THE STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION

U.S. CUSTOMARY UNITS

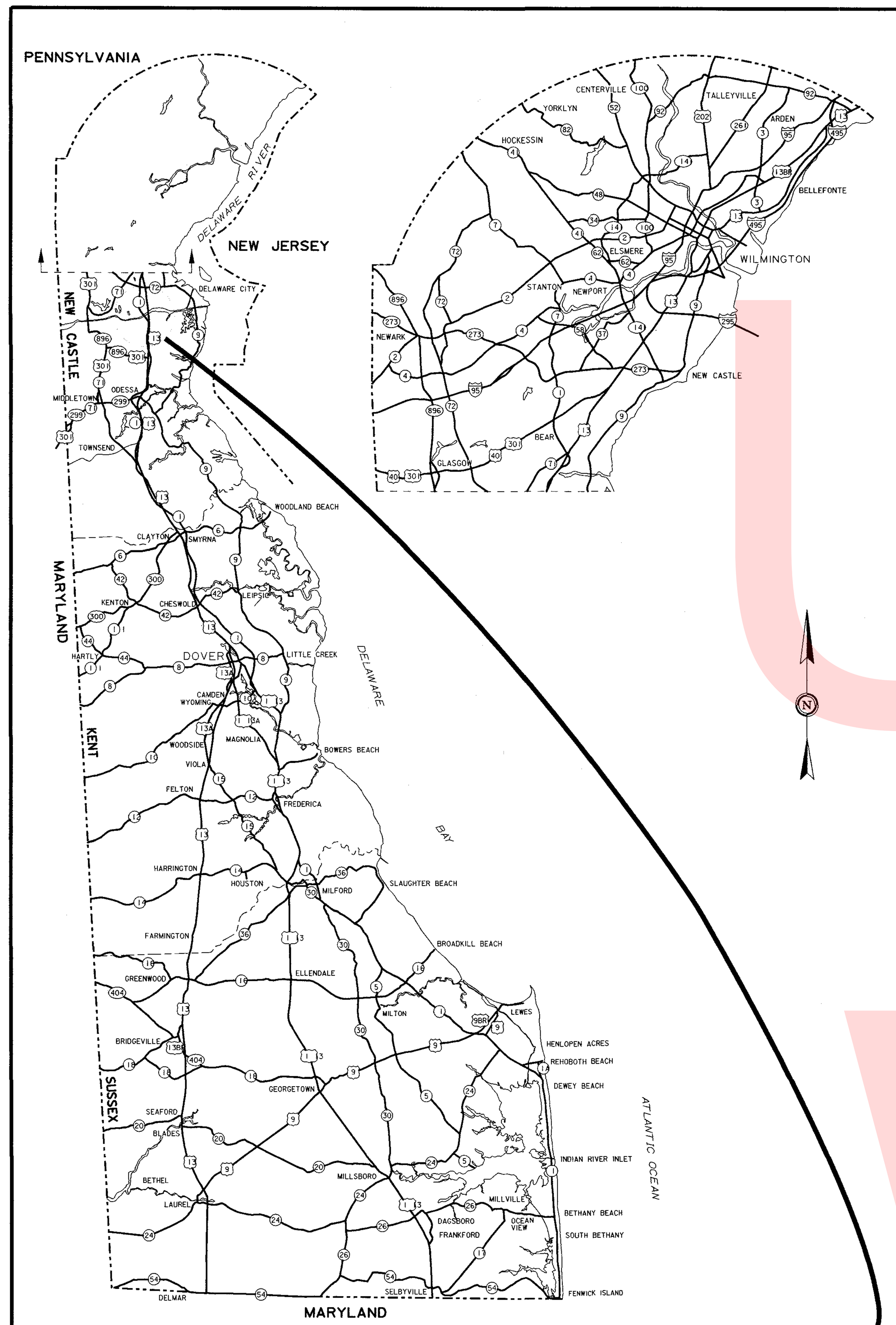
CONSTRUCTION PLANS FOR:

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

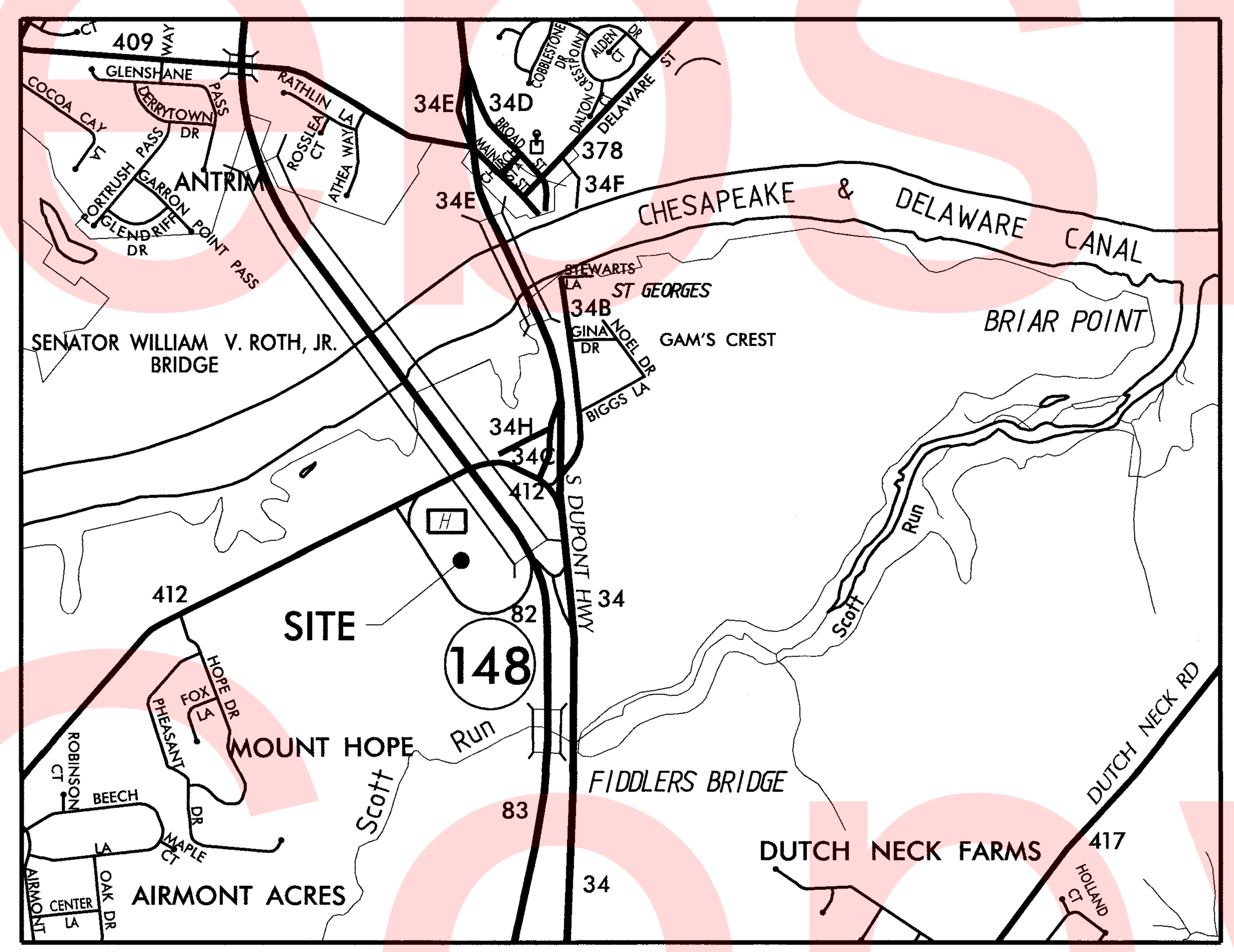
CONTRACT NUMBER: T201680104

FEDERAL AID PROJECT NUMBER: N/A

COUNTY: NEW CASTLE   M.R. #: N412



GENERAL LOCATION OF CONTRACT



LOCATION MAP

SCALE: N. T. S.

RECOMMENDED

MAINTENANCE ENGINEER	DATE 5/31/17
DISTRICT ENGINEER	DATE 5/31/17
STATEWIDE SUPPORT SERVICES ENGINEER	DATE 6/1/17
ASSISTANT DIRECTOR, STATEWIDE SUPPORT SERVICES	DATE 6/1/17
DIRECTOR, MAINTENANCE AND OPERATIONS	DATE 6/19/17

CONSTRUCTION SPECIFICATIONS

CONSTRUCTION ON THIS SITE SHALL BE IN CONFORMANCE WITH THE DELAWARE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED AUGUST 2016, WITH SPECIFICATION SECTIONS AS INDICATED WITHIN THE PROJECT NOTES.

DESIGN DESIGNATION

FUNCTIONAL CLASS: MAJOR COLLECTOR		D.H.V. PROJECTED: 2,650	YEAR: 2030
TYPE OF CONSTRUCTION: ROADWAY WIDENING		DESIGN SPEED: 45 M.P.H.	
A.A.D.T. CURRENT: 13,660	YEAR: 2016	TRUCKS: 6.5 %	
A.A.D.T. PROJECTED: 22,450	YEAR: 2030	DIRECTION OF DISTRIBUTION: 90 %	

INDEX OF SHEETS

TOTAL SHEETS: 116

ADDENDA & REVISIONS

DESCRIPTION	NAME & DATE

ASSOCIATED CONTRACTS

CONTRACT NO.	CONTRACT NAME
T2017080102	ST. GEORGES MAINTENANCE YARD ENTRANCE IMPROVEMENTS

RECOMMENDED AS TO PROCESS

CHIEF ENGINEER

DATE 6/21/2017

RECOMMENDED

STORMWATER ENGINEER

DATE 15 JUNE 2017

VINCENT W. DAVIS REGISTERED No. 12898 DELAWARE PROFESSIONAL ENGINEER

SEAL

PREPARED BY
CIVIL/STRUCTURAL ENGINEER

JMT JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
121 Continental Drive, Suite 300 Newark, DE 19713

RECOMMENDED — SEAL 05/30/2017 DATE

BRADLEY P. HERB REGISTERED No. 13305 DELAWARE PROFESSIONAL ENGINEER

PREPARED BY
ARCHITECT

JMT JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
121 Continental Drive, Suite 300 Newark, DE 19713

RECOMMENDED — SEAL 05/30/2017 DATE

STATE OF DELAWARE REGISTERED ARCHITECT

PREPARED BY
MECHANICAL/ELECTRICAL ENGINEER

JMT JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
121 Continental Drive, Suite 300 Newark, DE 19713

RECOMMENDED — SEAL 05/30/2017 DATE

DAVID M. CHANDLEE REGISTERED No. 13501 DELAWARE PROFESSIONAL ENGINEER

T-1

PLOTTED BY: BDOUGHERTY DATE: 5/30/2017
FILE LOCATION: Q:\NDE\120995_021_ST_GEORGES_MAINTENAN\CADD\SITE\TC.DGN [SHEET: TC01]

EXISTING SYMBOLS

DRAINAGE

—∞—	DITCH OR STREAM CENTERLINE
—→—	DIRECTIONAL STREAM FLOW ARROW
C.B. / D.I.	DRAINAGE INLET
J.B.	DRAINAGE JUNCTION BOX
Ⓓ	DRAINAGE MANHOLE
SIZE/TYPE LABEL	DRAINAGE PIPE AND FLOW ARROW
	DRAINAGE PIPE HEADWALL
	RIPRAP - AREA FEATURE
	RIPRAP - LINEAR FEATURE

MANMADE ROADSIDE FEATURES

	BOLLARD - STEEL POLE
	BOLLARD - WOOD POST
(TYPE LABEL)	CURB
(TYPE LABEL)	CURB AND GUTTER
—x—	FENCE - CHAINLINK OR STRANDED
—o—	FENCE - STOCKADE OR SPLIT RAIL
F.P.	FLAG POLE
—n—	GUARDRAIL - STEEL BEAM
—o—	GUARDRAIL - WIRE ROPE
LAMP	LAMP AND POST - RESIDENTIAL
MB	MAILBOX
P.M.	PARKING METER AND POST
— — — — —	PAVEMENT - FLEXIBLE
———	PAVEMENT - RIGID
□	PILE - BRIDGE
○	PILLAR OR MISCELLANEOUS POST
	TRAFFIC SIGN AND POST
	WALL - BRICK OR BLOCK
	WALL - STONE

NATURAL ROADSIDE FEATURES

	GRASS LAWN
	HEDGEROW OR THICKET
— WL —	MARSH BOUNDARY LINE
	TREE - CONIFEROUS
	TREE - DECIDUOUS
	TREE STUMP
	SHRUBBERY
— WL —	DELINEATED WETLAND BOUNDARY LINE
	WOODS LINE BOUNDARY
—·—·—OHW—·—·—	ORDINARY HIGH WATER BOUNDARY
—·— OHW/WL —·—·—	ORDINARY HIGH WATER/DELINEATED WETLAND BOUNDARY

RIGHT-OF-WAY SYMBOLS

C.M.	PROPERTY MARKER - CONCRETE MON.
I.P.	PROPERTY MARKER - IRON PIPE
100+00	HISTORIC RIGHT-OF-WAY BASELINE
——— — ———	EXISTING RIGHT-OF-WAY
——— ⊓ ———	EXISTING PROPERTY LINE
EASEMENT TYPE —	EXISTING EASEMENT

SURVEY CONTROL & MONUMENTATION

B.M.	SURVEY BENCHMARK LOCATION
T.P.	SURVEY TIE POINT LOCATION
△	SURVEY TRAVERSE POINT
◎	POINT OF CURVATURE OR TANGENCY
◎	POINT OF INTERSECTING TANGENTS

UTILITY

	SOIL BORING LOCATION
	UTILITY TEST HOLE LOCATION
TV	CABLE TV DISTRIBUTION BOX
Ⓔ	ELECTRIC MANHOLE
EM	ELECTRIC METER
E	ELECTRIC TRANSFORMER
	POLE MOUNTED LUMINAIRE
Ⓖ	GAS MANHOLE
G.M.	GAS METER
G.V.	GAS VALVE
G.P.	GAS PUMP - SERVICE STATION
	RAILROAD TRACKS
Ⓢ	SANITARY SEWER MANHOLE
S.V.	SANITARY SEWER VALVE
VENT	SANITARY SEWER VENT OR CLEANOUT
S.D.F.	SEPTIC DRAIN FIELD
B	TELEPHONE BOOTH
Ⓣ	TELEPHONE MANHOLE
T	TELEPHONE TEST POINT
J.W.	TRAFFIC - CONDUIT JUNCTION WELL
	TRAFFIC - LIGHT POLE AND BASE
	TRAFFIC - PEDESTRIAN POLE & BASE
	TRAFFIC - SIGNAL CABINET & BASE
⊗	TRAFFIC - SIGNAL POLE AND BASE
U	UTILITY BOX
	UTILITY POLE GUY WIRE ANCHOR
	UTILITY POLE
F.H.	WATER - FIRE HYDRANT
W.M.	WATER METER
W.V.	WATER VALVE
WELL	WELL HEAD
?	MANHOLE - UNDETERMINED OWNER

UTILITY COMPANY FACILITIES

—AW-W—	ARTESIAN WATER COMPANY
—ATT-FO—	AT&T - FIBER OPTIC
— COM-FO —	COMCAST CABLE - FIBER OPTIC
— EX-CON —	DELDOT MULTIDUCT CONDUIT
— EX-SIG —	DELDOT SIGNAL CONDUIT
—DP-E—	DELMARVA POWER - ELECTRIC
—DP-G—	DELMARVA POWER - GAS
— VER-C —	VERIZON
— VER-FO —	VERIZON - FIBER OPTIC

PROPOSED SYMBOLS

RIGHT-OF-WAY SYMBOLS

⊠	PROPOSED RIGHT-OF-WAY MONUMENT
—— DA ——	PROPOSED DENIAL OF ACCESS
— — — PE — — —	PROPOSED PERMANENT EASEMENT
—— R/W ——	PROPOSED RIGHT-OF-WAY
—— R/W-DA ——	PROPOSED R/W & DENIAL OF ACCESS
— — — TCE — — —	TEMPORARY CONSTRUCTION EASEMENT
100+00	PROPOSED RIGHT-OF-WAY BASELINE
—— DA ——	EXISTING DENIAL OF ACCESS
—— R/W-DA ——	EXISTING R/W & DENIAL OF ACCESS

UTILITY

	POLE MOUNTED LUMINAIRE
S.V.	SANITARY SEWER VALVE
VENT	SANITARY SEWER VENT OR CLEANOUT
F.H.	WATER - FIRE HYDRANT
W.M.	WATER METER
W.V.	WATER VALVE

EROSION & SEDIMENT CONTROL

CFL	COMPOST FILTER LOG / LENGTH
—CFL—	COMPOST FILTER LOG
DWBAG	DEWATERING BAG
DWB	DEWATERING BASIN
ED	EARTH DIKE
	INLET SEDIMENT CONTROL
	PERIMETER DIKE/SWALE
PST	PORTABLE SEDIMENT TANK
SBD	SANDBAG DIKE
SB	SANDBAG DIVERSION
	STONE CHECK DAM
SCE	STABILIZED CONSTRUCTION ENTRANCE
SF	SILT FENCE / LENGTH
—SF—	SILT FENCE
—RSF—	SILT FENCE - REINFORCED
SP	SUMP PIT
ST	SEDIMENT TRAP
ST	SEDIMENT TRAP
ST	SEDIMENT TRAP WITH INLET AS OUTLET
ST	SEDIMENT TRAP PIPE OUTLET
SW	STILLING WELL
	TEMPORARY SWALE
TSD	TEMPORARY SLOPE DRAIN
TF XXX	TURBIDITY CURTAIN / LENGTH
—T—	TURBIDITY CURTAIN

CONSTRUCTION

	CONCRETE SAFETY BARRIER - PERMANENT
×—BFS—×	BIOFILTRATION SWALE
	BRICK PATTERNED SURFACE
	BUTT JOINT
100+00	CONSTRUCTION BASELINE
—CSF—	CONSTRUCTION SAFETY FENCE
	CURB, TYPE 1 & TYPE 3
	CURB, TYPE 2
	CURB & GUTTER, TYPE 1
	CURB & GUTTER, TYPE 2
	CURB & GUTTER, TYPE 3
	CURB & GUTTER, TYPE 4
—CZ—	CLEAR ZONE
■	DRAINAGE INLET
×———×	DITCH
	FENCE - METAL
	FENCE - WOOD
	FLARED END SECTION
	GUARDRAIL, TYPE 1
	GUARDRAIL, TYPE 2
	GUARDRAIL, TYPE 3
	GUARDRAIL END ANCHORAGE
	GUARDRAIL END TREATMENT, TYPE 1
	GUARDRAIL END TREATMENT, TYPE 2
	GUARDRAIL END TREATMENT, TYPE 3
	IMPACT ATTENUATOR
■	JUNCTION BOX - DRAINAGE
—— LO ——	LATERAL OFFSET
----LOC----	LIMIT OF CONSTRUCTION
MB	MAILBOX
●	MANHOLE
	PAVEMENT PATCH
	PAVEMENT REMOVAL - TOPSOIL, SEED AND MULCH
	PIPE & DIRECTIONAL FLOW ARROW
	RIPRAP
	P.C.C. PAVEMENT - SEE PLANS FOR MATERIALS AND DEPTHS
	P.C.C. SIDEWALK - 6" (USE 8" DEPTH FOR CHANNELIZATION ISLANDS.)
	UNDERDRAIN
©	UNDERDRAIN CLEANOUT
	UNDERDRAIN OUTLET

TRAFFIC

—ITMS-CON—	ITMS CONDUIT
—SIG-CON—	SIGNAL CONDUIT
■	CONDUIT JUNCTION WELL
	LUMINAIRE
	PAVEMENT MARKINGS
	PAVEMENT STRIPING
	TRAFFIC SIGN

PAVEMENT SECTION(S)

	PROPOSED PAVEMENT - SEE CONSTRUCTION PLAN FOR MATERIALS AND DEPTHS.

IDENTIFIERS

A/C	ADJUST BY CONTRACTOR
A/O	ADJUST BY OTHERS
AB/C	ABANDON BY CONTRACTOR
B	CONCRETE SAFETY BARRIER
C	CURB OR CURB & GUTTER
C/JB	CONVERT TO JUNCTION BOX
C/MH	CONVERT TO DRAINAGE MANHOLE
C/O	CURB OPENING
CR	CURB RAMP / TYPE
CR-N	CURB RAMP / TYPE - WITHOUT SIDEWALK SURFACE DETECTABLE WARNING SYSTEM
CSF	CONSTRUCTION SAFETY FENCE
DI	DRAINAGE INLET
DND	DO NOT DISTURB
ED	ENERGY DISSIPATOR
F	FENCE
FES	FLARED END SECTION
FF/C	FILL WITH FLOWABLE FILL
FS	FILTRATION STRUCTURE
GR	GUARDRAIL
JB	JUNCTION BOX
MH	MANHOLE
M	MONUMENT - RIGHT-OF-WAY
P	PIPE
RL/C	RELOCATE BY CONTRACTOR
RL/O	RELOCATE BY OTHERS
RM/C	REMOVE BY CONTRACTOR
RM/O	REMOVE BY OTHERS
RR	RIPRAP
UD	UNDERDRAIN / LENGTH
UDO	UNDERDRAIN OUTLET PIPE
UDC	UNDERDRAIN CLEANOUT
RM/TC	REMOVE BY TRAFFIC CONTRACTOR

LANDSCAPING

LS	LANDSCAPE PLANTINGS
	SHRUBBERY
	CONIFEROUS TREE
	DECIDUOUS TREE

L-1

PLOTTED BY: BDOUGHERTY DATE: 5/31/2017
FILE LOCATION: Q:\NDE\20995_021_ST_GEORGES_MAINTENANCE\CADD\SITE\LG.DGN [SHEET: LG01]

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

NOT TO SCALE

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

CONTRACT T201680104	BRIDGE NO. N/A	SHEET NO. 2
COUNTY NEW CASTLE	DESIGNED BY: WJD	TOTAL SHTS. 116
	CHECKED BY: BH	

LEGEND

GENERAL NOTES

1. THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", DATED AUGUST 2001 AND THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD CONSTRUCTION DETAILS", DATED 2001, INCLUDING ALL REVISIONS UP TO THE DATE OF ADVERTISEMENT.

2.

EROSION POTENTIAL FOR THIS PROJECT	CONTRACTOR ESC SUPERVISOR REQUIREMENT
( ) INSIGNIFICANT	NONE
( ) MINOR	CONTRACTOR TRAINING PROGRAM, AS DEFINED IN SECTION 6.2 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
(X) MAJOR	CERTIFIED CONSTRUCTION REVIEWER (CCR), AS DEFINED IN SECTION 6.3 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.

3. ELECTRONIC PROJECT FILES THAT WILL BE MADE AVAILABLE TO THE AWARDED CONTRACTOR, INCLUDE:

( )	NONE
(X)	ASCII DATA FILES WITH COORDINATES AND ELEVATIONS FOR PROPOSED POINTS AS SELECTED BY THE ENGINEER.
(X)	ALL PLAN SHEETS, IN PDF FORMAT.
(X)	EXISTING DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
(X)	PROPOSED DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
(X)	DESIGN FILE, IN .DGN FILE FORMAT, CONTAINING ONLY THE PROPOSED 3D TRIANGLES OF THE PROPOSED DIGITAL TERRAIN MODEL (DTM).

NOTE: THE DOCUMENT ENTITLED "RELEASE FOR DELIVERY OF DOCUMENTS IN ELECTRONIC FORM TO A CONTRACTOR" MUST BE SIGNED BY ALL PARTIES PRIOR TO THE DELIVERY OF ANY ELECTRONIC PROJECT FILES.

4. PROJECT FILES THAT WILL BE MADE AVAILABLE TO THE CONTRACTOR, INCLUDE:

(X)	CROSS SECTIONS
(X)	RIGHT-OF-WAY PLANS (WILL BE MADE AVAILABLE TO THE AWARDED CONTRACTOR)

5. AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA) CERTIFIED TRAFFIC CONTROL SUPERVISOR REQUIREMENT FOR THIS PROJECT.

(X)	THE CONTRACTOR SHALL NOT BE REQUIRED TO HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT.
( )	THE CONTRACTOR SHALL HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT. THE CONTRACTOR'S GENERAL SUPERINTENDENT FOR THIS PROJECT OR ANOTHER ATSSA CERTIFIED MEMBER OF THE CONTRACTOR'S PROJECT STAFF MAY BE THE ATSSA SUPERVISOR. PAYMENT FOR ATSSA SUPERVISOR IS INCIDENTAL TO ITEM 743000.
( )	THE CONTRACTOR SHALL HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT. THE ATSSA SUPERVISOR'S SOLE JOB SHALL BE SUPERVISION OF THE INSTALLATION, OPERATION AND MAINTENANCE OF TRAFFIC CONTROL DEVICES FOR THIS PROJECT. THE CONTRACTOR'S GENERAL SUPERINTENDENT FOR THIS PROJECT SHALL NOT BE THE ATSSA SUPERVISOR. PAYMENT FOR ATSSA SUPERVISOR SHALL BE PAID FOR UNDER ITEM 743031.

6. THE DISTURBED AREA FOR THIS PROJECT IS 18.4 ACRES.

7. THE SEDIMENT AND STORMWATER MANAGEMENT PLANS HAVE BEEN APPROVED BY DELDOT'S STORMWATER ENGINEER UNDER DELDOT'S DELEGATED AUTHORITY. THE SEDIMENT AND STORMWATER MANAGEMENT PLANS ARE VALID FOR A FIVE YEAR PERIOD, BEGINNING ON THE DATE THE STORMWATER ENGINEER SIGNED THE CONSTRUCTION TITLE SHEET. IF THE FINAL ACCEPTANCE OF THE PROJECT IS ANTICIPATED TO EXTEND BEYOND THE FIVE YEARS, THE CONTRACTOR WILL INFORM THE ENGINEER THREE MONTHS PRIOR TO THE EXPIRATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLANS. THE STORMWATER ENGINEER WILL REVIEW THE CURRENT SEDIMENT AND STORMWATER MANAGEMENT PLAN AND ISSUE AN EXTENSION WITH ANY APPROPRIATE MODIFICATIONS.

PROJECT NOTES

SECTION 100

1. ANY DAMAGE TO ITEMS NOTED TO BE RELOCATED OR RESET BY THE CONTRACTOR, AT THE DISCRETION OF THE ENGINEER, SHALL BE REPAIRED AND/OR REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.

SECTION 200

2. THE ENGINEER MAY REQUIRE THE CONTRACTOR TO EXCAVATE TEST PITS ALONG PROPOSED DRAINAGE RUNS, AT POINTS OF POSSIBLE UTILITY CONFLICTS, TO DETERMINE IF A CONFLICT EXISTS. ANY CONFLICTS SHALL BE COORDINATED BY THE CONTRACTOR, WITH THE ENGINEER AND THE UTILITY COMPANY INVOLVED. THE ENGINEER SHALL ULTIMATELY DETERMINE THE SOLUTION TO THE UTILITY CONFLICT. TEST HOLES SHALL BE MEASURED AND PAID FOR IN ACCORDANCE WITH ITEM 208000 - EXCAVATION AND BACKFILL FOR PIPE TRENCHES, BUT ONLY TO THE ACTUAL DEPTH EXCAVATED.

3. ITEMS TO BE REMOVED UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
   - DRAINAGE PIPE
   - SALT BARN
   - TRAILERS
   - OUT BUILDINGS
   - LIGHT POLES AND BASES
   - CONCRETE BARRIER

4. THIS PROJECT IS COVERED UNDER AN NPDES GENERAL PERMIT FOR CONSTRUCTION. UNDER THE GENERAL PERMIT, COMPLIANCE WITH DELDOT'S APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLANS WILL CONSTITUTE COMPLIANCE WITH THE NPDES INDUSTRIAL PERMITTING REQUIREMENTS FOR THIS CONSTRUCTION PROJECT. A COPY OF THE NPDES GENERAL PERMIT AND NOI IS KEPT ON FILE IN EACH OF THE CONSTRUCTION OFFICES AND THE DEPARTMENT'S TEAM SUPPORT SECTION. A COPY OF THE GENERAL PERMIT OR THE NOI CAN BE OBTAINED UPON REQUEST FROM EITHER THE DEPARTMENT'S STORMWATER ENGINEER OR THE APPROPRIATE CONSTRUCTION ENGINEER.

SECTION 300

5. A. THE CONTRACTOR MAY ELECT TO USE ANY OF THE FOLLOWING MATERIALS TO MEET THE REQUIREMENTS OF ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B':
   a. CRUSHED STONE (PER STANDARD SPECIFICATION 821)
   b. CRUSHED CONCRETE (PER STANDARD SPECIFICATION 821)
   c. HOT-MIX MILLINGS (PER SPECIAL PROVISION 302514 MILLED HOT-MIX BASE COURSE)

   THE CONTRACTOR WILL NOT BE ALLOWED TO MIX DIFFERENT MATERIALS (OR SIMILAR MATERIALS FROM DIFFERENT SOURCES) TO MEET THE REQUIREMENTS OF ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'.

   ALL OF THE ABOVE LISTED MATERIALS ARE PERMITTED FOR USE ON THE JOB, PROVIDED THEY ARE SEPARATED INTO APPROVED AREAS. EACH AREA OF BASE COURSE MUST BE CONSTRUCTED USING MATERIALS FROM A SINGULAR SOURCE, FULL DEPTH, IN ORDER THAT PROPER TESTING MAY BE ACCOMPLISHED. THE CONTRACTOR AND ENGINEER SHALL AGREE ON THE LIMITS OF EACH SOURCE OF MATERIAL PRIOR TO PLACEMENT.

   B. THE QUANTITY USED FOR BASE OF EACH OF THE ABOVE LISTED MATERIALS WILL BE THE CONTRACTOR'S CHOICE, WITH THE TOTAL BEING EQUAL TO THE ACTUAL QUANTITY USED UNDER ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'.

   C. THE CONTRACTOR MAY ALSO ELECT TO RECYCLE MILLINGS FOR USE IN HOT-MIX AS PERMITTED BY THE STANDARD SPECIFICATIONS. THE CHOICE OF THE QUANTITY OF MILLINGS USED FOR THIS PURPOSE, OR FOR BASE COURSE, LIES WITH THE CONTRACTOR. ALL EXCESS MILLING MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR.

   D. HOT-MIX MILLINGS MAY BE GENERATED FROM THE FOLLOWING SOURCES:
   a. MATERIAL MADE AVAILABLE WHEN MILLED ON THIS CONTRACT UNDER ITEM 760000.
   b. MATERIAL MILLED ON THIS CONTRACT AT THE CONTRACTOR'S CHOICE UNDER ITEM 202000.
   c. MILLED MATERIAL FURNISHED ON THE JOB FROM THE CONTRACTOR'S YARD OR OTHER OUTSIDE SOURCE.
   ALL MILLED MATERIALS SHALL MEET THE MATERIAL REQUIREMENTS OF ITEM 302514 - MILLED HOT-MIX BASE COURSE.

