, their agents or employees provided such giving or failure to give is the primary cause of the injury or damage.

- E. No provision of this Subparagraph shall give rise to any duties on the part of the Architect or the Construction Manager not otherwise provided for by contract or by law.
- F. In the event that any party is requested but refuses to honor the indemnity obligations hereunder, then the party refusing to honor such requests shall, in addition to all other obligations, pay the cost of bringing any such action, including attorney's fees to the party requesting indemnity.

END OF SECTION 013500

SECTION 014000 - QUALITY CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality-control services.
- B. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Architect.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
 - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- E. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Cutting and Patching" specifies requirements for repair and restoration of construction disturbed by inspection and testing activities.
 - 2. Division 1 Section "Submittals" specifies requirements for development of a schedule of required tests and inspections.

1.3 RESPONSIBILITIES

- A. Contractor Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. Costs for these services are included in the Contract Sum.
 - 1. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform quality-control services. Costs for these services are included in the Contract Sum.

- B. Retesting: The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.
1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Document requirements.
- C. Associated Services: Cooperate with agencies performing required inspections, tests, and similar services, and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include, but are not limited to, the following:
1. Provide access to the Work.
 2. Furnish incidental labor and facilities necessary to facilitate inspections and tests.
 3. Take adequate quantities of representative samples of materials that require testing or assist the agency in taking samples.
 4. Provide facilities for storage and curing of test samples.
 5. Deliver samples to testing laboratories.
 6. Provide the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
 7. Provide security and protection of samples and test equipment at the Project Site.
- D. Duties of the Testing Agency: The independent agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual Sections shall cooperate with the Architect and the Contractor in performance of the agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.
1. The agency shall notify the Architect and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. The agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.
 3. The agency shall not perform any duties of the Contractor.
- E. Coordination: Coordinate the sequence of activities to accommodate required services with a minimum of delay. Coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.
1. The Contractor is responsible for scheduling times for inspections, tests, taking samples, and similar activities.

1.4 SUBMITTALS

- A. Unless the Contractor is responsible for this service, the independent testing agency shall submit a certified written report, in duplicate, of each inspection, test, or similar service to the Architect. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection, test, or similar service through the Contractor.
1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.

2. Report Data: Written reports of each inspection, test, or similar service include, but are not limited to, the following:
 - a. Date of issue.
 - b. Project title and number.
 - c. Name, address, and telephone number of testing agency.
 - d. Dates and locations of samples and tests or inspections.
 - e. Names of individuals making the inspection or test.
 - f. Designation of the Work and test method.
 - g. Identification of product and Specification Section.
 - h. Complete inspection or test data.
 - i. Test results and an interpretation of test results.
 - j. Ambient conditions at the time of sample taking and testing.
 - k. Comments or professional opinion on whether inspected or tested Work complies with Contract Document requirements.
 - l. Name and signature of laboratory inspector.
 - m. Recommendations on retesting.

1.5 QUALITY ASSURANCE

- A. Qualifications for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, that are prequalified as complying with the American Council of Independent Laboratories' "Recommended Requirements for Independent Laboratory Qualification" and that specialize in the types of inspections and tests to be performed.
 1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with Contract Document requirements for Division 1 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities, and protect repaired construction.
- C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

END OF SECTION 014000

SECTION 014100- REGULATORY REQUIREMENTS

PART I - GENERAL

1.1 SECTION INCLUDES

- A. Safety and Health Regulations.
- B. Housekeeping.
- C. M.S.D.S. Controlled Products.
- D. Emergencies.
- E. Employment Policy.
- F. Environmental Statutes and Regulations.
- G. Miscellaneous Regulations.
- I. Standard of Quality.

1.2 RELATED SECTIONS

- A. General and Supplementary Conditions of the Contract.

1.3 SAFETY AND BEALTH REGULATIONS

- A. These Contract Documents and the joint and several phases of construction hereby contemplated are to be governed, at all lines by applicable provisions of the Federal law(s), including but not limited to, the latest amendments of the following:
 - 1. Williams-Steiger Occupational Safety and Health Act of 1970, Public Law 91-596,
 - 2. Part 1910 - Occupational Safety and Health Standards, Chapter XIII of Title 29, Code of Federal Regulations.
- B. Nothing contained in these Contract Documents for construction shall be construed by the Contractor as relieving him in any way of his responsibility for strict compliance with the rules and regulations contained in the above mentioned Occupational Safety and Health Act.
- C. The use of products containing asbestos will not be permitted.
- D. All work shall be performed in accordance with rules, regulations, procedures and safe practices and/or OSHA
and all other Government Agencies having jurisdiction over the project.

- E. Each Contractor shall be responsible for initiating, maintaining and supervising safety precautions and programs in connection with the work. The name of the safety officer for each contractor shall be provided to the Construction Manager.
- F. All Contractors shall comply with the provisions of the Occupational Safety and Health Act and Federal, State and local requirements.
- G. If a Contractor fails to maintain the safety precautions required by law or directed by the Construction Manager, the Construction Manager may take such action necessary and charge the Contractor therefore. The failure of the Construction Manager to take any such action shall not relieve the Contractor of his obligations.
- H. The Contractor individually shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods and for any damage which may result from their failure or their improper construction, maintenance or operation.
- I. Prior to mobilizing to the job, the Contractor shall submit to the Construction Manager in writing, a description of his safety program for review and comment. During the conduct of the work, the Contractor shall immediately notify the Construction Manager in writing of all accidents and shall submit a written report describing in detail the circumstances of each accident within 24 hours of its occurrence.
- J. All Contractors shall notify the Construction Manager of any flammable, combustible and/or toxic materials intended for use on the project and shall furnish the Construction Manager with literature pertinent to the use and control of all materials, including, but not limited to M.S.D.S sheets.
- K. Each Contractor shall delegate one representative who shall be responsible to maintain all safety requirements of the Contractor, and shall attend all project meetings scheduled by the Construction Manager.
- L. The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage or loss to: -
 - 1. All school personnel, employees on the work site and all other persons who may be affected thereby.
 - 2. All the work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-Subcontractors.
 - 3. Other property at the site or adjacent thereto, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction and underground property.
- M. The Contractor shall give all notices and comply with all applicable laws, ordinances,

rules, regulations and lawful orders of any public authority, including the Owner's requirements bearing on the Safety of persons or property or their protection from damage, injury or loss.

- N. The Contractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection, including danger signs and other warnings against hazards. He shall comply with safety regulations and notify the Construction Manager, until he is in compliance.
- O. The Contractor shall promptly remedy all damage or loss to any property caused in whole or in part by the Contractor, his Subcontractors and his Sub-Subcontractors or anyone directly employed by any of them, or by anyone for whose acts any of them be liable.
- P. The Contractor shall not load or permit any part of the work to be loaded so as to endanger its integrity and safety.
- Q. Contractors using a method of blasting to perform work on the project shall use all proper
- R. The use of audio equipment and headsets will not be permitted on the construction site.
- S. All persons entering the project shall wear hard hats in good condition and meet ANSIZ89.1-1981 and ANSI Z89.2-1971. The hats shall be worn in the proper manner.
- T. All persons entering the project shall wear proper work boots, clothing attire including long trousers and shirts.
- U. All job site personnel are expected to strictly adhere to the following rules and regulations:
 - I. Use of approved eye protection by all company personnel shall be required during all types of percussions and reciprocating work or when owner requirements govern.
 - 2. Approved respiratory equipment shall be worn by all company personnel exposed to hazardous volumes of toxic or noxious dusts, fumes, mists, or gases. Check M.S.D.S. if not sure.
 - 3. Personal protective equipment is to be used under usual conditions, such as high temperature work, handling caustic or corrosive liquids or molten metals.
 - 4. When lifting material, keep back straight, knees bent, and lift with your legs. Get help if the load is too heavy.
 - 5. Work clear of suspended loads. If a load is moved above where you are working or walking, stand clear until it has passed.
 - 6. Unless it is part of your regular work, do not attempt to repair or adjust any electrical equipment.
 - 7. Kill any circuit before attempting to work on it. Even voltages lower than 110 will cause death under certain conditions.
 - 8. Treat all electric wires as live. Do not touch exposed wires; report them immediately to your supervisor.
 - 9. The Contractor is responsible for providing safety training to all of his employees.
 - 10. All shipments to the site shall have the required documentation and labels attached

- and the documentation and labels shall be maintained while the material is on site.
11. As defined in the Occupational Safety & Health Act, safety belts, complete with lanyards or parachute style harness, complete with lanyards, are to be used where there is a danger of falling.

1.4 HOUSEKEEPING

- A. Materials and equipment must be piled up or stored in a safe manner. Aisles must be kept clear.
- B. All drop cables/extension cords shall be elevated above the ground or protected in such a way to allow traffic to pass.
- C. Smoking will only be permitted in designated areas.
- D. Consumption of food and beverages in other than Company-designated areas and at specified times are prohibited.
- E. Glass-bottled refreshments will not be allowed in the workplace.
- F. Graffiti will not be tolerated on the job-site.
- G. All compressed gas cylinders must be stored in an upright position and tied off with the cap placed on top.
- H. The cords and connections at temporary panels must be maintained in an orderly fashion at all times to prevent tripping.
- I. Welding stubs and shells from explosive activated tools shall be collected and properly disposed of by the Contractor.
- J. Nails are to be bent over and/or removed from wood,
- K. Aisles and stairwells as well as base areas of ladders are to be kept clear at all times.

1.5 M.S.D.S.-CONTROLLED PRODUCTS

- A. The Contractor is responsible for notifying R.Y. Johnson Construction Management of any controlled products that they bring or cause to have brought onto the site. The Contractor shall provide RY. Johnson Construction Management with a copy of the Material Safety Sheet (M.S.D.S.) for the controlled product and the Contractor shall retain a copy of the M.S.D.S. on site for their own reference. The legal storage, use, and disposal of any controlled product is the responsibility of the Contractor.
- B. The Contractor shall comply with OSHA Communication Standards 29 CFR 1910-1200 for hazardous materials. The Contractor shall maintain a Material Safety Data Sheet on file at the job-site for each chemical brought to the site, M.S.D.S. sheets shall be

submitted to R.Y. Johnson Construction Management for record purposes

- C. Temporary storage of hazardous materials shall be located in containment dikes provided by the Contractor requiring same in area identified by the Construction Manager. All tanks, drums, and containers are to be labeled with appropriate warnings (i.e., flammable, no smoking). Periodic inspections for leakage shall be the responsibility of the Contractor. Final clean-up and removal shall be by the Contractor.

1.6 EMERGENCIES

- A. In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss and shall immediately notify the Construction Manager of such emergency conditions. Any claims made by the Contractor for additional compensation or extension of time on account of emergency work shall be processed in accordance with Article 7, of the Supplementary Conditions.

1.7 EMPLOYMENT POLICY

- A. Acceptance of a contract based on these specifications constitutes agreement by the Contractor to comply with State Policy as established by joint Resolution No. 16 of the General Assembly of 1958, which is: That on all public works being paid for in whole or in part with State or other public funds, preference shall be given to available persons who have been residents of Delaware for a period of at least six (6) months immediately prior to availability of positions for employment of laborers, mechanics and others, not including supervisor personnel not to exceed ten percent (10%) of the total working force.
- B. Competent Workmen: No person shall be employed to perform any work under the Contract who is not a competent and first-class workman or mechanic, as applicable. For purposes of this section, no workman or mechanic, as applicable, shall be regarded as competent and first class unless he shall be duly skilled in the applicable branch of labor and shall be paid not less than such rates of wages and for such hours work as shall be established and current rates of wages paid for such hours by employers of organized labor in performance of similar work in the locality where the work is to be performed.
- C. It is understood that the provisions of Title VI of the Civil Rights Act 1964 are hereby included in this contract to the end that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or otherwise subjected to discrimination under this Agreement.

The Contractor agrees to make such reports and to maintain and make available, such records as may be required to ensure compliance with ART.38, par. b and c. - this means permitting access by appropriate State or Federal officials during normal business hours to such facilities, records and other sources of information as may be pertinent to ascertain compliance with the regulations.

- D. All Contractors shall be subject to, and responsible for all costs relating to Contractor licensing ordinances and regulations.

1.8 ENVIRONMENTAL STATUES AND REGULUATIONS

- A. Contractor shall comply with all applicable provisions of federal and state laws dealing with the prevention of environmental pollution and the preservation of natural resources, including but not limited to Act No 247 approved October 26, 1962; the Federal Air Quality Act of 1967; the Clean Air Act; the Clean Water Restoration Act; the Water Pollution Control Act Amendments of 1956; the Water Quality Act of 1965; the Water Quality Improvement Act of 1970; The Water Pollution Control Act Amendments of 1972; The Water Facilities Act (see Consolidated Farmer's Home Administration Act of 1961); the Watershed Protection and Flood Prevention Act; the Pennsylvania Air Pollution Control Act; the Clean Streams Law; the Solid Waste Management Act; the Municipal Waste Planning, Recycling and Waste Reduction Act; A.H.E.R.A.; and all rules and regulations there under, including, but not limited to, those formulated by the United States Environmental Protection Agency, the Pennsylvania Department of Environmental Resources and the Department of Environmental Protection. Nothing contained in the Contract shall be construed as relieving Contractor in anyway of Contractors responsibility for strict compliance with all governmental requirements pertaining to environmental protection.
- B. These Contact Documents and the joint and several phases of construction hereby contemplated are to be governed, at all times, by applicable provisions of Federal and State Law(s) dealing with the prevention of environmental pollution and the preservation of public natural resources, including but not limited to the latest amendments of the following:
1. Act No. 247 of the General Assembly oft he Commonwealth of Pennsylvania relating to the prevention of environment pollution and the preservation of public natural resources in construction projects, enacted October 26, 1972.
- C. Pursuant to Act No. 247 of the 1972 Pennsylvania General Assembly, all proposals will be subject to all the provisions of all Federal and State statutes dealing with the prevention of pollution and preservation of public natural resources including, but not limited to; the Federal Air Quality Actor 1967; Clean Air Act, as amended: Clean Water Restoration Act; Water Pollution Control Act Amendments of 1956, Water Quality Act or 1965, Water Quality improvement Act of 1970. and Water Pollution Control Mt Amendments of 1972; the Water Facilities Act (see Consolidated Farmers Home Administration Act of 1961); the Watershed Protection and Flood Prevention Act; the Pennsylvania Air Pollution Control Act; Clean Streams Law; Solid Waste Management Act; Sewerage Facilities Act; and all rules and regulations there under including, but not limited to, those formulated by the United States Environmental Protection Agency and the Pennsylvania Department of Environmental Resources.
- D. Act No. 247 provides that if the successful bidder must undertake additional work due to enactment of new or the amendment of existing statues, rules or regulations occurring after the submission of the successful proposal, the Authority shall issue a change order setting for the additional work that must be

undertaken, which shall not invalidate the contract. The cost of such a change order to the Authority shall be determined in accordance with the provisions of the contract for change orders or force accounts, or if n such provision is set forth in the contract, then the cost to the Authority shall be the contractors costs for wages, labor costs other than wages, wage taxes, materials, equipment rentals, insurance and subcontractors attributable to the additional activity plus a reasonable sum for overhead and profit; provided however, that such additional costs to undertake work not specified in the invitation for proposal shall not be approved unless written authorization is given the successful bidder prior to his undertaking such additional activity. In the event of a dispute between the Authority and the successful bidder, arbitration procedures maybe commenced under the applicable terms of the construction contract, or, if the contract contains no such provision for arbitration, the then obtaining rules of the American Arbitration Association. I

- E. Nothing contained in the Contract Documents for construction shall be construed by the Contractor as relieving him in any way of his responsibility for strict compliance with the statutes, rules and regulations contained in the above mentioned Environmental Protection Act.

1.9 MISCELLANEOUS REGULATIONS

- A. **Standard of Quality:** The various materials and products specified in the specification by name or description are given to establish a standard of quality and of cost for bid purposes. It is not the intent to limit the acceptance to any one material or product specified, but rather to name or describe it as the absolute minimum standard that is desired and acceptable. A material or product of lesser quality would not be acceptable. Where proprietary names are used, whether or not followed by the words Approved equal®, they shall be subject to equals only as approved by the Architect and /or Engineer.

PART 2 -- PRODUCTS (NOT USED)

PART 3- EXECUTION (NOT USED)

END OF SECTION 014100

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": The term "approved," when used to convey Architect's action on Contractor's submittals, applications, and requests, is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean directed by Architect, requested by Architect, and similar phrases.
- D. "Indicated": The term "indicated" refers to graphic representations, notes, or schedules on Drawings or to other paragraphs or schedules in Specifications and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the user locate the reference.
- E. "Regulations": The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": The term "furnish" means to supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": The term "install" describes operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, and protecting, cleaning, and similar operations.
- H. "Provide": The term "provide" means to furnish and install, complete and ready for the intended use.
- I. "Installer": An installer is the Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
- J. The term "experienced," when used with an entity, means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.