   E. PAYMENT CLARIFICATION:
   a. SHOULD THE CONTRACTOR ELECT TO MILL PORTIONS OF HOT-MIX SHOWN ON THE PLANS TO BE REMOVED UNDER ITEM 202000 - EXCAVATION AND EMBANKMENT THE COST OF MILLING THIS HOT-MIX WILL BE PAID AS ITEM 202000 - EXCAVATION AND EMBANKMENT. THE MILLINGS GENERATED MAY BE RECYCLED INTO HOT-MIX, UTILIZED FOR BASE COURSE, OR DISPOSED OF TO AN APPROVED SITE. HAULING COSTS FOR DISPOSAL AND/OR RECYCLING ARE INCIDENTAL TO ITEM 202000 - EXCAVATION AND EMBANKMENT.

   b. MILLINGS GENERATED UNDER ITEM 760502 - PAVEMENT MILLINGS, TAPERCUT MAY BE RECYCLED INTO HOT-MIX, UTILIZED FOR BASE COURSE OR DISPOSED OF BY THE CONTRACTOR TO AN APPROVED SITE. NO SEPARATE PAYMENT WILL BE MADE FOR TRANSPORTING MILLINGS ON SITE OR TO AN APPROVED DISPOSAL SITE.

   c. SHOULD THE CONTRACTOR ELECT TO TEMPORARILY STOCKPILE MILLINGS ON THE JOB SITE FOR LATER USE, ALL COSTS FOR STOCKPILING AND SUBSEQUENT REHANDLING SHALL BE INCIDENTAL TO ITEM 202000 - EXCAVATION AND EMBANKMENT.

   d. MILLINGS USED FOR BASE COURSE SHALL BE PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF SPECIAL PROVISION 302514 - MILLED HOT-MIX BASE COURSE. NO SEPARATE PAYMENT WILL BE MADE TO FURNISH MILLINGS FROM AN OUTSIDE SOURCE OR TRANSPORT MILLINGS WITHIN THE PROJECT LIMITS. MILLINGS USED FOR BASE COURSE WILL BE PAID FOR AT THE UNIT BID PRICE FOR ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'.

   e. ALL COSTS TO UTILIZE MILLINGS IN RECYCLED HOT-MIX WILL BE INCIDENTAL TO THE UNIT PRICE BID FOR THE HOT-MIX ITEM USING THE RECYCLED MATERIAL.

   f. SPECIAL PROVISION 302514 - MILLED HOT-MIX BASE COURSE IS PROVIDED TO SPECIFY THE MEANS OF LAY DOWN AND COMPACTION AS WELL AS THE MATERIAL REQUIREMENTS FOR MILLINGS USED AS BASE COURSE. ALL COSTS TO BRING THE MILLINGS INTO COMPLIANCE WITH THE REQUIREMENTS OF ITEM - 302514 MILLED HOT-MIX BASE COURSE ARE INCIDENTAL TO ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'. NO PAYMENT WILL BE MADE FOR ITEM 302514 - MILLED HOT-MIX BASE COURSE. THE QUANTITY OF MILLINGS USED FOR BASE COURSE WILL BE PAID FOR UNDER ITEM 302007 - GRADED AGGREGATE BASE COURSE.

6. THE USE OF MILLINGS AND GABC IN THE TRAVEL WAY, TEMPORARY TRAVEL WAY, HIGH VOLUME ENTRANCES AND ACCESS RAMP FOR THE PURPOSE OF PROVIDING A TEMPORARY ROADWAY SURFACE, POTHOLE REPAIR, TAPERED EDGE FOR UTILITIES, BUTT JOINTS, AND LONGITUDINAL DROP-OFFS (MILLING AND PAVING OPERATIONS) IS PROHIBITED UNLESS IT IS OTHERWISE DESIGNATED TO BE USED IN THE CONTRACT PLANS. USE COLD PATCH, BITUMINOUS CONCRETE, BITUMINOUS CONCRETE WEDGE, OR TAPER MILL, AS NOTED IN THE CONTRACT DOCUMENTS OR APPROVED BY THE ENGINEER. PAYMENT FOR COLD PATCH, BITUMINOUS CONCRETE, OR BITUMINOUS CONCRETE WEDGE SHALL BE PAID AS NOTED IN THE CONTRACT DOCUMENTS. TAPER MILL BITUMINOUS CONCRETE SHALL BE PAID UNDER THE BITUMINOUS CONCRETE MILLING ITEM.

7. MILLINGS OR GABC SHALL BE USED AT THE FOLLOWING LOCATIONS WHERE ACCESS TO A BUSINESS, RESIDENCE, OR EDGE DROP OFF NEEDS TO BE MAINTAINED UNLESS OTHERWISE NOTED IN THE PLANS OR DIRECTED BY THE ENGINEER TO USE BITUMINOUS CONCRETE OR COLD PATCH. ALL MILLINGS AND GABC WILL BE ROLLED AND COMPACTED TO HELP PREVENT THE MATERIAL FROM UNRAVELLING:

   A. DRIVEWAYS
   B. ENTRANCES
   C. LOW VOLUME ACCESS RAMPS (IDENTIFIED IN THE CONTRACT DOCUMENTS)
   D. EDGE DROP-OFFS ADJACENT TO LIVE ROADWAY(LANE, SHOULDER, OR TURN LANE) AND THE PROPOSED ROAD CONSTRUCTION
   E. EDGE OF ROADWAY DROPOFF

8. GRADING AND MAINTAINING BASE COURSE THAT IS BEING USED FOR ROADWAY WEDGE/FILLET BETWEEN TRAVEL LANES AND PAVEMENT BOX, EDGE OF TRAVELWAY, DRIVEWAY OR ENTRANCE ACCESS SHALL BE INCIDENTAL TO ITEM NO. 743000 - MAINTENANCE OF TRAFFIC. THE BASE COURSE MATERIAL SHALL BE PLACED AT NO GREATER THAN THE SLOPE SPECIFIED IN TABLE 6G-1 AND SHALL BE COMPACTED. EXCESS BASE COURSE MATERIAL SHALL BE PUSHED AHEAD AND USED IN THE NEXT SEGMENT AND SHALL BE INCIDENTAL TO THE PARTICULAR BASE COURSE PAY ITEM. NO SEPARATE PAYMENT SHALL BE MADE FOR MILLINGS OR GABC TEMPORARY ROADWAY MATERIAL (TRM) USED TO PROTECT EDGE DROP-OFFS, UNLESS THE MATERIAL IS EVENTUALLY UTILIZED AS PART OF A PERMANENT ROADWAY AT WHICH TIME THE MATERIAL WOULD BE PAID FOR UNDER THE RESPECTIVE CONTRACT MATERIAL ITEM. VERTICAL DIFFERENCES SHALL BE CORRECTED IN ACCORDANCE WITH TABLE 6G-1 OF THE DELAWARE MUTCD.

SECTION 600

6. THE DEPARTMENT AND THE CONTRACTOR SHALL INSPECT ALL EXISTING PIPES AND DRAINAGE STRUCTURES TO BE USED IN THE FINAL DRAINAGE SYSTEM AND AGREE ON THE CONDITION PRIOR TO THE START OF CONSTRUCTION. EXISTING PIPES AND DRAINAGE STRUCTURES DAMAGED DUE TO CONTRACTOR OPERATIONS SHALL BE REPAIRED OR REPLACED IN-KIND AT THE CONTRACTOR'S EXPENSE. THE DEPARTMENT WILL VIDEO INSPECT NEW PIPE RUNS TO CONFIRM CONDITION PRIOR TO ACCEPTANCE. PIPE CLEANING PRIOR TO VIDEO INSPECTION AND MAINTENANCE OF TRAFFIC DURING THE VIDEO INSPECTION ARE THE RESPONSIBILITY OF THE CONTRACTOR AND INCIDENTAL TO THE PIPE ITEM THAT IS BEING VIDEO INSPECTED.

SECTION 700

7. STATION AND ELEVATION DATA GIVEN FOR DRAINAGE STRUCTURES ARE TO BE APPLIED TO THE CENTER OF THE GRATE FOR INLETS, AND TO THE CENTER OF THE STRUCTURE FOR JUNCTION BOXES AND MANHOLES.

8. ALL PAVED AREAS TO BE RECONSTRUCTED OR WIDENED SHALL BE SAWCUT AT THE POINT WHERE THE NEW PAVEMENT IS TO TIE INTO THE EXISTING PAVEMENT.

SECTION 900

9. THIS PROJECT IS COVERED UNDER AN NPDES GENERAL PERMIT FOR CONSTRUCTION. UNDER THE GENERAL PERMIT, COMPLIANCE WITH DELDOT'S APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLANS WILL CONSTITUTE COMPLIANCE WITH THE NPDES INDUSTRIAL PERMITTING REQUIREMENTS FOR THIS CONSTRUCTION PROJECT. A COPY OF THE NPDES GENERAL PERMIT AND NOI IS KEPT ON FILE IN EACH OF THE CONSTRUCTION OFFICES AND THE DEPARTMENT'S STORMWATER SECTION. A COPY OF THE GENERAL PERMIT OR THE NOI CAN BE OBTAINED UPON REQUEST FROM EITHER THE DEPARTMENT'S STORMWATER ENGINEER OR THE APPROPRIATE CONSTRUCTION ENGINEER.

MISCELLANEOUS

10. CONCRETE WHEEL STOPS ARE TO BE INSTALLED ON ALL PARKING SPACES ADJACENT TO SIDEWALKS. WHEEL STOPS ARE TO BE PLACED AS SHOWN ON THE VAN ACCESSIBLE PARKING DETAILS.

11. ALL FIRE LANES, FIRE HYDRANTS, AND FIRE DEPARTMENT CONNECTIONS SHALL BE MARKED IN ACCORDANCE WITH THE STATE FIRE PREVENTION REGULATIONS.

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

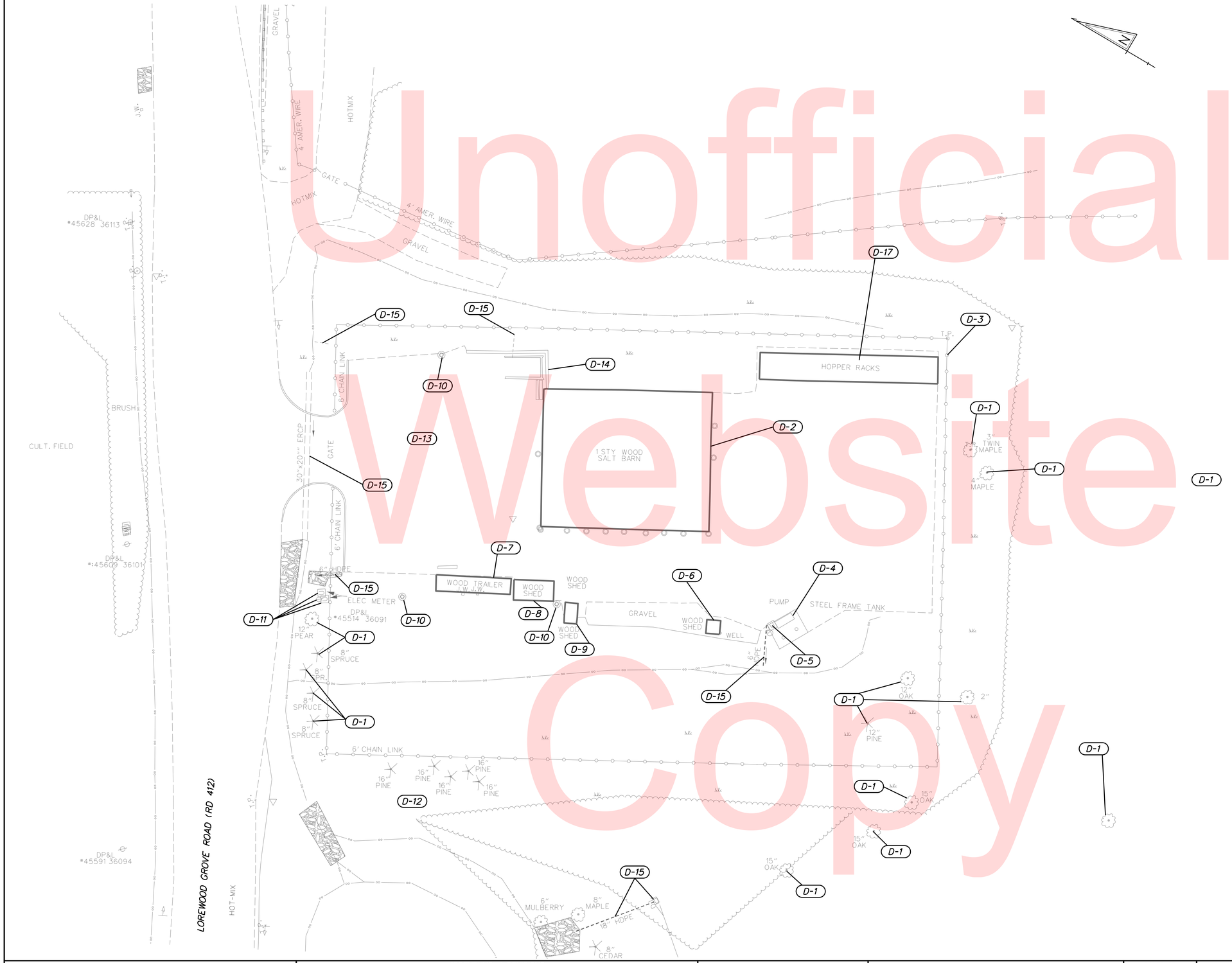
CONTRACT	T201680104
COUNTY	NEW CASTLE
BRIDGE NO.	N/A
DESIGNED BY: WJD	
CHECKED BY: BH	

NOTES

SHEET NO.	3
TOTAL SHTS.	116

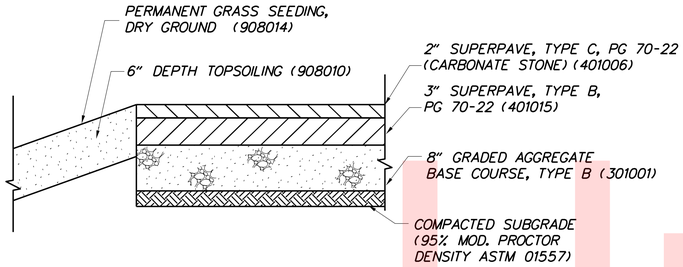
DEMOLITION NOTES

D-1 CLEAR AND GRUB LIMITS OF LOC
D-2 1 SY EXISTING SALT BARN TO BE REMOVED (W/ ALL FEATURES)
D-3 REMOVE EXISTING CHAIN LINK FENCE (SEE CP FOR DETAILS)
D-4 REMOVE EXISTING CONCRETE PAD & STEEL FRAME TANK
D-5 REMOVE EXISTING FUEL PUMP
D-6 REMOVE/ABANDON EXISTING WELL AND STRUCTURE
D-7 REMOVE EXISTING WOOD TRAILER
D-8 REMOVE EXISTING WOOD SHED
D-9 REMOVE EXISTING WOOD SHED
D-10 REMOVE EXISTING LIGHT POLE
D-11 REMOVE EXISTING UTILITY POLE
D-12 REMOVE EXISTING CONCRETE BLOCK
D-13 REMOVE EXISTING PAVEMENT/GRAVEL
D-14 REMOVE EXISTING SALT LOADING AREAS
D-15 REMOVE EXISTING DRAINAGE SYSTEM
D-16 RELOCATE UTILITIES (LOCATION TBD)
D-17 HOPPER RACKS TO REMAIN. DELINEATE AREA WITH CONSTRUCTION SAFETY FENCE (ITEM 727014)

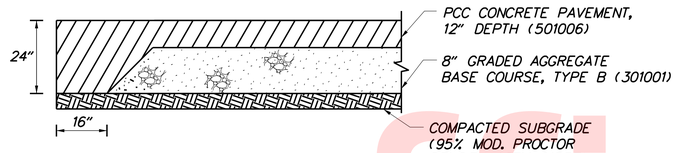


DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE 0 30 60 90 FEET	ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104 / COUNTY NEW CASTLE	BRIDGE NO. N/A / DESIGNED BY: MM / CHECKED BY: BH	EXISTING CONDITIONS & DEMOLITION PLAN	SHEET NO. 4 / TOTAL SHTS. 116

[SHEET: EC&DP]
FILE LOCATION: Q:\NDE\120995_021_ST_GEORGES_MAINTENAN\CADD\SITE\EXISTING CONDITIONS.DGN
PLOTTED BY: BDOUGHERTY DATE: 5/31/2017



PAVING SECTION 'A'
N. T. S.



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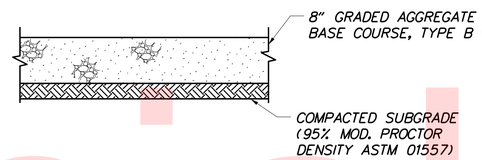
N. T. S.



PAVING SECTION 'C'
N. T. S.

DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
1	18" RCP	3	136.00'	0.0668	41.09	32.00
2	18" RCP	3	167.00'	0.0054	41.99	41.09
3	18" RCP	3	118.00'	0.0666	42.00	37.14
4**	6" PVC	N/A	99.00'	0.0091	42.70	41.80
5**	6" PVC	N/A	114.00'	0.0111	42.70	41.43
6**	6" PVC	N/A	46.00'	0.0080	41.80	41.43
7**	6" PVC	N/A	43.00'	0.0080	41.43	41.09

**ALL DOWNSPOUT CONNECTIONS TO THE PIPE AND PIPE CLEANOUTS ARE INCIDENTAL TO THE PIPE INSTALLATION ITEMS.

RIPRAP STABILIZATION SCHEDULE

NO.	TYPE	W	L	D
1	R-5	12.0'	20.0'	12"
2	R-5	12.0'	20.0'	12"
3	R-5	12.0'	20.0'	12"

CURB SCHEDULE

NO.	ITEM DESCRIPTION / TYPE	LENGTH
1	PCC CURB TYPE 1-6	355'
2	PCC CURB & GUTTER TYPE 3-6	417'
3	PCC CURB & GUTTER TYPE 3-6	70'

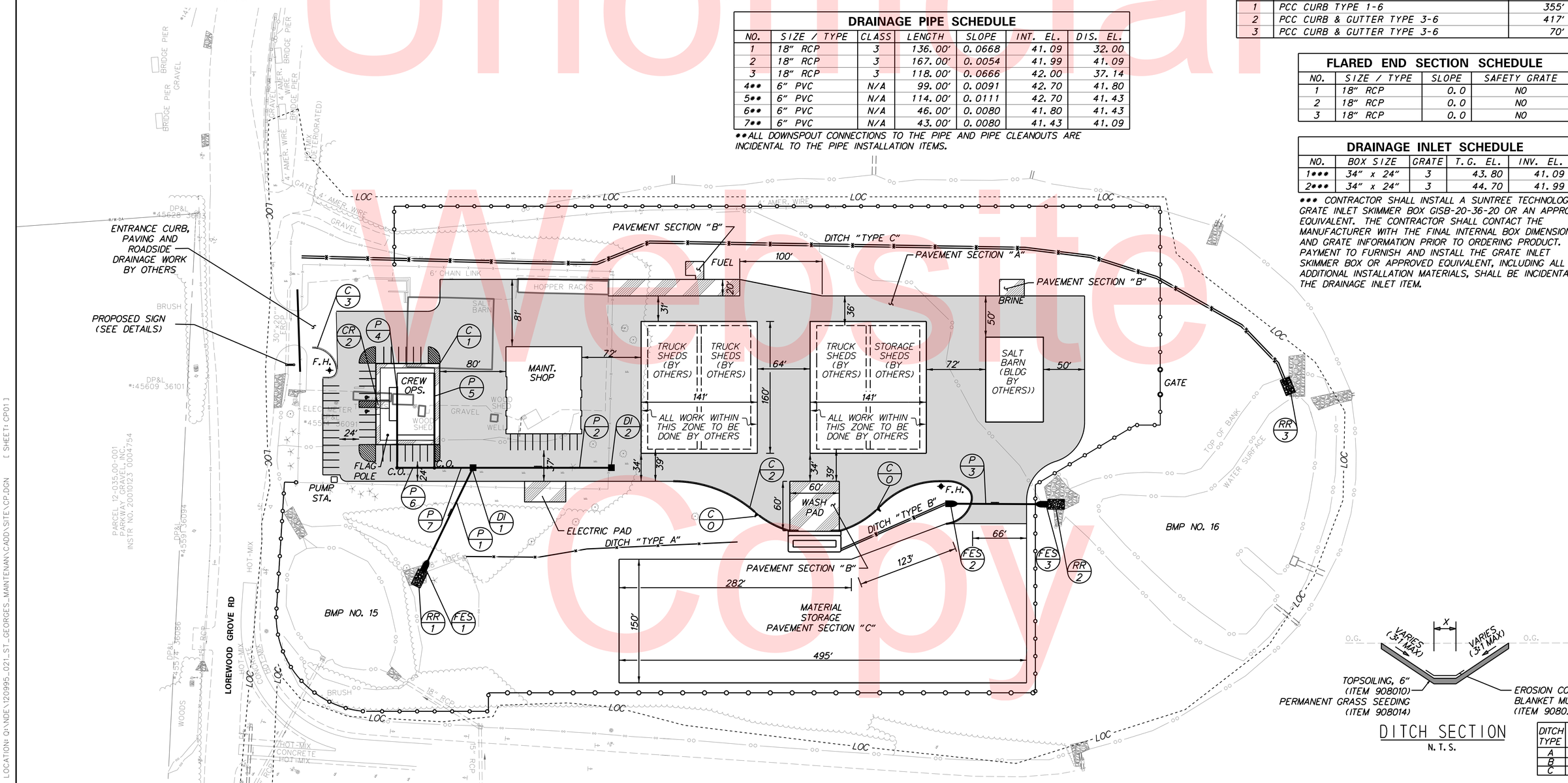
FLARED END SECTION SCHEDULE

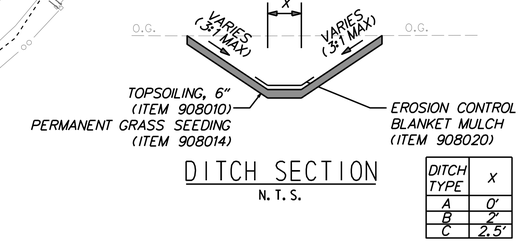
NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
1	18" RCP	0.0	NO
2	18" RCP	0.0	NO
3	18" RCP	0.0	NO

DRAINAGE INLET SCHEDULE

NO.	BOX SIZE	GRATE	T.G. EL.	INV. EL.
1***	34" x 24"	3	43.80	41.09
2***	34" x 24"	3	44.70	41.99

*** CONTRACTOR SHALL INSTALL A SUNTREE TECHNOLOGIES GRATE INLET SKIMMER BOX GISB-20-36-20 OR AN APPROVED EQUIVALENT. THE CONTRACTOR SHALL CONTACT THE MANUFACTURER WITH THE FINAL INTERNAL BOX DIMENSIONS AND GRATE INFORMATION PRIOR TO ORDERING PRODUCT. PAYMENT TO FURNISH AND INSTALL THE GRATE INLET SKIMMER BOX OR APPROVED EQUIVALENT, INCLUDING ALL ADDITIONAL INSTALLATION MATERIALS, SHALL BE INCIDENTAL TO THE DRAINAGE INLET ITEM.





DITCH SECTION
N. T. S.

DITCH TYPE	X
A	0'
B	2'
C	2.5'

PLOTTED BY: AFITZGERALD DATE: 6/16/2017
FILE LOCATION: Q:\NDE\120995_021_ST_GEORGES_MAINTENANCE\CADD\SITE\CP.DGN [SHEET: CP01]

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE
0 60 120 180
FEET

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO. N/A
T201680104	DESIGNED BY: WJD
COUNTY: NEW CASTLE	CHECKED BY: BH

CONSTRUCTION PLAN

SHEET NO. 5
TOTAL SHTS. 116

COORDINATE LIST

POINT NO.	NORTHING	EASTING	DESCRIPTION
1	562722.3110	589550.7201	EDGE OF PAVEMENT
2	562626.7595	589606.9793	EDGE OF PAVEMENT
3	562621.4466	589627.5199	EDGE OF PAVEMENT
4	562633.4989	589647.9749	EDGE OF PAVEMENT
5	562457.6295	589751.5967	EDGE OF FUEL PAD
6	562447.4768	589734.3652	EDGE OF FUEL PAD
7	562334.7706	589800.7714	EDGE OF FUEL PAD
8	562344.9233	589818.0028	EDGE OF FUEL PAD
9	562357.8469	589810.3883	EDGE OF FUEL PAD
10	562366.4626	589805.3119	EDGE OF FUEL PAD
11	562368.9020	589809.4523	EDGE OF FUEL PAD
12	562379.2409	589803.3606	EDGE OF FUEL PAD
13	562387.8707	589818.0073	EDGE OF FUEL PAD
14	562368.9161	589829.1753	EDGE OF FUEL PAD
15	562320.2048	589832.5669	EDGE OF PAVEMENT
16	562223.8947	589866.0991	EDGE OF PAVEMENT
17	562048.6478	589992.5674	EDGE OF BRINE PAD
18	562038.4950	589975.3361	EDGE OF BRINE PAD
19	562022.8008	590007.7967	EDGE OF BRINE PAD
20	562012.6480	589990.5654	EDGE OF BRINE PAD
21	561949.5983	590027.7137	EDGE OF PAVEMENT
22	561871.9224	589895.8832	EDGE OF PAVEMENT
23	561877.9638	589836.7693	EDGE OF PAVEMENT
24	561884.0562	589777.7419	EDGE OF PAVEMENT
25	561869.9328	589753.7714	EDGE OF PAVEMENT

COORDINATE LIST

POINT NO.	NORTHING	EASTING	DESCRIPTION
26	561954.0496	589704.2100	EDGE OF WASH PAD
27	561941.8867	589744.3839	EDGE OF WASH PAD
28	561952.8842	589753.9302	EDGE OF WASH PAD
29	561977.8799	589749.8399	EDGE OF WASH PAD
30	561987.1414	589744.3830	EDGE OF PAVEMENT
31	562033.6826	589681.2872	EDGE OF ELECTRIC PAD
32	562061.3376	589631.0267	EDGE OF ELECTRIC PAD
33	562113.0313	589600.5690	EDGE OF ELECTRIC PAD
34	562161.2382	589598.5860	EDGE OF ELECTRIC PAD
35	562265.3658	589580.4552	EDGE OF ELECTRIC PAD
36	562436.0057	589479.9152	EDGE OF PAVEMENT
37	562606.6456	589379.3751	EDGE OF PAVEMENT
38	562617.5290	589382.0896	EDGE OF PAVEMENT
39	562635.6219	589371.4293	EDGE OF PAVEMENT
40	562695.0152	589472.2330	EDGE OF PAVEMENT
41	562688.1352	589476.2867	EDGE OF PAVEMENT
42	562685.2651	589490.9731	EDGE OF PAVEMENT
43	562649.2585	589520.6581	CREW OPERATIONS BLDG
44	562598.9061	589435.1987	CREW OPERATIONS BLDG
45	562531.5229	589474.9007	CREW OPERATIONS BLDG
46	562581.8753	589560.3600	CREW OPERATIONS BLDG
47	562523.0992	589618.1967	MAINTENANCE SHOP
48	562469.4591	589527.1575	MAINTENANCE SHOP
49	562390.1947	589573.8598	MAINTENANCE SHOP
50	562443.8348	589664.8990	MAINTENANCE SHOP

COORDINATE LIST

POINT NO.	NORTHING	EASTING	DESCRIPTION
51	562397.3860	589727.8979	TRUCK SHED
52	562316.1644	589590.0466	TRUCK SHED
53	562194.6830	589661.6231	TRUCK SHED
54	562275.9046	589799.4743	TRUCK SHED
55	562220.7641	589831.9629	TRUCK SHED
56	562139.5425	589694.1117	TRUCK SHED
57	562018.0612	589765.6882	STORAGE SHED
58	562099.2827	589903.5394	STORAGE SHED
59	562027.5463	589923.6207	SALT BRINE BLDG
60	561975.2591	589834.8794	SALT BRINE BLDG
61	561914.9495	589870.4145	SALT BRINE BLDG
62	561967.2368	589959.1557	SALT BRINE BLDG
63	561684.4029	590063.0012	DITCH
64	561706.1878	590079.5723	DITCH
65	561766.7805	590096.0292	DITCH
66	561872.0071	590099.6529	DITCH
67	562018.1932	590058.7796	DITCH
68	562442.4558	589818.0734	DITCH
69	562481.3129	589763.2509	DITCH
70	562551.9150	589724.7033	DITCH
71	562788.7876	589593.0577	DITCH
72	562364.9527	589492.7629	ELECTRIC PAD
73	562408.0312	589467.3811	ELECTRIC PAD
74	562377.6434	589514.3020	ELECTRIC PAD
75	562420.7221	589488.9204	ELECTRIC PAD
76	562544.4573	589682.3583	EXISTING HOPPER RACKS
77	562552.3519	589696.8094	EXISTING HOPPER RACKS
78	562725.6277	589498.8675	ENTRANCE

FENCE COORDINATE LIST

POINT NO.	NORTHING	EASTING
F1	562689.4652	589633.8312
F2	562726.5571	589696.2433
F3	561925.8672	590168.0183
F4	561790.9403	589939.2024
F5	561816.8633	589923.9283
F6	561884.7660	589799.8949
F7	561756.5763	589582.3280
F8	562328.2399	589245.5053
F9	562316.8264	589226.1341
F10	562446.2925	589149.8530
F11	562497.4142	589253.8856
F12	562600.7950	589201.4583
F13	562671.1680	589340.2238
F14	562657.1887	589348.0592

PLOTTED BY: BDOUGHERTY DATE: 5/31/2017
FILE LOCATION: Q:\NDE\120995_021_ST_GEORGES_MAINTENANCE\CADD\SITE\CL.DGN [SHEET: CL01]

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

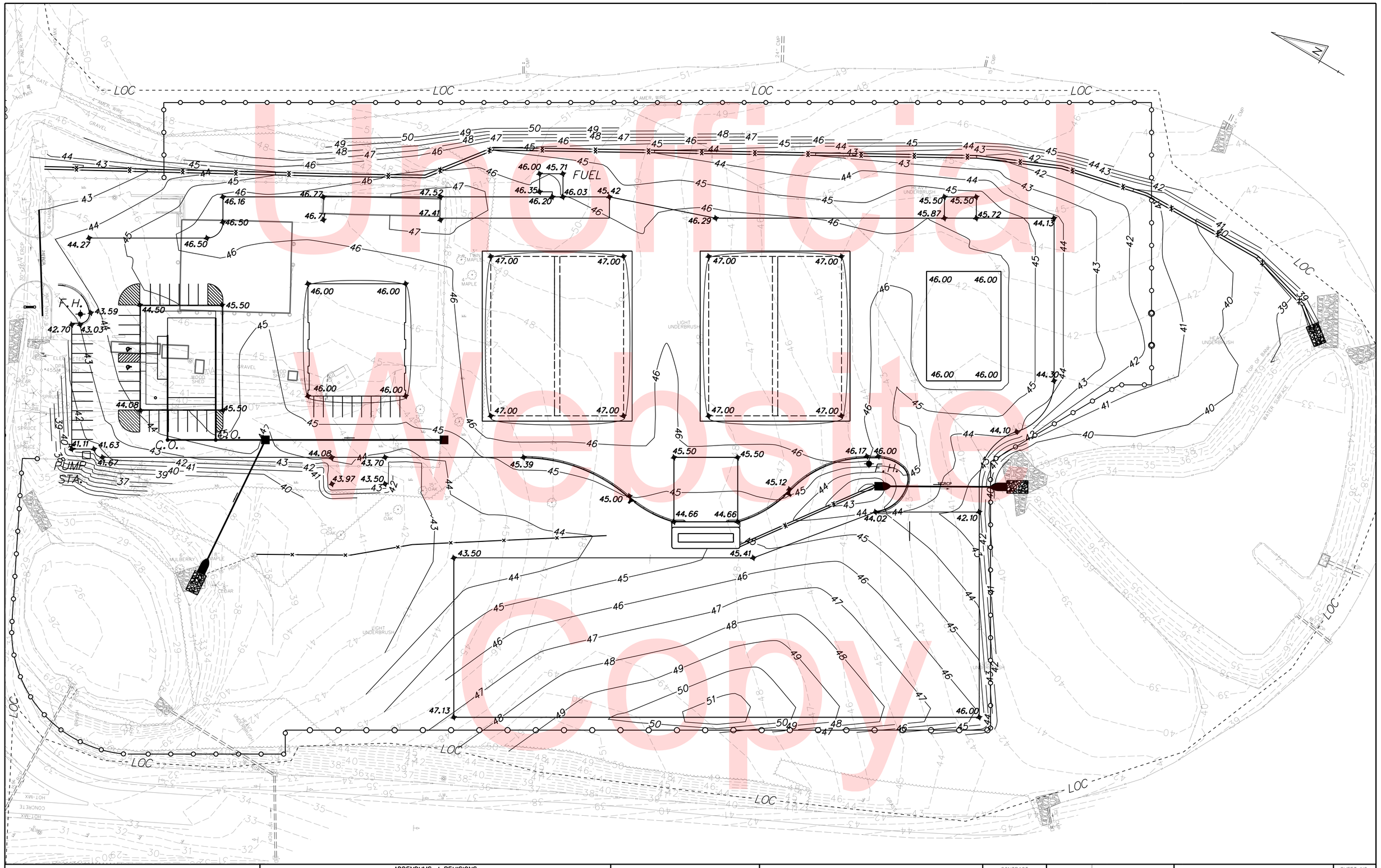
SCALE
0 60 120 180
FEET

ST. GEORGES MAINTENANCE
YARD IMPROVEMENTS

CONTRACT	T201680104
COUNTY	NEW CASTLE
BRIDGE NO.	N/A
DESIGNED BY: MM	
CHECKED BY: BH	

CONSTRUCTION LAYOUT

SHEET NO.	6
TOTAL SHTS.	116



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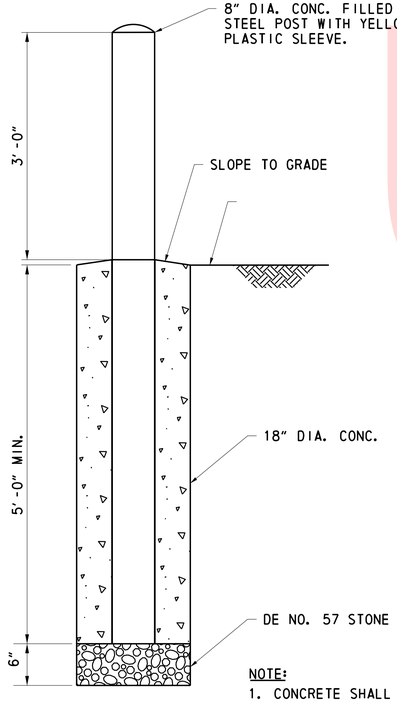
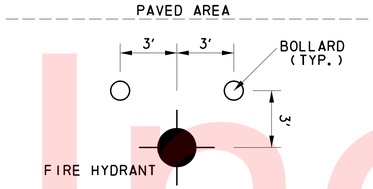
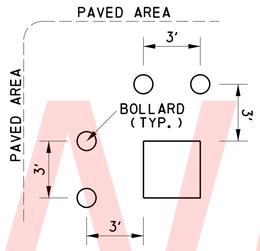
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE 0 40 80 120 FEET	ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	GRADING PLAN
				COUNTY NEW CASTLE	DESIGNED BY: MM	SHEET NO. 7
					CHECKED BY: BH	TOTAL SHTS. 116



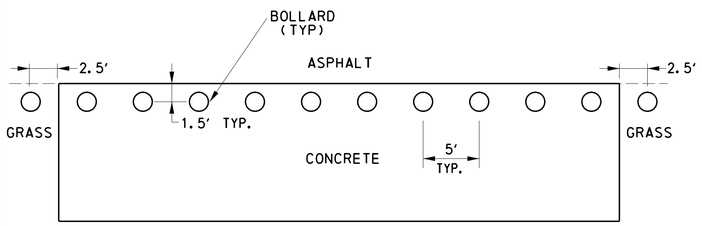
NOTE:
1. CONCRETE SHALL BE CLASS B.