K. "Project site" is the space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

A. **Applicability of Standards:** Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. **Publication Dates:** Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.

C. **Conflicting Requirements:** If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

1. **Minimum Quantity or Quality Levels:** The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

D. **Copies of Standards:** Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.

E. **Abbreviations and Acronyms for Industry Organizations:** Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

F. **Abbreviations and Acronyms for Industry Organizations:** Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PRIVATE tbl1@dom1

CAPE HENLOPEN SCHOOL DISTRICT
HO BRITTINGHAM ELEMENTRY SCHOOL

200-81485-16002

AA	Aluminum Association, Inc. (The) www.aluminum.org	(202) 862-5100
AAADM	American Association of Automatic Door Manufacturers www.taol.com/aaadm	(216) 241-7333
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AAN	American Association of Nurserymen (See ANLA)	
AASHTO	American Association of State Highway and Transportation Officials www.aashto.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists (The) www.aatcc.org	(919) 549-8141
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 429-5155
ACI	American Concrete Institute/ACI International www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
ADC	Air Diffusion Council	(312) 201-0101
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AFPA	American Forest & Paper Association (See AF&PA)	
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AHA	American Hardboard Association www.ahardbd.org	(847) 934-8800
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955

AI	Asphalt Institute www.asphaltinstitute.org	(606) 288-4960
AIA	American Institute of Architects (The) www.aiaonline.org	(202) 626-7300
AISC	American Institute of Steel Construction, Inc. www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction	(303) 792-9559
ALA	American Laminators Association (See LMA)	
ALCA	Associated Landscape Contractors of America www.alca.org	(800) 395-2522 (703) 736-9666
ALSC	American Lumber Standard Committee	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANLA	American Nursery & Landscape Association (Formerly: AAN - American Association of Nurserymen) www.anla.org	(202) 789-2900
ANSI	American National Standards Institute www.ansi.org	(212) 642-4900
AOSA	Association of Official Seed Analysts www.zianet.com/AOSA	(402) 476-3852
APA	APA-The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(941) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800
ASCA	Architectural Spray Coaters Association www.ascassoc.com	(856) 848-6120

ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	American Society for Testing and Materials www.astm.org	(610) 832-9585
AWCI	AWCI International (Association of the Wall and Ceiling Industries International) www.awci.org	(703) 534-8300
AWCMA	American Window Covering Manufacturers Association (See WCMA)	
AWI	Architectural Woodwork Institute www.awinet.org	(800) 449-8811 (703) 733-0600
AWPA	American Wood-Preservers' Association www.awpa.com	(817) 326-6300
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 661-4261
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) www.bifma.com	(616) 285-3963

CAPE HENLOPEN SCHOOL DISTRICT
HO BRITTINGHAM ELEMENTARY SCHOOL

200-81485-16002

CCC	Carpet Cushion Council www.carpetcushion.org	(203) 637-1312
CCFSS	Center for Cold-Formed Steel Structures www.umn.edu/~ccfss	(573) 341-4471
CDA	Copper Development Association Inc. www.copper.org	(800) 232-3282 (212) 251-7200
CEA	Canadian Electricity Association (The) www.canelect.ca	(613) 230-9263
CFFA	Chemical Fabrics & Film Association, Inc. www.taol.com/cffa	(216) 241-7333
CGA	Compressed Gas Association www.cganet.com	(703) 412-0900
CGSB	Canadian General Standards Board www.pwgsc.gc.ca/cgsb	(819) 956-0425
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.com (under construction)	(301) 596-2584
CPA	Composite Panel Association (Formerly: National Particleboard Association) www.pbmdf.com	(301) 670-0604
CPPA	Corrugated Polyethylene Pipe Association Division of Plastics Pipe Institute www.cppa-info.org	(800) 510-2772 (419) 241-2221
CRI	Carpet and Rug Institute (The) www.carpet-rug.com	(800) 882-8846 (706) 278-3176
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSA	CSA International (Formerly: IAS - International Approval Services) Division of Canadian Standards Association www.iasapprovals.org	(216) 524-4990

CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org	(604) 462-8961
CTI	Cooling Tower Institute www.cti.org	(281) 583-4087
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIA/TIA	Electronic Industries Alliance/Telecommunications Industry Association www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eifsfacts.com	(800) 294-3462 (770) 968-7945
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
FCI	Fluid Controls Institute www.fluidcontrolsinstitute.org	(216) 241-7333
FGMA	Flat Glass Marketing Association (See GANA)	
FM	Factory Mutual System (See FMG)	
FMG	FM Global (Formerly: FM - Factory Mutual System) www.fmglobal.com	(401) 275-3000
GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANA	Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association) www.glasswebsite.com/gana	(785) 271-0208
GRI	Geosynthetic Research Institute www.drexel.edu/gri	(610) 522-8440
GTA	Glass Tempering Division of Glass Association of North America (See GANA)	

HI	Hydraulic Institute	(888) 786-7744 (973) 267-9700
HI	Hydronics Institute Division of Gas Appliance Manufacturers Association www.gamanet.org	(908) 464-8200
HMMA	Hollow Metal Manufacturers Association Division of National Association of Architectural Metal Manufacturers (See NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc.	(410) 838-6550
IAS	International Approval Services (See CSA International)	
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(508) 394-4424
ICRI	International Concrete Repair Institute www.icri.org	(703) 450-0116
IEC	International Electro technical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IESNA	Illuminating Engineering Society of North America (The) www.iesna.org	(212) 248-5000
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 938-7444
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
IRI	HSB Industrial Risk Insurers www.industrialrisk.com	(800) 520-7300 (860) 520-7300
ITS	Intertek Testing Services www.itsglobal.com	(800) 345-3851 (607) 753-6711
IWS	Insect Screening Weavers Association (Now defunct)	

KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LGSI	Light Gage Structural Institute www.loseke.com	(972) 625-4560
LMA	Laminating Materials Association (Formerly: ALA - American Laminators Association) www.lma.org	(201) 664-2700
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864 (847) 577-7200
LSGA	Laminated Safety Glass Association (See GANA)	
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MFMA	Maple Flooring Manufacturers Association www.maplefloor.org	(847) 480-9138
MFMA	Metal Framing Manufacturers Association	(312) 644-6610
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(614) 228-6194
ML/SFA	Metal Lath/Steel Framing Association (See SSMA)	
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry, Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(312) 332-0405
NAAMM	North American Association of Mirror Manufacturers (See GANA)	
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(281) 228-6200
NAIMA	North American Insulation Manufacturers Association (The) www.naima.org	(703) 684-0084

NAMI	National Accreditation and Management Institute, Inc.	(304) 258-5100
NAPM	National Association of Photographic Manufacturers (See PIMA)	
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCPI	National Clay Pipe Institute www.ncpi.org	(414) 248-9094
NCTA	National Cable Television Association www.ncta.com	(202) 775-3669
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	International Electrical Testing Association www.electricnet.com/neta	(303) 697-8441
NFPA	National Fire Protection Association www.nfpa.org	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-6372
NGA	National Glass Association www.glass.org	(703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	National Oak Flooring Manufacturers Association www.nofma.org	(901) 526-5016

NPA	National Particleboard Association (See CPA)	
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(301) 587-1400
NSA	National Stone Association www.aggregates.org	(800) 342-1415 (202) 342-1100
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NTMA	National Terrazzo & Mosaic Association (The) www.ntma.com	(800) 323-9736 (703) 779-1022
NWWDA	National Wood Window and Door Association (See WDMA)	
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDCA	Painting and Decorating Contractors of America www.pdca.com	(800) 332-7322 (703) 359-0826
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (508) 230-3516
PGI	PVC Geomembrane Institute/Technology Program University of Illinois-Urbana Champaign //pgi-tp.ce.uiuc.edu	(217) 333-3929
PIMA	Photographic & Imaging Manufacturers Association (Formerly: NAPM - National Association of Photographic Manufacturers) www.pima.net	(914) 698-7603
RCSC	Research Council on Structural Connections c/o AISC www.boltcouncil.org	
RFCI	Resilient Floor Covering Institute	(Contact by mail only)
RIS	Redwood Inspection Service Division of the California Redwood Association www.calredwood.org	(888) 225-7339 (415) 382-0662

RMA	Rubber Manufacturers Association www.rma.org	(800) 220-7620 (202) 682-4800
SAE	SAE International www.sae.org	(724) 776-4841 (724) 776-4960 (publications)
SDI	Steel Deck Institute www.sdi.org	(847) 462-1930
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association www.sefalabfurn.com	(843) 689-6878
SGCC	Safety Glazing Certification Council www.sgcc.org	(315) 938-7444
SIGMA	Sealed Insulating Glass Manufacturers Association www.sigmaonline.org/sigma	(312) 644-6610
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association	(561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SPI	The Society of the Plastics Industry, Inc. www.plasticsindustry.org	(202) 974-5200
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPI/SPFD	The Society of the Plastics Industry, Inc. Spray Polyurethane Foam Division (See SPI)	
SPRI	SPRI (Single Ply Roofing Institute) www.spri.org	(781) 444-0242
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSMA	Steel Stud Manufacturers Association (Formerly: ML/SFA - Metal Lath/Steel Framing Association) www.ssma.com	(312) 456-5590

SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(800) 837-8303 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWRI	Sealant, Waterproofing & Restoration Institute www.swrionline.org	(816) 472-7974
TCA	Tile Council of America, Inc. www.tileusa.com	(864) 646-8453
TPI	Truss Plate Institute	(608) 833-5900
TPI	Turfgrass Producers International www.turfgrassod.org	(800) 405-8873 (847) 705-9898
UFAC	Upholstered Furniture Action Council www.ufac.org	(336) 885-5065
UL	Underwriters Laboratories Inc. www.ul.com	(800) 704-4050 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association //members.aol.com/unibell	(972) 243-3902
USG	United States Gypsum Company A Subsidiary of USG Corporation www.usg.com	(800) 874-4968 (312) 606-4000
USITT	United States Institute for Theatre Technology, Inc. www.culturenet.ca/usitt	(800) 938-7488 (315) 463-6463
USP	U.S. Pharmacopeia www.usp.org	(800) 822-8772 (301) 881-0666
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association (Formerly: AWCMA - American Window Covering Manufacturers Association) www.windowcoverings.org	(212) 661-4261

WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(800) 223-2301 (847) 299-5200
WIC	Woodwork Institute of California www.wicnet.org	(916) 372-9943
WMMPA	Wood Molding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

G. Abbreviations and Acronyms for Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PRIVATE tbl2

BOCA	BOCA International, Inc. www.bocai.org	(708) 799-2300
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CABO	Council of American Building Officials (See ICC)	
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IAPMO	International Association of Plumbing and Mechanical Officials (The) www.iapmo.org	(909) 595-8449
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ICBO	International Conference of Building Officials www.icbo.org	(800) 284-4406 (562) 699-0541
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ICC	International Code Council (Formerly: CABO - Council of American Building Officials) www.intlcode.org	(703) 931-4533
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SBCCI	Southern Building Code Congress International, Inc. www.sbcci.org	(205) 591-1853
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H. Abbreviations and Acronyms for Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PRIVATE tbl3@dom1

CE	Army Corps of Engineers CRD Standards	(601) 634-2355
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CFR	Code of Federal Regulations www.access.gpo.gov/nara/cfr	(202) 512-1800
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CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-0990
DOC	Department of Commerce www.doc.gov	(202) 482-2000
DOD	Department of Defense DOD Specifications and Standards //astimage.daps.dla.mil/online	(215) 697-6257
EPA	Environmental Protection Agency www.epa.gov	(202) 260-2090
FAA	Federal Aviation Administration Department of Transportation www.faa.gov	(202) 366-4000
FCC	Federal Communications Commission www.fcc.gov	(202) 418-0190
FDA	Food and Drug Administration www.fda.gov	(888) 463-6332
FED-STD	Federal Standard (See FS)	
FS	Federal Specification (Available from DOD, GSA, and NIBS)	
FTMS	Federal Test Method Standard (See FS)	
GSA	General Services Administration www.gsa.gov	(202) 708-5082 (202) 619-8925 (Federal Specifications)
HUD	Department of Housing and Urban Development www.hud.gov	(202) 401-0388
LBL	Lawrence Berkeley Laboratory (See LBNL)	
LBNL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-5605
MILSPEC	Military Specification and Standards (See DOD)	
NCHRP	National Cooperative Highway Research Program (See TRB)	

NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-2000
OSHA	Occupational Safety & Health Administration (See CFR 29) www.osha.gov	(202) 219-5000
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
TRB	Transportation Research Board www.nas.edu/trb	(202) 334-2933
USDA	Department of Agriculture www.usda.gov	(202) 720-8732
USPS	Postal Service www.usps.gov	(202) 268-2000

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 014219 – REFERENCE STANDARDS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Specification Format.
- B. Specification Language and Form.

1.2 RELATED SECTIONS

- A. The specifications have been arranged in accordance with CSI / CSC “masterformat” master list of titles and numbering system.

1.3 FORMAT

- A. The imperative language of the technical sections of the specifications is directed to the Contractor unless specifically noted otherwise.
- B. Portions of the specifications have been derived from an automated master specification production system and may include minor deviations from traditional writing forms. Such deviations must be recognized as a normal result of this production technique and no other meaning will be implied or permitted.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 014219

SECTION 015000 -TEMPORARY CONSTRUCTION UTILITIES, FACILITIES & CONTROLS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-0 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies requirements for temporary construction, utilities, facilities, and controls required to support the successful construction of the project and maintain services until the permanent utilities, facilities, and controls are complete. They shall be installed, maintained, and removed subject to the Construction Manager's approval.

TABLE OF PARTS

	<u>PART 1 - General</u>
1.3	Quality Assurance
1.4	Project Conditions
1.5	Existing Utilities and Systems
	<u>PART 2 - Products</u>
2.1	Materials
2.2	Equipment
	<u>PART 3 - Execution</u>
3.1	Installation
3.2	Temporary Utility Installation
3.3	Use Charges
3.4	Water Service
3.5	Electrical Power
3.6	Lighting
3.7	Telephones
3.8	Sanitary Facilities
3.9	Storm Sewers
3.10	Dewatering Facilities
3.11	Heating and Ventilation
3.12	Field Offices
3.13	Roads and Parking
3.14	Enclosures
3.15	Lifts and Hoists
3.16	Elevators
3.17	Project Identification
3.18	Waste Disposal and Cleanup
3.19	Construction Aids and Protection
3.20	Fire Safety
3.21	Barricades, Warning Signs, and Lights
3.22	Site Enclosure Fence
3.23	Building Security, Enclosure, and Lockup

- 3.24 Environmental Protection, NPDES, and PPC
- 3.25 Workday
- 3.26 Lunch Wagon
- 3.27 Erosion Control
- 3.28 Excavation
- 3.29 Blasting
- 3.30 Material Inventories
- 3.31 Deliveries
- 3.32 Operation, Termination, and Removal
- 3.33 Snow Removal

1.3 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:

- Municipal and Labor & Industry Building Code requirements
 - Health and safety regulations
 - Utility company regulations
 - Police, Fire Department and Rescue Squad rules
 - Environmental protection regulations

- B. Inspections: Arrange for authorities, having jurisdiction, to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.4 PROJECT CONDITIONS

- A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site. They shall be removed, relocated as required by the progress of the work, or directed by the Construction Manager.

1.5 EXISTING UTILITIES AND SYSTEMS

- A. Precaution must be taken to protect existing sanitary sewer, electrical, water and gas lines that cross the site. All existing building utility systems such as electrical, water, gas will be demolished and reconstructed during this project.
- B. Trade Contractors interrupting services due to their construction operations shall provide temporary utility lines, as required, to maintain services.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials; if acceptable to the Construction Manager, undamaged, previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.
- B. Lumber and Plywood: Comply with requirements in Division-6 Section "Rough Carpentry."
- C. Tarpaulins: Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.
- D. Water: Provide potable water approved by local health authorities.
- E. Open-Mesh Fencing: Provide 11-gauge, galvanized two (2) inch, chain link fabric fencing, six (6) feet high with galvanized steel pipe posts, 1-1/2" I.D. for line posts and 2-1/2" I.D. for corner posts. Drive posts 30" into the ground at no less than 15' spacing.

2.2 EQUIPMENT

- A. General: Provide new equipment; if acceptable to the Construction Manager, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.
- B. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light, for connection of power tools, equipment, and GFI breakers.
- D. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress.
- E. Electrical Welding Outlets: These will not be provided. Each Trade Contractor will be responsible for his own welding power.
- F. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.

- G. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel being consumed.
- H. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.
- I. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber, reinforced polyester shell or similar nonabsorbent material.
- J. First Aid Supplies: Comply with governing regulations.
- K. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

Comply with NFPA 10 classification, extinguishing agent and size required by location and class of fire exposure.

PART 3 EXECUTIONS

3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.
 - 1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
 - 3. Obtain easements to bring temporary utilities to the site, where the Owner's easements cannot be used for that purpose.