FIRE HYDRANT
N.T.S.



PUMP STATION
N.T.S.



ELECTRIC PAD
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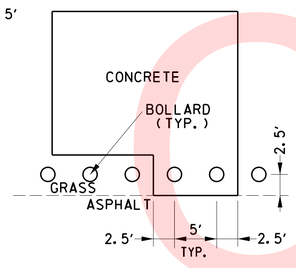
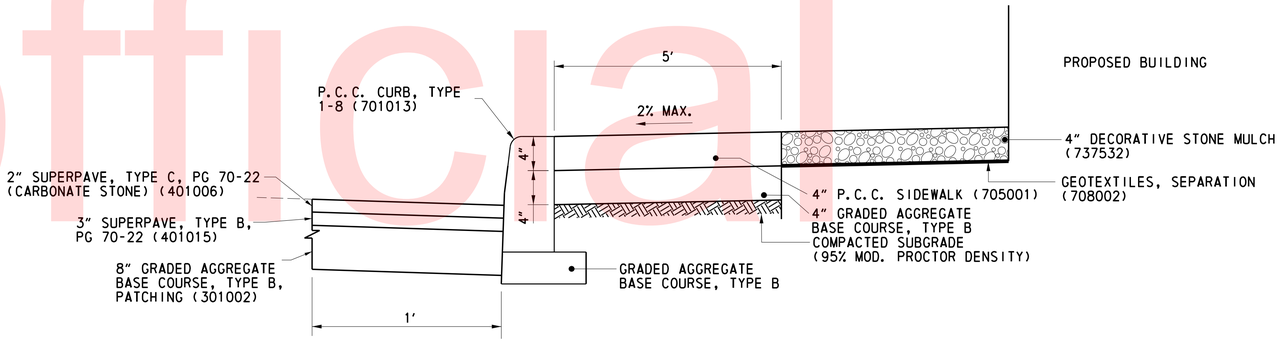


FUEL TANK PAD
N.T.S.

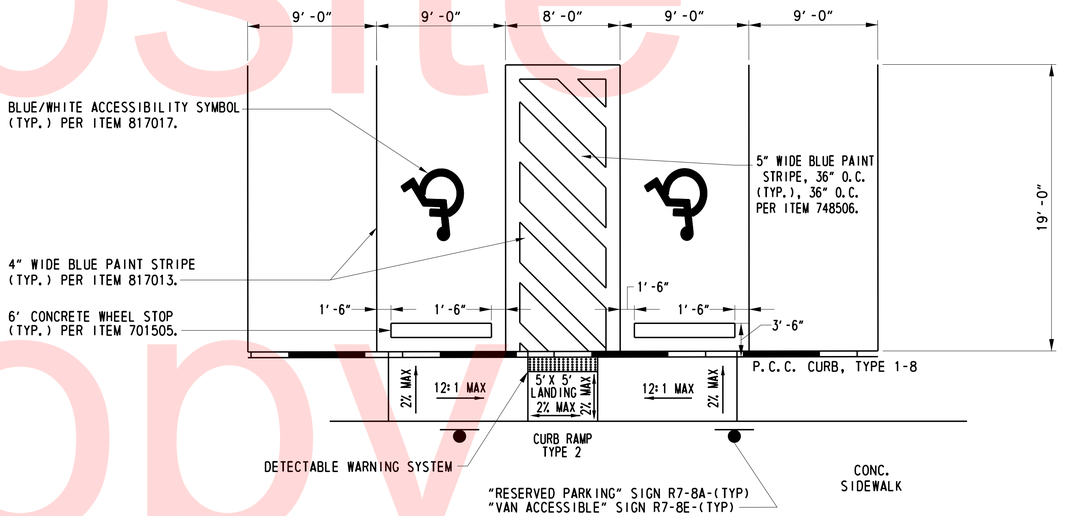
BOLLARD DETAIL
N.T.S.

NOTES:

1. MARK IN 5' SQUARES, MAKE ALL EFFORTS TO HAVE SIDEWALK JOINTS MATCH CURB JOINTS.
2. CONCRETE SIDEWALKS SHALL BE CONSTRUCTED AS PER DELDOT SPECIFICATIONS.
3. SIDEWALK TO BE CONSTRUCTED AT GRADE. SIDEWALK SHALL BE SLOPED AWAY FROM BUILDING AT 1.5% (MIN.) TO 2% (MAX.) IN ORDER TO ASSURE POSITIVE DRAINAGE.
4. ENSURE THAT ALL SIDEWALK AND CURB JOINTS ARE ALIGNED.



CONCRETE SIDEWALK DETAIL
N.T.S.



VAN-ACCESSIBLE PARKING DETAIL
N.T.S.

PLOTTED BY: BDOUGHERTY DATE: 5/31/2017
FILE LOCATION: Q:\NDE\120995_021_ST_GEORGES_MAINTENANCE\CADD\SITE\DT.DGN [SHEET: DT01]

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

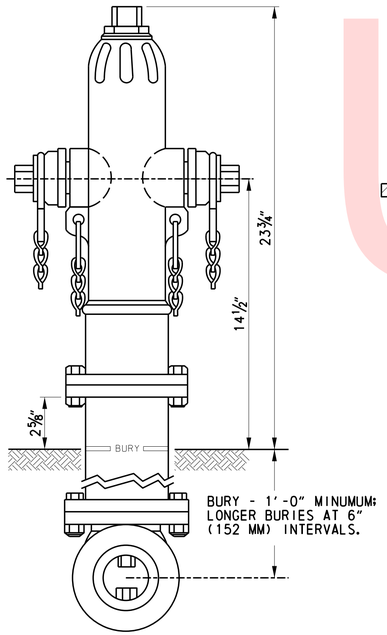
NOT TO SCALE

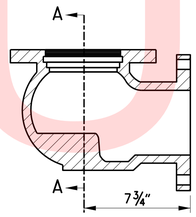
ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY: WJD	
COUNTY	CHECKED BY: BH	
NEW CASTLE		

DETAILS

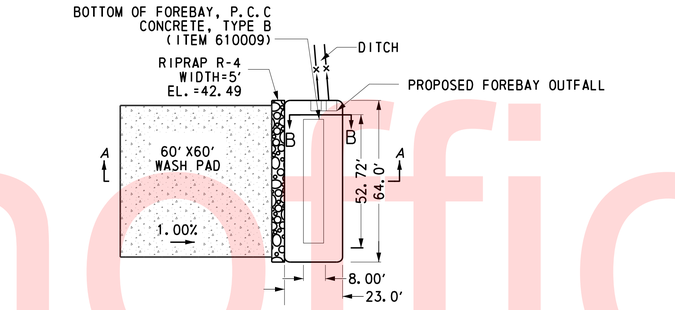
SHEET NO.
8
TOTAL SHTS.
116

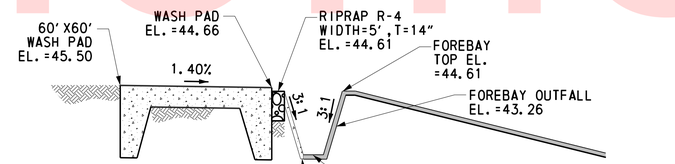




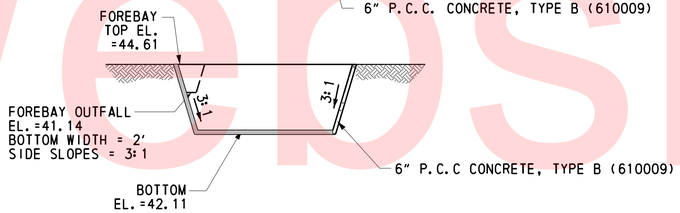
FLANGE
N. T. S.

POST TYPE TWO-PORT HYDRANT
N. T. S.





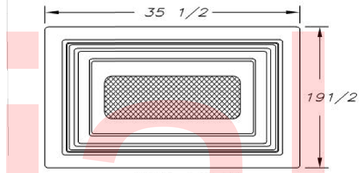
SECTION A-A



SECTION B-B

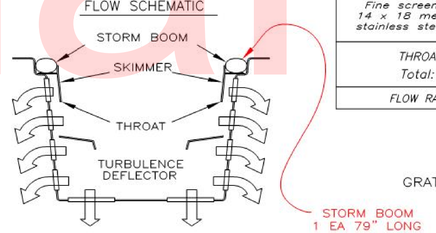
WASH PAD FOREBAY DETAIL
N. T. S.

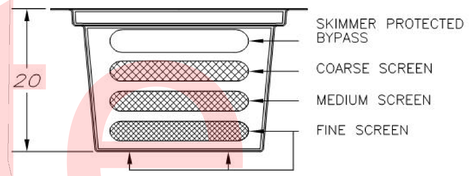
Part # GISB-20-36-20



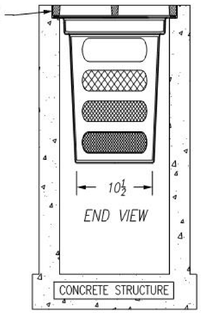
TOP VIEW

Flow Specifications				
Description of filter opening	Percent Open (Based on Screen Dimensions)	Total Square Inches per Unit	Square Inches of Total Unobstructed Openings	Flow Rate (Cubic Feet per Second)
Skimmer protected By-Pass	100%	211.4	211.4	7.4 cfs
Coarse Screen 3/4" x 1-3/4" stainless steel flattened expanded	62%	187.2	116.1	5.0 cfs
Medium Screen 10x10 mesh stainless steel	56%	187.2	104.9	5.2cfs
Fine screen 14 x 18 mesh stainless steel	68%	119.1	76.9	4.3 cfs
THROAT FLOW RATE Total: 12.2 cfs		TREATED FLOW RATE Total: 14.5 cfs		
FLOW RATES BASED ON UNOBSTRUCTED OPENINGS				





SIDE VIEW



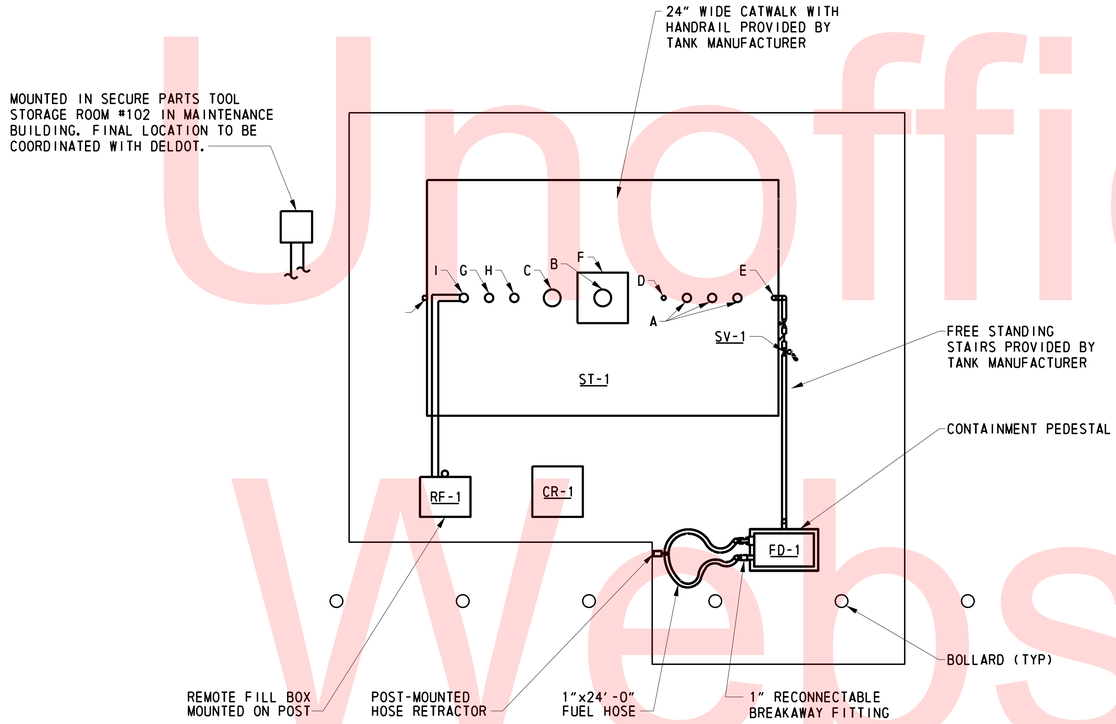
BOX MANUFACTURED FROM MARINE GRADE FIBERGLASS & GEL COATED FOR UV PROTECTION

REMOVE GRATE
INSERT GISB
REINSTALL GRATE

GRATE INLET SKIMMER BOX
N. T. S.

NOTE: GRATE INLET SKIMMER BOX TO BE INSTALLED AFTER FINAL STABILIZATION OF ALL DISTURBED AREAS.

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	NOT TO SCALE	ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	CONSTRUCTION DETAILS	SHEET NO. 9
				COUNTY NEW CASTLE	DESIGNED BY: WJD		TOTAL SHTS. 116
					CHECKED BY: BH		



GENERAL SHEET NOTES:

1. WORK SHALL CONFORM TO THE CONTRACT DRAWINGS, SPECIFICATIONS AND THE LATEST APPLICABLE INTERNATIONAL MECHANICAL AND PLUMBING CODE AND THE NATIONAL ELECTRIC CODE. WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 70, COMAR, THE NATIONAL ELECTRICAL CODE, THE NATIONAL ELECTRICAL SAFETY CODE, OSHA AND NATIONAL SAFETY CODE REQUIREMENTS.
2. THE SCOPE OF WORK INDICATED IN THESE DOCUMENTS SHALL INCLUDE MECHANICAL AND ELECTRICAL SYSTEMS, FULLY ADJUSTED, TESTED AND READY TO USE. PROVIDE ITEMS NECESSARY TO COMPLETE THE SYSTEMS. EXAMINE WORK INDICATED FOR TRADES IN ORDER TO DETERMINE THE EXTENT OF THE WORK REQUIRED TO BE COMPLETED.
3. IT IS THE INTENTION OF THESE DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN "FURNISH AND INSTALL COMPLETE, TESTED AND READY FOR USE."
4. THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW EVERY COMPONENT AND/OR ACCESSORY REQUIRED FOR A COMPLETE INSTALLATION. THE CONTRACTOR SHALL PROVIDE ITEMS NECESSARY FOR A PROPERLY WORKING SYSTEM IN COMPLIANCE WITH ACCEPTED INDUSTRY STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
5. PRIOR TO BID, THE CONTRACTOR SHALL VISIT THE SITE AND IDENTIFY ITEMS THAT MAY AFFECT THEIR BID. PRIOR TO THE INSTALLATION, FABRICATION, REMOVAL, OR RELOCATION OF ANY WORK, THE CONTRACTORS SHALL REVIEW THE ACTUAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND SHALL COORDINATE WORK WITH THE PLANS, EXISTING EQUIPMENT AND SYSTEMS, BUILDING STRUCTURE AND WORK OF OTHER TRADES. WHERE CONFLICTS OCCUR, OR IF CONNECTIONS THERETO CAN NOT BE MADE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER PRIOR TO MATERIAL FABRICATION OR INSTALLATION.
6. WHERE THE WORK OF VARIOUS TRADES WILL BE INSTALLED IN CLOSE PROXIMITY TO ONE ANOTHER OR WHERE THERE IS EVIDENCE THAT THE WORK OF ONE TRADE WILL INTERFERE WITH WORK OF ANOTHER, THE CONTRACTOR SHALL WORK OUT SPACE CONDITIONS TO MAKE A SATISFACTORY ADJUSTMENT. IF THE CONTRACTOR ALLOWS ONE TRADE TO INSTALL HIS WORK BEFORE COORDINATING WITH WORK OF OTHER TRADES THE CONTRACTOR SHALL MAKE NECESSARY CHANGES TO CORRECT THE CONDITIONS IN A MANNER ACCEPTABLE TO THE OWNER AND THE CONTRACTOR SHALL BEAR THE COST OF SUCH CORRECTIONS.
7. THE CONTRACTOR SHALL LOCATE EQUIPMENT WHICH MUST BE SERVICED, OPERATED, OR MAINTAINED IN FULLY ACCESSIBLE POSITION. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ALLOW FOR BETTER ACCESSIBILITY.
8. THE CONTRACTOR SHALL LEAVE THE ENTIRE SYSTEM INSTALLED UNDER THIS CONTRACT IN PROPER WORKING ORDER AND SHALL, WITHOUT CHARGE, REPLACE ANY WORK OR MATERIALS WHICH DEVELOP DEFECTS, EXCEPT FROM ORDINARY WEAR AND TEAR, WITHIN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
9. THE CONTRACTOR SHALL, DURING THE ONE YEAR WARRANTEE PERIOD, BE RESPONSIBLE FOR PROPER REPAIR AND ADJUSTMENTS OF SYSTEMS AND EQUIPMENT, APPARATUS, DEVICES ETC. INSTALLED BY HIM, AND DO WORK NECESSARY TO ENSURE EFFICIENT AND PROPER FUNCTIONING.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR, AND SHALL INCUR FINANCIAL RESPONSIBILITIES FOR, ANY DAMAGES CAUSED BY OR RESULTING FROM DEFECTS IN HIS WORK.
11. REFER TO SPECIFICATIONS FOR APPLICABLE CODE COMPLIANCE AND TESTING INFORMATION.

MISCELLANEOUS EQUIPMENT SCHEDULE

DESIG.	DESCRIPTION	BASIS	NOTES:
ST-1	DIESEL FUEL STORAGE TANK; THERMALLY INSUALTED, FG DOUBLE WALL STEEL ABOVEGROUND CYLINDRICAL STORAGE TANK. 5,000 GALLON CAPACITY; OVERALL DIMENSIONS: 13'-11"L x 8'-6"W x 8'-6"H. PROVIDE WITH OPTIONAL STAIRS AND CATWALK INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.	HIGHLAND TANK FIREGUARD	1
FD-1	PUMP/REGISTER ASSEMBLY: STAND ALONE, SINGLE NOZZLE HIGH FLOW DISPENSER; 1 1/2" INLET, 1" DISCHARGE, MOTOR: 3/4 HP CONTINUOUS DUTY, 22 GPM, 115V-1Ø.	GASBOY MODEL 9153KX	1
CR-1	CARD READER: MECHANICAL DISPENSER CONTROL WITH MANUAL OVERRIDE; COORDINATE REQUIRMENTS WITH DELDOT TO ENSURE COMPATIBILITY WITH EXISTING SYSTEMS.	FUELMASTER 2500 PLUS	1
RF-1	REMOTE FILL: REMOTE FILL CONTAINMENT ENCLOSURE INCLUDING WEATHERPROOF, LOCKABLE BOX WITH 20 GALLON SPILL CONTAINMENT, QUICK DISCONNECT HOSE COUPLING WITH DUST PLUG, AND A HAND PUMP FOR SPILL CONTAINMENT. SYSTEM ALSO INCLUDES A CHECK VALVE, SHUTOFF VALVE, AND GROUND STUD. ENCLOSURE WILL BE MOUNTED TO A 3" POST VIA MANUFACTURER PROVIDED CLAMPS.	SIMPLEX AUTOMATIC FUELPORT	1
IC-1	INVENTORY CONTROL: AUTOMATIC LEAK DETECTION FOR UP TO 4 TANKS, ALARMS FOR MULTIPLE CONDITIONS INCLUDING LEAK, OVERFILL, LOW PRODUCT, SUDDEN LOSS, HIGH WATER, DELIVERY NEEDED, TEST FAILURE, TANK TEST NOT PERFORMED.	VEEDER-ROOT TLS-350R	1
SV-1	SOLENOID VALVE; 1 1/2" NPT, 2-WAY, BRASS CONSTRUCTION WITH BRONZE "FREE PISTON" DESIGN, NORMALLY CLOSED. ELEC: 120V-1Ø	SNAP-TITE GREENTOP	1

NOTES:
1.) REFER TO ELECTRICAL DRAWINGS AND SPECFICATIONS FOR ADDITIONAL INFORMATION.

FUEL TANK SCHEDULE

ITEM	SIZE	FUNCTION
A	4"	FEMALE FG COUPLING
B	8"	FFSO 150# FLANGE - PRIMARY EMERGENCY VENT USE ONLY
C	8"	FFSO 150# FLANGE THROUGH OUTER SHELL ONLY, MARK WITH SPECIAL WARNING LABEL INTERSTITIAL EMERGENCY VENT USE ONLY
D	2"	FITTING THROUGH OUTER SHELL ONLY WITH CAST IRON PLUG - MFG USE ONLY
E	2"	MONITOR PIPE WITH MALE NPT END
F	24" x 1/4"	PLATE TIGHT BOLT MANWAY WITH 1/8" THICK NEO-CORK GASKET AND "B" IN COVER ON CL
G	4"	LEVEL SENSOR
H	4"	INTERSTITIAL SPACE SENSOR
I	4"	CONTAINMENT FILL BOX CONNECTION

DIESEL FUEL TANK PLAN
N. T. S.

PLOTTED BY: BDOUGHERTY DATE: 5/31/2017
FILE LOCATION: Q:\NDE\120995_021_ST_GEORGES_MAINTENANCE\CADD\SITE\DT.DGN [SHEET: DT03]

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

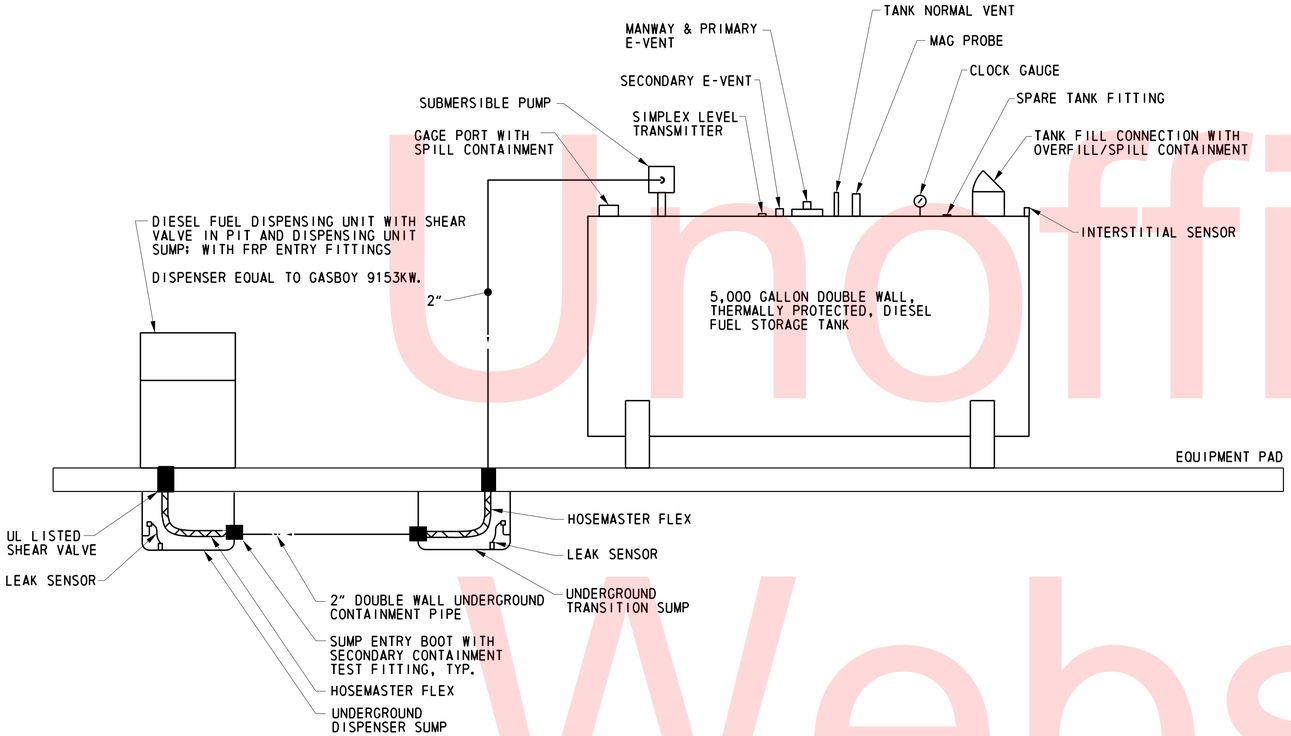
NOT TO SCALE

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

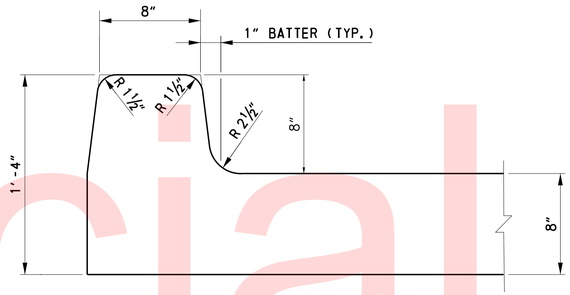
CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY: WJD	
COUNTY	CHECKED BY: BH	
NEW CASTLE		

CONSTRUCTION DETAILS

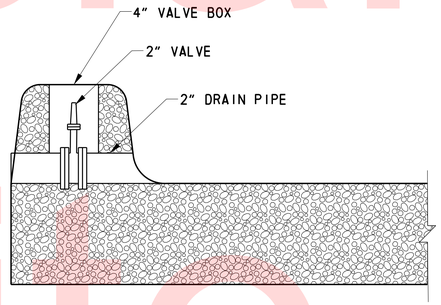
SHEET NO.
10
TOTAL SHTS.
116



DIESEL FUEL TANK DISPENSER SYSTEM
N. T. S.

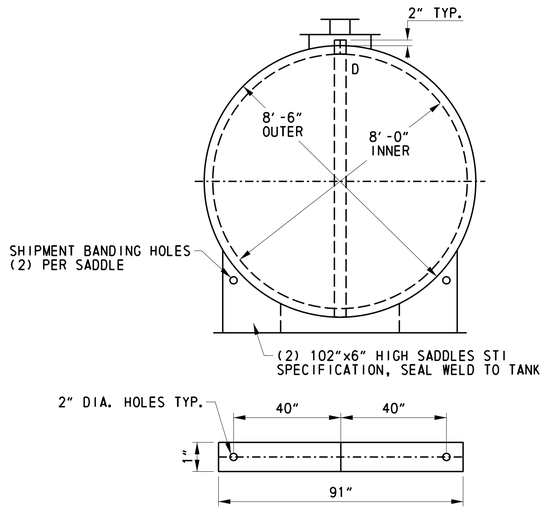


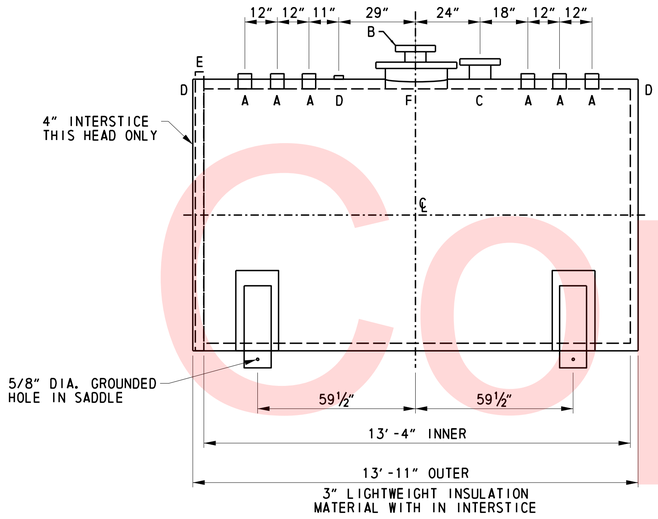
CURB CONTAINMENT
N. T. S.



CURB DRAIN
N. T. S.

NOTE: CURB CONTAINMENT TO BE INSTALLED AROUND PERIMETER OF FUEL TANK PAD. CURB CONTAINMENT SHALL BE INCIDENTAL TO ITEM: 501006 - P.C.C. CONCRETE PAVEMENT, 12" DEPTH





DIESEL FUEL TANK
N. T. S.