3.3 USE CHARGES

- A. Cost for temporary facilities are to be paid by the Trade Contractor requiring or providing the temporary facility unless noted otherwise.
- B. Owner will pay utility consumption costs during construction.

3.4 WATER SERVICE

- A. The Plumbing Contractor shall install water service and distribution piping of sizes and pressures adequate for construction. As a minimum, provide a manifold pipe with two 3/4" hose bibs at the building water riser point of entrance until portions of the permanent piping system can be used to support construction activities. Water service may be run from a temporary or permanent source. Coordinate needs with Construction Manager.
 - 1. Sterilization: Sterilize temporary water piping prior to use.
 - 2. Protect system from freezing.
 - 3. Utilize City water pressure.

3.5 ELECTRICAL POWER

- A. After start of work at project site, when requested by the Construction Manager, the Electrical Contractor shall provide a temporary electrical power distribution system sufficient to accommodate temporary lighting and construction operations, including the use of power tools, and start-up of specified building equipment which must be tested, started or placed into use prior to completion of its permanent power connections. Provide weatherproof, grounded wiring with overload protection; with direct wired connections, where feasible, and for voltages up to 220/208 volts. Locate multiple outlets for 120 volt power, not less than 4 gang, at each story of construction, spaced so that the entire area of construction can be reached by power tools on a single extension cord of 100' maximum length. Maximum 20 Amp circuit breaker, four (4) receptacles per circuit breaker.
- B. The Electrical Trade Contractor shall provide and pay for all maintenance, servicing, operation, and supervision of lines installed.
- C. Provide service with ground fault circuit interrupter feature, as per NEC and OSHA requirements. The Electrical Trade Contractor shall have a cord inspection program in place. He shall maintain the inspection records on site.
- D. As permanent power distribution system is accepted as substantially complete, either entire system or usable portions thereof, the Electrical Trade Contractor shall make suitable provisions for temporary use thereof, and remove unused portions of temporary system.
- E. If required, provide meters for electrical power.
- F. When temporary electrical lines are no longer required, they shall be removed by the Electrical Trade Contractor and any part, or parts, of the grounds or buildings disturbed or damaged shall be brought back to their original condition.
- G. Electricity from existing lines may be used at no charge to the Trade Contractor, except for heating units, temporary offices, or storage. Each trade shall provide extension cords from the existing facilities, as required, for the execution of the Work. Electrical power for

welding equipment will not be available.

- H. The Electrical Trade Contractor shall maintain and operate permanent electrical supply and distribution system until time of final acceptance and transfer of operation to Owner's personnel.
- I. The Electrical Trade Contractor shall install switching controls for all lighting which will enable turning off temporary lighting during off-construction hours. The Electrical Trade Contractor shall provide manpower to control light switching and be responsible for it.
- J. Temporary power supplies to the Construction Manager's Office Conference/Office Complex shall be installed with service connection by the Electrical Trade Contractor.
- K. The Electrical Trade Contractor will provide power for oil or gas fired temporary heaters, if required by the Construction Manager. It will be connected so that it can remain "live" when the lighting has been turned off.
- L. The Electrical Trade Contractor will provide 24-hour temporary power to any heat tape (installed by others) on temporary water and/or fire line. All temporary heat work will comply with existing OSHA requirements.
- M. Construction circuits shall be separate and independent from temporary lighting.
- N. The Electrical Trade Contractor will extend a temporary electrical service and provide a termination box in the Trade Contractor's office trailer area for hook-up of the Trade Contractor's trailers. Cost for individual Trade Contractor trailer hook-up will be born by the Trade Contractor requiring this service. Use of electric heaters in those trailers and shanties will not be permitted.

3.6 LIGHTING

- A. Whenever overhead floor or roof deck has been installed, the Electrical Trade Contractor shall provide temporary lighting with local switching.
The Electrical Trade Contractor shall provide sufficient temporary lighting to ensure proper workmanship everywhere; by combined use of daylight and general lighting as stated below:
 - 1. Provide uniformly spaced general lighting utilizing one (1) 150 watt incandescent lamp equivalent to 1.0 watts/sq. ft. of floor areas, and one (1) 100 watt lamp per 50' of corridor or per flight of stairs. General lighting to have a minimum of 5' candles measured at floor level.
 - 2. Limit lighting installations to intensities which will accommodate normal access and workmanship requirements, recognizing that each entity performing work requiring higher intensity lighting will provide supplementary plug in temporary lighting and localized areas where such work is in progress.
 - 3. As permanent lighting system is substantially complete for each story or usable portion thereof, the Electrical Trade Contractor shall make suitable provisions for temporary use thereof and remove unused portions of temporary lighting system.

4. The Electrical Trade Contractor shall maintain and operate permanent lighting system until time of final acceptance and transfer of operation to Owner's personnel, including turning off lighting during off-construction hours.
5. The Electrical Trade Contractor shall replace bulbs that are burned out or substantially dimmed by substantial hours of use.
6. Special lighting required for construction activities shall be provided by contractor requiring it.
7. The Electrical Trade Contractor shall provide safety lighting in the stairways, hallways, and exterior security lighting on a 24-hour basis.
8. Furnish and install dusk to dawn type security lights on poles as shown on the site construction staging plan.
9. If more lighting is necessary to install finishes, drywall, painting, etc., the contractor needing the extra lighting will provide.

3.7 TELEPHONES

- A. The Construction Manager shall be responsible to provide telephone service to a demarcation point in the Trade Contractor office trailer area. Temporary phone service must support 10 office trailers that require phone and/or fax service. Cost for individual hook ups, telephones, and use fees, shall be the responsibility of each Trade Contractor.
- B. The Construction Manager shall make arrangements for one (1) public telephone to be installed on the site and include monthly service cost for the duration of the project.

3.8 SANITARY FACILITIES

- A. The Construction Manager shall provide temporary toilets. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.

Provide toilet tissue for each facility.
- B. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted. Provide means of locking facilities when construction is not in progress.

Provide one unit for use of Construction Manager's office/conference meeting complex.
- C. Drinking Water Facilities: Each trade contractor shall provide drinking water for its own personnel.

3.9 STORM SEWERS

- A. If storm sewers are available, the Sitework Trade Contractor shall provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available,

or cannot be used, the Sitework Trade Contractor shall provide drainage ditches, dry wells, stabilization ponds and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off the site in a lawful manner.

- B. Filter out excessive amounts of soil, construction debris, chemicals, oils and similar contaminants that might clog sewers or pollute waterways before discharge.
- C. Comply with the soil erosion and sedimentation control plan and local authorities having jurisdiction.

3.10 DEWATERING FACILITIES

- A. For temporary drainage and dewatering facilities, and operations not directly associated with construction activities included under individual Sections, comply with dewatering requirements of applicable Division-2 Sections. Where feasible, utilize the same facilities. The Sitework Trade Contractor shall be responsible to maintain the site, excavations and construction free of water.
- B. In the event that storm drain piping is not completed when needed for roof drain tie in, then the Plumbing Trade Contractor shall provide temporary storm water drainage from the building, and the Sitework Trade Contractor shall control roof drainage from building onto the site.
- C. Sitework Trade Contractor shall be responsible to drain or pump water and remove debris from the site so as not to delay his continuous work or progress. This shall include operating pumps during second shift in order to facilitate next-day continuation of work.
- D. Sitework Trade Contractor shall excavate in a manner that prevents all surface water from flowing into the building area. Sitework Trade Contractor shall be responsible to remove any runoff water or debris which enters the building area.
- E. Sitework Trade Contractor shall continue to drain site and remove debris until designed grades are obtained.
- F. Once building excavation grades are complete, the Concrete Work Contractor shall be responsible to remove all water and debris to install and backfill the building foundations.
- G. Upon completion of building foundations, each Trade Contractor shall be responsible to remove water and debris required to complete his work.

3.11 HEATING AND VENTILATION

- A. Temporary heating shall be provided and maintained by the Trade Contractor performing the work if the outside temperature falls below 40E F at anytime during the day or night for all exterior work or work performed prior to the building being enclosed by walls and roof.
- B. The Trade Contractor shall furnish temporary heat by acceptable means to provide sufficient heat to maintain a temperature of 55E F, 24 hours a day throughout the entire area of the work for which the Trade Contractor is responsible prior to the building being enclosed by

walls and roof.

- C. Except where use of the permanent system is authorized, provide vented, self-contained LP gas or fuel oil heaters with individual space thermostatic control. Use of gasoline-burning space heaters, open flame, or salamander type heating units is prohibited. Temporary heating may not be provided using electrical heating equipment if using electrical power supplied by the Owner.
- D. As soon as the building, or portions thereof, is generally enclosed with walls and roof and temporary heat is required for scheduled work, or required to facilitate proper workmanship, and permanent heating system is not yet operable or authorized for use, the HVAC Contractor shall arrange and provide temporary heat service for every entity authorized to do work at the project site. The HVAC Contractor shall maintain temperatures as indicated by other Specification Sections for each type of work to be performed. The Construction Manager shall be the sole arbiter of when the building is considered generally enclosed.
- E. Refer to paragraph 3.14 in section 01500 for responsibilities to install, maintain, and remove temporary enclosure of windows and doors until the permanent materials are in place.
- F. After the conditions of construction require continuous 24 hour heat in the building, the HVAC Contractor shall provide, operate, and maintain temporary radiation or unit heaters to provide required temperatures (minimum 55E F) for the conduct of work. This service shall be continued until the permanent heating system has been completely installed and is in operation. The HVAC Contractor shall furnish and pay for all fuel as required for providing temporary heat after the building is generally enclosed.
- G. As permanent heating/cooling system is substantially complete and operational for each story or usable portion thereof, the HVAC Trade Contractor shall make suitable provisions for use thereof in temporary heating and cooling. The HVAC Trade Contractor shall maintain and operate permanent system for temporary heating/cooling purposes, including service to occupied areas, if any, until time of final acceptance or transfer of operation to Owner's personnel, for major parts of system if not for entire heating system and air conditioning. The Owner shall pay for all fuel costs incurred by the permanent HVAC systems after acceptance of systems.
- H. Warranty: The warranty as required by the contract specifications will not begin until final acceptance of the system has been given by the architect for all or part of a system. The warranty period does not start with the use of the equipment for temporary heating and cooling.
- I. All permanent heating and air conditioning equipment used to supply temporary heat and air conditioning shall be completely cleaned and reconditioned by the HVAC Trade Contractor prior to final acceptance. Radiator traps and valves used in the heating system during the period of its operation to supply temporary heat shall not be reinstalled in the permanent system. Install new disposable filters and clean non-disposable filters prior to final acceptance. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
- J. PARAGRAPH OMITTED
- K. Temporary Ventilation: A Trade Contractor requiring ventilation for work shall provide fans

or other necessary equipment to condition air, provided prior approval has been obtained from the Construction Manager.

- L. Humidification: Where control of ambient humidity is required for proper performance of the work, or for curing/drying of installed work or for protection of installed work from deterioration due to variations in ambient conditions, each Trade Contractor shall provide his own temporary humidification or dehumidification equipment to maintain the required conditions. Coordinate the use of the equipment with temporary heating to produce the required conditions with a minimum overall use of energy.
- M. Permanent electrical power needed to operate permanent heating system must be provided by the Electrical Trade Contractor in conjunction with building enclosure, or the Electrical Trade Contractor shall furnish adequate temporary power to operate permanent heating system.
- N. In the event of permanent installed equipment failure, repairs or alternate equipment must be in place within 24 hours of failure or the Construction Manager will take action necessary to restore the heat to the design temperature and will deduct any and all charges from the HVAC Contractor.
- O. If additional heating above 55 degrees F or cooling below 80 degrees F is required by a Contractor to properly install and maintain his work, he shall be responsible to provide the additional heating and cooling.
- P. Connections for temporary electric to the temporary heat will be provided by the Electrical Contractor.

3.12 FIELD OFFICES

- A. Trade Contractors shall provide offices for their own personnel. All type and location of jobsite offices and equipment will be approved by the Construction Manager.
- B. Storage and Fabrication Sheds: Each Trade Contractor shall provide storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces. All steps and platforms connected to shelters must be per OSHA regulations.
- C. All offices and sheds must have the Trade Contractor's identification on them.

3.13 ROADS AND PARKING

- A. Sitework Trade Contractor shall construct and maintain temporary roads, construction parking and paving to adequately support the indicated loading and to withstand exposure to traffic during the construction period, in conjunction with the site logistics plan bound into this specification. Locate temporary paving for roads, storage areas and parking where the same permanent facilities will be located.
- B. Sitework Trade Contractor shall be responsible for providing stable parking area for all

construction personnel on the jobsite by use of crushed stone/binder paving, including permanent parking areas.

- C. The Sitework Trade Contractor shall maintain truck tire wash facility at the construction entrance.
- D. Snow removal will be performed by the Sitework Contractor.

3.14 ENCLOSURES

- A. All temporary enclosures required for protection of exterior construction in progress and completed from exposure, bad weather, other construction operations, and similar activities and to maintain the progress schedule, shall be provided by each contractor as necessary to protect their work.
- B. General Trades Contractor shall provide temporary building enclosure for protection of construction in progress, and completed, from exposure, foul weather, other construction operations, and similar activities. The extent of temporary enclosures will be as necessary to maintain the progress schedule.
- C. Where heat is needed and the permanent building enclosure is not complete, the General Trades Contractor shall provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

The Aluminum, Storefront, Windows, Canopies, Glass and Glazing Trade Contractor shall be responsible to remove the temporary entrance enclosures and install the permanent entrances or reinstall parts of the temporary enclosures in such a manner that the building security is maintained at the end of each workday shift.

The Aluminum, Storefront, Windows, Canopies, Glass and Glazing Trade Contractor shall be responsible to provide temporary window enclosures, in the event that aluminum window rough openings are fully prepared to receive finish window installation and the finish materials are not ready for prompt installation to maintain the construction schedule.

The General Trade Contractor shall furnish and install temporary entrance doors and maintain them until such time the permanent entrances are installed.

- D. Install tarpaulins securely with noncombustible wood framing and other materials. Close openings of 25 sq. ft. or less with plywood or similar materials.
- E. Dust partitions and enclosures if indicated on the drawings shall be constructed, maintained, and removed by the General Trades Contractor.
- F. Each Trade Contractor is required to construct, maintain, and remove dust partitions required to prevent dust from entering occupied areas due to the performance of his work.

3.15 LIFTS AND HOISTS

- A. Lifting and hoisting of all materials and equipment will be the responsibility of each Trade Contractor.
- B. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and shall be provided by contractor requiring same.
- C. Each Trade Contractor shall be responsible to provide all site and subsurface modification preparation and replacement required to use his lifting and hoisting equipment.

3.16 ELEVATORS

- A. Existing Elevator to be demolished.

3.17 PROJECT IDENTIFICATION

- A. The Construction Manager shall prepare project identification and other signs, as approved by the Owner, of the size indicated; install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative treated wood or steel. See attached sketches at end of this section.
- B. The Construction Manager shall provide one (1) sign erected on the site, where directed, to identify the project. Sign shall include Project name, Owner's name, Architect's name, and Construction Manager's name. Size shall be 4' x 8'; color and lettering style shall be as designed by the Architect.
See attached sketches at end of this section.
- C. Engage an experienced sign painter to apply graphics.
- D. Temporary Signs: The Construction Manager shall prepare signs to provide directional information to construction personnel and visitors as required by the Construction Manager.
See attached sketches at end of this section.
- E. No other signs allowed on site unless approved by the Construction Manager.

3.18 WASTE DISPOSAL AND CLEANUP

- A. The construction manager shall provide trash collection containers for construction debris, exclusive of roofing tear off debris, rock, earth, site work demolition waste, masonry and concrete debris and pay for all debris disposal cost for them. Each trade contractor on the project will be required to clean up and deposit in the dumpster, all debris generated by his trade contract work on a daily basis. Roofing contractor, Site work contractor, Masonry contractor and Concrete contractor must pay their own solid waste removal costs. All other contractors will be provided with collection containers for their use at no cost to the contractor.

This requirement shall be enforced by the Construction Manager and will result in cost assessment against a Trade Contractor who fails to perform daily clean-up within 48 hours of verbal or written notice from the Construction Manager. Each Trade Contractor will be responsible for flattening or crushing all trash as necessary when placed into the dumpster.

Hazardous material shall not be placed in the collection container.

- B. Contractors may be required to place salvageable and recyclable materials and debris in separate designated dumpsters or dispose of properly for their own salvage value.
- C. All Contractors are to participate in a monthly eight (8) hour general clean up which will be coordinated by the Construction Manager. Each Contractor shall provide a minimum of one (1) clean-up person for every 15 or less people on the Contractor's average work force for the month with the appropriate brooms, shovels, and wheel barrows. Clean up will be supervised by the Construction Manager.
- D. The Trades Contractors shall be responsible for weekly broom cleaning of all floor surfaces, for dust, dirt and general trash.
- E. The Construction Manger will be responsible for providing trash receptacles, "55 gallon capacity". Emptying them with weekly cleanup or when filled to capacity, shall be done by the Contractors performing the work in that area.
- F. The General Trades Contractor shall determine with the Construction Manager, a location for an enclosed trash chute to control dust for debris from second floor levels to the dumpster container. General Trades Contractor shall also erect a dimensional lumber guard railing around the trash chute to prevent jobsite personnel from exposure to falling debris.

3.19 CONSTRUCTION AIDS AND PROTECTION

- A. The General Trades Contractor shall provide wood handrails and barricades on all stairs and landings, according to OSHA regulations. Provide barricades at all elevator shafts.
- B. The Steel Work Trades Contractor shall furnish, install and remove at completion, all perimeter guard rails for elevated concrete slabs.
- C. The General Trades Contractor shall install safety coverings, handrail around all recessed areas and openings on all floors. Building perimeters, roof, wall, or shaft openings shall have perimeter protection as required by OSHA. This work shall comply with all OSHA requirements and remain in place until permanent construction fills those openings.
- D. The Roofing Trades Contractor shall install roof edge perimeter protections and guard rails or coverings, at all roof openings.
- E. Each Trade Contractor, upon working in any of the areas named in the above paragraph, shall remove the safety covering and handrail to perform his work. Upon completion of his work for the day, lunch, or breaks, or any time when the individual Trade Contractor is not working in that opening, the safety covering and handrail must be replaced by the Trade Contractor removing it. At the end of each day, the General Trades Contractor will inspect the site and install all safety coverings and handrails. He shall report to the Construction Manager if coverings and handrails are not being reinstalled by other contractors.

At the end of the project, or in order to install permanent construction, the General Trades Contractor shall remove all coverings and handrails.

- F. The Trade Contractors requiring access to above grade work are responsible for providing ladders, scaffolding and appropriate methods to access their work. Trade Contractor desiring use of in place above grade work platforms must arrange directly with the party that owns the equipment and make all rental and insurance arrangements directly with that party.
- G. All work platforms, scaffolding, etc., on the project shall be available for access by the Owner, Architect, Municipal Authority, Testing Agency and/or Construction Manager.

3.20 FIRE SAFETY

- A. Existing fire protection shall be maintained in place until permanent sprinklered fire protection system is available for use. The Sprinkler System Trades Contractor shall provide the permanent sprinkler fire protection system for use at the earliest possible date after building enclosure and 55° F temperatures are maintained to protect the building structure.
- B. The Construction Manager shall provide fire extinguishers, as required by OSHA standards or other codes.
- C. Each Contractor shall store combustible materials in containers in fire-safe locations.
- D. Each Contractor shall maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
- E. Each Contractor shall provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
- F. The Construction Manager shall provide the local fire company with a set of site and floor plans. He shall invite the local fire company to visit the project site and plan emergency response.

3.21 BARRICADES, WARNING SIGNS, AND LIGHTS

- A. All trade contractors requiring barricades, warning signs and lights shall comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against.

3.22 SITE ENCLOSURE FENCE

- A. The Construction Manager shall perform all temporary fencing work as indicated on the site logistics drawing. This work shall be done immediately upon mobilizing for Work at the beginning of the Project.
- B. The Sitework Contractor shall maintain permanent chain link fencing and fabric fencing throughout the duration of the Project, particularly maintaining security function of gate devices.

3.23 BUILDING SECURITY, ENCLOSURE, AND LOCKUP

- A. The General Trades Contractor shall install substantial temporary enclosure of partially completed areas of construction. Provide and maintain locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.
- B. Each Trade Contractor is responsible for the secure storage of their own material and equipment on and off the site.

3.24 ENVIRONMENTAL PROTECTION, NPDES, AND PPC

- A. To the fullest extent permitted by law, the Trade Contractor shall indemnify and hold harmless the Owner and Construction Manager, their employees and agents, from claims, losses, damage, and expenses including, but not limited to, attorney's fees arising out of performance of the work as it relates to any type of pollution related situations. This would apply to bodily injury, sickness, disease or death, or to damages or destruction or contamination of tangible property arising out of the acts or omission of the Trade Contractor or the joint negligent acts of the Owner or Construction Manager, or anyone for whose acts the Trade Contractor may be liable.
- B. Each Trade Contractor, prior to construction, must comply with the National Pollution Discharge Elimination System (NPDES) and submit and State and Local Preparedness, Prevention and Contingency Plans (PPC) to the Construction Manager before the start of work.

Each Trade Contractor must construct, operate and maintain storage of materials to provide protection for each individual worker, as well as the protection of property or real estate of the construction site and environment.

- C. Each Trade Contractor shall provide protection, operate temporary facilities, and conduct construction in ways and methods that comply with all environmental regulations, and minimize the possibility that air, water, and soil from becoming contaminated or polluted as a result of work or storage of supplies and materials, or equipment usage.
- D. Each Trade Contractor will designate and train a responsible employee in environmental contamination procedures, including, but not limited to, emergency responses, material and waste inventories, spills and leak precautions and responses, inspections, housekeeping, security, and external factors.
- E. Open burning will not be permitted.

3.25 WORKDAY

- A. The workdays for the project are defined as 7:00 a.m. to 3:30 p.m., Monday through Friday, with lunch period from 12:00B12:30 p.m. The progress schedule may require contractors to perform work other than the normal workday and in addition to the normal workday to meet milestones in the progress schedule for the project, or to make up time previously lost to regain the progress schedule requirements or to prevent interruption of the Owner's ongoing operations at no additional cost to the Owner.
- B. Working times other than the normal workday or in addition to the normal work day, must

be arranged in advance with the Construction Manager.

- C. Trade Contractors who require additional workday hours to regain work time previously lost to meet the requirements of the project schedule shall be assessed for all costs including Construction Manager Supervision and other Trade Contractor cost necessary for the performance of their work.

3.26 LUNCH WAGON

- A. Lunch wagons, catered events or other non-construction related functions shall not be permitted on the project site, except by the written permission of the Owner and Construction Manager.
- B. No alcoholic beverages or controlled substances shall be allowed on the project at any time.

3.27 EROSION CONTROL

- A. The Sitework Trade Contractor shall employ all methods required to comply with local regulatory authorities requirements to control erosion from the project site, including drainage control ditches, sediment basins, straw bale dikes, silt fencing and whatever procedure necessary to comply with requirements.
- B. The Sitework Trade Contractor shall maintain these controls throughout the duration of the project.

3.28 EXCAVATION

- A. Any Trade Contractor performing excavation shall protect all excavated materials from moisture, freezing and drying, so that the same materials excavated can be utilized for backfill.
- B. Any Trade Contractor performing excavation shall have an OSHA trained person on site during all excavation operations. This person shall evaluate soil types and conditions to determine the required shoring and excavation methods.

3.29 BLASTING

- A. Blasting is not permitted.

3.30 MATERIAL INVENTORIES

- A. Contractors shall coordinate the delivery and storage on the jobsite of all significant materials.
- B. Each Trade Contractor shall be responsible for the proper location, secure, and weather resistant storage as required of all materials. This includes placement of materials not to obstruct passage on site or within building structures or in any way which causes impediment or obstruction to other Trade Contractors.
- C. All material inventories must be stored by the Trade Contractor to avoid excessive loads on

building structure.

- D. When directed by the Construction Manager, a Trade Contractor shall remove or relocate material inventories as required for the progress of the project.

3.31 DELIVERIES

- A. All contractors are required to properly instruct material suppliers and vendors to address deliveries to them specifically by named responsible party at the jobsite and require advance notice.
- B. All deliveries addressed to the project in general, the Owner, Architect or Construction Manager, will be refused and returned to shipper.
- C. The Owner will not be responsible for receipt, handling, or loss of any materials which are shipped to the Owner in error and received unknowing of relationship to the project.
- D. Contractor receiving materials at the jobsite shall be responsible for prevention of any mud or other deposits on public roadways or other areas outside project limit lines, which may result due to methods of material delivery. Trade Contractor shall instruct delivery conveyor to take appropriate measures to prevent depositing mud or other construction deposits outside of contract limit lines. Total responsibility of cleanup of mud or other construction deposit outside of contract limit lines will be the responsibility of the Trade Contractor receiving the delivery.
- E. Each Contractor shall provide his superintendent with a telephone pager to enable locating the superintendent on and off site.

3.32 OPERATION, TERMINATION AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.
 - 2. Protection: Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Termination and Removal: Unless the Construction Manager requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or not later than Substantial Completion. Complete or, if necessary restore, permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of the Trade Contractor. The Owner reserves the right to take possession of Project identification signs.
2. The Sitework Trade Contractor shall remove temporary paving that is not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt, and other petrochemical compounds, and other substances which might impair growth of plant materials or lawns. Repair or replace street paving, curbs and sidewalks at the temporary entrances, as required by the governing authority.

3.33 SNOW REMOVAL

- A. Snow removal for roads, building exterior, contractor parking, contractor office, staging, and Construction Manager's office area access will be performed by the Sitework Contractor.
- B. The General Trades Contractor shall be responsible for snow removal from within the building, maintaining safe walkway, stair traffic areas and building corridors, using anti-skid methods for snow, mud and/or ice removal, to provide safe usage.
- C. All snow and ice removal required to perform contractor specific tasks on floors, roof, work stages, etc., shall be performed by each Contractor.

END OF SECTION 015000

SECTION 016000 - MATERIALS AND EQUIPMENT PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing the Contractor's selection of products for use in the Project.

1. Multiple Prime Contracts: Provisions of this Section apply to the construction activities of each prime contractor.

- B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 1 Section "Reference Standards and Definitions" specifies the applicability of industry standards to products specified.
2. Division 1 Section "Submittals" specifies requirements for submittal of the Contractor's Construction Schedule and the Submittal Schedule.
3. Division 1 Section "Substitutions" specifies administrative procedures for handling requests for substitutions made after award of the Contract.

1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.

1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

- a. "Named Products" are items identified by the manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature, which is current as of the date of the Contract Documents.

- b. "Foreign Products," as distinguished from "domestic products," are items substantially manufactured (50 percent or more of value) outside the United States and its possessions. Products produced or supplied by entities substantially owned (more than 50 percent) by persons who are not citizens of, nor living within, the United States and its possessions are also considered to be foreign products.

2. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

1.4 SUBMITTALS

- A. Product List: A list of products required is included at the end of this Section. Prepare a schedule in tabular form showing each product listed. Include the manufacturer's name and proprietary product names for each item listed.
- B. Product List: Prepare a list showing products specified in tabular form acceptable to the Architect. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.
 1. Coordinate product list with the Contractor's Construction Schedule and the Schedule of Submittals.
 2. Form: Prepare product list with information on each item tabulated under the following column headings:
 - a. Related Specification Section number.
 - b. Generic name used in Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date or time span of delivery period.
 3. Initial Submittal: Within 30 days after date of commencement of the Work, submit 3 copies of an initial product list. Provide a written explanation for omissions of data and for known variations from Contract requirements.
 - a. At the Contractor's option, the initial submittal may be limited to product selections and designations that must be established early in the Contract period.
 4. Completed List: Within 60 days after date of commencement of the Work, submit 3 copies of the completed product list. Provide a written explanation for omissions of data and for known variations from Contract requirements.
 5. Architect's Action: The Architect will respond in writing to Contractor within 2 weeks of receipt of the completed product list. No response within this period constitutes no objection to listed manufacturers or products but does not constitute a waiver of the requirement that products comply with Contract Documents. The Architect's response will include a list of unacceptable product selections, containing a brief explanation of reasons for this action.

1.5 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.
1. When specified products are available only from sources that do not, or cannot, produce a quantity adequate to complete project requirements in a timely manner, consult with the Architect to determine the most important product qualities before proceeding. Qualities may include attributes, such as visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources producing products that possess these qualities, to the fullest extent possible.
- B. Compatibility of Options: When the Contractor is given the option of selecting between 2 or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.
1. Each prime contractor is responsible for providing products and construction methods that are compatible with products and construction methods of other prime or separate contractors.
 2. If a dispute arises between prime contractors over concurrently selectable, but incompatible products, the Architect will determine which products shall be retained and which are incompatible and must be replaced.
- C. Foreign Product Limitations: Except under one or more of the following conditions, provide domestic products, not foreign products, for inclusion in the Work:
1. No available domestic product complies with the Contract Documents.
 2. Domestic products that comply with the Contract Documents are available only at prices or terms substantially higher than foreign products that comply with the Contract Documents.
- D. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products that will be exposed to view in occupied spaces or on the exterior.
1. Labels: Locate required product labels and stamps on concealed surfaces or, where required for observation after installation, on accessible surfaces that are not conspicuous.
 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
 6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
 7. Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.
1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.
 2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Product Selection Procedures: The Contract Documents and governing regulations govern product selection. Procedures governing product selection include the following:
1. Proprietary Specification Requirements: Where Specifications name only a single product or manufacturer, provide the product indicated. No substitutions will be permitted.
 2. Semi proprietary Specification Requirements: Where Specifications name 2 or more products or manufacturers, provide 1 of the products indicated. No substitutions will be permitted.
 - a. Where Specifications specify products or manufacturers by name, accompanied by the term "or equal" or "or approved equal," comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
 3. Nonproprietary Specifications: When Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.

4. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
5. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by the manufacturer for the application indicated.
 - a. Manufacturer's recommendations may be contained in published product literature or by the manufacturer's certification of performance.
6. Compliance with Standards, Codes, and Regulations: Where Specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.
7. Visual Matching: Where Specifications require matching an established Sample, the Architect's decision will be final on whether a proposed product matches satisfactorily.
 - a. Where no product available within the specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents concerning "substitutions" for selection of a matching product in another product category.
8. Visual Selection: Where specified product requirements include the phrase "... as selected from manufacturer's standard colors, patterns, textures ..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern, and texture from the product line selected.
9. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 1 for allowances that control product selection and for procedures required for processing such selections.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
 1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 016000

SECTION 017000 – CONTRACT CLOSEOUT

1.1 RELATED SECTIONS

- A. General and Supplementary Conditions.
- B. Section 013300 - Submittal Procedures for closeout documents submittals.
- C. Section 015000 - Construction Facilities and Temporary Controls: Progress cleaning.
- D. Section 017500 - Starting of Systems: System start-up, testing, adjusting, and balancing.

1.2 CLOSEOUT PROCEDURES

- A. Completion of the Work specified herein is a condition precedent to issuance of the Final Certificate of Payment by Construction Manager and Architect.
- B. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect review.
- C. Provide submittals to Architect through Construction Manager that is required by governing or other authorities.
- D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- E. Owner will occupy portions of the site as specified in Section 013100.

1.3 HAZARDOUS-FREE MATERIALS CERTIFICATION

- A. Upon completion of this project, the Contractor shall deliver to the Architect three (3) copies of a notarized letter addressed to the Owner certifying that to the best of the Contractor's knowledge all products provided by them for incorporation into this project do not contain any hazardous materials exceeding current EPA guidelines.
- B. It is the responsibility of the Contractor to review "Manufacturer's Safety Data Sheets" (MSDS) on all products to ascertain compliance with EPA guidelines prior to shop drawing submission to the Architect. Incorporation of products into the project without the submission of shop drawings or samples to the Architect will indicate that the Contractor has ascertained that the products meet EPA limits.
- C. It is the responsibility of the Contractor to notify the Architect in writing of the lack of compliance of a product with EPA guidelines prior to ordering or incorporating any products into this project.

1.4 OPERATION AND MAINTENANCE DATA

- A. Submit data on 8-1/2 x 11 inch text pages, bound in three D side ring binders with durable plastic covers.
- B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE

INSTRUCTIONS" and title of Project.

- C. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, typed on white paper, in three parts as follows:
 - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers. Include for all mechanical and electrical equipment a compilation of the nameplate data for equipment; name, address and phone number of nearest distributor; name, address and phone number of nearest service organization.
 - 2. Part 2: Operation and maintenance instructions arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents. Include videotapes of training sessions.
 - g. (1) 8x10 photograph of each piece of equipment.
 - h. Name and telephone number of service representative.
 - i. Test results/reports.
 - j. Certified performance curves.
 - k. Re-order information.
 - l. Catalog, model, serial number.
 - m. Wiring diagrams.
 - n. Assembly drawings.
 - o. Schedule
 - p. Charts
 - q. Nameplate data.
 - 3. Part 3: Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Photocopies of warranties and bonds.
- E. Submit 1 draft copy of completed volumes 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect/Engineer comments. Revise content of all document sets as required prior to final submission.

- F. Submit three copies of revised final volumes, within 10 days after final inspection.