FITTING LEGEND	
A	4" FEMALE FG COUPLING
B	8" FFSO 150# FLANGE - PRIMARY EMERGENCY VENT USE ONLY
C	8" FFSO 150# FLANGE THROUGH OUTER SHELL ONLY, MARK WITH SPECIAL WARNING LABEL INTERSTITIAL EMERGENCY VENT USE ONLY
D	2" FITTING THROUGH OUTER SHELL ONLY WITH CAST IRON PLUG - MFG USE ONLY
E	2" MONITOR PIPE WITH MALE NPT END
F	24"x 1/4" PLATE TIGHT BOLT MANWAY WITH 1/8" THICK NEO-CORK GASKET AND "B" IN COVER ON CL

NOTE:
1. PROVIDE STAIRS FOR ACCESS TO TOP OF FUEL TANK. TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
2. ALL COSTS ARE INCIDENTAL TO ITEM XXXXX - SITE WORK

PLOTTED BY: BDOUGHERTY DATE: 5/31/2017
FILE LOCATION: Q:\NDE\120995_021_ST_GEORGES_MAINTENANCE\CADD\SITE\DT.DGN [SHEET: DT04]

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

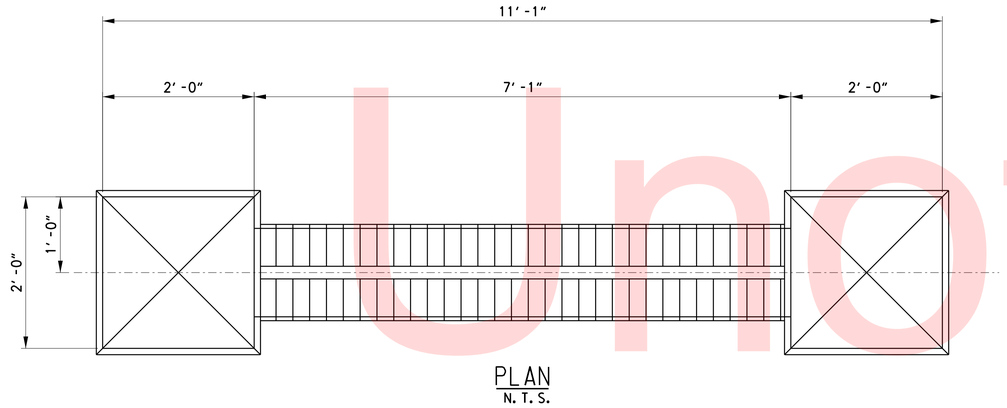
NOT TO SCALE

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

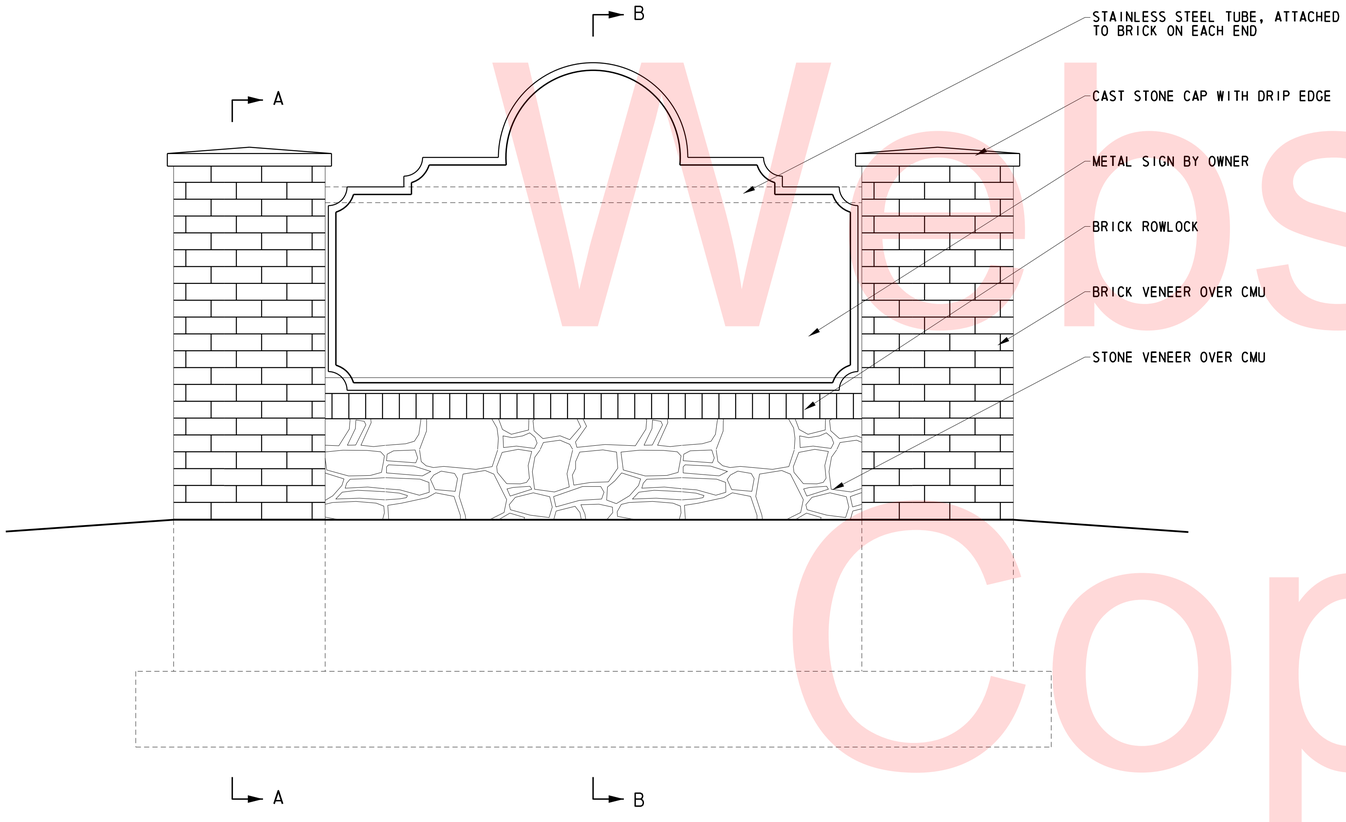
CONTRACT	BRIDGE NO. N/A
T201680104	DESIGNED BY: WJD
COUNTY	CHECKED BY: BH
NEW CASTLE	

CONSTRUCTION DETAILS

SHEET NO.	TOTAL SHTS.
11	116



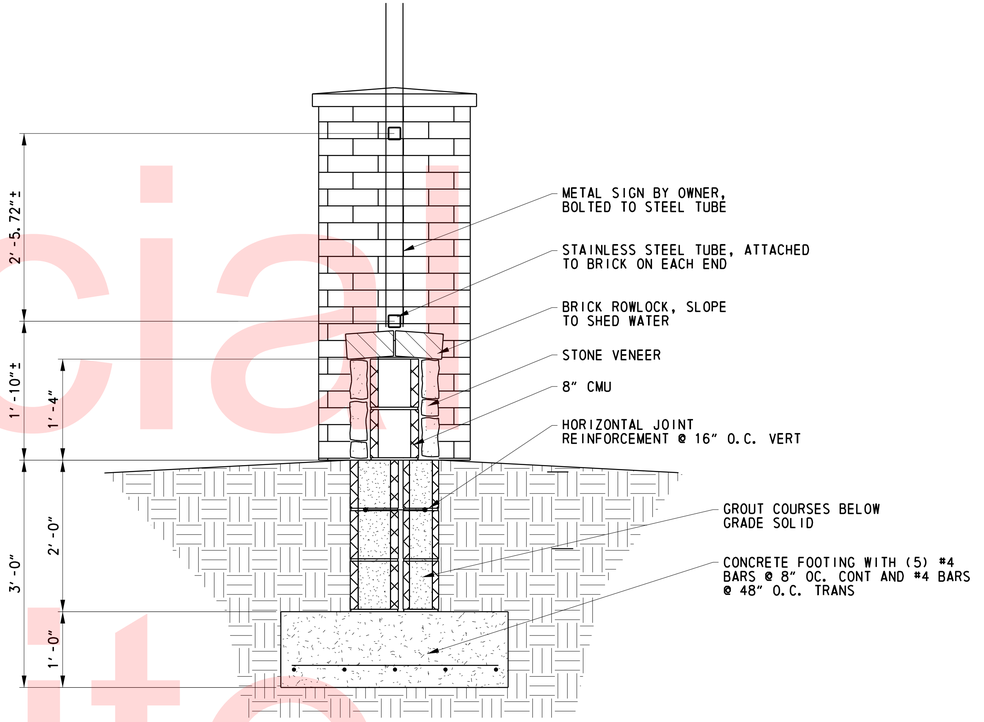
PLAN
N. T. S.



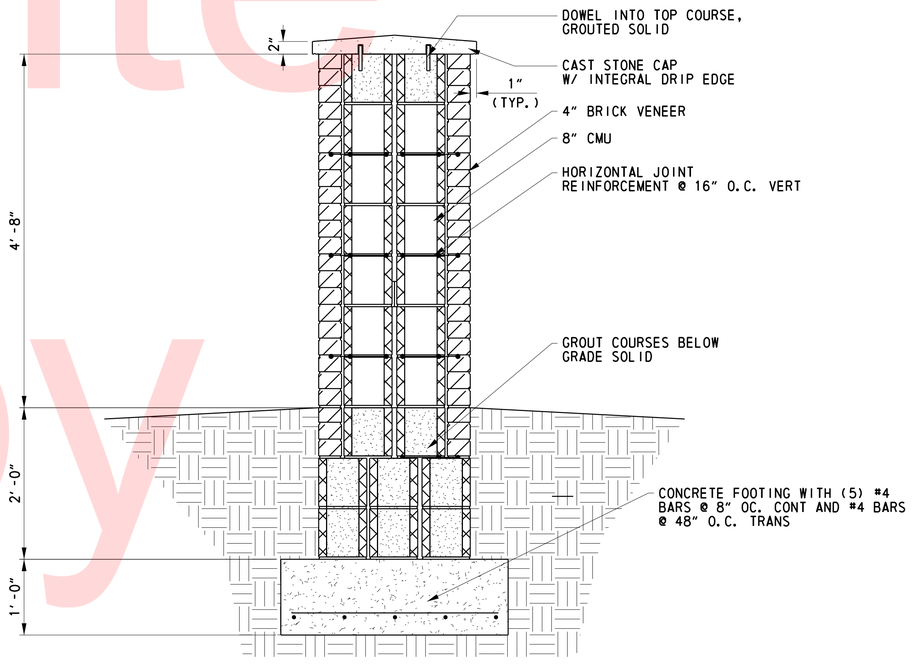
ELEVATION
N. T. S.

NOTE:
1. SEE ELECTRIC PLANS FOR ILLUMINATION DETAILS.
2. SIGN CONSTRUCTION IS INCIDENTAL TO THE SITE WORK ITEM.

SITE SIGNAGE
N. T. S.



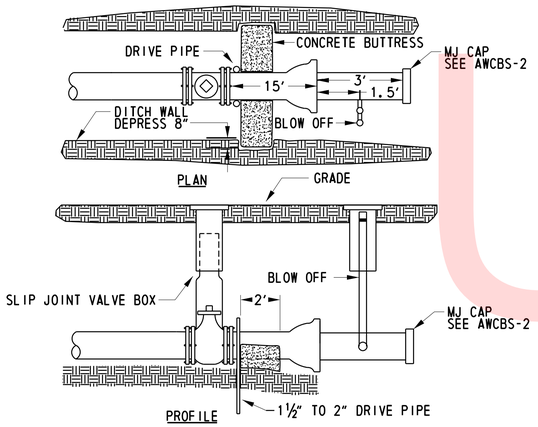
SECTON A-A
N. T. S.



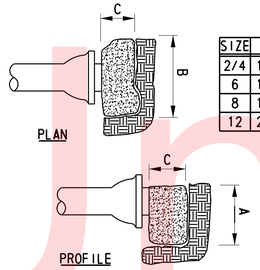
SECTON B-B
N. T. S.

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	NOT TO SCALE	ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	CONSTRUCTION DETAILS	SHEET NO. 12
				COUNTY NEW CASTLE	DESIGNED BY: WJD		TOTAL SHTS. 116
					CHECKED BY: BH		

AWCBS-1



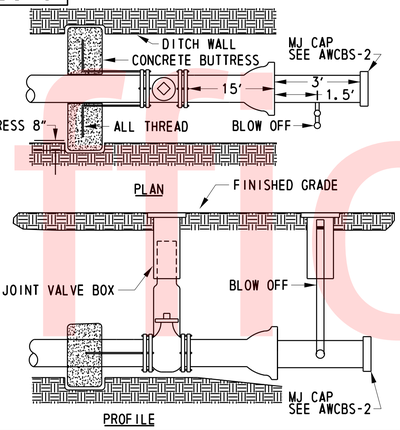
AWCBS-2



PLUG OR CAP			
SIZE	A	B	C
2/4	1'-0"	1'-6"	1'-0"
6	1'-0"	1'-6"	1'-0"
8	1'-6"	2'-0"	1'-3"
12	2'-0"	3'-0"	1'-6"

BUTTRESSES FOR PLUGS AND CAPS

AWCBS-3



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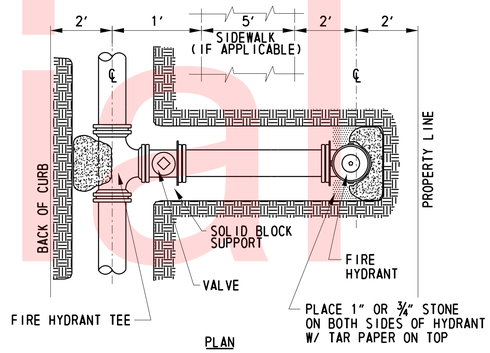
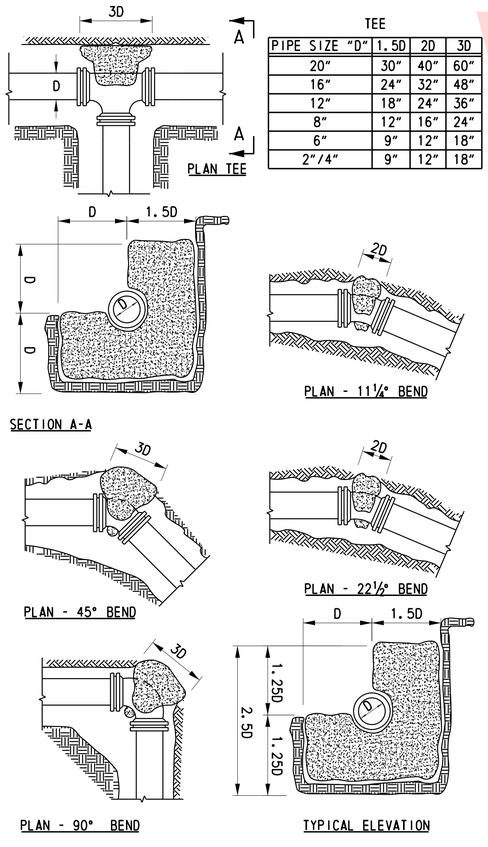
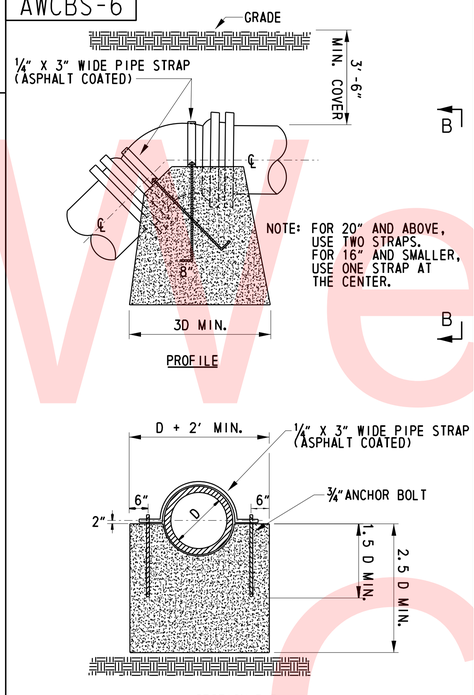


AWCBS-5



TEE			
PIPE SIZE "D"	1.5D	2D	3D
20"	30"	40"	60"
16"	24"	32"	48"
12"	18"	24"	36"
8"	12"	16"	24"
6"	9"	12"	18"
2"/4"	9"	12"	18"

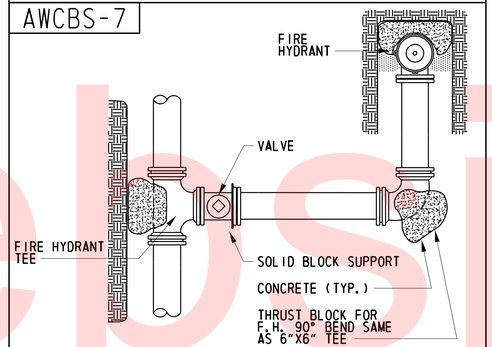
AWCBS-6



STANDARD REACTION BACKING FOR VERTICAL BENDS

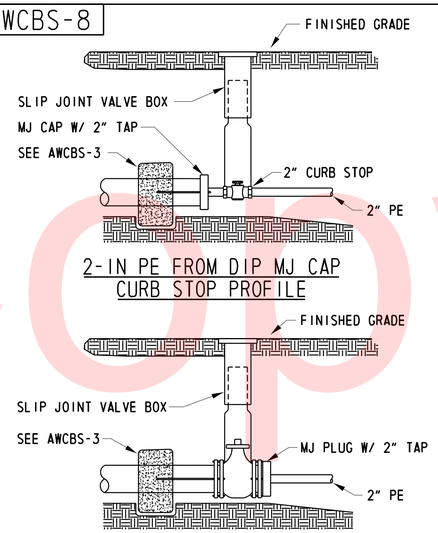
PIPE SIZE "D"	1.25D	1.5D	2D	2.5D	3D
20"	25"	30"	40"	50"	60"
16"	20"	24"	32"	40"	48"
12"	15"	18"	24"	30"	36"
8"	10"	12"	16"	20"	24"
6"	7.5"	9"	12"	15"	18"
2"/4"	7.5"	9"	12"	15"	18"

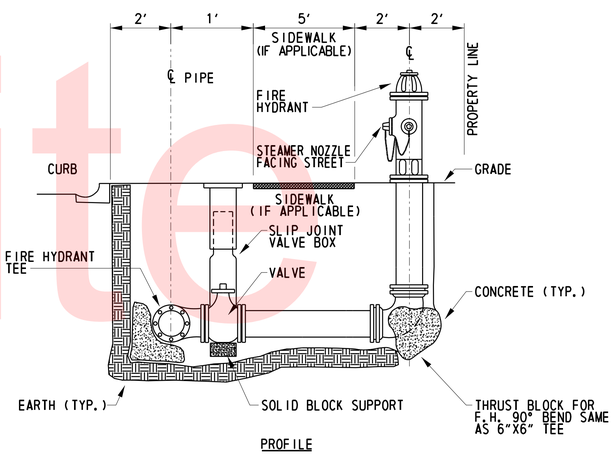
AWCBS-7



ALTERNATE FIRE HYDRANT INSTALLATION PLAN

AWCBS-8





TYPICAL FIRE HYDRANT INSTALLATION

SPECIFICATIONS DUE TO CHANGE WITHOUT NOTICE.
CONTACT ARTESIAN WATER CO.
FOR LATEST REVISIONS.

GENERAL NOTES:

1. ALLOW SUFFICIENT SPACE TO HAVE AN ACCESS TO BOLTS IN THE MECHANICAL JOINT.
2. STRENGTH OF CONCRETE SHOULD BE 2500 P.S.I. (MIN.) AFTER 28 DAYS.
3. ALL REACTION BACKING TO EXTEND TO UNDISTURBED EARTH.
4. WHEN USING MECHANICAL JOINT, USE TAR PAPER BETWEEN FITTING AND CONCRETE.

PLOTTED BY: BDOUGHERTY DATE: 5/31/2017
FILE LOCATION: Q:\NDE\120995_021_ST_GEORGES_MAINTENAN\CADD\SITE\DT.DGN [SHEET: DT06]

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

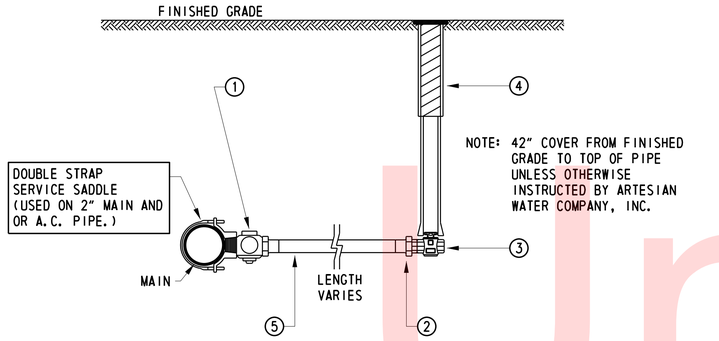
NOT TO SCALE

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY: WJD	
COUNTY	CHECKED BY: BH	
NEW CASTLE		

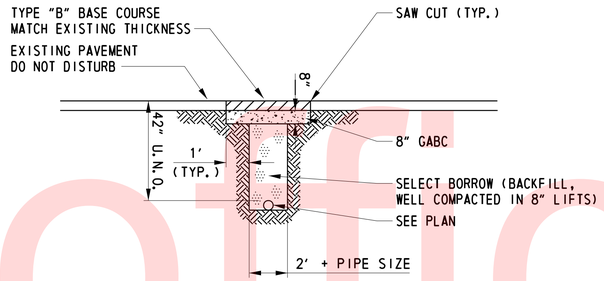
CONSTRUCTION DETAILS

SHEET NO.
13
TOTAL SHTS.
116



1. 3/4" CORPORATION STOP (15008)
2. 3/4" MALE X COMPRESSION ADAPTER (15428)
3. 3/4" CURB STOP (B20283)
4. CURB BOX (93-D)
5. 3/4" (TYPE K) COPPER TUBING

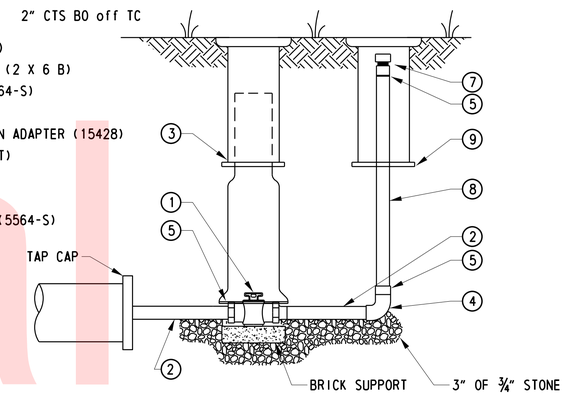
3/4" COPPER WATER SERVICE ASSEMBLY DETAIL
N. T. S.



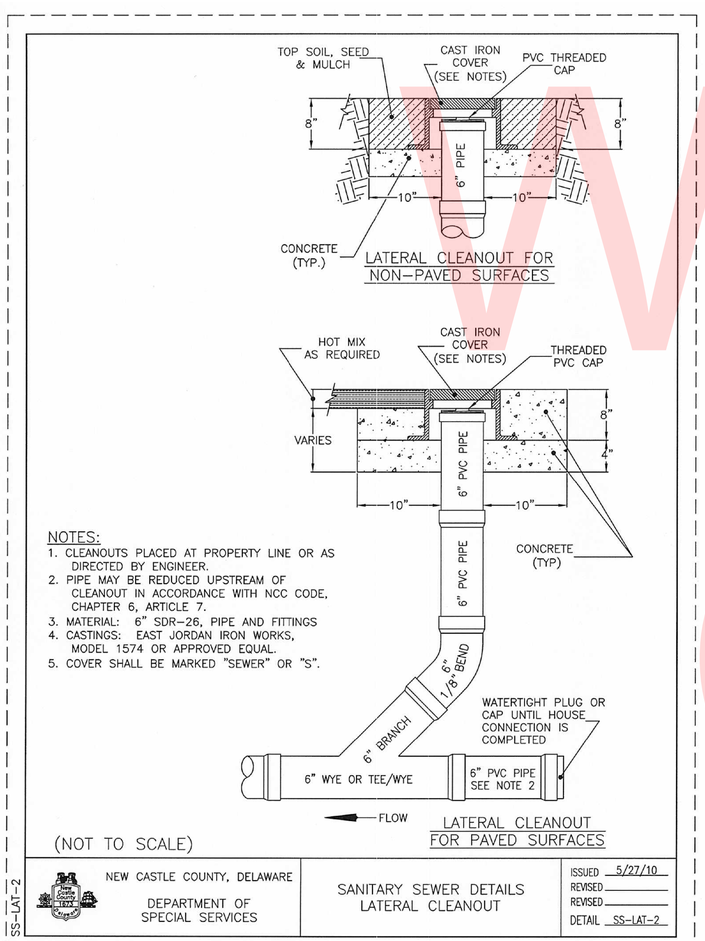
HOT MIX PATCH AND PIPE DETAIL
N. T. S.

ROADWAY TO BE RESURFACED

QTY		
1	1.	2" CURB STOP (B20283)
2	2.	2" X 6" BRASS NIPPLE (2 X 6 B)
1	3.	VALVE BOX BOTTOM (5564-S)
1	4.	2" BRASS 90 (2 B90)
3	5.	2" MALE X COMPRESSION ADAPTER (15428)
3	6.	2" INSERT (2 SSINSERT)
1	7.	2" CAP (2 CAP)
7'	8.	2" CTS PE
2	9.	VALVE BOX TOP & LID (5564-S)



2" CTS BO OFF TC DETAIL
N. T. S.



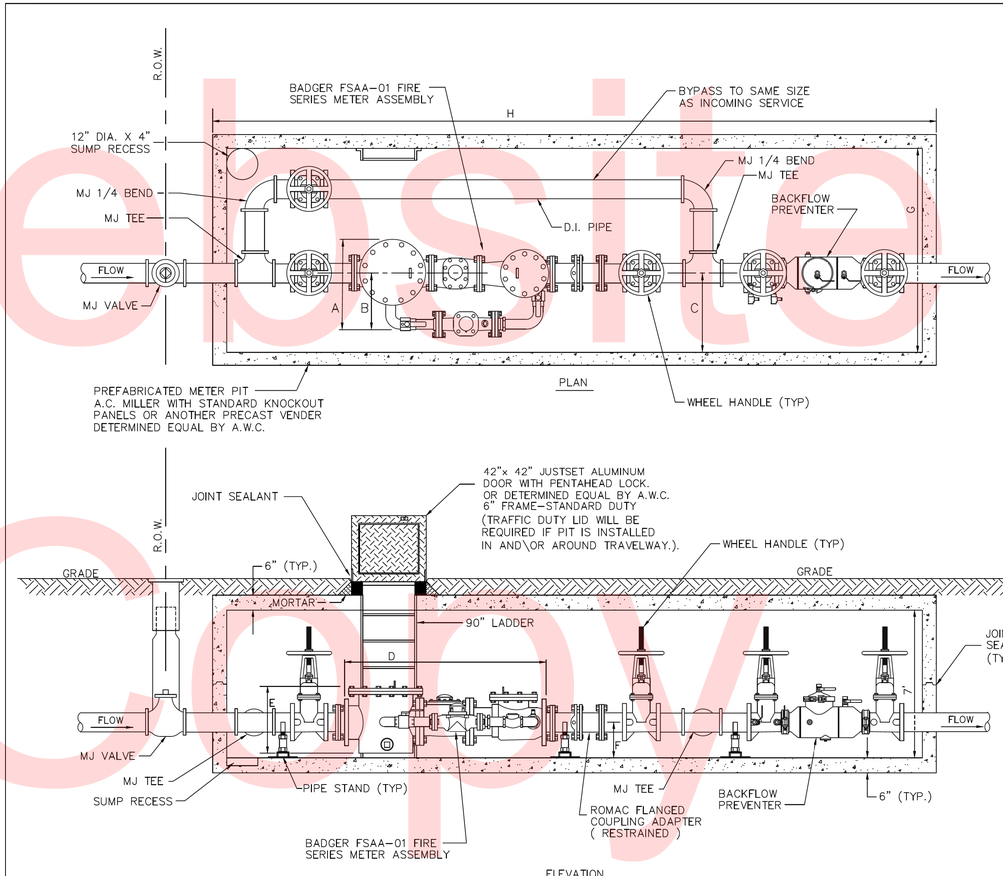
NOTES:
1. CLEANOUTS PLACED AT PROPERTY LINE OR AS DIRECTED BY ENGINEER.
2. PIPE MAY BE REDUCED UPSTREAM OF CLEANOUT IN ACCORDANCE WITH NCC CODE, CHAPTER 6, ARTICLE 7.
3. MATERIAL: 6" SDR-26, PIPE AND FITTINGS
4. CASTINGS: EAST JORDAN IRON WORKS, MODEL 1574 OR APPROVED EQUAL.
5. COVER SHALL BE MARKED "SEWER" OR "S".

(NOT TO SCALE)

NEW CASTLE COUNTY, DELAWARE DEPARTMENT OF SPECIAL SERVICES	SANITARY SEWER DETAILS LATERAL CLEANOUT	ISSUED 5/27/10 REVISED REVISED DETAIL SS-LAT-2

SS-LAT-2

G:\Special Services\Engineering\Drafting\Standard Details\Grosby\Approved\SSLAT2-LatCleanout.dwg



SIZE	4 IN.	6 IN.	8 IN.	10 IN.	12 IN.
A	22.88 IN.	29.0 IN.	30.25 IN.	34.06 IN.	34.06 IN.
B	16.13 IN.	19.50 IN.	17.75 IN	20.31 IN	20.31 IN
C	28 IN. (TYP.)	28 IN. (TYP.)	28 IN. (TYP.)	28 IN. (TYP.)	28 IN. (TYP.)
D	33.0 IN.	45.0 IN.	53.0 IN.	68.0 IN.	68.0 IN.
E	20.63 IN.	22.38 IN.	25.06 IN.	25.31 IN.	33.0 IN.
F	24 IN. (TYP.)	24 IN. (TYP.)	24 IN. (TYP.)	24 IN. (TYP.)	24 IN. (TYP.)
G	7 ft.	7ft. 4in.	7ft. 4in.	7ft. 4in.	7ft. 4in.
H	13 ft.	17ft. 4in.	17ft. 4in.	20 ft.	20 ft.
NET WEIGHT	312 LBS	507 LBS	767 LBS	1073 LBS	1073 LBS
BY-PASS SIZE (NOM)	4 IN.	6 IN.	8 IN.	10 IN.	12 IN.