1.5 WARRANTIES

- A. Provide triplicate notarized copies.
- B. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.
- C. Provide Table of Contents and assemble in three D side ring binder with durable plastic cover.
- D. Submit prior to final Application for Payment.
- E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

1.6 FINAL SUBMISSIONS

- A. Submit Consent of Surety to Final Payment.
- B. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- C. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and the list has been endorsed and dated by the Architect.
- D. Affidavit of payment of all claims against the work.

1.7 PROJECT RECORD DOCUMENTS

- A. Trade contractors shall maintain on site, one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Construction Manager and Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.

- E. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
 - F. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish floor.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract Drawings.
 - G. Remove Architect seal from all documents.
 - H. Submit documents to Architect with final Application for Payment.
 - I. Submit a final liquidated damages settlement statement.
- 1.8 SPARE PARTS AND MAINTENANCE MATERIALS
- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification sections.
 - B. Deliver to Project site and place in location as directed extra materials and parts as indicated within the respective specification sections; obtain receipt from Owner upon delivery and placement and prior to final payment.

END OF SECTION 017000

SECTION 01 73 29 – CUTTING & PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
 - 1. Divisions 02 through 07 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety. Operating elements include the following: List below is an example only. Revise to suit Project's operating systems. With advice of counsel, delete below if Architect's approval is not required. If list is deleted, delete option in paragraph above.
 - 1. Fire-suppression systems.
 - 2. Mechanical systems piping and ducts.
 - 3. Control systems.
 - 4. Communication systems.
 - 5. Conveying systems.
 - 6. Electrical wiring systems.

- C. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- D. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
 - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

- D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

- 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

- 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
- 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
- 3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
- 4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
- 5. Proceed with patching after construction operations requiring cutting are complete.

- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

- 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
- 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
- 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

- a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 01 73 29

SECTION 01 74 19 – CONSTRUCTION WASTE MANAGEMENT

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes: Administrative and procedural requirements for construction waste management activities.

1.2 DEFINITIONS

- A. Construction, Demolition, and Land clearing (CDL) Waste: Includes all non-hazardous solid wastes resulting from construction, remodeling, alterations, repair, demolition and land clearing. Includes material that is recycled, reused, salvaged or disposed as garbage.
- B. Salvage: Recovery of materials for on-site reuse, sale or donation to a third party.
- C. Reuse: Making use of a material without altering its form. Materials can be reused on-site or reused on other projects off-site. Examples include, but are not limited to the following: Crushing or grinding of concrete for use as sub-base material. Chipping of land clearing debris for use as mulch.
- D. Recycling: The process of sorting, cleaning, treating, and reconstituting materials for the purpose of using the material in the manufacture of a new product.
- E. Source-Separated CDL Recycling: The process of separating recyclable materials in separate containers as they are generated on the job-site. The separated materials are hauled directly to a recycling facility or transfer station.
- F. Co-mingled CDL Recycling: The process of collecting mixed recyclable materials in one container on-site. The container is taken to a material recovery facility where materials are separated for recycling.
- G. Approved Recycling Facility: Any of the following:
 - 1. A facility that can legally accept CDL waste materials for the purpose of processing the materials into an altered form for the manufacture of a new product.
 - 2. Material Recovery Facility: A general term used to describe a waste-sorting facility. Mechanical, hand-separation, or a combination of both procedures, are used to recover recyclable materials.

1.3 SUBMITTALS

- A. Contractor shall develop a Waste Management Plan: Submit 3 copies of plan within 14 days of date established for the **Notice to Proceed**.
- B. Contractor shall provide Waste Management Report: Concurrent with each Application for Payment, submit **3** copies of report.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Divert a minimum of **75%** CDL waste, by weight, from the landfill by one, or a combination of the following activities:
 - 1. Salvage
 - 2. Reuse
 - 3. Source-Separated CDL Recycling
 - 4. Co-mingled CDL Recycling

- B. CDL waste materials that can be salvaged, reused or recycled include, but are not limited to, the following:
 - 1. Acoustical ceiling tiles
 - 2. Asphalt
 - 3. Asphalt shingles
 - 4. Cardboard packaging
 - 5. Carpet and carpet pad
 - 6. Concrete
 - 7. Drywall
 - 8. Fluorescent lights and ballasts
 - 9. Land clearing debris (vegetation, stumpage, dirt)
 - 10. Metals
 - 11. Paint (through hazardous waste outlets)
 - 12. Wood
 - 13. Plastic film (sheeting, shrink wrap, packaging)
 - 14. Window glass
 - 15. Wood
 - 16. Field office waste, including office paper, aluminum cans, glass, plastic, and office cardboard.

1.4 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements, that employs a LEED Accredited Professional, certified by the USGBC as waste management coordinator.

- B. Regulatory Requirements: Conduct construction waste management activities in accordance with hauling and disposal regulations of all authorities having jurisdiction and all other applicable laws and ordinances.

- C. Preconstruction Conference: Schedule and conduct meeting at Project site prior to construction activities.
 - 1. Attendees: Inform the following individuals, whose presence is required, of date and time of meeting.
 - a. Owner
 - b. Architect

- c. Contractor's superintendent
 - d. Major subcontractors
 - e. Waste Management Coordinator
 - f. Other concerned parties.
 2. Agenda Items: Review methods and procedures related to waste management including, but not limited to, the following:
 - a. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
 - b. Review requirements for documenting quantities of each type of waste and its disposition.
 - c. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - d. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - e. Review waste management requirements for each trade.
 3. Minutes: Record discussion. Distribute meeting minutes to all participants.
Note: If there is a Project Architect, they will perform this role.
- 1.5 WASTE MANAGEMENT PLAN – Contactor shall develop and document the following:
 - A. Develop a plan to meet the requirements listed in this section at a minimum. Plan shall consist of waste identification, waste reduction plan and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate quantities by weight throughout the plan.
 - B. Indicate anticipated types and quantities of demolition, site-cleaning and construction waste generated by the project. List all assumptions made for the quantities estimates.
 - C. List each type of waste and whether it will be salvaged, recycled, or disposed of in an landfill. The plan should included the following information:
 1. Types and estimated quantities, by weight, of CDL waste expected to be generated during demolition and construction.
 2. Proposed methods for CDL waste salvage, reuse, recycling and disposal during demolition including, but not limited to, one or more of the following:
 - a. Contracting with a deconstruction specialist to salvage materials generated,
 - b. Selective salvage as part of demolition contractor's work,
 - c. Reuse of materials on-site or sale or donation to a third party.
 3. Proposed methods for salvage, reuse, recycling and disposal during construction including, but not limited to, one or more of the following:
 - a. Requiring subcontractors to take their CDL waste to a recycling facility;
 - b. Contracting with a recycling hauler to haul recyclable CDL waste to an approved recycling or material recovery facility;

- c. Processing and reusing materials on-site;
 - d. Self-hauling to a recycling or material recovery facility.
4. Name of recycling or material recovery facility receiving the CDL wastes.
 5. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on project site where materials separation will be located.
- D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:
1. Total quantity of waste.
 2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
 3. Total cost of disposal (with no waste management).
 4. Revenue from salvaged materials.
 5. Revenue from recycled materials.
 6. Savings in hauling and tipping fees by donating materials.
 7. Savings in hauling and tipping fees that are avoided.
 8. Handling and transportation costs. Including cost of collection containers for each type of waste.
 9. Net additional cost or net savings from waste management plan.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 CONSTRUCTION WASTE MANAGEMENT, GENERAL

- A. Provide containers for CDL waste that is to be recycled clearly labeled as such with a list of acceptable and unacceptable materials. The list of acceptable materials must be the same as the materials recycled at the receiving material recovery facility or recycling processor.
- B. The collection containers for recyclable CDL waste must contain no more than 10% non-recyclable material, by volume.
- C. Provide containers for CDL waste that is disposed in a landfill clearly labeled as such.
- D. Use detailed material estimates to reduce risk of unplanned and potentially wasteful cuts.
- E. To the greatest extent possible, include in material purchasing agreements a waste reduction provision requesting that materials and equipment be delivered in packaging made of recyclable material, that they reduce the amount of packaging, that packaging be taken back for reuse or recycling, and to take back all unused product. Insure that subcontractors require the same provisions in their purchase agreements.
- F. Conduct regular visual inspections of dumpsters and recycling bins to remove contaminants.

3.2 SOURCE SEPARATION

- A. General: Contractor shall separate recyclable materials from CDL waste to the maximum extent possible.

Separate recyclable materials by type.

1. Provide containers, clearly labeled, by type of separated materials or provide other storage method for managing recyclable materials until they are removed from Project site.
2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water and to minimize pest attraction. Cover to prevent windblown dust.
3. Stockpile materials away from demolition area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from weather.

3.3 CO-MINGLED RECYCLING

- A. General: Do not put CDL waste that will be disposed in a landfill into a co-mingled CDL waste recycling container.

REMOVAL OF CONSTRUCTION WASTE MATERIALS

- A. Remove CDL waste materials from project site on a regular basis. Do not allow CDL waste to accumulate on-site.
- B. Transport CDL waste materials off Owner's property and legally dispose of them.
- C. Burning of CDL waste is not permitted.

END OF SECTION

WASTE MANAGEMENT PROGRESS REPORT				
MATERIAL CATEGORY	DISPOSED IN MUNICIPAL SOLID WASTE LANDFILL	DIVERTED FROM LANDFILL BY RECYCLING, SALVAGE OR REUSE		
		Recycled	Salvaged	Reused
1. Acoustical Ceiling Tiles				
2. Asphalt				
3. Asphalt Shingles				
4. Cardboard Packaging				
5. Carpet and Carpet Pad				
6. Concrete				
7. Drywall				
8. Fluorescent Lights and Ballasts				
9. Land Clearing Debris (vegetation, stumpage, dirt)				
10. Metals				
11. Paint (through hazardous waste outlets)				
12. Wood				
13. Plastic Film (sheeting, shrink wrap, packaging)				
14. Window Glass				
15. Field Office Waste (office paper, aluminum cans, glass, plastic, and coffee cardboard)				
16. Other (insert description)				
17. Other (insert description)				
Total (In Weight)		(TOTAL OF ALL ABOVE VALUES – IN WEIGHT)		
		Percentage of Waste Diverted	(TOTAL WASTE DIVIDED BY TOTAL DIVERTED)	

SECTION 017500 - FACILITY STARTUP/COMMISSIONING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Starting systems.
- B. Demonstration and instructions.

1.2 RELATED SECTIONS

- A. General and Supplementary Conditions.
- B. Section 017000 - Contract Closeout: System operation and maintenance data and extra materials.

1.3 STARTING SYSTEMS

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Construction Manager, Architect/Engineer and Owner seven (7) days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or for other conditions which may cause damage.
- D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of applicable manufacturer=s representative and Contractors= personnel in accordance with manufacturers= instructions.
- G. When specified in individual Specification sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

1.4 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of Products to Owner=s personnel no more than two (2) weeks prior to date of Substantial Completion.
- B. Demonstrate Project equipment and instruct in a classroom environment located at site and instructed by a qualified manufacturers= representative who is knowledgeable about the Project.

- C. Contractor shall video tape the demonstration/instructions on format acceptable to Owner and provide two (2) copies of tape at Project closeout or at such time as directed by Construction Manager. Tape shall be clear in visual and audio recreation of demonstration and instructions. A professionally prepared training video produced by the manufacturer shall be an acceptable substitute to on-site video tape.
- D. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- E. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners= personnel in detail to explain all aspects of operation and maintenance.
- F. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment or designated location.
- G. Prepare and insert additional data in operations and maintenance manuals when needed for additional data becomes apparent during construction.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 017500

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Project Record Documents.
3. Operation and maintenance manuals.
4. Warranties.
5. Instruction of Owner's personnel.
6. Final cleaning.

- B. Related Sections include the following:

1. Division 1 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
2. Division 1 Section "Execution Requirements" for progress cleaning of Project site.
3. Divisions 2 through 33 Sections for specific closeout and special cleaning requirements for products of those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
6. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
7. Complete startup testing of systems.
8. Submit test/adjust/balance records.
9. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
10. Advise Owner of changeover in heat and other utilities.

11. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
12. Complete final cleaning requirements, including touchup painting.
13. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or on additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.

2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.
4. Include space for sign off and acceptance of each item.

1.6 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect and Owner's reference during normal working hours.
- B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.
 1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.
 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
 3. Mark important additional information that was either shown schematically or omitted from original Drawings.
 4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
 5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
- C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Note related Change Orders, Record Drawings, and Product Data, where applicable.
- D. Record Product Data: Submit one copy of each Product Data submittal. Mark one (1) set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, Record Drawings, and Record Specifications, where applicable.
- E. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.7 OPERATION AND MAINTENANCE MANUALS

- A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
1. Operation Data:
 - a. Emergency instructions and procedures.
 - b. System, subsystem, and equipment descriptions, including operating standards.
 - c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
 - d. Description of controls and sequence of operations.
 - e. Piping diagrams.
 2. Maintenance Data:
 - a. Manufacturer's information, including list of spare parts.
 - b. Name, address, and telephone number of Installer or supplier.
 - c. Maintenance procedures.
 - d. Maintenance and service schedules for preventive and routine maintenance.
 - e. Maintenance record forms.
 - f. Sources of spare parts and maintenance materials.
 - g. Copies of maintenance service agreements.
 - h. Copies of warranties and bonds.
- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

1.8 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (115-by-280-mm) paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Provide instructors experienced in operation and maintenance procedures.
 - 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
 - 3. Schedule training with Owner, through Architect, with at least seven days' advance notice.
 - 4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.

- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:

1. System design and operational philosophy.
2. Review of documentation.
3. Operations.
4. Adjustments.
5. Troubleshooting.
6. Maintenance.
7. Repair.

3.2 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances. Cut lawn and field areas.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.

- l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - n. Replace parts subject to unusual operating conditions.
 - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - s. Leave Project clean and ready for occupancy.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.
- D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

SECTION 017836 - WARRANTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.
 - 1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Submittals" specifies procedures for submitting warranties.
 - 2. Division 1 Section "Contract Closeout" specifies contract closeout procedures.
 - 3. Divisions 2 through 16 Sections for specific requirements for warranties on products and installations specified to be warranted.
 - 4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
- C. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.
- D. Separate Prime Contracts: Each prime contractor is responsible for warranties related to its own contract.

1.3 DEFINITIONS

- A. Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.4 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.

- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- D. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.
 - 1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
- E. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.5 SUBMITTALS

- A. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.
 - 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within 15 days of completion of that designated portion of the Work.
- B. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Architect, for approval prior to final execution.
- C. Forms for special warranties are included at the end of this Section. Prepare a written document utilizing the appropriate form, ready for execution by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Submit a draft to the Owner, through the Architect, for approval prior to final execution.
 - 1. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- D. Form of Submittal: At Final Completion compile 2 copies of each required warranty properly

executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

- E. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (115-by-280-mm) paper.
 - 1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.
 - 2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor.
 - 3. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 LIST OF WARRANTIES

- A. Schedule: Provide warranties on products and installations as specified in individual specification sections.

END OF SECTION 017836

Schedule of Inspection and Testing Agencies

This Statement of Special Inspections / Quality Assurance Plan includes the following building systems:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Soils and Foundations | <input type="checkbox"/> Spray Fire Resistant Material |
| <input checked="" type="checkbox"/> Cast-in-Place Concrete | <input type="checkbox"/> Wood Construction |
| <input type="checkbox"/> Precast Concrete | <input type="checkbox"/> Exterior Insulation and Finish System |
| <input checked="" type="checkbox"/> Masonry | <input type="checkbox"/> Mechanical & Electrical Systems |
| <input checked="" type="checkbox"/> Structural Steel | <input type="checkbox"/> Architectural Systems |
| <input checked="" type="checkbox"/> Cold-Formed Steel Framing | <input type="checkbox"/> Special Cases |

Special Inspection Agencies	Firm	Address, Telephone, e-mail
1. Special Inspection Coordinator		
2. Inspector		
3. Inspector		
4. Testing Agency		
5. Testing Agency		
6. Other		

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

SPECIAL INSPECTIONS AND TESTS MATRIX

(Required by IBC 2012, Chapter 17)

Note: Refer to individual Technical Specification Sections for additional testing requirements.

Project: Cape Henlopen School District – HO Brittingham Elementary School

INSPECTION AND TESTING <i>(“Continuous” & “Periodic” defined by the IBC 2009; refer to applicable Technical Specification Section for additional frequency requirements)</i>	REQUIRED <i>(Required if checked; Not Applicable if not checked)</i>	TECHNICAL SPECIFICATION SECTION	INSPECTION/ TESTING RESPONSIBILITY	CONTINUOUS	PERIODIC	REFERENCE STANDARD	IBC 2012 REFERENCE
A. Concrete Construction							
1. Inspection of reinforcing steel, including prestressing tendons, and placement.	<input checked="" type="checkbox"/>	03 30 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ACI 318: 3.5, 7.1-7.7	1910.4
2. Inspection of reinforcing steel welding in accordance with Table 1705.2.2, Item 2b.	<input checked="" type="checkbox"/>	03 30 00	Owner's Testing Agency	<input type="checkbox"/>	<input type="checkbox"/>	AWS D1.4; ACI 318: 3.5.2	-
3. Inspection of anchors cast in concrete where allowable loads have been increased or where strength design is used.	<input checked="" type="checkbox"/>	03 30 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ACI 318: 8.1.3, 21.2.8	1908.5, 1909.1
4. Inspection of anchors installed in hardened concrete members	<input checked="" type="checkbox"/>	03 30 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ACI 318: 3.8.6, 8.1.3, 21.2.8	1909.1
5. Verify use of required design mix.	<input checked="" type="checkbox"/>	03 30 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ACI 318: Ch. 4, 5.2-5.4	1904.2, 1910.2, 1910.3
6. At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	<input checked="" type="checkbox"/>	03 30 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ASTM C 172, ASTM C 31; ACI 318: 5.6, 5.8	1910.10
7. Inspection of concrete and shotcrete placement for proper application techniques	<input checked="" type="checkbox"/>	03 30 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ACI, 318: 5.9, 5.10	1910.6, 1910.7, 1910.8
8. Inspection for maintenance of specified curing temperature and techniques	<input checked="" type="checkbox"/>	03 30 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ACI, 318: 5.11, 5.13	1910.9
9. Inspection of prestressed concrete:							
a. Application of prestressing forces.	<input type="checkbox"/>		Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ACI 318: 18.20	-
b. Grouting of bonded prestressing tendons in the seismic-force-resisting system.	<input type="checkbox"/>		Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ACI 318: 18.18.4	-
10. Erection of precast concrete members	<input type="checkbox"/>		Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ACI 318: Ch. 16	-
11. Verification of in-situ concrete strength, prior to stressing of tendons	<input checked="" type="checkbox"/>	03 30 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ACI 318: 6.2	-

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in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs							
12. Inspect formwork for shape, location and dimensions of the concrete member being formed.	<input checked="" type="checkbox"/>	03 31 00.00 10	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ACI 318: 6.1.1	-
B. Masonry Construction - Level 1							
1. Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified.	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 1.5	-
2. Verification of f'_m and f'_{AAC} prior to construction except where specifically exempted by this code.	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 1.4B	-
3. Verification of slump flow and VSI as delivered to the site for self-consolidating grout.	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 1.5.B.1.b.3	-
4. Verify to ensure compliance:							
a. Proportions of site prepared mortar	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 2.6A	-
b. Construction of mortar joints	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 3.3B	-
c. Location of reinforcement, connectors, prestressing tendons, anchorages	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 3.4, 3.6A	-
d. Prestressing technique	<input type="checkbox"/>		Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 3.6B	-
e. Grade and size of prestressing tendons & anchorages	<input type="checkbox"/>		Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 2.4B, 2.4H	-
5. Inspection shall verify:							
a. Size and location of structural elements	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 3.3F	-

INSPECTION AND TESTING <i>("Continuous" & "Periodic" defined by the IBC 2009; refer to applicable Technical Specification Section for additional frequency requirements)</i>	REQUIRED <i>(Required if checked; Not Applicable if not checked)</i>	TECHNICAL SPECIFICATION SECTION	INSPECTION/ TESTING RESPONSIBILITY	CONTINUOUS	PERIODIC	REFERENCE STANDARD	IBC 2012 REFERENCE
b. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 402, ACI 530, ASCE 5 ^a , Sec. 1.2.2(e), 1.16.1	-
c. Specified size, grade and type of reinforcement, anchor bolts, prestressing tendons and anchorages	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 402, ACI 530, ASCE 5 ^a , Sec.1.15, TMS 602, ACI 530.1, ASCE 6 ^a , Art. 2.4, 3.4	-
d. Welding of reinforcing bars	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TMS 402, ACI 530, ASCE 5 ^a , Sec. 2.1.9.7.2, 3.3.3.4(b)	-
e. Cold (temperature below 40°F)/hot (temperature above 90°F) weather protection of masonry construction	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 1.8C, 1.8D	Sec.2104.3, 2104.4
f. Prestressing force measurement and application	<input type="checkbox"/>	04 20 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 3.6B	-
6. Prior to grouting, the following shall be verified to ensure compliance:							
a. Grout space is clean.	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 3.2D	-
b. Placement of reinforcement, connectors and anchorages.	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 402, ACI 530, ASCE 5 ^a , Sec. 1.13 TMS 602, ACI 530.1, ASCE 6 ^a , Art. 3.4	-
c. Proportions of site-prepared grout.	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 2.6B	-
d. Construction of mortar joints.	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 3.3B	-
7. Grout placement shall be verified to ensure compliance with code and construction document provisions.	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art 3.5	-
a. Grouting of prestressing bonded tendons	<input type="checkbox"/>	04 20 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art. 3.6C	-

INSPECTION AND TESTING <i>("Continuous" & "Periodic" defined by the IBC 2009; refer to applicable Technical Specification Section for additional frequency requirements)</i>	REQUIRED <i>(Required if checked; Not Applicable if not checked)</i>	TECHNICAL SPECIFICATION SECTION	INSPECTION/ TESTING RESPONSIBILITY	CONTINUOUS	PERIODIC	REFERENCE STANDARD	IBC 2012 REFERENCE
8. Preparation of grout specimens, mortar specimens and/or prisms	<input checked="" type="checkbox"/>	04 20 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TMS 602, ACI 530.1, ASCE 6 ^a , Art 1.4	Sec. 2105.2.2, 2105.3
D. Steel Construction							
1. Material verification and high strength bolts, nuts, and washers:							
a. Identification markings to conform to ASTM standards specified in the approved construction documents	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Applicable ASTM material specifications. AISC 360, Section A3.3	
b. Manufacturer's certificate of compliance required	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Inspection of high-strength bolting:							
a. Snug-tight joints	<input type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AISC 360, Section M2.5	1704.3.3
b. Pre-tensioned and slip-critical joints using turn-of-nut with match marking, twist-off bolt or direct tension indicator methods of installation.	<input type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AISC 360, Section M2.5	1704.3.3
c. Pre-tensioned and slip-critical using turn-of-nut without match marking or calibrated wrench methods of installation.	<input type="checkbox"/>	05 12 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	AISC 360, Section M2.5	1704.3.3
3. Material verification of structural steel:							
a. For structural steel, identification markings to conform to AISC 360.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AISC 360, Section M5.5	-
b. Identification markings to conform to ASTM standards specified in the approved construction documents.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Applicable ASTM material standards	-
c. Manufacturer's certified test reports.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-	-
4. Material verification of weld filler materials:							
a. Identification markings to conform to AWS specification in the approved construction documents.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AISC 360, Section A3.5 and applicable AWS A5 documents	-

INSPECTION AND TESTING <i>("Continuous" & "Periodic" defined by the IBC 2009; refer to applicable Technical Specification Section for additional frequency requirements)</i>	REQUIRED <i>(Required if checked; Not Applicable if not checked)</i>	TECHNICAL SPECIFICATION SECTION	INSPECTION/ TESTING RESPONSIBILITY	CONTINUOUS	PERIODIC	REFERENCE STANDARD	IBC 2012 REFERENCE
b. Manufacturer's certificate of compliance required.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-	-
5. Inspection of welding: a. Structural steel and cold-formed steel deck:							
1. Complete and partial penetration groove welds.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	AWS D1.1	1704.3.1
2. Multipass fillet welds.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	AWS D1.1	1704.3.1
3. Single-pass fillet welds >5/16"	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	AWS D1.1	1704.3.1
4. Plug and slot welds	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	AWS D1.1	1704.3.1
5. Single-pass fillet welds ≤ 5/16"	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AWS D1.1	1704.3.1
6. Floor and roof deck welds.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AWS D1.3	-
b. Reinforcing steel:							
1. Verification of weldability of reinforcing steel other than ASTM A 706.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AWS D1.4, ACI 318: Section 3.5.2	-
2. Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls and shear reinforcement.	<input type="checkbox"/>	05 12 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	AWS D1.4, ACI 318: Section 3.5.2	-
3. Shear reinforcement.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	AWS D1.4, ACI 318: Section 3.5.2	-
4. Other reinforcing steel.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AWS D1.4, ACI 318: Section 3.5.2	-
6. Inspection of steel frame joint details for compliance with approved construction documents:							
a. Details such as bracing and stiffening.	<input type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-	1704.3.2
b. Member locations.	<input type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-	1704.3.2
c. Application of joint details at each connection.	<input type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-	1704.3.2
E. STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL							
1. Material verification of cold-formed steel deck:							

INSPECTION AND TESTING <i>("Continuous" & "Periodic" defined by the IBC 2009; refer to applicable Technical Specification Section for additional frequency requirements)</i>	REQUIRED <i>(Required if checked; Not Applicable if not checked)</i>	TECHNICAL SPECIFICATION SECTION	INSPECTION/ TESTING RESPONSIBILITY	CONTINUOUS	PERIODIC	REFERENCE STANDARD	IBC 2012 REFERENCE
a. Identification markings to conform to ASTM standards specified in the approved construction documents	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Applicable ASTM material standards	
b. Manufacturer's certified test reports	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Inspection of welding:							
a. Cold-formed steel deck:							
1. Floor and roof deck welds.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AWS D1.3	
b. Reinforcing Steel:							
1) Verification of weldability of reinforcing steel other than ASTM A706.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AWS D1.4, ACI 318: Section 3.5.2	
2) Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	AWS D1.4, ACI 318: Section 3.5.2	
3) Shear reinforcement.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	AWS D1.4, ACI 318: Section 3.5.2	
4) Other reinforcing steel.	<input checked="" type="checkbox"/>	05 12 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AWS D1.4, ACI 318: Section 3.5.2	
F. Soils							
1. Verify element materials below shallow foundations are adequate to achieve the design bearing capacity.	<input checked="" type="checkbox"/>	31 00 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Verify excavations are extended to proper depth and have reached proper material.	<input checked="" type="checkbox"/>	31 00 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Perform classification and testing of compacted fill materials.	<input checked="" type="checkbox"/>	31 00 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	<input checked="" type="checkbox"/>	31 00 00	Owner's Testing Agency	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
5. Prior to placement of compacted fill, observe Subgrade and verify that site has been prepared properly.	<input checked="" type="checkbox"/>	31 00 00	Owner's Testing Agency	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

“Special Inspections and Tests” Report Requirements:

1. Testing Agency to furnish reports to the appropriate authority and to the registered design professional. Reports to indicate that work inspected is in conformance with the contract documents. Discrepancies to be brought to the immediate attention of the contractor for correction, and reported to the registered design professional. If discrepancies are not corrected they are to be brought to the attention of the appropriate authority and to the registered design professional, prior to completion of that phase of the work. Final reports documenting the tests and inspections along with discrepancies and correction of discrepancies shall be furnished to the appropriate authority and to the registered design professional.

SECTION 011910: COMMISSIONING PLAN—CONTRACT DOCUMENT PLAN

New Construction

Plan Approved: _____
Engineer's Signature Title

Date _____

1. Overview

1.1 Abbreviations and Definitions

The following are common abbreviations used in this document. Definitions are found in Project's of Standard Specifications.

A/E-	Architect and design engineers	FT-	Functional performance test
ICA-	Independent Commissioning authority	CM-	Construction Manager
CC-	Controls contractor	MC/ PC-	Mechanical Contractor & Plumbing Contractor
OR	Owner's Representative	PC-	Prefunctional checklist/Readiness Check List
Cx-	Commissioning	PM-	Project manager
Cx	Commissioning Plan document Plan	Subs-	Subcontractors to General
EC-	Electrical contractor	TAB-	Test and balance contractor
		SMC	Sheet Metal Contractor
		-	
FSC	Fire Sprinkler Contractor	WTC	Water Treatment Contractor
FAC	Fire Alarm Contractor	OPR	Owner's Project Requirements

1.2 Purpose of The Commissioning Plan

The purpose of the preconstruction, construction and post-construction phase commissioning plan is to:

1. Provide direction for the Cx of this facility as specified by A/E and Owner during the predesign, design, construction of the H.O Brittingham Elementary School's Mechanical/Plumbing/Electrical/Fire Protection/data and ancillary systems.
2. Provide direction for the commissioning process during the construction, particularly facilitating resolution for issues and providing details for the commissioning process. To provide CX scheduling, participation of various parties of this particular project, actual lines of reporting and approvals, coordination, etc.

This plan does not provide a detailed explanation of required testing procedures. The detailed testing requirements and procedures are found in the various Specifications Sections or on manufacturer's start-up procedures. Additionally, this plan does not provide extensive narrative on all commissioning concepts, as may be provided in other commissioning guides.

1.3 Commissioning Scope

Commissioning is a systematic process of ensuring that all building systems being commissioned perform interactively according to the design intent and the owner's operational needs, and the A/E drawings and specifications. This will be achieved by beginning in the design, design phase, documenting the design intent and continuing through construction and acceptance with actual verification of performance. In this case, the process started before design began in the Owner's desire to have the building commissioned.

1.3.1 Commissioning Requirement – Predesign and Design Phase

Commissioning during the predesign and design phases is intended to achieve the following specific objectives:

- Confirm all equipment is accessible, in locations for maintenance, provide low energy usage with required indoor air quality (IAQ) per A/E's specifications, and meet USGBC interior noise levels for the schools.
- To do a review of the contract documents during the bidding period – relative to the items being commissioned, and prepare Cx check sheets.
- Review the commissioning documents with the CM and revise the Cx Plan accordingly.
- Provide the Owner with Cx Report (hard copy and disk).

1.3.2 Commissioning Requirements – Construction Phase

Commissioning during the construction of this project is intended to achieve the following specific objectives:

According to the Contract Documents:

- Ensure that applicable equipment and systems are installed properly and receive adequate operational checkout by installing contractors in accordance with the contract documents and manufacturer's instructions.
- Verify and document proper performance of equipment, systems and controls, and carry out readiness checks and document results. Ensure control checks are completed and documented.
- Ensure that O&M documentation left on site is complete per contract documents (by Contractor and CM).
- Ensure that the Owner's operating personnel are adequately trained.
- Oversight and reviewing of TAB and WTC activities and results to confirm TAB operation will be completed prior to the commissioning of systems.
- With the CM, coordinate commissioning activities among contractors and subs and other trades.
- ICA to observe all final startup, system operations, and functional test, and all equipment/systems for performance verification purposes. All tests will be controlled by the responsible Contractor.

- Provide communication through the A/E and CM to resolve Cx results that do not meet OPR's and project design plans and specifications.

1.3.3 Commissioning Requirement – Post Commissioning Phase

Commissioning after the completion and acceptance by the Owner (substantial completion as defined by the CM), the following specific activities will be undertaken.

- To recommission the HVAC and BAS System to operate in the opposite (heating or cooling) mode than the systems was originally Cx.

1.4 Commissioned Systems[Bid Docs]

The following marked systems will be commissioned in this project. In Phase I, system readiness and startup. All general references to equipment in this document refer only to equipment that is to be commissioned.

HVAC System (and all integral equipment controls)

- X Chiller system (including controls, chillers, piping, pumps and variable speed drives, heat tracing and insulation)
- X Boiler System (including controls, boilers, piping and pumps) (circulator & in-line) (gas train)
- X Pumps (hot, chilled – primary and secondary)
- X Variable speed drives
- X Heat exchangers
- X Piping, cleaning, flushing, leak testing, material used and insulation.
- X Ductwork and Leak Testing/Duct Sox and cleaning if required.
- X Make-up air unit for kitchen hood.
- X Packaged rooftop units w/o energy recovery.
- X Split systems – ductless and condensing unit
- Split air handler and condensing unit
- X Packaged Energy Recovery Unit (ERU's and RTU with energy recovery)
- X Fin tube radiation, in-slab radiant heating.
- X Fan coil units
- X Water treatment (hot and chilled)
- X Chilled Beams (Active)
- X Testing, adjusting and balancing work
- X Unit heaters and cabinet unit heaters, including electric

- Building automation system (controlled devices, control loops, control points and system integration and review of sequences as programmed.)
- Piping HVAC systems installation, tested, pumps, insulation and controls (heating, chilled).
- Heating and cooling ancillary items (expansion tank, air and solids separators)
- Split Variable Refrigerant Flow System – Simultaneous Heat Pump & A/C operation.
- Duct system and installation, filters changed, insulation and balanced
- Smoke/Fire damper operation (if required)
- Vibration isolation installed to specs and adjusted and Seismic restraints (if specified).
- Electric service installed, fault check and inspected by Underwriter.
- Louvers and dampers (MOD's)
- Fans and speed controller. (Exhaust, Return, Transfer)
- Geothermal well field (installation, grouting, testing and test well review).
- Water source heat pumps.
- Reheat Coils and VAV boxes.
- Pool Pak Unit
- Kitchen Hood (Supply and Exhaust Make-Up Air System and ductwork with insulation)
- Grilles, Registers & Diffusers (GRD's)
- Underslab Radiant Floor Heating Systems for Areas B and E (if installed)

Plumbing Systems

- Gas and electric water heaters, pumps, piping, pipe sterilization, water storage tank, hot water mixing valve
- Rainwater harvesting and gray water distribution piping system
- Plumbing fixtures
- Sprinkler System & fire pump
- Kitchen hood fire suppression system (if required by Fire Marshal) and field test by F.M.
- Domestic water piping and insulation (supply, return, gas, hot and cold water)

Electrical Systems

- Emergency Generator/ATS.
- Security & Intercom (Zones)
- Fire Alarm
- Lighting Systems and Controls (Occupancy sensors, daylight harvesting, time clocks and photocells, switches)
- Electrical Feed & Distribution Testing Review Underwriter's Report.
- Photo Voltaic System (if installed)
- Lightning Protection (if installed)

General

- Training – All MEP Systems.
- Maintenance procedures for operating staff.