NOTES:

1. SPECIFICATIONS DUE TO CHANGE WITHOUT NOTICE. CONTACT A.W.C. METER SHOP FOR LATEST REVISION.
2. METER TO BE INSTALLED BEFORE TOP HALF OF PIT IS PLACED.
3. METER PIT TOP SLAB,FLOOR SLAB,AND WALLS TO BE REINFORCED.
4. EXTERIOR OF VAULT TO HAVE ONE COAT OF COOPERS BITUMASTIC C4-SP APPLIED.
5. PIPING MUST BE RESTRAINED WITH REACTION ANGLES ON THE EXTERIOR WALLS WITH RODDING THRU THE WALL TO THE FIRST FLANGE ON EACH END.
6. INFISHIELD EXTERNAL GATOR WRAP REQUIRED OVER TOP/BOTTOM JOINT.
7. 18" MINIMUM BETWEEN INSIDE WALL AND FIRST FITTING (BOTH SIDES TYPICAL)
8. FINISHED GRADE SHALL SLOPE AWAY FROM ALUMINUM DOOR IN ALL DIRECTIONS TO PREVENT GROUNDWATER FROM ENTERING VAULT.
9. JOINT SEALANT REQUIRED ON ALL JOINTS (CONSEAL CS102)
10. BACK FLOW PREVENTER SHALL BE APOLLO VALVES MODEL DCDA-ALF-4A

NOT TO SCALE

DRAWN BY: HRH 2/19/15 - Revised: 11/13/15 — Badger_FSAA01_VaultDetail.dwg

ARTESIAN WATER COMPANY, INC.
664 Churchmans Road, Newark, Delaware 19702, P.O. Box 15004, Wilmington, Delaware 19850, Phone: (302) 453-6900 Fax: (302) 453-5800
14701 Coastal Highway, Milton, Delaware 19968, Phone: (302) 645-7299 Fax: (302) 645-8233

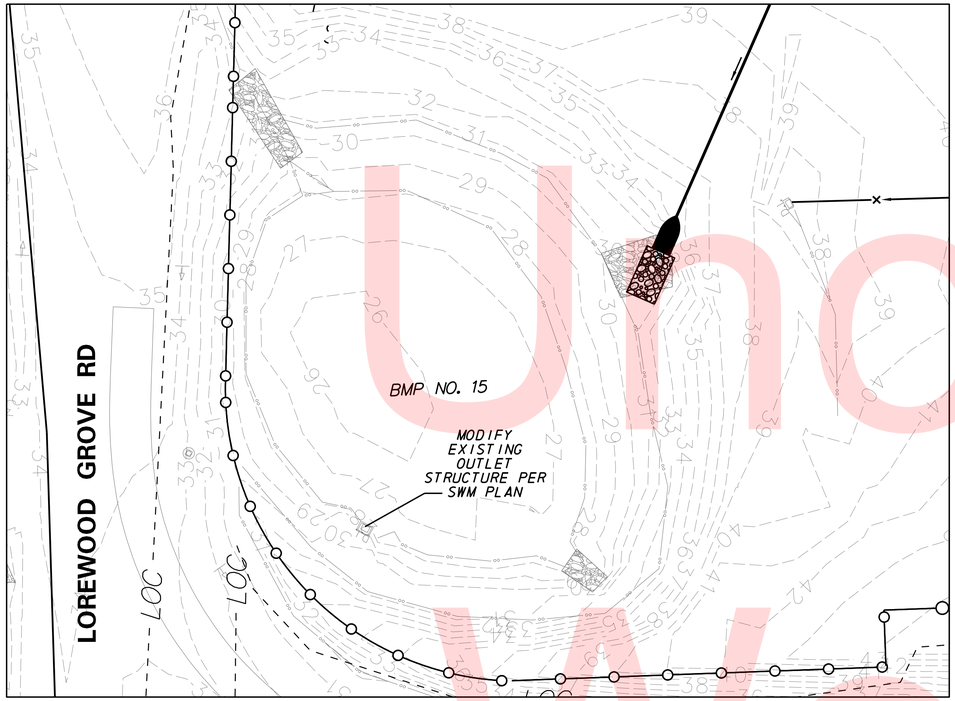
BADGER FSAA-01 FIRE & DOMESTIC SERVICE WATER METER ASSEMBLIES

PLOTTED BY: BDOUGHERTY DATE: 5/31/2017
FILE LOCATION: Q:\NDE\20995_021_ST_GEORGES_MAINTENANCE\CADD\SITE\DT.DGN [SHEET: DT07]

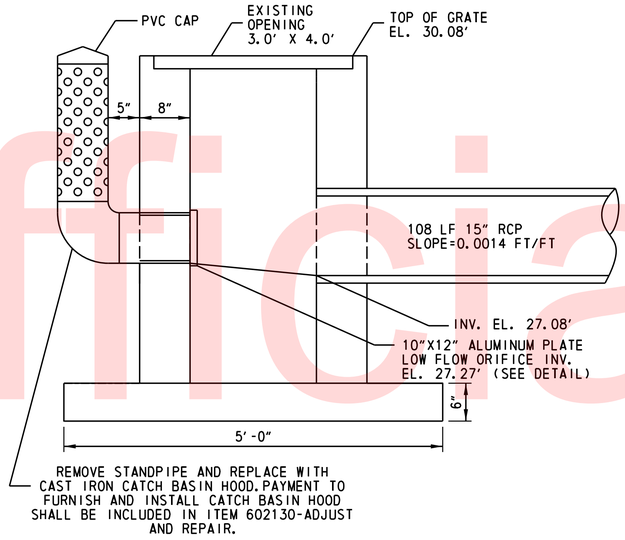
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	NOT TO SCALE	ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104 COUNTY NEW CASTLE	BRIDGE NO. N/A DESIGNED BY: WJD CHECKED BY: BH

CONSTRUCTION DETAILS

SHEET NO. 14
TOTAL SHTS. 116

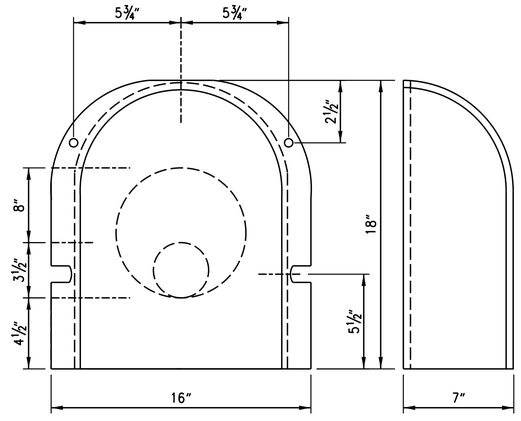


EXISTING BMP 15 – WET POND



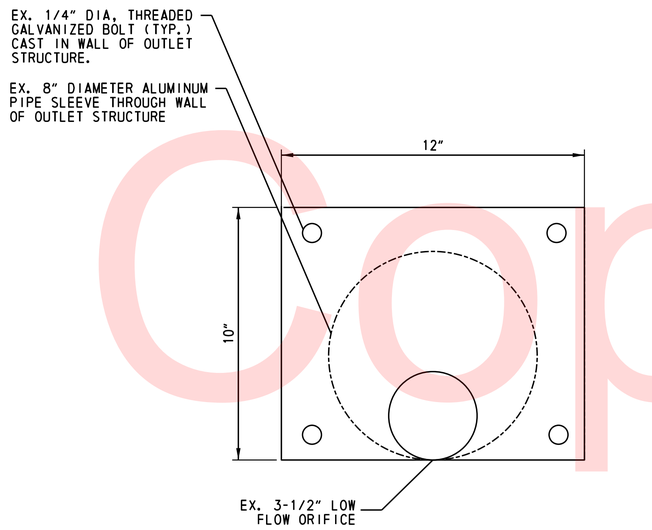
BMP NO. 15 EXISTING OUTLET STRUCTURE
N.T.S.

POND DESIGN SUMMARY				
DESIGN STORM	FACILITY INFLOW (CFS)	FACILITY DISCHARGE (CFS)	WATER SURFACE ELEVATION	STORAGE VOLUME (AC.FT.)
10 - YEAR	51.96	6.49	30.55'	1.47
100 - YEAR	103.39	9.13	32.97'	3.25



CAST IRON CATCH BASIN TRAP
N.T.S.

NOTE: USE NEENAH FOUNDARY MODEL R-3700 OR APPROVED EQUIVALENT AS APPROVED BY THE STORMWATER ENGINEER



EXISTING ALUMINUM PLATE DETAIL
N.T.S.

POND OUTLET STRUCTURE MODIFICATION - SWM FACILITY 15

THE EXISTING STORMWATER MANAGEMENT POND SHALL FUNCTION AS A SEDIMENT BASIN DURING SITE CONSTRUCTION.

1. TO COMPLETE PROPOSED MODIFICATIONS OF OUTLET STRUCTURE, PUMP POND TO AN ELEVATION OF 30.00' WHILE FLOATING THE SUCTION END OF THE PIPE IN OPEN WATER.
2. REMOVE 8" DIAMETER ALUMINUM STAND PIPE. INSTALL ITEM NO. 906004 - SKIMMER DEWATERING DEVICE THROUGH THE 8" SLEEVE, CONNECTING TO THE 3.5" ORIFICE. CONTRACTOR SHALL PROVIDE ADDITIONAL MATERIALS TO SECURELY ATTACH 4" SKIMMER DEWATERING DEVICE TO 8" ORIFICE. PAYMENT SHALL BE INCIDENTAL TO SKIMMER DEWATERING DEVICE.
3. CONSTRUCT ST. GEORGES MAINTENANCE YARD AS SHOWN ON PLANS.
4. WHEN APPROPVED BY THE STORMWATER ENGINEER, REMOVE SKIMMER AND ATTACH BASIN TRAP UTILIZING THE SAME PUMPING OPERATION AS THAT DESCRIBED IN STEP 1.

MAINTENANCE OF POND AS A SEDIMENT BASIN

1. CONTRACTOR SHALL INSPECT THE BASIN IMMEDIATELY AFTER EVERY RAIN AND MAKE REPAIRS AS NEEDED.

CONVERSION BACK TO PERMANENT STORMWATER MANAGEMENT POND

1. CONVERT THE BASIN INTO THE PERMANENT STORMWATER MANAGEMENT POND AFTER ALL AREAS DRAINING TO THE POND HAVE BEEN PERMANENTLY STABILIZED AND THE STORMWATER ENGINEER HAS APPROVED THE CONVERSION.
2. COMPLETE STABILIZATION OF ALL BARE AREA AND ANY REMAINING ERODED AREA AROUND THE OUTLET STRUCTURE. REMOVE EROSION AND SEDIMENT CONTROL MEASURES AND DEACTIVATE SKIMMER DEWATERING DEVICE.
3. INSTALL CAST IRON CATCH BASIN TRAP OVER 8" SLEEVE THROUGH OR ON EXISTING INLET PER MANUFACTURER RECOMMENDATIONS. PAYMENT TO FURNISH AND INSTALL SHALL BE INCLUDED IN ITEM 602130 - ADJUST AND REPAIR EXISTING DRAINAGE INLET.

AS-BUILT DRAWINGS OF STORMWATER MANAGEMENT FACILITIES

1. 'AS-BUILT' DRAWINGS SHALL BE COMPLETED BY STORMWATER ENGINEER.

NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE REMOVAL AND OFF-SITE DISPOSAL OF THE PHRAGMITES DEBRIS AND ROOT ZONE. 1 TO 2 FOOT EXCAVATION IS ANTICIPATED TO FULLY REMOVE THE ROOT SYSTEM. THE AREA SHOULD BE REGRADED TO A CONTINUOUS SLOPE, TOPSOILED, SEEDED, AND STABILIZED.

PLOTTED BY: AFITZGERALD DATE: 6/16/2017
FILE LOCATION: Q:\NDE\120995_021_ST_GEORGES_MAINTENAN\CADD\WK_SW_PD1.DGN [SHEET: SW01]

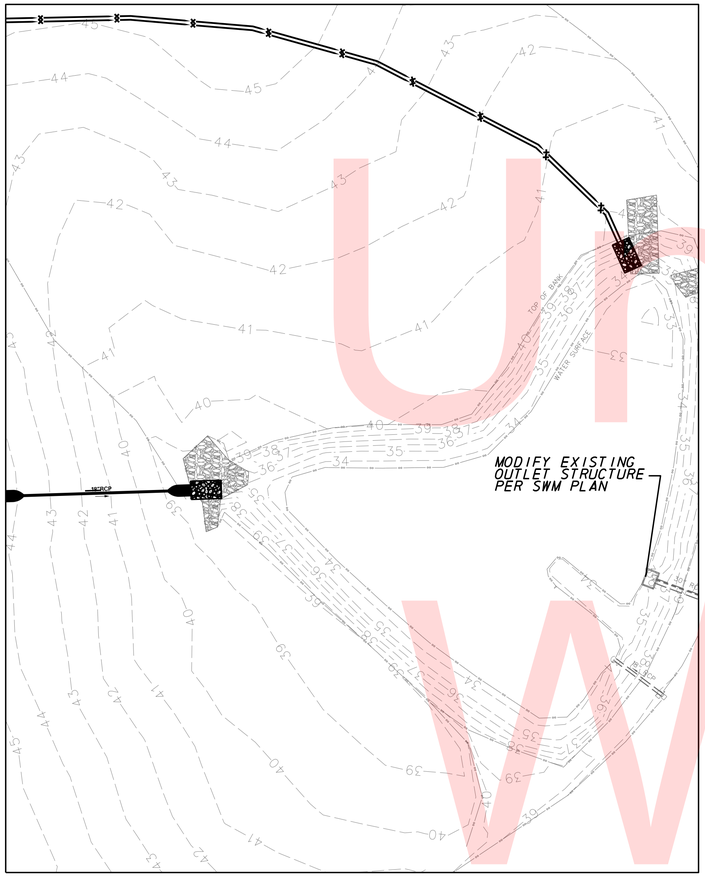
DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

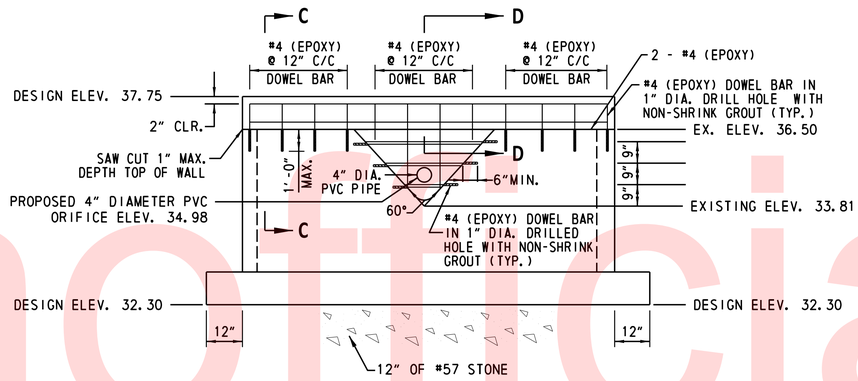
CONTRACT	BRIDGE NO.	N/A	SHEET NO.
T201680104	DESIGNED BY: JJK		15
COUNTY			TOTAL SHTS.
NEW CASTLE	CHECKED BY: BH		116

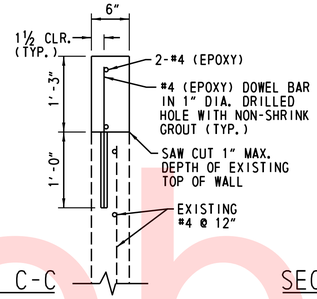
STORMWATER MANAGEMENT PLAN



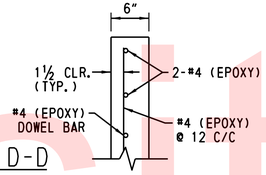
EXISTING BMP 16 – WET POND

POND DESIGN SUMMARY				
DESIGN STORM	FACILITY INFLOW (CFS)	FACILITY DISCHARGE (CFS)	WATER SURFACE ELEVATION	STORAGE VOLUME (AC.FT.)
10 - YEAR	38.91	0.44	36.25'	2.39
100 - YEAR	83.05	3.91	37.84'	4.37





SECTION C-C



SECTION D-D

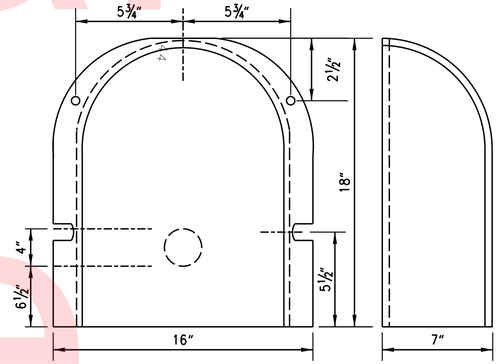
EXISTING OUTLET STRUCTURE MODIFICATION
N.T.S.

NOTES:

1. CONCRETE FOR WEIR WALL SHALL BE CLASS B (Fc'=3.0 KSI). MIX REQUIREMENTS SHALL CONFIRM TO SECTION 1022 OF THE STANDARD SPECIFICATIONS.

2. REINFORCING STEEL SHALL CONFIRM TO AASHTO M31 (ASTM 615). EPOXY COATED REINFORCING SHALL CONFORM TO AASHTO M284 (ASTM D3963).

3. CONTRACTOR SHALL LOCATE EXISTING WEIR WALL REINFORCING PRIOR TO DRILLING THE DOWELS. GROUT FOR DOWELS SHALL BE A NON-SHRINK EPOXY GROUT CONSISTING OF SAND AND EPOXY MIXED BY VOLUME ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND CAPABLE OF DEVELOPING A MINIMUM COMPRESSIVE STRENGTH OF 6,500 PSI IN 72 HOURS WHEN TESTED IN ACCORDANCE WITH SECTION 1047 OF THE STANDARD SPECIFICATIONS.



NOTE: USE NEENAH FOUNDARY MODEL R-3700 OR APPROVED EQUIVALENT AS APPROVED BY THE STORMWATER ENGINEER

CAST IRON CATCH BASIN TRAP
N.T.S.

POND OUTLET STRUCTURE MODIFICATION - SWM FACILITY 16

THE EXISTING STORMWATER MANAGEMENT POND SHALL FUNCTION AS A SEDIMENT BASIN DURING SITE CONSTRUCTION.

1. *CONSTRUCT SAND BAG DIVERSION AROUND THE EXISTING OUTLET STRUCTURE TO AN ELEVATION OF 37.00.'*
2. *IF DEWATERING IS REQUIRED TO REDUCE THE WATER LEVEL IN THE POND TO COMPLETE THE PROPOSED MODIFICATIONS TO THE OUTLET STRUCTURE, THE CONTRACTOR SHALL USE A PUMP WITH A FOATING INTAKE OR INSTALL A 4'X4' R-4 RIPRAP PAD AT THE PUMP INTAKE TO AVOID DISTURBANCE OF THE POND BOTTOM. PAYMENT FOR DEWATERING OPERATION SHALL BE INCIDENTAL TO THE OUTLET STRUCTURE MODIFICATION.*
3. *AFTER PROPOSED MODIFICATIONS ARE COMPLETED AND CONCRETE HAS PROPERLY CURED, REMOVE THE SAND BAG DIVERSION.*

MAINTENANCE OF POND AS A SEDIMENT BASIN

1. *CONTRACTOR SHALL INSPECT THE BASIN IMMEDIATELY AFTER EVERY RAIN AND MAKE REPAIRS AS NEEDED.*

CONVERSION BACK TO PERMANENT STORMWATER MANAGEMENT POND

1. *CONVERT THE BASIN INTO THE PERMANENT STORMWATER MANAGEMENT POND AFTER ALL AREAS DRAINING TO THE POND HAVE BEEN PERMANENTLY STABILIZED AND THE STORMWATER ENGINEER HAS APPROVED THE CONVERSION.*
2. *COMPLETE STABILIZATION OF ALL BARE AREA. REMOVE EROSION AND SEDIMENT CONTROL MEASURES AND DEACTIVATE SKIMMER DEWATERING DEVICE.*
3. *INSTALL CAST IRON CATCH BASIN TRAP OVER 4" ORIFICE PER MANUFACTURER RECOMMENDATIONS. PAYMENT TO FURNISH AND INSTALL SHALL BE INCLUDED IN ITEM 602130-ADJUST AND REPAIR EXISTING DRAINAGE INLET.*

AS-BUILT DRAWINGS OF STORMWATER MANAGEMENT FACILITIES

1. *'AS-BUILT' DRAWINGS SHALL BE COMPLETED BY STORMWATER ENGINEER.*

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

CONTRACT	T201680104
COUNTY	NEW CASTLE
BRIDGE NO.	N/A
DESIGNED BY:	JJK
CHECKED BY:	BH

STORMWATER MANAGEMENT PLAN

SHEET NO.	16
TOTAL SHTS.	116

NOTES:

1. ALL MAINTENANCE OF TRAFFIC DURING CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE DELAWARE MUTCD.

2. COMPOST FILTER LOGS WILL BE 18" IN DIAMETER.

3. ANY TREES WITHIN 20' OF EXISTING OUTFALL PIPES SHALL BE REMOVED BY CONTRACTOR. THIS WILL BE PAID UNDER ITEM 201000 - CLEARING AND GRUBBING.

4. ANY FLAGGING OPERATIONS WILL ONLY BE PERMITTED AT NIGHT AT THE TIMES SPECIFIED IN THE LANE RESTRICTIONS TABLE.

5. REFER TO THE CHART BELOW FOR THE TIMES OF LANE RESTRICTIONS FOR LOREWOOD GROVE ROAD:

LANE CLOSURES MATRIX FOR EASTBOUND AND WESTBOUND LOREWOOD GROVE ROAD

	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
SUNDAY																								
MONDAY																								
TUESDAY																								
WEDNESDAY																								
THURSDAY																								
FRIDAY																								
SATURDAY																								

LANE CLOSURES NOT PERMITTED
LANE CLOSURES PERMITTED

W11-10
36" x36"

W11-10
36" x36"

BMP NO. 15

BMP NO. 16

SEE POND OUTLET STRUCTURE MODIFICATION NOTE 2, SHEET 16

2 THE CONTRACTOR SHALL CLEAR THE DOWNSTREAM END OF OF THE OUTLET PIPE OF VEGETATIVE OVERGROWTH. THIS WILL BE PAID UNDER ITEM 201000 - CLEARING AND GRUBBING.

2 THE CONTRACTOR SHALL CLEAR THE DOWNSTREAM END OF OF THE OUTLET PIPE OF VEGETATIVE OVERGROWTH. THIS WILL BE PAID UNDER ITEM 201000 - CLEARING AND GRUBBING.

LOREWOOD GROVE RD

SEQUENCE OF CONSTRUCTION

1. INSTALL PERIMETER EROSION AND SEDIMENTATION CONTROLS AS SHOWN ON THIS SHEET. INSTALL SILT FENCE AROUND CONSTRUCTION STAGING AREA AT A LOCATION AS DIRECTED BY DELDOT. REFER TO STORMWATER PLANS FOR ADDITIONAL E&S DEVICES INSTALLATION.
2. CLEAR AND GRUB AS NECESSARY.
3. DEMOLISH EXISTING FEATURES AND PREPARE SITE AS SHOWN IN EXISTING CONDITIONS AND DEMOLITION PLAN.
4. CAP/ABANDON EXISTING WATER WELL.
5. GRADE SITE, CONSTRUCT DITCHES, INSTALL PIPES, AND STABILIZE WITH MINIMUM 6' WIDE EROSION CONTROL BLANKET ROLL. INSTALL OUTFALL PIPES. AS PER STANDARD DETAIL E-12, THIS SHOULD BE COMPLETED WITHIN 7 CALENDAR DAYS AFTER ACHIEVING FINAL GRADE.
6. REDRESS EXISTING RIPRAP. REMOVE AND DISPOSE, OFF-SITE, ANY WOODY VEGETATION WITHIN 10 FEET OF THE RIPRAP PAD. THIS WILL BE PAID UNDER ITEM 201000 - CLEARING AND GRUBBING.
7. INSTALL PROPOSED UTILITIES AND CONCRETE PAD.
8. CONSTRUCT GEOTHERMAL WELLS.
9. CONSTRUCT PROPOSED OPERATIONS BUILDING, SIDEWALK AND CURB, COMPLETE CONNECTION OF ALL UTILITIES TO BUILDING.
10. CONSTRUCT PROPOSED MAINTENANCE SHOP BUILDING. COMPLETE CONNECTION OF ALL UTILITIES TO BUILDING.
11. PAVE SITE PER DETAILS.
12. CONSTRUCT CONCRETE PAD AND INSTALL DIESEL FUEL TANK AND DISPENSER.
13. CONSTRUCT CONCRETE PAD FOR FUTURE BRINE MIXING STATION.
14. CONSTRUCT PROPOSED WASH PAD
15. CONSTRUCT PROPOSED FENCES AROUND PERIMETER OF SITE AS SHOWN.
16. INSTALL SITE LIGHTING AND REMAINDER OF ELECTRIC EQUIPMENT.
17. INSTALL SIGN AND FLAG POLE.
18. TOPSOIL, SEED, AND MULCH SITE AS NECESSARY. ALL REGRADED AREAS WILL BE TOPSOILED AND ALL DISTURBED AREAS WILL BE SEEDED AND MULCHED. BOTH TEMPORARY AND PERMANENT SEED WILL BE INSTALLED: TEMPORARY STABILIZATION WILL BE PROVIDED AFTER 14 DAYS OF INACTIVITY.
19. REMOVE EROSION AND SEDIMENT CONTROLS AFTER CONCURRENCE FROM DELDOT STORMWATER ENGINEER.

EROSION & SEDIMENT CONTROL	
—CFL—	COMPOST FILTER LOG
CFL	COMPOST FILTER LOG / LENGTH
	INLET SEDIMENT CONTROL
	PERIMETER DIKE/SWALE
SCE	STABILIZED CONSTRUCTION ENTRANCE
SF	SILT FENCE / LENGTH
—SF—	SILT FENCE

PLOTTED BY: AFITZGERALD DATE: 6/16/2017
FILE LOCATION: Q:\NDE\20995_021_ST_GEORGES_MAINTENANCADD\SITE\CS.DGN [SHEET1: CS01]

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE
0 60 120 180
FEET

ST. GEORGES MAINTENANCE
YARD IMPROVEMENTS

CONTRACT	T201680104
COUNTY	NEW CASTLE
BRIDGE NO.	N/A
DESIGNED BY:	MM
CHECKED BY:	BH

CONSTRUCTION PHASING, AND EROSION CONTROL PLAN

SHEET NO.	17
TOTAL SHTS.	116

NOTES:

1. PRODUCTION WELL TO BE INSTALLED BY CONTRACTOR. WELL PRODUCTION MUST MEET 100 GPM. ALL COSTS ASSOCIATED WITH THE DESIGN AND CONSTRUCTION OF THE WELL IS INCIDENTAL TO ITEM 614508 - WATER MAIN AND ACCESSORIES.
2. ELECTRIC, GAS, SANITARY SEWER AND WATER UTILITIES ALONG LOREWOOD GROVE ROAD WILL BE CONSTRUCTED BY OTHERS TO A STUB POINT ALONG LOREWOOD GROVE ROAD AS SHOWN IN THIS PLAN. THE SITE UTILITIES WILL BE CONNECTED TO THE PREVIOUSLY CONSTRUCTED UTILITES AT THE POINT WHERE THE ROADWAY UTILITIES END. IF THE UTILITIES ALONG LOREWOOD GROVE ROAD ARE NOT AVAILABLE FOR CONNECTION, THE SITE CONTRACTOR IS REQUIRED TO DO THE FOLLOWING:
   WATER: INSTALL THE METER VAULT WITH A SPOOL PIECE OF DIP EXITING THE VAULT THAT IS CAPPED.
   SEWER: INSTALL THE PUMP STATION, 1.25"X1.5" REDUCER AND A CAPPED SPOOL PIECE.
   ALL WORK ASSOCIATED WITH CONNECTING THE SITE UTILITIES TO THE STUBBED UTILITIES WILL BE INCIDENTAL TO THEIR RESPECTIVE UTILITY CONSTRUCTION ITEM.
3. FINAL ELECTRIC CONNECTIONS TO THE BRINE MAKER, TRUCK SHEDS AND SALT BARN ARE TO BE CONSTRUCTED BY OTHERS. (SEE ELECTRIC SITE PLAN FOR MORE DETAILS.)
4. ITMS CONDUIT TO BE INSTALLED BY CONTRACTOR. ITMS CABLES TO BE INSTALLED BY OTHERS.

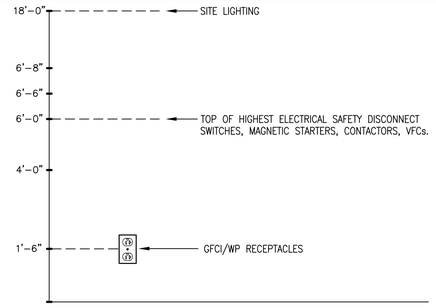
PLOTTED BY: BDOUGHERTY DATE: 5/31/2017
FILE LOCATION: Q:\NDE\120995_021_ST_GEORGES_MAINTENAN\CADD\SITE\UT.DGN [SHEET: UT01]

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE 0 60 120 180 FEET	ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104; COUNTY NEW CASTLE; BRIDGE NO. N/A; DESIGNED BY: WJD; CHECKED BY: BH	UTILITY PLAN

SYMBOL LEGEND

SYMBOL	DESCRIPTION
SB	POLE MOUNTED EXTERIOR SITE FIXTURE
H	HAND HOLE
AF P OR AF/NF/P/3R	NON–FUSED DISCONNECT SWITCH, SIZE AS INDICATED WHERE: "AF" – INDICATES AMPERE SWITCH SIZE "NF" – DENOTES NON–FUSED "P" – DENOTES POLE "3R" – DENOTES NEMA TYPE ENCLOSURE
AF OR AT 3P L2 AF/AT/P/3R	FUSED DISCONNECT SWITCH, SIZE AS INDICATED WHERE: "AF" – INDICATES AMPERE SWITCH SIZE "AT" – INDICATES AMPERE FUSE SIZE "P" – DENOTES POLE "3R" – DENOTES NEMA TYPE ENCLOSURE
OR	COMBINATION MOTOR STARTER AND DISCONNECT SWITCH
M	MOTOR TERMINATION
S_M	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION
VFD	VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECT
F	FIRE ALARM MANUAL PULL STATION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICE
GFP	GROUND FAULT PROTECTION
KI	KIRK KEY INTERLOCK
	TRANSFORMER
	ENCLOSED CIRCUIT BREAKER
	AUTOMATIC TRANSFER SWITCH
	GENERATOR
△	DELTA CONFIGURATION
Y	START (WYE) CONFIGURATION
ø	ELECTRICAL PHASE
GFCI/WP	125 VOLT, 2 POLE, 3 WIRE, 20 AMP WEATHERPROOF DUPLEX RECEPTACLE EQUIPPED WITH GROUND FAULT CIRCUIT INTERRUPTER

MOUNTING LEGEND



MOUNTING NOTES:

1. THE ABOVE MOUNTING HEIGHTS SHALL BE ADHERED TO UNLESS SPECIFICALLY NOTED OR DETAILED OTHERWISE ON THE DRAWINGS OR SPECIFICATIONS.

GENERAL ABBREVIATIONS

A	AMPERES
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ARCH	ARCHITECT
ATS	AUTOMATIC TRANSFER SWITCH
ATC	AUTOMATIC TEMPERATURE CONTROL
AWG	AMERICAN WIRE GAUGE
BFG	BELOW FINISH GRADE
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CL	CENTERLINE
CLF	CURRENT LIMITING FUSE
COL	COLUMN
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CU	COPPER
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
ECB	ENCLOSED CIRCUIT BREAKER
EF	EXHAUST FAN
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EPO	EMERGENCY POWER OFF
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EX	EXISTING
F	FUSE
FA	FIRE ALARM
FLA	FULL LOAD AMPERES
FMC	FLEXIBLE METAL CONDUIT
FT	FEET
G,GND	GROUND OR GROUNDING
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRMC	GALVANIZED RIGID METALLIC CONDUIT
HOA	HAND, OFF, AUTOMATIC SWITCH
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
IMC	INTERMEDIATE METAL CONDUIT
INT	INTERLOCK
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERES
KW	KILOWATTS
LTG	LIGHTING
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
MAU	MAKE–UP AIR UNIT
MC	METAL CLAD CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NO	NORMALLY OPEN OR NUMBER
NTS	NOT TO SCALE
P	POLE
PB	PUSHBUTTON
PNL	PANEL
PVC	POLYVINYL CHLORIDE
PWR	POWER
QTY	QUANTITY
REL	RELOCATE
REQ'D	REQUIRED
REX	REPLACE EXISTING
RMC	RIGID METAL CONDUIT
RMS	ROOT MEAN SQUARED
RNMC	RIGID NON–METALLIC CONDUIT
RTU	ROOF TOP UNIT
RX	REMOVE EXISTING
SW	SWITCH
SYM	SYMMETRICAL
TEL	TELEPHONE
TMCB	THERMAL MAGNETIC CIRCUIT BREAKER
UL	UNDERWRITERS LABORATORIES
V	VOLT
VFC	VARIABLE FREQUENCY CONTROLLER
W	WIRE
WH	WATER HEATER
WP	WEATHERPROOF
XFMR	TRANSFORMER

ELECTRICAL CONVENTIONS

WIRING

LP2A–1,3,5 — HOMERUN TO PANEL "LP2A". CIRCUITS #1,3,5 (VIA 20A–1P C/B'S). PROVIDE INSULATED GROUND CONDUCTOR IN ACCORDANCE WITH SPECIFICATIONS. NUMBER OF CIRCUITS INDICATED BY QUANTITY OF ARROW HEADS.

HASH MARKS INDICATE QUANTITY OF #12 AWG COPPER CONDUCTORS IN CONDUIT. WHEN NO HASH MARKS ARE INDICATED, CONDUIT SHALL CONTAIN (2) #12 WIRES AND (1) #12 GROUND WIRE. ASSUME 3/4" DIAMETER CONDUIT UNLESS NOTED OTHERWISE. EXAMPLE SHOWN AT LEFT INDICATES 2 HOT, 2 NEUTRAL (LONG LINES), AND 1 GROUND WIRES.

CONCEALED CONDUIT AND/OR WIRING.

BELOW GRADE CONDUIT AND/OR WIRING.

EXPOSED CONDUIT AND/OR WIRING.