1.5 Commissioning & Communications Process & Forms

The commissioning of a project is a process which will be tracked and scheduled using the following:

- The Commissioning Agent will compile a record notebook for this project containing tabs:
 - Correspondence
 - Construction Commissioning Plan
 - Commissioning Schedule (by CM)
 - Meeting Minutes and Progress Reports
 - Progress Record
 - Issue Log
 - Prefunctional Testing (Systems Readiness, Startup & Contractor Start-up Report & Initial Operation)
This includes all items listed in 1.4 above with separate tabs for major areas.
(Mechanical/Plumbing/Electrical)
 - Functional Performance testing with CC.
This includes all systems noted in 1.4 above, both tested as operating system in normal, fire alarm and emergency generator with separate tabs.
 - Demonstration, Training, Record Plans and Maintenance Manuals
- A series of forms will be used to initiate, track and show resolution on the non-compliance with the commissioning process. The forms will include, but not be limited to:
 - Cx issues log – normally e-mails
 - Request for documentation and record of submission – normally e-mails
 - Testing scope outline – Cx to issue check sheets to CM for distribution.
 - Overall staff training and orientation required, the CM will schedule all training.
- All communications on the Cx process issued by the CxA, will be in writing, except very minor items. All design related issues will be forwarded to the A/E team for resolution and issuance of direction by the A/E team. Any non-compliance of equipment/system issues will be submitted to the CM for resolution. All project existing communication lines will be followed and observed.

2. General Building Information (Bid)

Project: H.O. Brittingham Elementary School

Location: _____

Building Type (Office, Court, Etc.): Elementary School

Square Footage: TBN . Number of Stores: 1&2

Agency: Cape Henlopen School District Tenants: Cape Henlopen School District

Construction Period: 2015/2016/2017

Commissioning of new plumbing systems including new water heaters, piping and insulation, sprinkler systems and fire pump and hood fire suppression systems.

Commissioning of Electrical power feed and distribution systems and Electrical Systems including lighting and controls, security, fire alarm, intercom systems.

Commissioning of the BAS, review of the TAB Report & Procedures, water treatment report.

Post-construction

X Provide Cx Report to Owner.

Team Member	Co. & Contact Names	Voice, office, cell, fax, email, address
Owner Project Manager Site Engineer Property Manager	Brian Bassett	brian.bassett@cape.k12.de.us
	Kim Wooding	Kimberly.wooding@cape.k12.de.us
Construction Manager General Site Contact Mechanical	R. Y. Johnson	
	Dean Johnson	djohnson@ryjson.com
General Contractor Site Supervisor Site Coordinator		
Commissioning Authority	Cx Herbert L. Duffield, P.E.	530-5618
Architect	Tetra Tech-Tim Skibicki & Michael Berninger	738-7551
Mechanical Designer/Eng.	Furlow Associates, Inc. Robert W Jordan	798-3515
Electrical Designer/Eng.	Furlow Associates, Inc. Robert W. Jordan	798-3515
Plumbing & Sprinkler System	Tetra Tech Scott Parlow	738-7551
Tenant Representative	-----	
Mechanical Contractor HVAC Site Superv. Piping Contractor Sheet Metal Contractor		
Electrical Contractor Site Supervisor		
TAB Contractor		

Controls Contractor Project Manager Project Engineer		
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4. Roles and Responsibilities

4.1 Locations of Role Descriptions

[Bid Docs]

Descriptions and explanations of the roles and responsibilities of those in the commissioning process are found in the following places in the Contract Documents:

List of team members: *Cx Plan*, 4.2

Management plan outline: *Cx Plan*, 4.3. Specifications _____

General roles: *Cx Plan*, 4.4, Specifications _____

Specific responsibilities:

Information for all parties:	<i>Specs 220000, 230000 & 260000</i>
CM:	<i>See all parts</i>
Mechanical, Plumbing contractor, , controls contractor, subs and mfr's:	All Division 22 Specs All Div. 23 & 230900
Mechanical Sections	All Division 23
Electrical contractor, subs and mfr's:	All Division 26 & 28
Commissioning authority:	Specs See ASHRAE Guideline 0 – 2005 Requirements
Water Treatment:	Specs 230510
A/E:	A/E Contract
TAB:	Specs 230950
Fire Sprinkler & Pump:	All Division 21

4.2 Team Members

The members of the commissioning team consist of the ICA, CM, assigned members of the A/E (particularly the mechanical engineer), the mechanical contractor, electrical contractor, TAB representative, controls contractor, FAC and FSC Contractors, Plumbing Contractor, any other installing subcontractors or suppliers of equipment. If known, the Owner's building or plant operator/ engineer and staff are also a member of the commissioning team.

4.3 General Management Plan

[Bid Docs]

The ICA was hired by the Architect directly. In general, the ICA coordinates the commissioning activities and reports directly to the OR and CM.. The ICA's responsibilities, along with all other contractors' commissioning responsibilities are detailed in the specifications. The Specifications will take precedence over this Cx Plan. All members work together to fulfill their contracted responsibilities and meet the objectives of the Contract Documents and the OPR's. Refer to the management protocols section below.

4.4 General Descriptions of Roles

General descriptions of the commissioning roles are as follows:

- ICA : Coordinates the Cx process with CM, and documents prefunctional checkout and performance tests. All test reports shall be reviewed by the office of the A/E.
- CM : Facilitates the Cx process, ensures that Subs perform their responsibilities and integrates Cx into the construction process and schedule

- MC/PC/EC & CC along with Subs : Demonstrate proper system performance and resolve operational problems.
- A/E : Perform construction observation, approve Contractor shop drawings with the ICA and O&M manuals and assist in resolving problems
- OR/PM : Facilitates and supports the Cx process and gives final approval of the Cx work
- Mfr. : The equipment manufacturers and vendors provide documentation to facilitate the commissioning work and perform contracted startup and training and provide start-up reports.

5. Commissioning Process

This section sequentially details the commissioning process by commissioning task or activity.

5.1 Commissioning Scoping Meeting

[Bid Docs]

A commissioning scoping meeting is planned and conducted by the ICA within thirty (30) days after signing of the project contract. In attendance are the respective representatives of the CM, ICA, PM, A/E and the mechanical, electrical, controls, and TAB subs. At the meeting commissioning parties are introduced and the commissioning process reviewed, management and reporting lines determined. The flow of documents, how much submittal data the ICA will receive, etc. are also being discussed. The *Cx Plan* is reviewed, process questions are addressed, lines of reporting and communications determined and the work products list discussed. Also covered are the general list of each party's responsibilities, who is responsible to develop the startup plan for each piece of equipment and the proposed commissioning schedule. The outcome of the meeting is increased understanding by all parties of the commissioning process and their respective responsibilities. The meeting provides the ICA additional information needed to finalize the *Cx Plan*, including the commissioning schedule.

Prior to this meeting the ICA is given, by the CM, all drawings and specifications and the construction schedule by trade. The ICA keeps notes from the meeting and distributes them to each team member.

5.2 Final Commissioning Plan--Construction Phase

[Bid Docs]

The ICA finalizes the draft *Cx Plan* using the information gathered from the scoping meeting. The initial commissioning schedule is also developed (Table 7-1) along with a detailed timeline using Form C-10, *Detailed Commissioning Schedule*. The timeline is fine-tuned as construction progresses. In particular, 30 days prior to startup of the primary equipment, the CA meets with the CM and develops a detailed commissioning schedule. The commissioning plan is approved by the CM & Engineer.

5.3 Shop Drawing Review – Construction Phase

The ICA shall review the shop drawings submitted by the Contractors on equipment to be commissioned to ensure that all meet the OPR’s and the Basis of Design approved by the Owner and all are to be reviewed, approved and signed off by the A/E Team. The ICA is a review only.

5.4 Site Observation

The ICA, and CM if applicable, makes periodic visits to the site, as necessary, to witness equipment and system installations, along with the A/E team.

5.5 Miscellaneous Meetings

The ICA attends selected planning and job-site meetings in order to remain informed on construction progress and to update parties involved in commissioning. The CM provide the ICA with information regarding substitutions, change orders and any Architect’s Supplemental Instructions (ASI) that may affect commissioning equipment, systems or the commissioning schedule. The ICA may review construction meeting minutes, change orders or ASIs for the same purpose.

Later during construction, necessary meetings between various commissioning team parties will be scheduled by the ICA, through the CM, as required.

5.6 Miscellaneous Management Protocols

The following protocols will be used on this project.

<u>Issue</u>	<u>Protocol</u>
For requests for information (RFI) or formal documentation requests:	The ICA goes first: ___ direct to Sub or A/E, <u>X</u> through the CM, ___ through GC.
For minor or verbal information and clarifications:	The ICA goes direct to the informed party. Alert CM and A/E of direction.
For notifying contractors of deficiencies:	The ICA documents deficiencies through the A/E & CM by e-mail, but may discuss deficiency issues with contractors prior to notifying the A/E or CM.
For scheduling functional tests or training:	<u>X</u> The ICA may provide input for and do some coordination of training and testing, but does all scheduling thru the CM.

For scheduling commissioning meetings:

The ICA selects the date and schedules through the:
 GC, CM.
 The CA schedules and notifies attendees directly.

For making a request for significant changes:

The ICA has no authority to issue change orders. This will come thru the A/E, OR and CM procedures established.

For making small changes in specified sequences of operations:

The ICA may make small sequences of operations changes to improve efficiency or control or to correct deficiencies, through the responsible contractor, but shall document the change and provide all changes of specified sequences to the CM and A/E.

The ICA may not make changes to specified sequences without approval from the A/E.

Subcontractors disagreeing with requests or interpretations by the ICA shall:

Try and resolve with the ICA first. Then work through CM who will work with ICA directly or through the A/E to resolve the situation.

5.7 Progress Reporting and Logs

As progress construction progresses, the ICA provides the CM with monthly commissioning progress reports on his readiness check. Thirty (30) days prior to the startup of the first piece of major equipment, the frequency of progress reports is increased as required, until startup is completed. Thirty (30) days before functional testing of equipment begins, frequent progress reports are required until functional testing and all non-conformance issues are resolved. The CM may adjust the reporting frequency as needed. The progress reports contain: an update of the schedule with list of requested schedule changes and new items added to the schedule, a list of new and outstanding deficiencies, a description of commissioning progress corresponding to the plan, etc. E-mails or meeting minutes will provide a format for this report. The ICA keeps a log of all commissioning-related issues that require current or future attention and will be included in the turnover notebook. The *Commissioning Schedule will be updated to* provide a form for tracking the status of documentation and testing for each piece of equipment and system (e.g., installer, party responsible for startup, approval dates for checklist and testing forms, their completion, training, O&M documentation review, etc.), with appropriate notes and actions required.

The ICA regularly communicates with the CM, keeping them apprised of the Commissioning process, and scheduling issues through memos, progress reports, e-mails, etc.

The ICA will keep all commissioning materials in an organized notebook.

5.8 Initial Submittals and Documentation

5.8.1 Standard Submittals

The ICA provides all Subs responsible for commissioned equipment with commissioning documentation requirements for their respective equipment and systems through the CM (check sheets). At minimum, this equipment data includes installation and start-up procedures, O&M data, performance data and

control drawings. The ICA shall receive “approved” copies of submittals relative to commissioning issues expressed in the contract documents from the CM, all comments concerning submittals shall be directed to the CM submitted on RFI’s provides documentation request and tracking forms for representative equipment and acts as the tracking mechanism for documentation. It can also be used as the checkoff sheet for part of the final O&M documentation review. CA recommendations are provided to the A/E, owner or CM as directed.

5.8.2 Special Submittals, Notifications and Clarifications

The Contractors, Subs, CM or A/E notify the ICA of any new design intent or operating parameter changes, added control strategies and sequences of operation, or other change orders that may affect commissioned systems. The controls contractor provides the ICA a full points list with details requested by the ICA Thirty (30) days prior to performing owner-contracted tests, the Subs provide the ICA full details of the procedures. As the phases of the TAB are completed, a copy of the draft TAB reports is provided to the A/E by the CM with full explanations of approach, methods, results, data table legends, etc., as noted in the Specifications. A/E shall notify CM of significant deficiencies, which will be transferred to the ICA, and appropriate sub-contractors with direction to meet design criteria by the A/E. The ICA may submit written RFI’s to the A/E through the CM. A copy of the final TAB report shall be provided to the ICA upon completion, for review and inclusion in the turnover documents.

5.9 Prefunctional Checklists (Readiness Check), Tests and Startup (See 1.4 above for the items covered)

Prefunctional checklists (PC) are important to ensure that the equipment and systems are hooked up and operational and that functional performance testing may proceed without unnecessary delays. Each piece of equipment receives full prefunctional checkout by the Contractor. No sampling strategies are used. In general, the prefunctional testing for a given system, must be successfully completed prior to formal functional performance testing of equipment or subsystems of the given system.

Prefunctional checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation (e.g., oil levels OK, fan belt tension, labels affixed, gages in place, sensor calibration, etc.). However, some prefunctional checklist items entail simple testing of the function of a component, a piece of equipment or system (such as rotation direction, pressure testing, measuring the voltage imbalance on a three phase pump motor of a chiller system). The word prefunctional refers to before start-up and then functional testing. Prefunctional checklists augment and are combined with the manufacturer’s start-up checklist.

Contractors typically already perform some, if not many, of the prefunctional checklist items the commissioning authority will recommend. However, few contractors document in writing the execution of these checklist items. This project requires that the procedures be documented in writing by the installing technician. The ICA does not witness much of the prefunctional checklisting, except for testing of larger or more critical pieces of equipment and some spot-checking. (The ICA will conduct his own Prefunctional check during his construction site reviews.)

5.9.1 Start-up Plan

The ICA assists the commissioning team members responsible for startup in developing detailed start-up plans for all equipment. The parties responsible for each part of startup and initial checkout are identified on the equipment check sheets and on the prefunctional checklists.

A. The following procedures will be used for this project: (the ICA is responsible for the plan development):

1. The ICA adapts and enhances, if necessary, the representative prefunctional checklists (PC) and procedures from those listed in Specifications, and develops original lists, as necessary.
2. The ICA obtains manufacturer installation, startup and checkout data, including actual field checkout sheets used by the field technicians from the contractor (through an RFI).
3. The ICA copies all pages with important instructional data and procedures from the startup and checkout manuals not covered in manufacturer field checkout sheets and adds a signature line in the column by each procedure.
4. The copied pages from (2), along with the prefunctional checklist provided by the ICA and the manufacturer field checkout sheets become the “Startup and Checkout Plan.”, provides a cover sheet and template for the startup plan.
5. For systems that may not have adequate manufacturer startup and checkout procedures, particularly for components being integrated with other equipment, the Sub should provide the added necessary detail and documenting format to the ICA for approval, prior to execution.
6. The ICA transmits the full Startup Plan to the CM, who designates which trade or contractor is responsible to fill out each line item (mark in the “Contr” column) on the Prefunctional Checklist from the ICA. The CM then transmits the full start-up plan to the Subs for their review and use. (This usually means that the Prefunctional Checklist, alone, will go to more than one Sub, while the full plan will go to the primary installing contractor.)

5.9.2 *Execution of Checklists and Startup*

Four weeks prior to startup, the Subs and vendors schedule startup and initial checkout with the CM and ICA. The startup and initial checkout are directed and executed by the Sub or vendor. The ICA, and CM if necessary, observe, at minimum, the procedures for each piece of primary equipment. To document the process of startup and checkout, the site technician performing the line item task initials and dates each paragraph of procedures in the “Startup Plan” and checks off items on the prefunctional and manufacturer field checkout sheets, as they are completed. Only individuals having direct knowledge of a line item being completed shall check or initial the forms.

The Subs and vendors execute the checklists and tests and submit a signed copy of the completed start-up and prefunctional tests and checklists to the ICA. The ICA may review prefunctional checklists in progress, as necessary. On smaller equipment or projects, the checklists (which all contain more than one trade’s responsibility), may be passed around to the Subs to fill out. For larger projects, each trade may need a full form and the ICA will consolidate them later. The check lists submitted for manufacturer’s start-up will be included in the ICA turnover notebook.

5.9.3 *Sampling Strategy for ICA Observation of Prefunctional Checkout and Startup*

The following table provides a tentative list of the equipment and how much of the prefunctional checkout and startup work will be witnessed by the ICA.

<u>Equipment or System</u>	<u>Fraction To Be Observed by ICA</u>
Pipe flushing, leak testing & chem.. treatment	At end, with CM sign-off on flushing report & leak test and chem. Test reports.
RTU's, split systems, packaged units, ERU's	100%
Building automation system	Observe _4_ hours of checkout and calibration – 100% function testing
TAB work	Observe _2_ hours of TAB & sample reading – 5%
Other misc. equipment	As necessary
Volume dampers & louvers	10%, confirmed are marked.
Fire Alarm	Units shutdown thru the BAS/& all smoke alarms; present at the Fire Marshal's review
Vibration Isolation & Seismic	50%
ATC Valves & Dampers & sequence	100%
Pumps & VFD & Vib. Pads & ancillary items	100%
VRF Systems	100%
Duct Cleaning, leak testing, fire dampers, louvers & dampers.	Sample 5 pieces & reports submitted & test FD's by TAB & MC.
Boilers	100%
Chiller	100%
Chilled Beams	100%
Fans (Exhaust, Transfer, etc.)	100%
Unit heaters & CUH's	100%
Ductless Split Systems	100%
Kitchen Hood & Supply/Exhaust Unit & Fire Suppression System with Fire Marshal	100%
Fin Tube Radiation & in-slab floor heating	100%
BAS	100%
 <u>Plumbing</u>	
Water Heaters & Pumps	100%
Sprinkler System & Fire Pump	Sample 5% with Fire Marshal
Piping gas & domestic with tests	Review tests observed and signed off by CM.
Plumbing Fixtures	100%

Electrical

Security & Intercom	25% & interface with BAS 100%
Fire Alarm	100% Will be with Fire Marshal during his inspection & report will be reviewed.
Lighting Systems & Controls	100%
Electrical Distribution, Testing & Sign-off-sample	Sample installation and conduct tests with EC, review underwritten report and sign off, confirm system volts and AMPs of main panel.
Training for all above	To be handled thru C.M.

5.9.4 Deficiencies and Non-Conformance

The Subs clearly list any outstanding items of the initial start-up and prefunctional procedures that were not completed successfully at the bottom of the procedures form or on an attached sheet. An e-mail listing and deficiencies are provided to the ICA within two days of test completion. The ICA works with the Subs and vendors to correct and retest deficiencies or uncompleted items, involving the CM and others as necessary. The installing Subs or vendors correct all areas that are deficient or incomplete according to the checklists and tests. The ICA recommends approval of the startup and initial checkout of each system to the CM in writing. Further details are found in the Specifications Sections 230000 and 260000.

On equipment or systems requiring more than two (2) tests, they will be charged for the ICA based on travel and site time at \$150/hr, mileage and tools. Payment will be through the CM, and deducted from any invoice submitted by the Contractor for payment.

5.9.5 Phased Commissioning

Because of project size, this project ___will require, Xwill not require startup and initial checkout to be executed in phases, with summer cooling waiting until the weather changes on heating.

5.9.6 TAB

The TAB Contractor submits the outline of the TAB plan four (4) weeks “prior” to starting the TAB, and approach to the CM for distribution to the A/E, ICA, MC, and CC for review. Included in the approach, is an explanation of the intended use of the building control system. The ICA reviews the plan and approach for understanding and coordination issues and may comment, but does not “approve.” The controls contractor reviews the feasibility of using the building control system for assistance in the TAB work. The TAB submits weekly written reports of discrepancies, contract interpretation requests and lists of completed tests to the ICA and CM. This facilitates quicker resolution of problems and will result in a more complete TAB before functional testing begins. A checklist form for reviewing the TAB plan is provided as one of the prefunctional checklists in Specifications.

TAB work will not begin until the control system has been prefunctionally tested and selective functional tests have been performed and approved by the ICA.

5.9.7 *Controls Checkout Plan*

The CC develops, and submits a written step-by-step controls plan to the CM for distribution to the A/E, ICA and MC which describes the process they intend to follow in checking out the control system, and the forms they intend to use to document the process. The controls contractor will also meet with the TAB contractor prior to the start of TAB and review the TAB plan to determine the capabilities of the control system for use in TAB. The controls contractor will provide the TAB with any necessary unique instruments for setting terminal unit boxes and instruct TAB in their use (handheld control system interface for use around the building during TAB, etc.). The controls contractor shall also provide a technician qualified to operate the controls to assist the TAB contractor in performing TAB. Additional details are found in Specifications Section 230950.

All ICA-required controls prefunctional checklists, calibrations, start-up and selected functional tests of the system shall be completed and approved by the ICA prior to TAB. The controls contractor shall execute the tests and trend logs assigned to them in Section 230900 and remain on site for assistance for mechanical system functional tests as specified in the same sections. All MOD's and control valve shall be cycled to the acceptance of the ICA prior to the functional testing.

5.10 **Development of Functional Test and Verification Procedures**

5.10.1 *Overview*

Functional testing is the dynamic testing of systems (rather than just components) under full operation (e.g., the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure setpoint). Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, varying outside air temperatures, fire alarm, etc. The systems are run through all of the control system's sequences of operation and components are verified to be responding as the sequences state. The commissioning authority develops the functional test procedures in a sequential written form, coordinates, oversees and documents the actual testing, which is usually performed by the installing contractor or vendor.

5.10.2 *Scope of Testing*

[Bid Docs]

The specification "Testing Requirements" Section 260000 provide specific functional testing scope for each piece of commissioned equipment. A detailed description of the functional and prefunctional testing procedures and process is per the specifications and those listed above.

5.10.3 *Development Process*

Before test procedures are written, the ICA obtains all requested documentation and a current list of change orders affecting equipment or systems, including an updated points list, control sequences and setpoints. The ICA develops specific test procedures to verify proper operation of each piece of equipment and system. The ICA obtains clarification, as needed, from contractors and the A/E regarding sequences and operation to develop these tests. Prior to execution, the ICA provides a copy of the primary equipment tests to the installing Sub (via the CM) who reviews the tests for feasibility, safety, warranty and equipment protection. Blank copies of the procedures are input into the O&M manuals for later use by operations staff. Functional testing and verification may be achieved by manual testing (persons manipulate the equipment and observe performance) or by monitoring the performance and analyzing the results using the control system's trend log capabilities or by stand-alone dataloggers. The ICA follows the Specifications when given and uses judgement where needed to determine which method is most appropriate. According to the Specifications, not all pieces of identical equipment receive in-depth testing. The ICA reviews owner-contracted, factory or required owner acceptance tests and

determines what further testing may be required to comply with the Specifications. Redundancy is minimized, but after two retests, compensation for the ICA thru the CM will be pursued.

5.10.4 Testing Plan Overview

To provide the contractors with a better idea of where functional testing lies in the schedule, what issues are preventing the start of testing, which contractors are needed for each test and how much time might be expected from them, see detailed testing sheets. These forms are filled out after most equipment has been started up and when functional testing dates are not too far off. The form is provided to the Contractors to assist in moving more efficiently to functional testing.

5.11 Execution of Functional Testing Procedures

5.11.1 Overview and Process

The ICA schedules functional tests through the CM and affected Subs. For any given system, prior to performing functional testing, the ICA waits until the prefunctional checklist has been submitted with the necessary signatures, confirming that the system is ready for functional testing. The ICA oversees, witnesses and documents the functional testing of all equipment and systems according to the Specifications and the Cx Plan. The Subs execute the tests. The control system is tested before it is used to verify performance of other components or systems. The air balancing and water balancing is completed and debugged before functional testing of air-related or water-related equipment or systems. Testing proceeds from components to subsystems to systems and finally to interlocks and connections between systems. Refer to Section 6 for details on functional testing scope.

5.11.2 Deficiencies and Retesting

The ICA documents the results of the test. Corrections of minor deficiencies identified are made during the tests at the discretion of the ICA. The ICA records the results of the test on the procedure or test form. Deficiencies or non-conformance issues are noted and reported to the CM in writing by e-mail. Subs correct deficiencies, notify the ICA thru the CM by e-mail. The ICA schedules retesting through the CM. Decisions regarding deficiencies and corrections are made at as low a level as possible, preferably between ICA and the Sub. For areas in dispute, final authority, besides the Owner's, resides with the A/E. The ICA recommends acceptance of each test to the CM. The CM gives final approval on each test using the testing sheet and signing off at the appropriate spot.

5.11.3 Facility Staff Participation

The Owner's facilities operating staff are encouraged to attend and participate in the testing process. The ICA will notify the X_CM, PM, who will then notify the facility staff when the commissioning events will occur thru the schedule.

5.11.4 Phased Testing

Refer to Section 5.9.5 for details regarding testing the equipment or systems in phases. Owner has determine that summer and 10 months later winter test of equipment's capacity is required and Contractor assistance will be required.

5.11.5 Sampling

Multiple identical pieces of non-life-safety or otherwise non-critical equipment may be functionally tested using a sampling strategy. The Specifications specify the sampling strategies that are used on this project, as noted in 5.9.3 above.

5.12 O&M Manuals and Warranties

5.12.1 *Standard O&M Manuals*

The CM, and A/E review the O&M Manuals, equipment documentation, warranties and redline as-builts for the systems (Divisions 22, 23 and 26 Specifications) that were commissioned to verify compliance. The manuals are then submitted to the A/E for approval, and acceptance of these sections of the O&M Manuals. Refer to Specifications, and 5.11.2 commissioning Record for format.

5.12.2 *Commissioning Record*

The CA will compile, organize and index the following commissioning data by equipment into labeled, indexed and tabbed, three-ring binders and deliver it to the CM, to be included with the O&M manuals. The correspondence, meeting minutes and progress reports, miscellaneous notes, etc. kept in the Commissioning Record Book during construction will not be retained into this record and the O&M manuals. The format of the manual follows:

General

<i>Tab I</i>	Introduction/Summary/OPR's
<i>Tab II</i>	Commissioning Plan – Construction Phase
<i>Tab III</i>	Final Commissioning Report
<i>Tab IV</i>	Issues Log (record of deficiencies, e-mail)
<i>Tab V</i>	Progress Record & Conclusions

Equipment Specific – Test Reports & Sign Off

<i>Tab 01</i>	System Type 1 (Boilers 1 & 2, CH-1)
<i>Sub-Tab A</i>	Design narrative and criteria, sequences, approvals for Equipment 1 will be provided by the C.M.
<i>Sub-Tab III</i>	Start-up plan and report, approvals, corrections, prefunctional checklists
<i>Sub-Tab III</i>	Functional tests (completed), trending and analysis, approvals and corrections, training plan, record and approvals.
<i>Tab 02</i>	System Type 2.....repeat as per System One (Plumbing followed by Electrical) Part of Tab III.

5.13 Training and Orientation of Owner Personnel

Owner training and orientation on equipment and systems provided by the Contractor is accomplished in three general steps using three forms.

1. Overall Plan. After reviewing the Specifications, the CM and OR shall fill out a table listing all of the equipment for training that will be provided, , and submit plan to the A/E for approval. The CC shall provide training for all components controlled by the BAC Building Automated System in accordance with Specification 230900 Instruction.
2. Specific Training Agendas. For each piece of equipment or system for which training is provided, the CM fill out Section of the *Training and Orientation Agenda*. This will include some of the information from above, regarding the scope of training and the intended audience, for reference by the trainer in developing the training agenda. The CM develops a plan for including in the training session contractors / trainers from different disciplines, when appropriate, by listing their company names in Section 2 of the form. In particular, the controls contractor will provide brief training on

controls in the same session with the mechanical training for equipment controlled by the building automation system.

This form is then submitted to the Contractor Trainer(s) to fill out the remainder of Sections 5 and on written submittal above, describing the subjects covered, duration of each subject, and methods that will be used in training. The trainer(s) returns this form to the CM for review “prior” to submitting the agenda to the A/E for final approval. The CM provides the approved agenda to the trainer(s) to use during training and provides a copy of the agenda to each trainee.

3. Training Record. For each piece of equipment, prior to training, the CM provides each trainer a form. On this form, the trainer documents each training session (duration, and general subjects covered). The trainer signs for the session, and obtains signatures of each trainee. The trainer also checks off subjects covered on the Agenda. When training is complete, the CM provides a copy of the Training Agenda, and Orientation Record to the Owner, A/E and ICA. All parties review, and approve before signing it. The ICA is to attend 75% of the relevant training sessions.

5.13.1 *Special Training and Orientation*

The following checked orientation and trainings will be completed by the ICA and A/E according to the specifications:

- Recommissioning. The commissioning authority will provide instruction on the use of blank functional test forms for periodic recommissioning of equipment and systems, by the Owner.
- Architect. The architect will provide a general overview of the facility, its use, special features, tenant and public considerations, etc., as related to LEED certification.
- Mechanical Design Engineer. The mechanical designer will provide an overview of the major systems and equipment in the facility, including for each system: the design intent, why the system was chosen, an overview of its operation, and interactions with other systems, any special areas to be aware of, issues regarding future expansion and remodeling, etc. as related to LEED Certification.
- Electrical Design Engineer. The electrical designer will provide an overview of the major electrical systems and equipment in the facility, particularly the lighting control systems, fire alarm, security and emergency power, focusing on the design intent, why the system was chosen, an overview of its operation, and interactions with other systems, any special areas to be aware of, issues regarding future expansion and remodeling, etc., as related to LEED certification.

5.14 **Warranty Period**

During the warranty period, seasonal testing and other deferred testing required is completed according to the Specifications, and a complete recommissioning 10 months after the project is turned over to the Owner. The CM coordinates this activity. Tests are executed and deficiencies corrected by the appropriate Subs, witnessed by facilities staff and the ICA. Any final adjustments to the O&M manuals and as-builts due to the testing are made for seasonal testing details for this project. The ICA may make suggestions for improvements and for recording these changes in the O&M manuals. The ICA will identify areas that may come under warranty or under the original construction contract. The ICA will also assist facility staff in developing reports and documents and requests for services to remedy outstanding problems.

6. Written Work Products

[Bid Docs]

6.1 Summary Report

A final summary report by the ICA will be provided to the Architect and CM. The report shall include an executive summary, list of participants and roles, brief building description, overview of commissioning and testing scope and a general description of testing and verification methods. For each piece of commissioned equipment, the report should contain the disposition of the commissioning authority regarding the adequacy of the equipment, documentation and training meeting the contract documents in the following areas: 1) Equipment meeting the equipment specifications, 2) Equipment installation, 3) Functional performance and efficiency, 4) Equipment documentation and design intent, and 5) Operator training. All outstanding non-compliance items shall be specifically listed. Recommendations for improvement to equipment or operations, future actions, commissioning process changes, etc. shall also be listed. Each non-compliance issue shall be referenced to the specific functional test, inspection, trend log, etc. where the deficiency is documented. The functional performance and efficiency section for each piece of equipment shall include a brief description of the verification method used (manual testing, BAS trend logs, data loggers, etc.) and include observations and conclusions from the testing.

Appendices shall contain acquired sequence documentation, logs, meeting minutes, progress reports, deficiency lists, site visit reports, findings, unresolved issues, communications, etc. Prefunctional checklists and functional tests and monitoring data and analysis will be provided in a separate labeled binder.

The commissioning plan, the prefunctional checklists, functional tests and monitoring reports will not be part of the final report, but will be stored in the Commissioning Record in the O&M manuals, as described in the specification Sections 210000, 220000, 230000 and 260000.

7. Schedule

7.1 General Issues

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The following sequential priorities are followed:

1. Equipment is not “temporarily” started (for heating or cooling), until pre-start checklist items and all manufacturer’s pre-start procedures are completed and moisture, dust and other environmental and building integrity issues have been addressed, and operation properly documented.
2. Functional testing is not to begin until prefunctional and start-up and TAB is completed, for a given system.
3. The controls system and equipment it controls are not functionally tested until all points have been calibrated and pre-functional testing completed.
4. TAB is not performed until the controls system has been sufficiently functionally tested and approved by the ICA for TAB work.
5. TAB is not performed until the envelope is completely enclosed and ceiling complete, unless the return are is ducted.

7.2 Project Schedule

The initial commissioning schedule is summarized in Table 7-1 below. A more detailed schedule is to be issued at a later date by the CM and ICA.

Table 7-1. Initial Commissioning Schedule Summary

Task / Activity	Estimated Start Date	Estimated End Date
Initial scoping meeting and final plan		
Submittals obtained and reviewed		
Begin construction site visits/inspections		
Prefunctional forms developed and distributed		
Startup and initial checkout plans		
Startup and initial checkout executed		
TAB Water Air		
Functional performance tests		
O&M documentation review and verification		
Training and training verification		
Final commissioning report		
Seasonal testing		

(Fill in with CM)