CIRCUITRY TURNING DOWN

CIRCUITRY TURNING UP

ANNOTATION

/ SHT — DETAIL REFERENCE
"#" DENOTES DETAIL NUMBER
"SHT" DENOTES SHEET NUMBER

X / # — ELEVATION OR SECTION IDENTIFIER
"X" DENOTES ELEVATION OR SECTION NUMBER
"#" DENOTES SHEET NUMBER

1 — SHEET KEYNOTE NUMBER

####.X — FEEDER TAG (REFER TO FEEDER SCHEDULE)

1 — REVISION NUMBER

LIGHTING

LUMINAIRE TYPE – SEE LUMINAIRE SCHEDULE
A
1 — CIRCUIT NUMBER
a — CONTROL POINT DESIGNATION

GENERAL DEMOLITION NOTES

1. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE DEMOLITION WORK. ANY DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL SITE CONDITIONS SHALL BE REPORTED TO THE OWNER DURING THE BID PROCESS. NO COMPENSATION WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED WILL BE GRANTED FOR ADDITIONAL WORK BY EXPERIENCED OBSERVERS. THIS CONTRACTOR SHALL PARTICIPATE IN SURVEY OF THE EXISTING ELECTRICAL SYSTEMS. HE SHALL DISCONNECT AND CAP ALL SERVICE LINES TO BE DISCONNECTED FOR THOSE SERVICES WHICH NORMALLY ARE INCLUDED IN HIS FIELD OF WORK. PARTICULAR CARE SHALL BE TAKEN TO AVOID CREATING HAZARD OR CAUSING DISRUPTION OF SERVICES IN ADJOINING AREAS.
2. REFER TO MECHANICAL AND PLUMBING CONTRACT DRAWINGS AND SPECIFICATIONS FOR EXACT QUANTITIES AND LOCATIONS OF ALL MECHANICAL AND PLUMBING EQUIPMENT BEING ABANDONED OR REMOVED, WHICH WILL REQUIRE DE–ENERGIZATION, REMOVAL, AND BLANK OFF BY THE ELECTRICAL CONTRACTOR.
3. MAINTAIN AND RESTORE, IF INTERRUPTED BY REMOVALS OR IN PATH OF NEW CONSTRUCTION, ALL CIRCUITS, CONDUITS AND FEEDERS PASSING THROUGH AND SERVING UNDISTURBED AREAS (SHOWN OR NOT SHOWN).
4. DISCONNECT AND MAKE SAFE ANY EQUIPMENT TO BE REMOVED BY OTHERS (I.E. MOTORS, PUMPS, FANS, UNIT VENTILATORS, UNIT HEATERS, ETC.). COORDINATE REMOVAL OF EQUIPMENT WITH OTHER TRADES PRIOR TO DEMOLITION.
5. IN ANY AREA REQUIRING THE PERFORMANCE OF ANY TRADE'S WORK, THIS CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ANY OR ALL ELECTRICAL ITEMS IN PATH OF WORK, REINSTALLING AND RECONNECTING SAME AS REQUIRED, IN ACCORDANCE WITH THE PLANS AND/OR AS DIRECTED AFTER COMPLETION OF OTHER TRADE'S WORK IN THAT AREA.
6. DISCONNECT, MAKE SAFE, AND REMOVE ALL TEMPORARY AND ABANDONED WIRE WITHIN THE SPACE.
7. DISCONNECT AND REMOVE PANELS, FEEDERS AND BRANCH CIRCUITS BACK TO POINT OF SOURCE. PRIOR TO THE START OF DEMOLITION, CONTRACTOR SHALL FIELD VERIFY ALL BRANCH CIRCUITS AND MAINTAIN THOSE CIRCUITS THAT EXTEND OUTSIDE OF THE SCOPE OF WORK.
8. UPON REMOVAL, CONTRACTOR SHALL INVENTORY MAJOR ELECTRICAL ITEMS THAT ARE REMOVED AND PROVIDE A LIST TO THE OWNER FOR THEIR SELECTION OF ITEMS TO BE RETAINED. ALL ITEMS REJECTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
9. ALL WIRING, CABLES AND CONDUCTORS ASSOCIATED WITH REMOVAL OF FEEDERS AND BRANCH CIRCUITS SHALL BE LOOPED, TIED AND RETURNED TO THE OWNER.
10. THE EXISTING ELECTRICAL EQUIPMENT AND DEVICES WITHIN DEMOLITION AREA SHALL BE DEMOLISHED ALONG WITH ALL FEEDERS AND CONDUITS BACK TO SOURCE UNLESS OTHERWISE NOTED. CONTRACTOR SHALL DISCONNECT, MAKE SAFE, AND REMOVE ALL LIGHT FIXTURES, CORD DROP RECEPTACLES, AND OTHER ASSOCIATED ELECTRICAL EQUIPMENT AND ALL ASSOCIATED CIRCUITRY WITHIN THIS AREA, EXCEPT AS SHOWN OTHERWISE. UPON REMOVAL, INVENTORY MAJOR ELECTRICAL ITEMS THAT ARE REMOVED AND PROVIDE A LIST TO THE OWNER FOR THEIR SELECTION OF ITEMS TO BE RETAINED. ALL ITEMS REJECTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.

GENERAL NOTES

1. THE SCOPE OF WORK CONSISTS OF FURNISHING AND INSTALLING OF A COMPLETE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN. THE CONTRACTOR SHALL PROVIDE SUPERVISION, LABOR, MATERIALS, EQUIPMENT, MACHINERY, ADDITIONAL DESIGN AND ALL INCIDENTALS NECESSARY TO COMPLETE THE ELECTRICAL SYSTEM. THE CONTRACTOR SHALL PROVIDE AND INSTALL THE NUMBER OF ITEMS OF EQUIPMENT AS INDICATED ON THE DRAWINGS AND/OR AS REQUIRED FOR A COMPLETE SYSTEM. COORDINATE WORK TO BE PERFORMED OR INSTALLED BY OTHERS AFFECTING ELECTRICAL WORK AND PROVIDE AND INSTALL ALL NECESSARY ANCHORS, SLEEVES, HANGERS, ACCESSORIES, ETC. FOR ATTACHING OR CONNECTING ELECTRICAL WORK TO RELATED WORK OF OTHER TRADES. ALL WORK SHALL BE PERFORMED BY A QUALIFIED ELECTRICAL CONTRACTOR LICENSED IN THE STATE OF DELAWARE THAT HAS PREVIOUSLY PERFORMED WORK OF THIS SIZE AND TYPE.
2. REFER TO THE SPECIFICATIONS THAT ARE PART OF THIS CONTRACT AND ARE COMPLEMENTARY TO THESE GENERAL NOTES. IN CASE OF A CONFLICT BETWEEN THE SPECIFICATIONS AND DRAWINGS, THE MOST STRINGENT REQUIREMENTS SHALL APPLY AS DETERMINED BY THE ARCHITECT/ENGINEER/OWNER.
3. PERFORM WORK AS REQUIRED BY CODES, REGULATIONS AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENTS AND OTHER AUTHORITIES WITH LAWFUL JURISDICTION. INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

   a. THE 2014 VERSION OF N.E.C., AND LOCAL N.E.C. AMENDMENTS.
   b. ALL LOCAL CODES.
   c. NFPA 72 AND THE LATEST VERSION OF THE LOCALLY RECOGNIZED BUILDING CODE.
   d. THE AMERICANS WITH DISABILITIES ACT (ADA).
   e. THE 2014 IECC CODE.
   d. NATIONAL ELECTRICAL SAFETY CODE.

4. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN TO "FURNISH AND INSTALL COMPLETE AND READY FOR USE." CONTRACTOR SHALL PROVIDE ALL TESTING AND INSTRUCTION REQUIRED FOR OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEM BY OWNER UNLESS OTHERWISE NOTED.
5. MATERIAL AND EQUIPMENT SHALL BE UL, NEMA, ANSI, IEEE, ADA & CBM APPROVED FOR INTENDED SERVICE. MATERIAL AND INSTALLATION SHALL MEET REQUIREMENTS OF NATIONAL AND STATE ELECTRICAL CODE.
6. ELECTRICAL DRAWINGS WHICH CONSTITUTE A PART OF THIS CONTRACT ARE DIAGRAMMATIC ONLY AND INDICATE THE GENERAL ARRANGEMENT OF CIRCUITS AND OUTLETS, LOCATIONS OF SWITCHES, PANELBOARDS CONDUIT AND OTHER WORK. ALL ITEMS NOT SPECIFICALLY MENTIONED HEREIN, WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED AT NO EXTRA COST.
7. CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND PLUMBING DRAWINGS TO FAMILIARIZE HIMSELF WITH ALL ASPECTS OF THOSE DESIGNS AFFECTING HIS WORK. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH ALL OTHER TRADES.
8. PRIOR TO SUBMITTING BID, THE CONTRACTOR SHALL VISIT THE SITE AND BE THOROUGHLY FAMILIAR WITH THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION. CONTRACTOR SHALL INCLUDE IN THEIR BID ALL MATERIAL, LABOR AND ALL INCIDENTALS FOR A COMPLETE INSTALLATION WHETHER SPECIFICALLY CALLED FOR OR NOT. ALL ERROR, DISCREPANCIES AND MISSED ITEMS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER DURING THE BIDDING PROCESS BY THE CONTRACTOR. THESE ITEMS SHALL BE INCLUDED IN THE BID PRICE. NO EXTRA COST WILL BE ALLOWED FOR ANY DISCREPANCY WHICH COULD HAVE BEEN NOTICED AT THE SITE VISIT BY THE CONTRACTOR.
9. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE REQUIRED NOTICES, PERMITS, LICENSES, FEES, BACK CHARGES AND APPROVALS REQUIRED FOR THIS PROJECT.
10. THE CONTRACTOR SHALL MAINTAIN AT THE SITE FOR THE OWNER ONE COPY OF ALL DRAWINGS, SPECIFICATIONS, ADDENDA, APPROVED SHOP OR SETTING DRAWINGS, CHANGE ORDERS AND OTHER MODIFICATIONS IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES AS THEY OCCUR DURING CONSTRUCTION. THESE SHALL BE AVAILABLE TO THE ARCHITECT/ENGINEER, THE OWNER, THE PROJECT INSPECTOR, THE OWNER'S OTHER INSPECTORS AND TO THE OWNER'S TESTING PERSONNEL. THE DRAWINGS SHALL BE NEATLY AND CLEARLY MARKED IN COLOR DURING CONSTRUCTION TO RECORD ALL VARIATIONS MADE DURING CONSTRUCTION. THE REPRESENTATION OF SUCH VARIATIONS SHALL INCLUDE SUCH SUPPLEMENTARY NOTES, SYMBOLS, LEGENDS, AND DETAILS AS MAY BE NECESSARY TO CLEARLY SHOW THE AS–BUILT CONSTRUCTION. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL DELIVER TO THE ARCHITECT/ENGINEER, ONE COMPLETE SET OF "AS–BUILT DRAWINGS"
11. ALL WORKMANSHIP, MATERIALS AND EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF TWO YEARS AFTER ACCEPTANCE OF AREA BY OWNER. REPAIR OR REPLACE DEFECTIVE MATERIALS OR INSTALLATION AT NO COST TO OWNER DURING THE GUARANTEE PERIOD. CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE AT NO COST TO OWNER.
12. SUBMIT GUARANTEE TO CONTRACT OFFICER BEFORE FINAL PAYMENT.
13. STATEMENT OF GUARANTEE REQUIREMENTS SHALL NOT BE INTERPRETED TO LIMIT OWNER'S RIGHTS UNDER LAW AND THIS CONTRACT.
14. ADDRESS QUESTIONS REGARDING DRAWINGS TO ENGINEER IN WRITING BEFORE AWARD OF CONTRACT. OTHERWISE, ENGINEER INTERPRETATION OF MEANING AND INTENT OF DRAWINGS SHALL BE FINAL.
15. THE CONSTRUCTION ADMINISTRATION PHASE SERVICES ARE INTENDED TO BENEFIT THE CLIENT ONLY. SERVICES RENDERED BY ENGINEER DO NOT RELIEVE CONTRACTOR FROM OBLIGATIONS UNDER THE CONSTRUCTION DOCUMENTS. ENGINEER DOES NOT HAVE AUTHORITY TO SUPERVISE, DIRECT OR CONTROL CONTRACTOR, AND IS NOT RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OF CONSTRUCTION OR FOR SAFETY PROGRAMS OR PRECAUTIONS DURING CONSTRUCTION. NOR IS ENGINEER RESPONSIBLE FOR CONTRACTORS FAILURE TO PERFORM THE WORK IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS OR APPLICABLE LAWS OR CODES.
16. SUBMIT SHOP DRAWINGS AND PRODUCT DATA WITHIN 21 DAYS AFTER AWARD OF CONTRACT. CHECK, STAMP AND MARK WITH PROJECT NAMES SUBMITTALS BEFORE TRANSMITTING TO ARCHITECT. INDICATE DEVIATIONS FROM CONTRACT DOCUMENTS. SHOP DRAWINGS SHALL BE PROVIDED FOR ALL EQUIPMENT SHOWN ON THE DRAWINGS. SUBMITTALS SHALL BE APPROVED BY THE ENGINEER BEFORE PURCHASE OF MATERIALS.
17. DEVIATION FROM CONTRACT DOCUMENTS, OR PROPOSED SUBSTITUTION OF MATERIALS OR EQUIPMENT FOR THOSE SPECIFIED, SHALL BE REQUESTED IN SEPARATE LETTER, WHETHER DEVIATIONS ARE DUE TO FIELD CONDITIONS, STANDARD SHOP PRACTICE, OR OTHER CAUSE.
18. SCHEDULE AT LEAST TEN WORKING DAYS, EXCLUSIVE OF TRANSMITTAL TIME FOR SUBMITTAL REVIEW.
19. ALL WORK SHALL BE EXECUTED IN WORKMANLIKE MANNER AND SHALL PRESENT NEAT, RECTILINEAR AND MECHANICAL APPEARANCE WHEN COMPLETED. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE BEST ENGINEERING PRACTICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL EQUIPMENT IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. THIS SHALL INCLUDE PROVIDING CLEARANCES AS DEFINED IN THE INSTALLATION INSTRUCTIONS AND IN ACCORDANCE WITH NEC REQUIREMENTS. PROVIDE ALL AUXILIARY ITEMS REQUIRED TO PERFORM FUNCTION INTENDED.
20. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER OR HIS AUTHORIZED REPRESENTATIVE AND SHALL BE PERFORMED IN ACCORDANCE WITH ALL BUILDING RULES AND REGULATIONS AS PROVIDED BY THE BUILDING OWNER.
21. LOCATION OF MECHANICAL EQUIPMENT THAT REQUIRE ELECTRICAL CONNECTIONS ARE SHOWN ON THE MECHANICAL DRAWINGS. COORDINATE ALL WORK AND MAKE ALL FINAL CONNECTIONS REQUIRED FOR A COMPLETE INSTALLATION OF MECHANICAL EQUIPMENT AND CONTROLS. MECHANICAL EQUIPMENT RATINGS ARE APPROXIMATE AND MAY VARY BY MANUFACTURERS. VERIFY EXACT ELECTRICAL REQUIREMENTS WITH APPROVED SHOP DRAWINGS ADJUST SIZE OF CIRCUIT BREAKERS, SWITCHES, WIRES, MULTIPLE POWER SOURCES AND MOTOR CONTROLS INCLUDING HEATER ELEMENTS BASED UPON THE ACTUAL EQUIPMENT INSTALLED AT NO ADDITIONAL COST TO THE OWNER.
22. CONTRACTOR SHALL REVIEW ALL TRADES' CONTRACT DOCUMENTS TO DETERMINE SPECIFIC MOUNTING LOCATIONS FOR ELECTRICAL EQUIPMENT.
23. THE CONTRACTOR SHALL NOT INSTALL MORE THAN 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY UNLESS DONE SO STRICTLY TO COMPLY WITH THE NATIONAL ELECTRIC CODE REQUIREMENTS FOR APPLYING ADJUSTMENT FACTORS FOR MORE THAN THREE CURRENT–CARRYING CONDUCTORS IN A RACEWAY.
24. ALL CONDUCTORS SHALL BE COPPER, MINIMUM SIZE CONDUCTOR SHALL BE NO. 12 AWG WITH 600 VOLT TYPE "THWN" INSULATION, RATED MINIMUM 75° C. AND ROUTED IN CONDUIT. CONDUCTORS NO. 8 AWG AND LARGER SHALL BE STRANDED. THE USE OF ALUMINUM CONDUCTORS SHALL NOT BE ACCEPTABLE.
25. ALL 120 VOLT CIRCUIT HOME RUNS WHICH ARE OVER 75 LINEAR FEET SHALL BE #10 CONDUCTORS MINIMUM. CONTRACTOR SHALL INCREASE WIRE SIZE AS REQUIRED TO MAINTAIN A MAXIMUM VOLTAGE DROP OF 3%.
26. COLOR CODING AND LABELING OF UTILITIES SHALL BE ACCOMPLISHED PER THE REQUIREMENTS OF DELMARVA POWER.
27. COLOR CODE SECONDARY SERVICE, FEEDERS AND BRANCH CIRCUIT CONDUCTORS AS FOLLOWS:

    208Y/120V
    BLACK FOR PHASE A,
    RED FOR PHASE B,
    BLUE FOR PHASE C,
    WHITE FOR NEUTRAL.
    PROVIDE WITH SOLID GREEN GROUNDING CONDUCTOR.

28. BRANCH CIRCUIT CONDUCTORS #12 AND #10 SHALL HAVE SOLID COLOR COMPOUND, SOLID COLOR COATING. NEUTRALS AND EQUIPMENT GROUNDS SHALL HAVE SOLID COMPOUND OR SOLID COLOR COATING (WHITE, GRAY AND GREEN), EXCEPT THAT NEUTRALS WITH COLORED STRIPE SHALL BE USED WHERE REQUIRED BY NEC. CONDUCTORS #8 AND LARGER WITH STRIPES, BANDS OR HASH MARKS SHALL HAVE BACKGROUND COLOR OTHER THAN WHITE, GREEN, AND GRAY.
35. ALL CIRCUITS MUST HAVE SEPARATE INSULATED GROUND WIRE. THE CONDUIT CANNOT BE USED IN PLACE OF THE GROUND WIRE.
36. CONDUCTORS SHALL BE CONTINUOUS FROM TERMINATION TO TERMINATION. PROVIDE JUNCTION BOXES AS SHOWN ON DRAWINGS OR AS REQUIRED.
37. CONTROL/POWER WIRING REQUIRED BUT NOT SHOWN FOR, AND NOT LIMITED TO, THERMOSTATS, CONTROLLERS, VARIABLE FREQUENCY DRIVE CONTROLS, EQUIPMENT MANUFACTURER CONTROL PANELS, DAMPER MOTORS, CONTROL MOTORS, VALVES, SENSING DEVICES (TEMPERATURE, PRESSURE, HUMIDITY, LEVEL, FLOW, ON–OFF, FIRE ALARM DEVICES) SHALL BE SUPPLIED AND INSTALLED TO PROVIDE A COMPLETE AND USABLE FACILITY AS SPECIFIED. COORDINATE WITH MECHANICAL DIVISION AND PROVIDE AS REQUIRED.
38. ALL WIRING SHALL BE INSTALLED IN CONDUIT. MINIMUM CONDUIT SIZE SHALL BE 3/4–INCH.
39. GALVANIZED RIGID METAL CONDUIT (GRC) OR GALVANIZED INTERMEDIATE METAL CONDUIT (IMC) SHALL BE USED IN CONCEALED MASONRY WALLS AND FLOOR SLABS.
40. INTERMEDIATE METAL CONDUIT (IMC) CONDUIT SHALL NOT BE USED IN WET LOCATIONS OR HIGH CORROSIVE AREAS. OTHERWISE, NFPA 70 ARTICLE 342 FULLY APPLIES.
41. IN HAZARDOUS LOCATIONS GALVANIZED RIGID METAL CONDUIT (GRC) SHALL BE USED.
42. ELECTRICAL METALLIC TUBING (EMT) CONDUIT SHALL NOT EXCEED 2 INCHES DIAMETER FOR POWER FEEDER OR BRANCH CIRCUITS AND SHALL NOT EXCEED 4 INCHES DIAMETER FOR CONTROL CIRCUITS AND COMMUNICATIONS SYSTEMS.
43. EXPOSED OUTDOOR CONDUITS SHALL BE GALVANIZED RIGID METAL CONDUIT (GRC). 3/4–INCH DIAMETER MINIMUM. IN HIGH–TRAFFIC AREAS, AND OTHER AREAS PRONE TO POLLUTION, CONDUITS SHALL BE PVC–COATED RIGID GALVANIZED METAL, 3/4–INCH SIZE MINIMUM.
44. EXPANSION FITTINGS SHALL BE INSTALLED IN CONDUITS CROSSING EXPANSION JOINTS.
45. CONDUITS IN FINISHED AREAS SHALL BE CONCEALED AND THOSE IN UNFINISHED AREAS SHALL BE SURFACE MOUNTED.
46. PROVIDE POLYETHYLENE CORDS FOR PULLING WIRE.
47. PROVIDE PULLING WIRES FOR COMMUNICATION AND OTHER EMPTY CONDUIT SYSTEMS REQUIRED, WITHOUT SPLICES AND WITH AMPLE EXPOSED LENGTHS AT EACH END.
48. TOP ENTRIES OF CONDUITS INTO ELECTRICAL ENCLOSURES LOCATED IN AREAS SUBJECT TO WATER OR CONDENSATION SHALL NOT BE PERMITTED.
49. ALL CIRCUITRY RUNS INDICATED ARE DIAGRAMMATIC. THE CONTRACTOR SHALL DETERMINE IN THE FIELD THE MOST SUITABLE ROUTES. THE CONTRACTOR SHALL PROVIDE "AS–BUILT" DOCUMENTATION OF ALL CIRCUITRY RUNS.
50. CONTRACTOR SHALL PROVIDE ALL WEATHERPROOF FOR ELECTRICAL PENETRATIONS.
51. FURNISH AND INSTALL NAMEPLATES ON ALL ELECTRICAL EQUIPMENT.
52. ALL GROUNDING SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL AND STATE ELECTRICAL CODES.
53. COORDINATE ALL ELECTRICAL ITEMS WITH EXISTING FIELD CONDITIONS. LOCATIONS SHOWN ARE APPROXIMATE AND MAY REQUIRE MINOR ADJUSTMENT IN THE FIELD TO SATISFY THE DESIGN INTENT.
54. DAMAGE TO EXISTING FACILITIES AND EQUIPMENT SHALL BE REPAIRED OR REPLACED IMMEDIATELY BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
55. THE LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE AND REQUIRE COORDINATION WITH ALL OTHER TRADES AND VERIFICATION OF EXISTING CONDITIONS. ROUTING OF CONDUIT IS DIAGRAMMATIC IN NATURE AND NOT INTENDED TO SHOW ALL REQUIRED OFFSETS AND DETAILS. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING ASSOCIATED EQUIPMENT AND CONDITIONS. COORDINATE THE LOCATION OF ALL EQUIPMENT WITH THE ENGINEER AND THE OWNER. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL OTHER TRADES' DRAWINGS AND SPECIFICATIONS AND COORDINATING WITH OTHER TRADE DURING BIDDING AND CONSTRUCTION.
56. REPAIR AND PATCH ANY DISTURBED AREA TO MATCH EXISTING CONDITIONS.
57. ALL ELECTRICAL WORK INDICATED TO REMAIN SHALL BE SUITABLY PROTECTED TO PREVENT ANY DAMAGE.
58. ALL ELECTRICAL CURRENT CARRYING PARTS SHALL BE COPPER FOR ALL EQUIPMENT.
59. SWITCHBOARDS AND PANELBOARDS SHALL BE FULLY RATED. SERIES RATING IS NOT ACCEPTABLE. CIRCUIT BREAKERS SHALL BE THE BOLT–ON TYPE WITH FULL COPPER BUSSING, 100% NEUTRAL AND ISOLATED GROUND BUSS REMOVABLE COVER AND NAMEPLATE. U.O.N
60. PROVIDE TEMPORARY POWER AND LIGHTING FOR ALL TRADES AND REQUIRED TO COMPLETE THE PROJECT. ALL TEMPORARY AND INTERIM EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS INCLUDING. BUT NOT LIMITED TO, NFPA 70. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THIS REQUIREMENT WITH ALL OTHER TRADES AND INCLUDING ALL ASSOCIATED COST IN BID PRICE.
61. ENGAGE A QUALIFIED ELECTRICAL TESTING COMPANY TO LOCATE ALL UNDERGROUND UTILITIES IN PROPOSED CONSTRUCTION AREAS FOR ALL TRADES BEFORE DIGGING. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THIS ORGANIZATION AND INCLUDING ALL ASSOCIATED COSTS IN THE BID PRICE.
62. PROVIDE CONCRETE FOUNDATION HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED EQUIPMENT.
63. THIS DOCUMENT INCLUDES INFORMATION AND DEPICTIONS OF DELMARVA POWER ELECTRIC UTILITIES LOCATED WITHIN THE PROJECT AREA, LOCATIONS, DIMENSIONS, DEPTHS, AND OTHER DETAILS OF ANY SUCH UTILITIES MAY NOT BE AS–BUILT, AND THE INFORMATION SHALL NOT BE RELIED UPON WITHOUT FIELD VERIFICATION, EXCAVATORS MUST EMPLOY SAFE DIGGING BEST PRACTICES WHEN APPROACHING DELMARVA POWER ELECTRIC UTILITIES AND COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, INCLUDING, BUT NOT LIMITED TO, THE "MISS UTILITY LAW". NO REPRESENTATION, GUARANTEES, OR WARRANTIES, EXPRESS OR IMPLIED, ARE MADE BY DELMARVA POWER AS TO THE QUALITY, COMPLETENESS, OR ACCURACY OF THE DELMARVA POWER UTILITY INFORMATION, AND IN ACCEPTING THIS DOCUMENT, THE RECIPIENT EXPRESSLY ACKNOWLEDGES AND AGREES THAT IT IS NOT RELYING ON THE ACCURACY OF THE SAME.

S-E-001

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DELAWARE
DEPARTMENT OF TRANSPORTATION

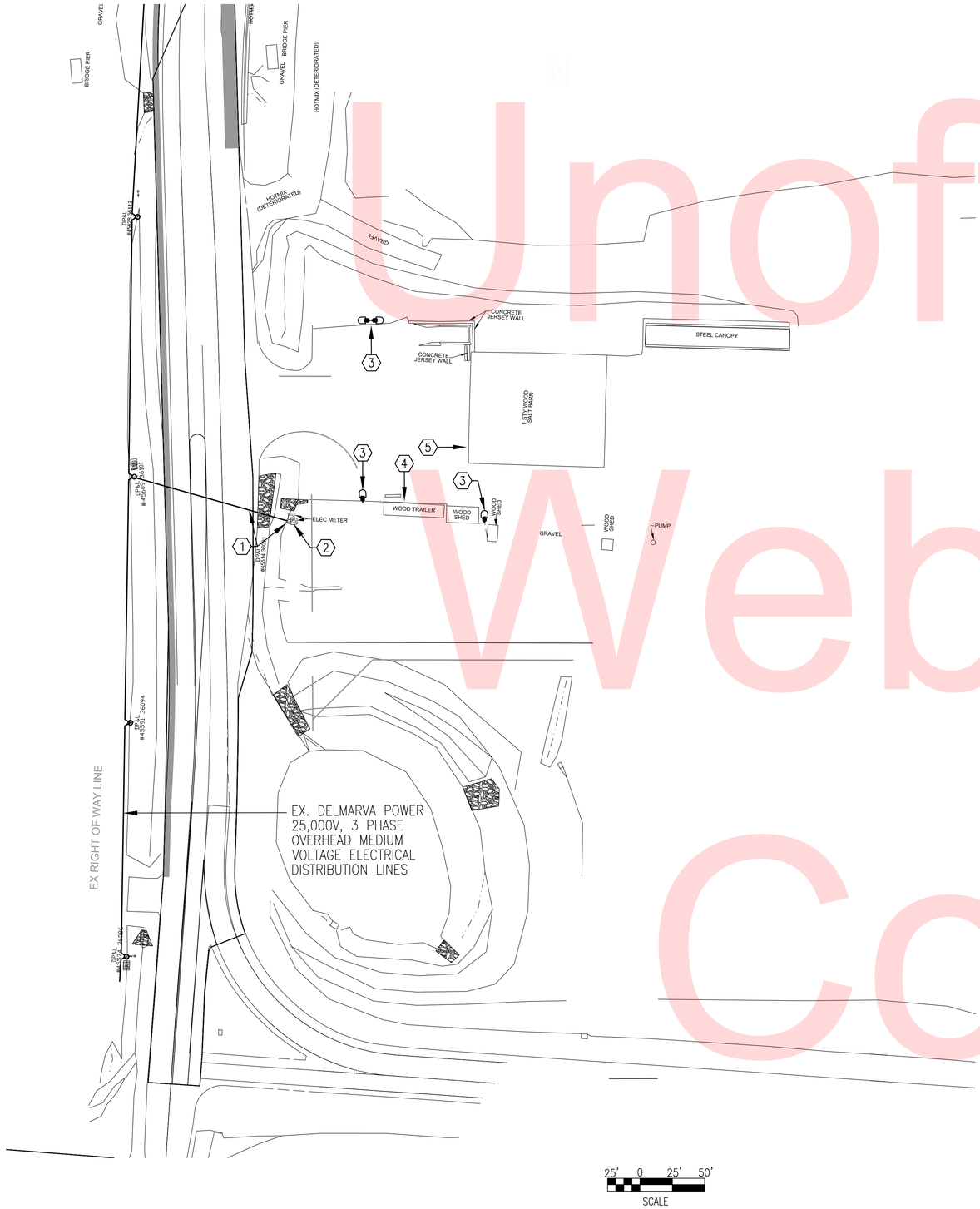
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	T201680104	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY:	JDT
		CHECKED BY:	JL

ELECTRICAL GENERAL NOTES
SYMBOLS LEGEND AND
ABBREVIATIONS

SHEET NO.	
	19
TOTAL SHTS.	
	116



DEMOLITION KEYNOTES:

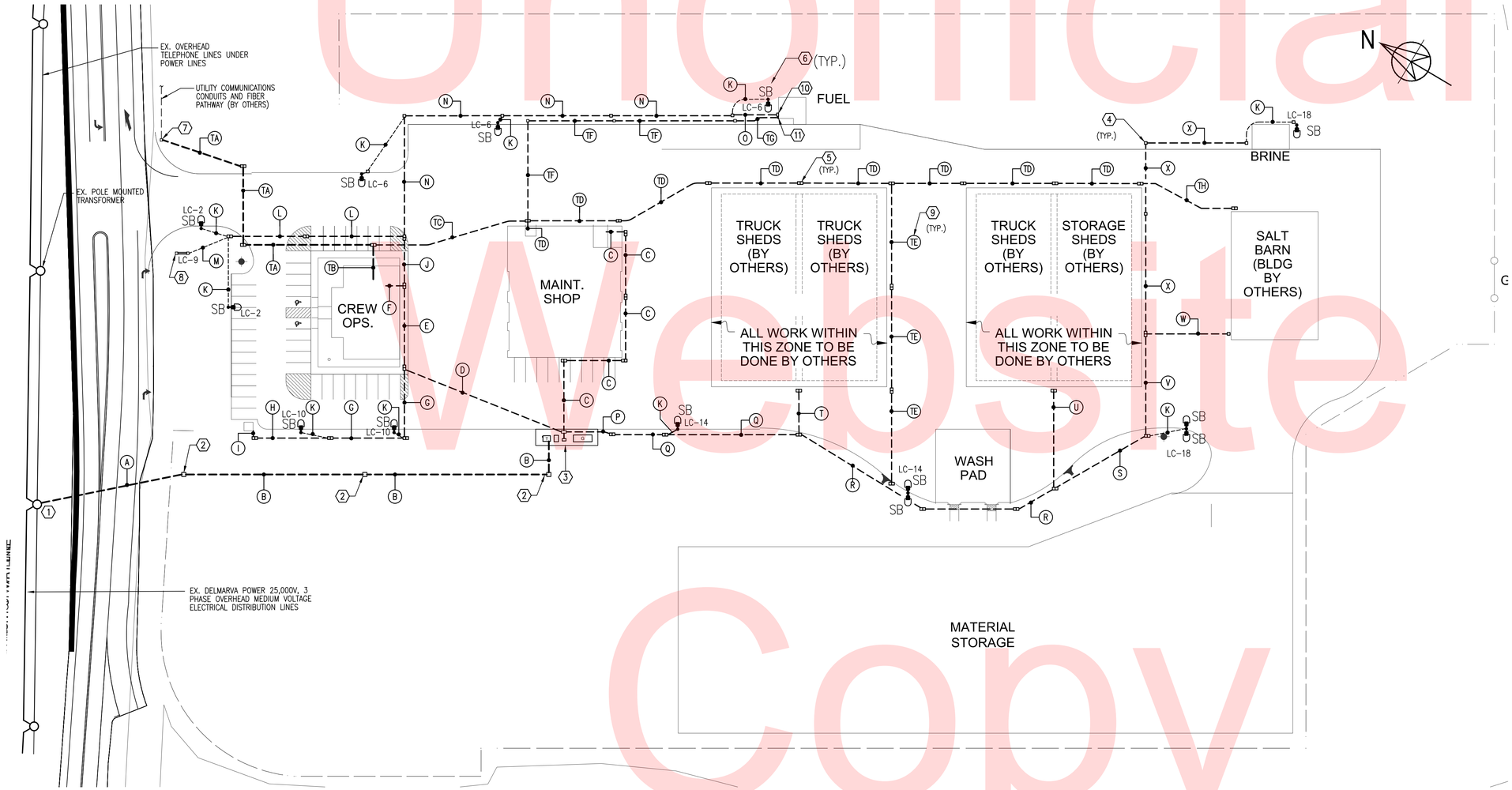
1. COORDINATE WITH ELECTRIC UTILITY REMOVAL OF EXISTING OVERHEAD ELECTRICAL SERVICE.
2. COORDINATE WITH ELECTRIC UTILITY REMOVAL OF EXISTING ELECTRICAL METERS.
3. REMOVE EXISTING SITE LIGHTING AND ASSOCIATED WIRING/CONDUIT BACK TO THE SUPPLY SOURCE.
4. REMOVE EXISTING TRAILER ELECTRICAL SYSTEM AND ASSOCIATED WIRING/CONDUIT BACK TO THE SUPPLY SOURCE.
5. REMOVE EXISTING SALT BARN ELECTRICAL SYSTEM AND ASSOCIATED WIRING/CONDUIT BACK TO THE SUPPLY SOURCE.

S-E-101

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	ELECTRICAL SITE PLAN DEMOLITION	SHEET NO. 20
				COUNTY NEW CASTLE	DESIGNED BY: JDT		TOTAL SHTS. 116
					CHECKED BY: JL		

SITE LIGHTING FIXTURE SCHEDULE

TYPE	SYMBOL	DESCRIPTION	MANUFACTURER	CATALOG NO.	LAMP							FIXTURE VOLTAGE	DRIVER FACTOR	MINIMUM LUMENS	FIXTURE WATTS	FINISH	MOUNTING	NOTES
					NO.	TYPE	WATT.	VOLTAGE	COLOR	CRI	LIFE							
SB	SB	POLE MOUNTED EXTERIOR SITE FIXTURE	HOLOPHANE	MGLED-6-4K-AS-M-L-A-G	6COB	LED	–	BY DRIVER	4000 'K	≥70	50,000 HRS	208V/1ø	1.0	24,299LM	245W	GRAY	POLE 16'-0" + BASE	PROVIDE HOLOPHANE POLE REF.: RTA1650G
SS		LED BAR	LUMENPULSE – LUMENFACADE	WWLF, 3' SECTION.	1	LED	–	BY DRIVER	4000 'K	≥70	50,000 HRS	120V	1.0	2,700LM	45W	POLYESTER POWDER COAT	SURFACE	PROVIDE 2 FIXTURES FOR THE SIGN



GENERAL NOTES:

1. COORDINATE EXACT PRIMARY INCOMING SERVICE WITH DELMARVA POWER.
2. PROVIDE THE COMPLETE INSTALLATION IN COMPLIANCE WITH DELMARVA POWER REQUIREMENTS, INCLUDING BUT NOT LIMITED TO TRANSFORMER PAD, DUCT BANK, AND TERMINATION DETAILS.
3. EXTEND DEPTHS OF SITE LIGHTING POLE FOUNDATIONS PER FIELD CONDITIONS TO PROVIDE BEARING ON UNDISTURBED SOIL (NOT BACKFILL). COMPACT ALL BACKFILL AROUND POLE FOUNDATIONS TO 95% DENSITY.
4. ALL FILL BELOW DUCT BANKS IS TO BE ENGINEERED FILL.
5. ALL LUMINAIRES TYPE "SB" SHALL BE INSTALLED ON 4"ø – 16' HEIGHT ROUND ALUMINUM POLE MOUNTED ON 24" CONCRETE AFG. SEE DETAILS "1" & "2" ON DWG S-E-205.

KEY NOTES:

(1) 25,000V, 3 PHASE UNDERGROUND MEDIUM VOLTAGE ELECTRICAL INCOMING SERVICE FROM EX. DELMARVA POWER DISTRIBUTION SYSTEM TO THE TRANSFORMER. (2)-5" CONDUITS (JACK & BORE ON LOREWOOD GROVE ROAD). CONTRACTOR SHALL PROVIDE ALL REQUIRED ACCESSORIES FOR COMPLETE AND FUNCTIONAL SYSTEM.

(2) MEDIUM VOLTAGE PULL BOX. SEE DETAIL "4" ON DWG S-E-206.

(3) PROVIDE CONCRETE PAD FOR 300KVA PAD MOUNTED TRANSFORMER, AUTOMATIC TRANSFER SWITCH, MAIN DISTRIBUTION SWITCHBOARD AND 250KW – GAS GENERATOR. SEE DETAIL "3" ON DWG S-E-205 FOR PROPOSED LAYOUT.

(4) PROVIDE CONDUIT JUNCTION WELL TYPE 1 FOR UNDERGROUND CONDUITS. SEE DETAIL "4" ON DWG S-E-205.

(5) PROVIDE CONDUIT JUNCTION WELL TYPE 4 FOR UNDERGROUND CONDUITS. SEE DETAIL "5" ON DWG S-E-205. JUNCTION WELL COVER SHALL BE IDENTIFIED ELECTRIC OR COMMUNICATION AS APPLICABLE.

(6) SEE LIGHTING FIXTURE SCHEDULE FOR LUMINAIRE TYPE SB. COORDINATE EXACT LOCATION IN FIELD. SEE DETAIL 1 & 2 ON DWG S-E-205.

(7) APPROXIMATE LOCATION OF THE UTILITY COMMUNICATIONS JUNCTION WELL.

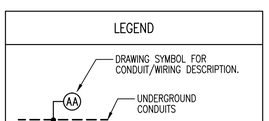
(8) SEE LIGHTING FIXTURE SCHEDULE FOR LUMINAIRE TYPE SS. PROVIDE 2 FIXTURES WITH 3' SECTION EACH. COORDINATE EXACT LOCATION IN FIELD. SEE DETAIL "6" ON DWG S-E-206.

(9) DRAWING SYMBOL FOR CONDUIT/WIRING DESCRIPTION. SEE CONDUIT/WIRING SCHEDULE ON DRAWING S-E-202.

(10) PROVIDE 208/120V, 3 PHASE, 4 WIRE PANEL BOARD, 12 CIRCUITS WITH 30A MAIN CIRCUIT BREAKER IN NEMA 4X ENCLOSURE, FOR FUELING STATION SIMILAR TO HUBBEL-KILLARK OR APPROVED EQUAL. PROVIDE SEALING FITTINGS FOR HAZARDOUS LOCATIONS SIMILAR TO HUBBEL-KILLARK ENY-3 OR APPROVED EQUAL AS REQUIRED FOR POWER CIRCUITS TO FUELING STATION. CONTRACTOR SHALL PROVIDE ALL REQUIRED ACCESSORIES FOR COMPLETE AND FUNCTIONAL SYSTEM.

(11) PROVIDE 12"HX12"WX6"D NEMA 4X ENCLOSURE, FOR CONTROL AND COMMUNICATION CONDUITS TO FUELING STATION. COORDINATE ALL CONDUIT REQUIREMENTS WITH MANUFACTURER. CONTRACTOR SHALL PROVIDE ALL REQUIRED ACCESSORIES FOR COMPLETE AND FUNCTIONAL SYSTEM.

LEGEND



NOTES:

– SEE CONDUIT/WIRING SCHEDULE ON DRAWING S-E-202.

–SEE UNDERGROUND CONDUITS DETAILS ON DRAWINGS S-E-203 AND S-E-204.

S-E-201

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE 0 30 60 90 FEET

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	JDT
COUNTY	CHECKED BY:	JL
NEW CASTLE		

ELECTRICAL SITE PLAN
NEW WORK

SHEET NO.
21
TOTAL SHTS.
116

ELECTRICAL CONDUIT AND WIRING SCHEDULE		
ID	CONDUIT – WIRING	DESCRIPTION
A	(1) 5" C. – 3#2 + 1#6G	MEDIUM VOLTAGE INCOMING SERVICE
	(1) 5" C. – PULL STRING	SPARE
B	(1) 5" C. – 3#2 + 1#6G	MEDIUM VOLTAGE INCOMING SERVICE
	(1) 5" C. – PULL STRING	SPARE
C	(2) 3" C. – (2) 4#4/0 + (2) 1#1G	TO MAINTENANCE BUILDING PANEL "MB"
	(2) 1" C. – PULL STRING	SPARES
	(2) 2" C. – PULL STRING	SPARES
D	(1) 3" C. – 4#4/0 + 1#4G	TO CREW OPERATIONS PANEL "CO"
	(1) 1" C. – 2#10 + 1#10G	TO RECEPTACLES AT UTILITY PAD. 20A, 120V CIRCUIT FROM PANEL "CO"
	(2) 1" C. – GEN. CONTROL CABLES	FOR GENERATOR CONTROLS
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(2) 1" C. – PULL STRING	SPARES
	(4) 2" C. – PULL STRING	SPARES
E	(1) 3" C. – 4#4/0 + 1#4G	TO CREW OPERATIONS PANEL "CO"
	(1) 1" C. – 2#10 + 1#10G	TO RECEPTACLES AT UTILITY PAD. 20A, 120V CIRCUIT FROM PANEL "CO"
	(2) 1" C. – GEN. CONTROL CABLES	FOR GENERATOR CONTROLS
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 1" C. – 3#10 + 1#10G	TO SEWER PUMP FROM PANEL "CO"
	(5) 1" C. – PULL STRING	SPARES
	(4) 2" C. – PULL STRING	SPARES
F	(1) 3" C. – 4#4/0 + 1#4G	TO CREW OPERATIONS PANEL "CO"
	(1) 1" C. – 2#10 + 1#10G	TO RECEPTACLES AT UTILITY PAD. 20A, 120V CIRCUIT FROM PANEL "CO"
	(2) 1" C. – GEN. CONTROL CABLES	FOR GENERATOR CONTROLS
	(1) 1" C. – 3#8 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 1" C. – 2#8 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 1" C. – 3#10 + 1#10G	TO SEWER PUMP FROM PANEL "CO"
	(1) 1" C. – 4#8 + 1#10G	TO FUEL CONTROL PANEL FROM PANEL "CO"
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 1" C. – 2#10 + 1#10G	TO SIGN AT ENTRANCE FROM RELAY PANEL
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(4) 1" C. – PULL STRING	SPARES
	(4) 2" C. – PULL STRING	SPARES

ELECTRICAL CONDUIT AND WIRING SCHEDULE		
ID	CONDUIT – WIRING	DESCRIPTION
G	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 1" C. – 3#10 + 1#10G	TO SEWER PUMP FROM PANEL "CO"
	(2) 1" C. – PULL STRING	SPARES
	(2) 2" C. – PULL STRING	SPARES
H	(1) 1" C. – 3#10 + 1#10G	TO SEWER PUMP FROM PANEL "CO"
	(2) 1" C. – PULL STRING	SPARES
	(2) 2" C. – PULL STRING	SPARES
I	(1) 1" C. – 3#10 + 1#10G	TO SEWER PUMP FROM PANEL "CO"
J	(1) 1" C. – 4#8 + 1#10G	TO FUEL CONTROL PANEL FROM PANEL "CO"
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING
	(1) 1" C. – 2#10 + 1#10G	TO SIGN AT ENTRANCE FROM RELAY PANEL
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING
	(2) 1" C. – PULL STRING	SPARES
	(2) 2" C. – PULL STRING	SPARES
K	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING
L	(1) 1" C. – 2#10 + 1#10G	TO SIGN AT ENTRANCE FROM RELAY PANEL
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING
	(1) 1" C. – PULL STRING	SPARE
	(1) 2" C. – PULL STRING	SPARE
M	(1) 1" C. – 2#10 + 1#10G	TO SIGN AT ENTRANCE FROM RELAY PANEL
N	(1) 1" C. – 4#8 + 1#10G	TO FUEL CONTROL PANEL FROM PANEL "CO"
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING
	(1) 1" C. – PULL STRING	SPARE
	(1) 2" C. – PULL STRING	SPARE
O	(1) 1" C. – 4#8 + 1#10G	TO FUEL CONTROL PANEL FROM PANEL "CO"
P	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 2" C. – PULL STRING	FOR WASH PAD
	(4) 2" C. – PULL STRING	FOR TRUCK SHEDS
	(1) 2" C. – PULL STRING	FOR SALT BARN
	(1) 2" C. – PULL STRING	FOR BRINE
	(4) 1" C. – PULL STRING	SPARES
	(7) 2" C. – PULL STRING	SPARES

ELECTRICAL CONDUIT AND WIRING SCHEDULE		
ID	CONDUIT – WIRING	DESCRIPTION
Q	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(4) 2" C. – PULL STRING	FOR TRUCK SHEDS
	(1) 2" C. – PULL STRING	FOR SALT BARN
	(1) 2" C. – PULL STRING	FOR BRINE
	(4) 1" C. – PULL STRING	SPARES
	(4) 2" C. – PULL STRING	SPARES
R	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(2) 2" C. – PULL STRING	FOR TRUCK SHEDS
	(1) 2" C. – PULL STRING	FOR SALT BARN
	(1) 2" C. – PULL STRING	FOR BRINE
	(4) 1" C. – PULL STRING	SPARES
	(4) 2" C. – PULL STRING	SPARES
S	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 2" C. – PULL STRING	FOR SALT BARN
	(1) 2" C. – PULL STRING	FOR BRINE
	(4) 1" C. – PULL STRING	SPARES
	(4) 2" C. – PULL STRING	SPARES
T	(2) 2" C. – PULL STRING	FOR TRUCK SHEDS
	(1) 1" C. – PULL STRING	SPARE
	(1) 2" C. – PULL STRING	SPARE
U	(2) 2" C. – PULL STRING	FOR TRUCK SHEDS
	(1) 1" C. – PULL STRING	SPARE
	(1) 2" C. – PULL STRING	SPARE
V	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 2" C. – PULL STRING	FOR SALT BARN
	(1) 2" C. – PULL STRING	FOR BRINE
	(2) 1" C. – PULL STRING	SPARES
	(2) 2" C. – PULL STRING	SPARES
W	(1) 2" C. – PULL STRING	FOR SALT BARN
	(1) 1" C. – PULL STRING	SPARE
	(1) 2" C. – PULL STRING	SPARE
X	(1) 1" C. – 2#10 + 1#10G	TO SITE LIGHTING FROM RELAY PANEL
	(1) 2" C. – PULL STRING	FOR BRINE
	(1) 1" C. – PULL STRING	SPARE
	(1) 2" C. – PULL STRING	SPARE

COMMUNICATIONS CONDUIT AND WIRING SCHEDULE		
ID	CONDUIT – WIRING	DESCRIPTION
TA	(2) 4" C. – PULL STRING	IT INCOMING SERVICE
TB	(2) 4" C. – PULL STRING	IT INCOMING SERVICE
	(1) 4" C. – PULL STRING	DATA NETWORK/CAMERA SYSTEM
	(1) 4" C. – PULL STRING	FIRE DETECTION
	(1) 1" C. – PULL STRING	TO IT FUEL STATION
	(1) 1" C. – PULL STRING	SPARE
	(1) 2" C. – PULL STRING	SPARE
TC	(1) 4" C. – PULL STRING	DATA NETWORK/CAMERA SYSTEM
	(1) 4" C. – PULL STRING	FIRE DETECTION
	(1) 1" C. – PULL STRING	TO IT FUEL STATION
	(1) 1" C. – PULL STRING	SPARE
	(1) 2" C. – PULL STRING	SPARE
TD	(1) 4" C. – PULL STRING	DATA NETWORK/CAMERA SYSTEM
	(1) 4" C. – PULL STRING	FIRE DETECTION
	(2) 1" C. – PULL STRING	SPARE
	(2) 2" C. – PULL STRING	SPARE
TE	(4) 1" C. – PULL STRING	SPARE
	(4) 2" C. – PULL STRING	SPARE
TF	(1) 1" C. – PULL STRING	TO IT FUEL STATION
	(1) 1" C. – PULL STRING	SPARE
	(1) 2" C. – PULL STRING	SPARE
TG	(1) 1" C. – PULL STRING	TO IT FUEL STATION
TH	(1) 2" C. – PULL STRING	DATA NETWORK/CAMERA SYSTEM
	(1) 2" C. – PULL STRING	SPARE
	(1) 1" C. – PULL STRING	SPARE

NOTE:

–SEE UNDERGROUND CONDUITS DETAILS ON DRAWINGS S–E–203 AND S–E–204.

S-E-202

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

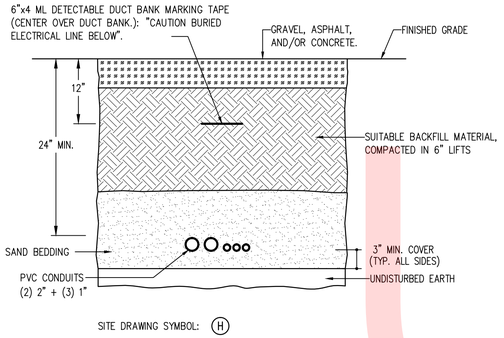
CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY: JDT	
COUNTY	CHECKED BY: JL	
NEW CASTLE		

ELECTRICAL SITE PLAN
NEW WORK - CONDUIT /WIRING SCHEDULES

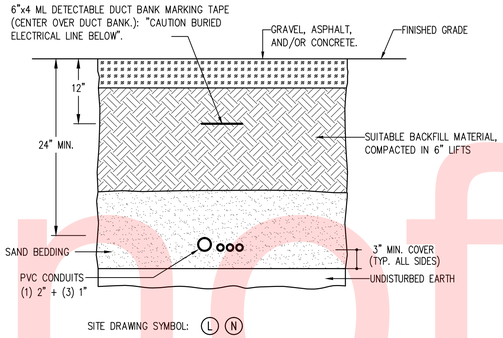
SHEET NO.
22
TOTAL SHTS.
116

JMT

Q:\WDE\T20995_021_St_Georges_Maintenan\CADD\Electrical\Site\S-E-201 .dwg



1 S-E203 (2)2"+(3)1" DIRECT BURIED CONDUIT ARRANGEMENT
SCALE: NONE



2 S-E203 (1)2"+(3)1" DIRECT BURIED CONDUIT ARRANGEMENT
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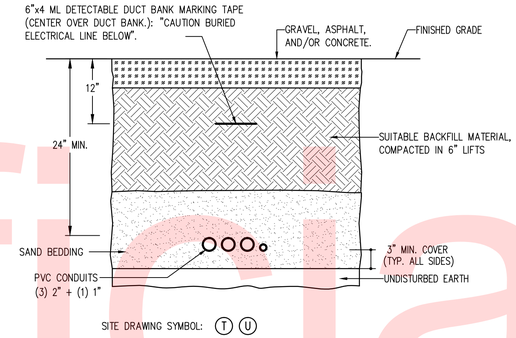

3 S-E203 (3)2"+(1)1" DIRECT BURIED CONDUIT ARRANGEMENT
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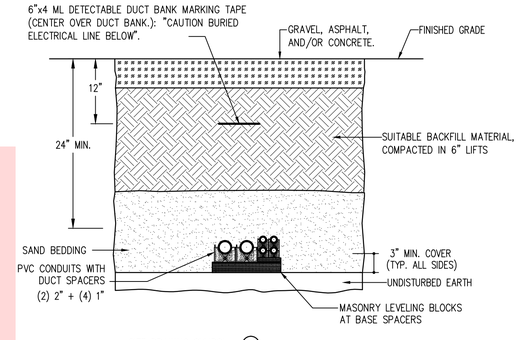

4 S-E203 (2)2"+(4)1" DIRECT BURIED CONDUIT ARRANGEMENT
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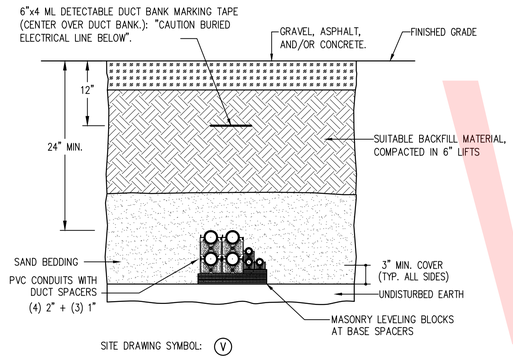

5 S-E203 (4)2"+(3)1" DIRECT BURIED CONDUIT ARRANGEMENT
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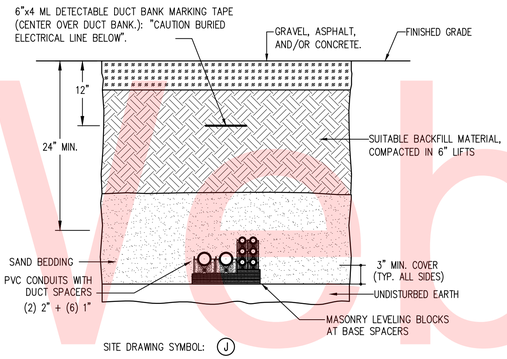
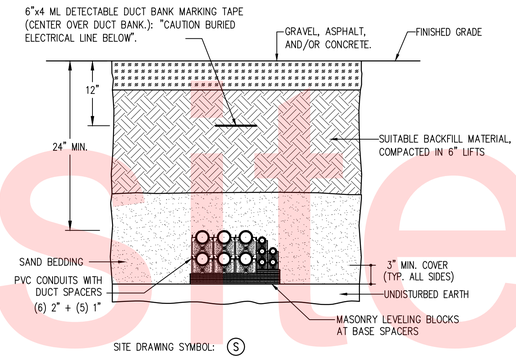


6 S-E203 (2)2"+(6)1" DIRECT BURIED CONDUIT ARRANGEMENT
SCALE: NONE



7 S-E203 (6)2"+(5)1" DIRECT BURIED CONDUIT ARRANGEMENT
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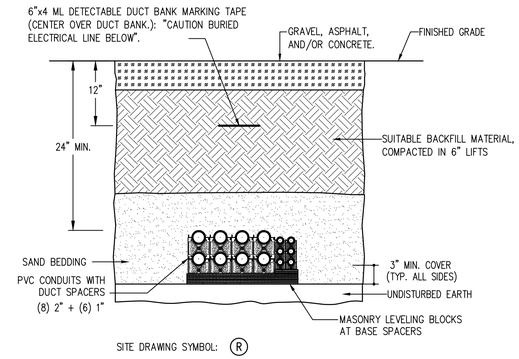

8 S-E203 (8)2"+(6)1" DIRECT BURIED CONDUIT ARRANGEMENT
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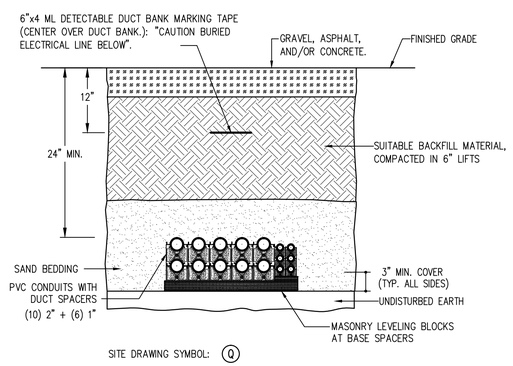

9 S-E203 (10)2"+(6)1" DIRECT BURIED CONDUIT ARRANGEMENT
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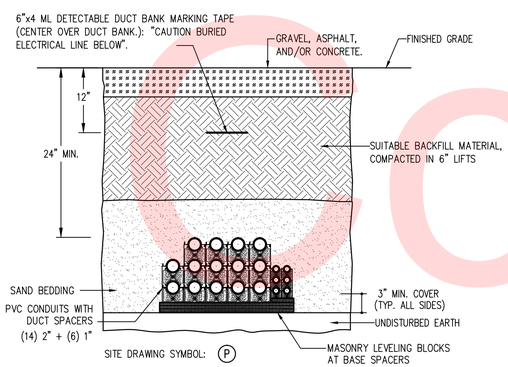

10 S-E203 (14)2"+(6)1" DIRECT BURIED CONDUIT ARRANGEMENT
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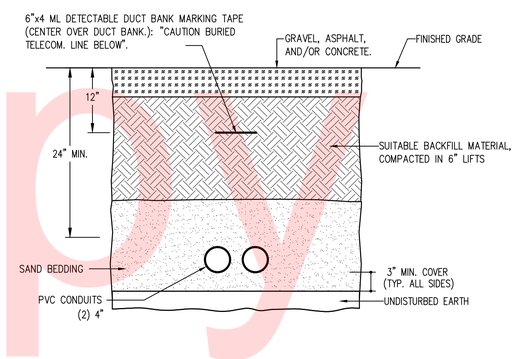

11 S-E203 (2)4" DIRECT BURIED CONDUIT ARRANGEMENT
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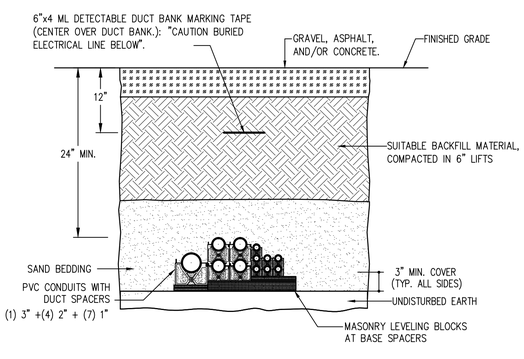


12 S-E203 (1)3"+ (4)2"+(7)1" DIRECT BURIED CONDUIT ARRANGEMENT
SCALE: NONE

S-E-203

DELAWARE
DEPARTMENT OF TRANSPORTATION

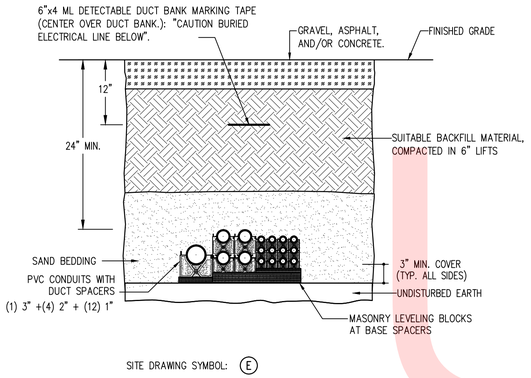
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	JDT
COUNTY	CHECKED BY:	JL
NEW CASTLE		

ELECTRICAL SITE PLAN
NEW WORK - CONDUIT DETAILS

SHEET NO.
23
TOTAL SHTS.
116



1 S-E204 (1)3"+ (4)2"+(12)1" DIRECT BURIED CONDUIT ARRANGEMENT
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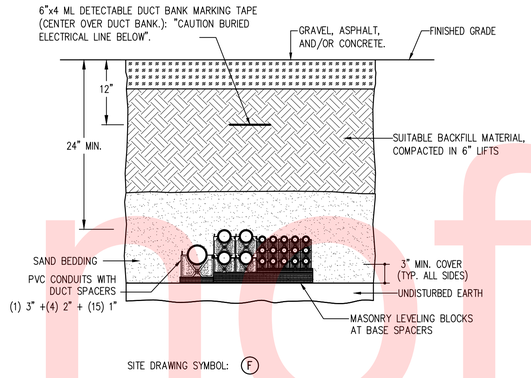

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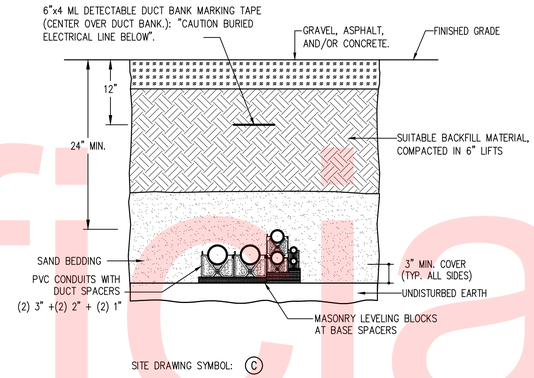
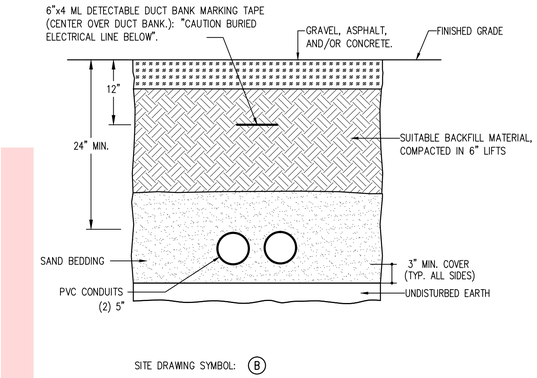


3 S-E204 (2)3"+(2)2"+(2)1" DIRECT BURIED CONDUIT ARRANGEMENT
SCALE: NONE



4 S-E204 (2)5" DIRECT BURIED CONDUIT ARRANGEMENT
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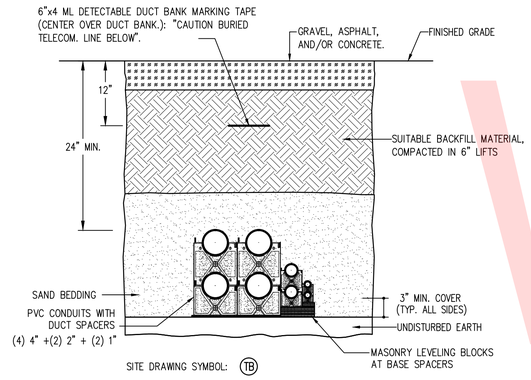
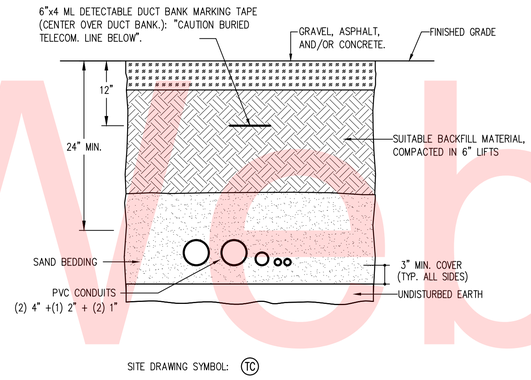
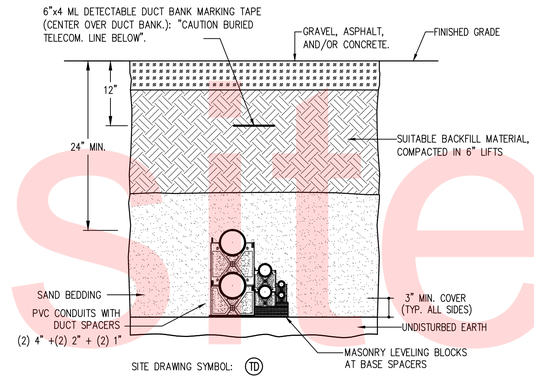


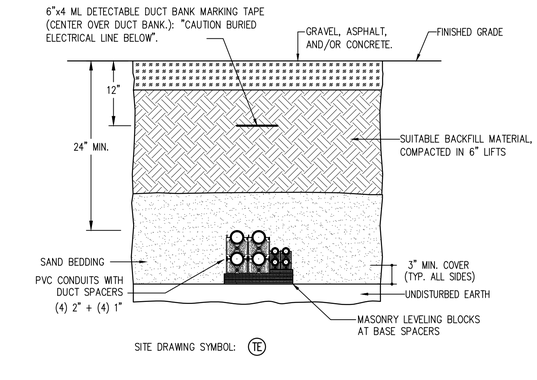
5 S-E204 (4)4"+(2)2"+(2)1" DIRECT BURIED CONDUIT ARRANGEMENT
SCALE: NONE



6 S-E204 (2)4"+(1)2"+(2)1" DIRECT BURIED CONDUIT ARRANGEMENT
SCALE: NONE



7 S-E204 (2)4"+(1)2"+(1)1" DIRECT BURIED CONDUIT ARRANGEMENT
SCALE: NONE



8 S-E203 (4)2"+(4)1" DIRECT BURIED CONDUIT ARRANGEMENT
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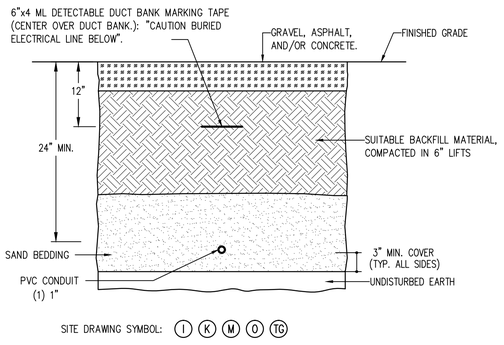

9 S-E204 (1) 1" DIRECT BURIED CONDUIT ARRANGEMENT
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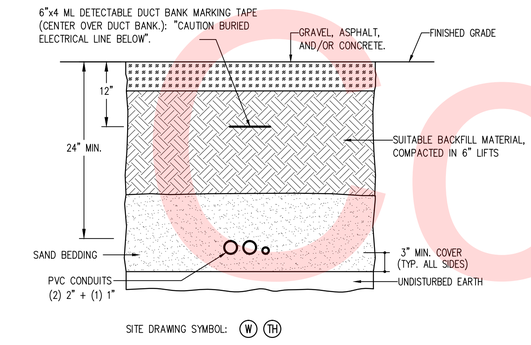
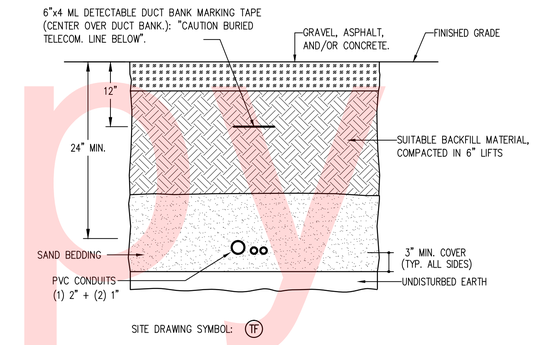
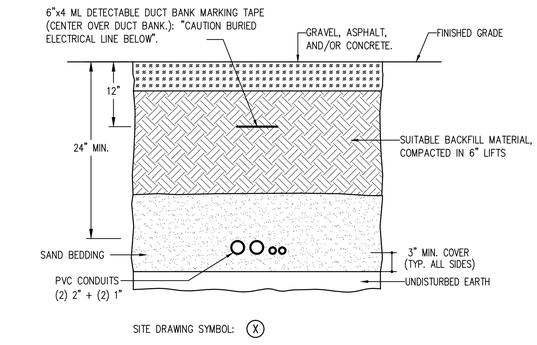


10 S-E204 (2) 2"+(1) 1" DIRECT BURIED CONDUIT ARRANGEMENT
SCALE: NONE



11 S-E204 (1) 2"+ (2) 1" DIRECT BURIED CONDUIT ARRANGEMENT
SCALE: NONE



12 S-E204 (2) 2"+(2) 1" DIRECT BURIED CONDUIT ARRANGEMENT
SCALE: NONE

S-E-204

Q:\NDE\120995_021_St_Georges_Maintenan\CADD\Electrical\Site\S-E-201.dwg

JMT

DELAWARE
DEPARTMENT OF TRANSPORTATION

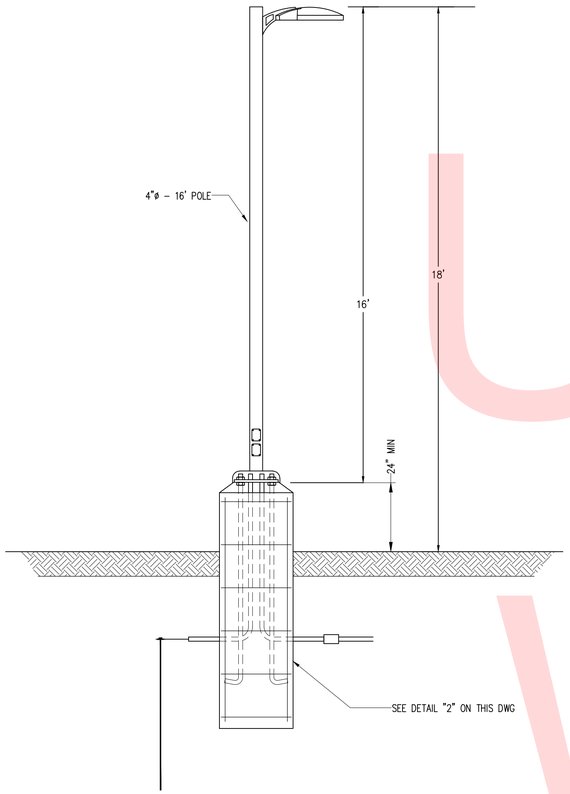
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

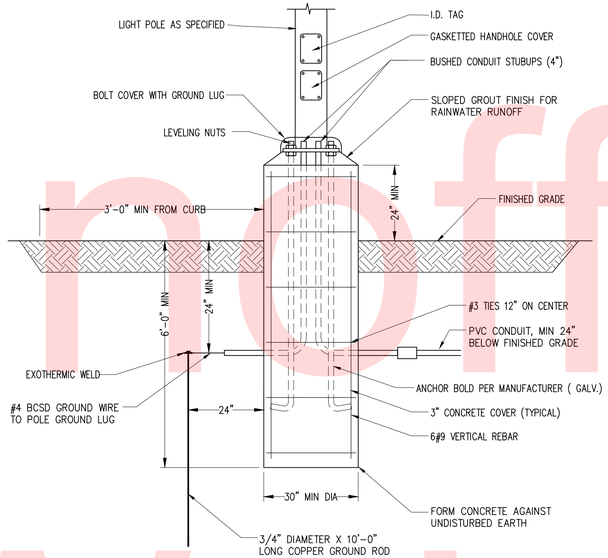
CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY: JDT	
COUNTY		
NEW CASTLE	CHECKED BY: JL	

ELECTRICAL SITE PLAN
NEW WORK - CONDUIT DETAILS

SHEET NO.
24
TOTAL SHTS.
116

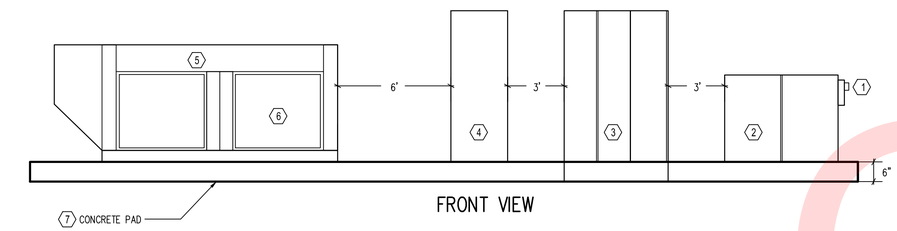


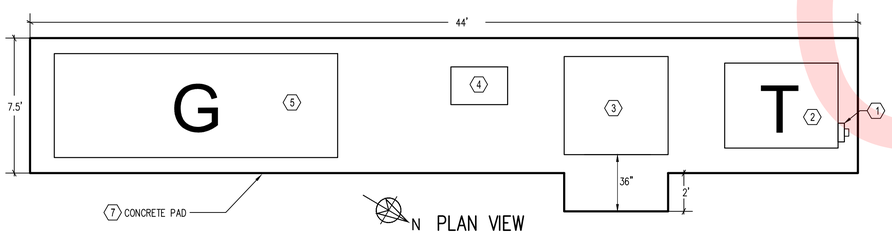
1 S-E205 LUMINAIRE TYPE "SB" MOUNTING HEIGHT
SCALE: NONE



NOTES:
1. ALL REINFORCING STEEL TO BE ASTM A615, GRADE 60 EXCEPT TIES, TIES SHALL BE GRADE 40
2. POLE BASES SHALL BE RUBBED AND GROUND BETWEEN BASE AND LEVELING PLATE.
3. DEPTH OF POLE BASE SHALL EXTENDED PER FIELD CONDITIONS TO ACHIEVE BEARING ON UNDISTURBED SOIL.
4. THIS DETAIL IS FOR STANDARD POLE BASE INSTALLATION. CONTRACTOR TO INSTALL SPECIFIED POLE AND BASE AS INSTRUCTED BY MANUFACTURER.

2 S-E205 LUMINAIRE TYPE "SB" POLE BASE DETAIL
SCALE: NONE

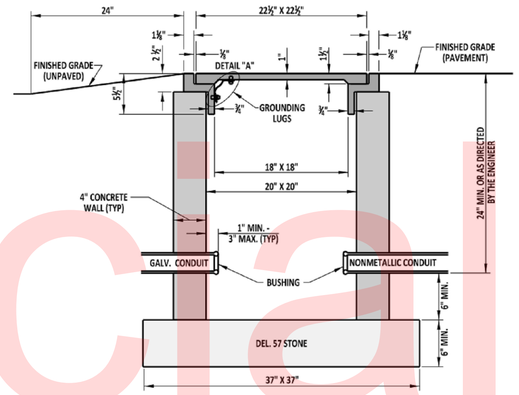




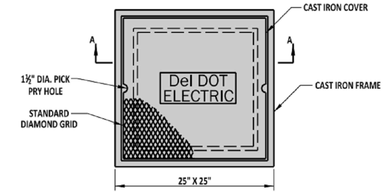
3 S-E205 PROPOSED ELECTRICAL UTILITY PAD LAYOUT
SCALE: NONE

UTILITY PAD KEY NOTES:

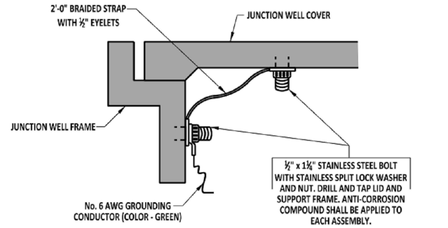
1. 5A, 208Y/120V, 3P, 4W, DELMARVA POWER ELECTRICAL METER.
2. 300KVA, 25000–208Y/120V, 3P, DELMARVA POWER PAD–MOUNTED TRANSFORMER.
3. PROVIDE 1200A, 208Y/120V, 4 POLE, AUTOMATIC TRANSFER SWITCH "EMERSON–ASCO" 7000 SERIES ATS, NEMA 4X. WITH SEPARATE MAIN ENTRANCE ENCLOSED CIRCUIT BREAKER COMPARTMENT.
4. PROVIDE 1200A, 208Y/120V, 3P, 4W, SWITCHBOARD "SQUARE D" TYPE QED–S SERIES 2, NEMA 4X.
5. PROVIDE 250KW, 208Y/120V, 3P, 4W, EPA CERTIFIED, STATIONARY EMERGENCY GENERATOR, "TAYLOR–MARATHON", MODEL 432CSL6210 WITH DGC2020 DIGITAL CONTROLLER.
6. PROVIDE GENERATOR WIRELESS REMOTE AND CONTROL SYSTEM EQUAL TO THE TRUEGUARD–PRO MANUFACTURED BY OMNIMETRIX WITH ALL NECESSARY ACCESSORIES FOR COMPLETE AND FUNCTIONAL SYSTEM. SEE DETAILS 2, 3 & 4 ON DRAWING S–E–206 FOR MORE INFORMATION.
7. SEE CIVIL DRAWINGS FOR CONCRETE PAD DETAIL.



SECTION A-A



PLAN VIEW



DETAIL "A"

4 S-E205 CONDUIT JUNCTION WELL, TYPE 1
SCALE: NONE

PLAN VIEW

DETAIL "A"

SECTION A-A

NOTES:
1). TYPE 4 CONDUIT JUNCTION WELL SHALL BE PRECAST CONCRETE. AT LEAST ONE HOLE IN PRECAST WELLS WILL BE OF A 5" DIAMETER COMPLETELY THROUGH THE WALL. UNUSED HOLES SHALL BE PLUGGED.
2). ALL CONDUIT JUNCTION WELLS PLACED IN PAVED AREAS SHALL BE CONSTRUCTED FLUSH WITH THE FINISHED GRADE. ALL CONDUIT JUNCTION WELLS PLACED IN UNPAVED AREAS SHALL BE CONSTRUCTED ABOVE FINISHED GRADE, AND GRADED TO DRAIN AWAY FROM THE WELL, AS DETAILED.
3). ALL CRACKS, GAPS, OR OPENINGS IN JUNCTION WELL WALL SHALL BE SEALED WITH CONCRETE.

5 S-E205 CONDUIT JUNCTION WELL, TYPE 4
SCALE: NONE

S-E-205

DELAWARE
DEPARTMENT OF TRANSPORTATION

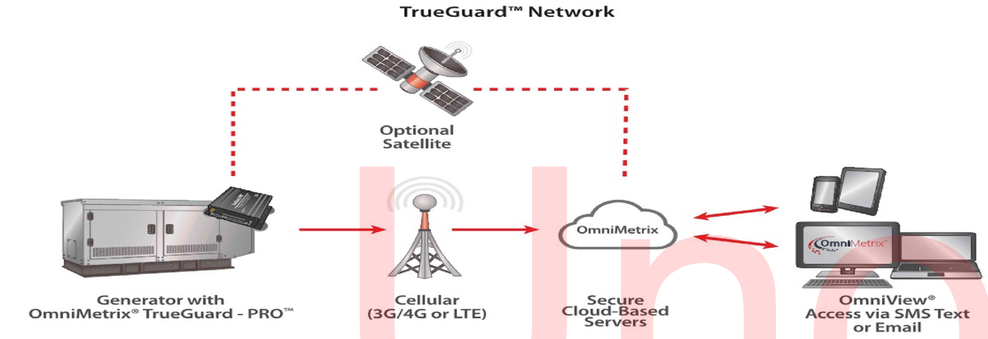
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	T201680104
COUNTY	NEW CASTLE
BRIDGE NO.	N/A
DESIGNED BY:	JDT
CHECKED BY:	JL

ELECTRICAL SITE PLAN
DETAILS

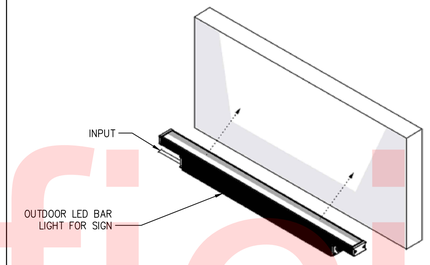
SHEET NO.	25
TOTAL SHTS.	116

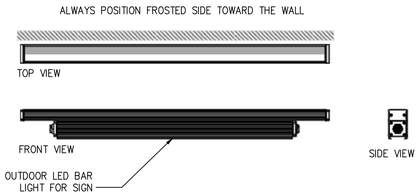


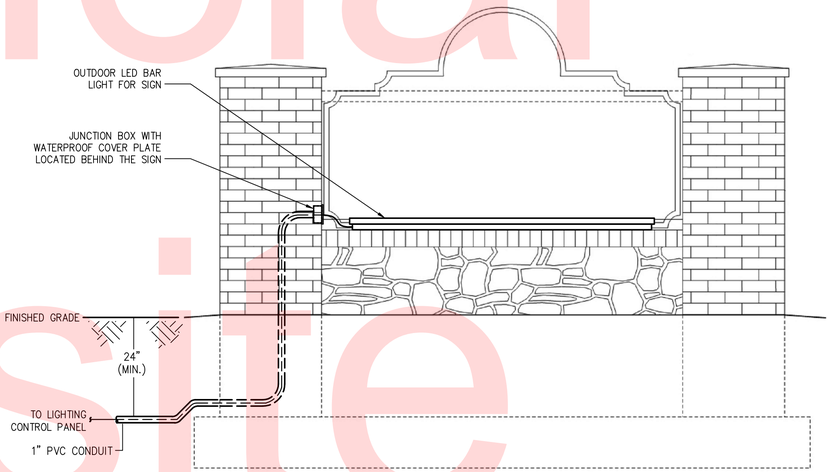
THE INSTALLATION REQUIRES THE OMNIMETRIX TRUEGUARD-PRO WIRELESS REMOTE MONITORING AND CONTROL SYSTEM TO PROVIDE A SOLUTION FOR BACKUP POWER MONITORING.

1 S-E206 GENERATOR WIRELESS MONITORING AND CONTROL SYSTEM

SCALE: NONE

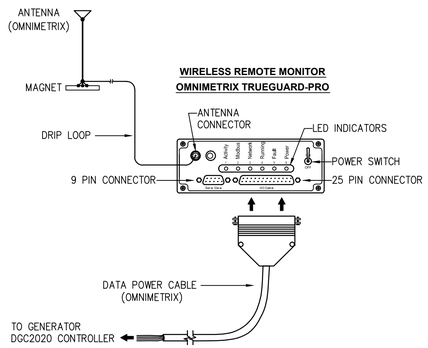






6 S-E206 SIGN LED BAR WIRING DIAGRAM AND DETAILS

SCALE: NONE



NOTES:

1. PROVIDE WIRELESS REMOTE AND CONTROL SYSTEM EQUAL TO: TRUEGUARD-PRO WITH ANTENNA AND POWER/DATA CABLE MANUFACTURED BY OMNIMETRIX WITH ALL NECESSARY ACCESSORIES FOR COMPLETE AND FUNCTIONAL INSTALLATION.
2. INSTALL THE ANTENNA VERTICALLY ON THE ROOF OF THE GENERATOR AND ROUTE THE ANTENNA CABLE INTO THE AREA OF THE GENERATOR CONTROL. THE ANTENNA USED FOR TRANSMITTING MUST BE INSTALLED TO PROVIDE A SEPARATION DISTANCE OF AT LEAST 20 CENTIMETERS FROM ALL PERSONS AND MUST NOT TRANSMIT SIMULTANEOUSLY WITH ANY OTHER ANTENNA TRANSMITTERS. BE SURE TO PROVIDE A DRIP LOOP LOWER THAN THE MONITOR TO KEEP WATER FROM RUNNING DOWN THE ANTENNA CABLE INTO THE MONITOR CONNECTION.
3. INSTALL THE TRUEGUARD-PRO MONITOR VIA ITS MAGNETIC FEET, ON TOP OF THE ENGINE CONTROLLER OR OTHER APPROPRIATE LOCATION FOLLOWING MANUFACTURER INSTRUCTIONS.
4. ROUTE THE DATA/POWER CABLE INTO THE GENERATOR CONTROL ENCLOSURE AND CONNECT TO THE TRUEGUARD-PRO MONITOR 25 PIN CONNECTOR AND THE GENERATOR BASLER DGC2020 TERMINAL BOARD FOLLOWING THE MANUFACTURER WIRING DEFINITION.
5. REFER TO DETAIL X ON THIS DRAWING FOR THE ALARMS AND ANALOG PARAMETERS TO BE CONFIGURED AT THE GENERATOR PANEL TO BE MONITORED BY THE OMNIMETRIX TRUEGUARD-PRO.

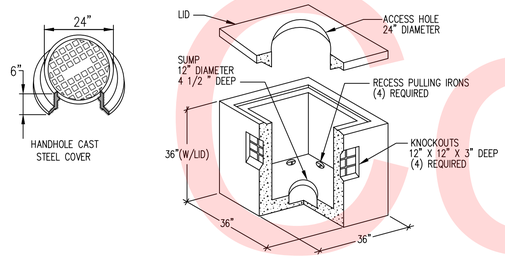
2 S-E206 WIRELESS REMOTE MONITOR SCHEMATIC DIAGRAM

SCALE: NONE

ALARMS	ALARMS	ANALOG PARAMETERS	ANALOG PARAMETERS
E STOP	UNDER VOLTAGE	GENERATOR L1-L2 VOLTAGE	ATS LOAD POWER FACTOR
OVERSPEED	WEAK BATTERY	GENERATOR L1-L0 VOLTAGE	ATS LOAD AVERAGE KW
OVERCRANK	OVER FREQUENCY	GENERATOR L2-L0 VOLTAGE	ATS LOAD MINIMUM KW
HIGH TEMP SHUTDOWN	UNDER FREQUENCY	GENERATOR L1 CURRENT	ATS LOAD MAXIMUM KW
LOW COOLANT TEMP	OVER CURRENT	GENERATOR L2 CURRENT	ATS LOAD VOLTAGE LINE – LINE
HIGH TEMP WARNING	SUPPLYING LOAD	GENERATOR FREQUENCY	ATS LOAD VOLTAGE LINE – NEUTRAL
NOT IN AUTO	RUNNING	GENERATOR POWER	ATS LOAD AVERAGE AMPS
LOW BATTERY	COMMON FAULT	COOLANT TEMPERATURE	ATS LOAD KW
HIGH BATTERY	WEB REMOTE START	GENERATOR POWER FACTOR	ATS LOAD KWH
CHARGER FAIL	WEB REMOTE TRANSFER ACTIVE	RPM	ATS LOAD KVAR
ECM COMM LOST	MODBUS FAULT	ENGINE HOURS	ATS LOAD KVA
NO COOLANT TEMP	WIRELESS LINK LOST	BATTERY	
LOW COOLANT LEVEL	ATS POSITION	GENERATOR KWH	
SPEED SENSOR FAULT		BATTERY VOLTAGE	
LOCKED ROTOR NOT AVAIL			
OVER VOLTAGE			

3 S-E206 BASLER DGC2020 ALARMS & ANALOG PARAMETERS

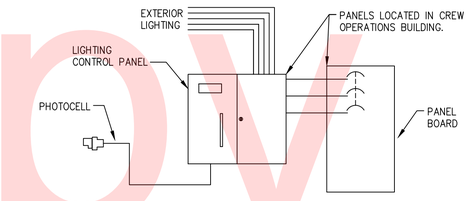
SCALE: NONE



NOTE: HANDHOLE COVER SHALL BE BOLTED TO THE FRAME.

4 S-E206 PRECAST HANDHOLE AND COVER

SCALE: NONE



NOTES:

1. PROVIDE LIGHTING CONTROL PANEL SIMILAR TO HUBBELL LXIN-32-16-08 WITH ENCLOSURE LEXEN-32-S OR EQUAL. SEE CREW OPERATIONS BUILDING DRAWING CO-E-501 FOR PANEL SCHEDULE.
2. PROVIDE ALL NECESSARY ACCESSORIES FOR COMPLETE AND FUNCTIONAL INSTALLATION

5 S-E206 LIGHTING RELAY CONTROL PANEL "LC"

SCALE: NONE

S-E-206

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

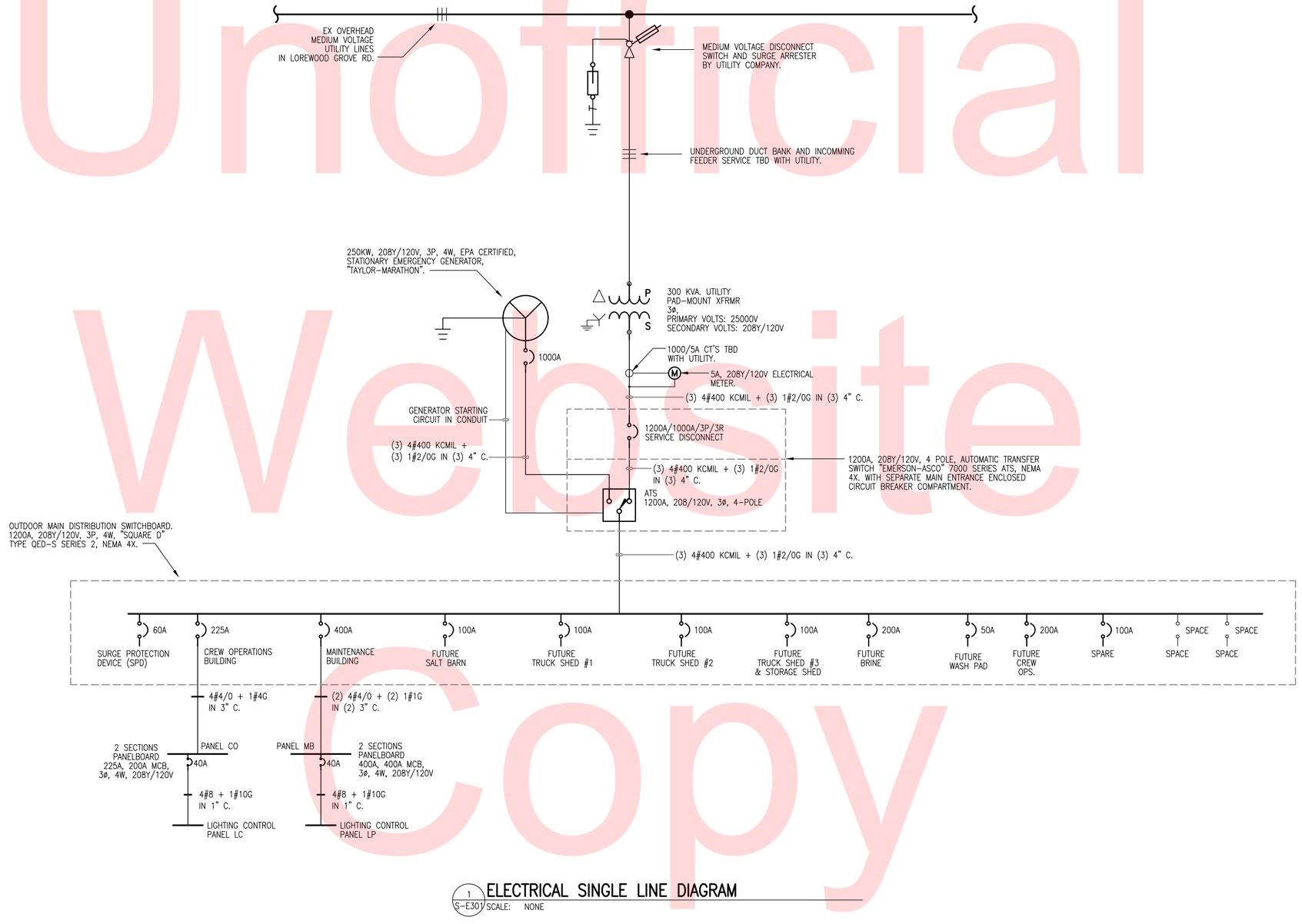
ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	JDT
COUNTY	CHECKED BY:	JL
NEW CASTLE		

ELECTRICAL SITE PLAN DETAILS

SHEET NO.
26
TOTAL SHTS.
116

JMT Q:\NDE\120995_021_St_Georges_Maintenan\CADD\Electrical\Site\S-E-205 .dwg



1 S-E301 ELECTRICAL SINGLE LINE DIAGRAM
SCALE: NONE

S-E-301

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	ELECTRICAL SINGLE LINE
				COUNTY NEW CASTLE	DESIGNED BY: JDT	SHEET NO. 27
					CHECKED BY: JL	TOTAL SHTS. 116

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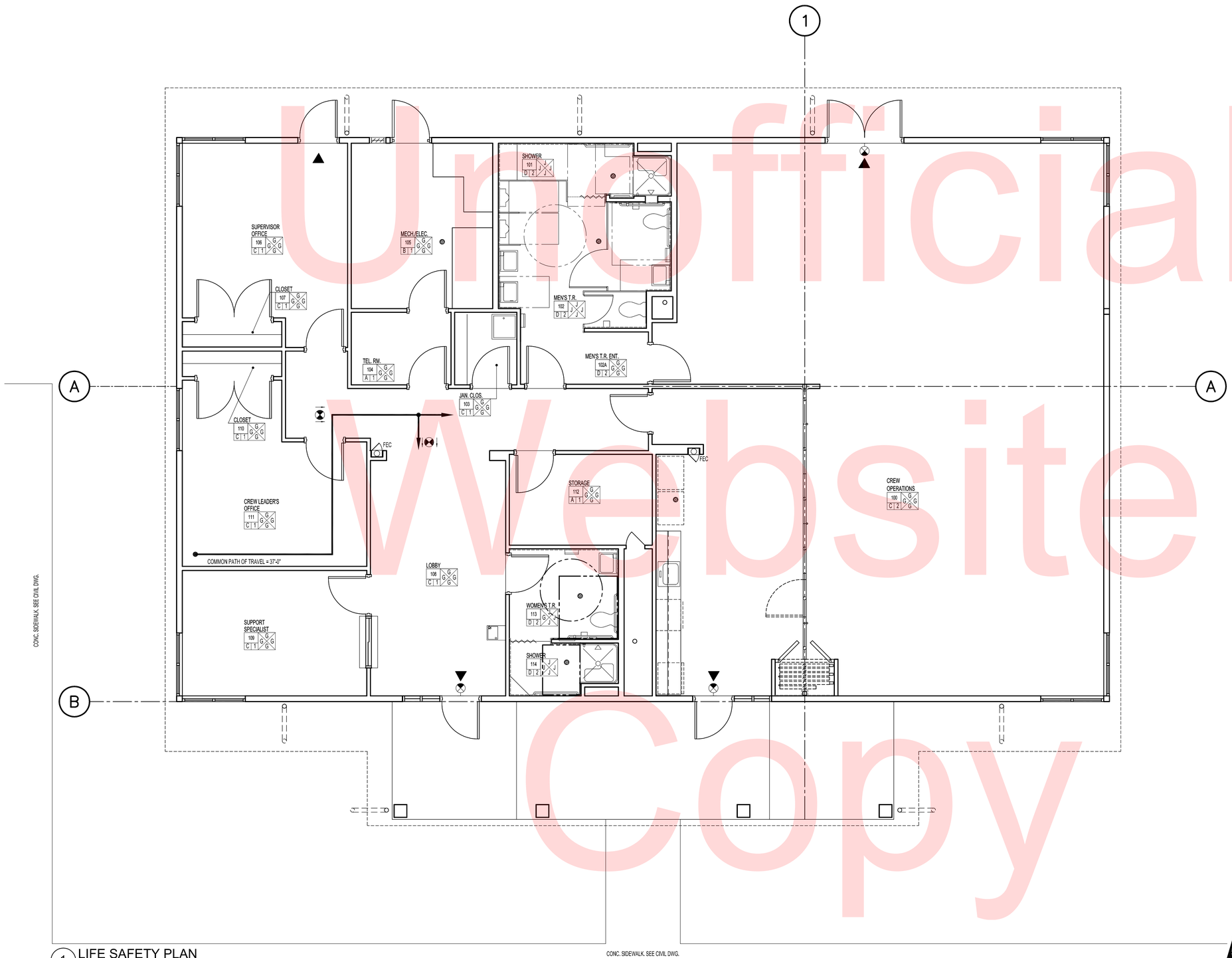


1 LIFE SAFETY PLAN
SCALE : 1/4"= 1'-0"

CODE SYNOPSIS

SITE LOCATION: DELAWARE DEPARTMENT OF TRANSPORTATION
ST GEORGES MAINTENANCE YARD SHOP #21
LOREWOOD GROVE ROAD
MIDDLETOWN, DELAWARE 19709

BUILDING OWNER: DELAWARE DEPARTMENT OF TRANSPORTATION (DELDOT)

APPLICANT: JOHNSON, MIRMIRAN AND THOMPSON
131 CONTINENTAL DRIVE, SUITE 109
NEWARK, DELAWARE 19713

DESIGN PROFESSIONAL: SAME AS APPLICANT

BUILDING OCCUPANCY AND OPERATIONAL NARRATIVE:
THE FACILITY IS TO BE OPEN MONDAY THRU FRIDAY DURING THE HOURS OF 7:00 AM TO 4:00 PM FOR THE ADMINISTRATIVE USE OF THE MIDDLETOWN DELDOT EMPLOYEES. THESE HOURS MAY BE EXTENDED TO POSSIBLY 24 HOURS DURING SNOW EMERGENCIES.

APPLICABLE CODES: INTERNATIONAL BUILDING CODE 2015
NFPA 101 LIFE SAFETY CODE, 2015

HANDICAPPED ACCESSIBILITY: STATE OF DELAWARE ARCHITECTURAL ACCESSIBILITY STANDARDS

BUILDING'S TOTAL AREA : ONE STORY - 3,330 GSF ENCLOSED W/ 350 S.F. COVERED PORCH

OCCUPANCY : B- BUSINESS (NEW)

CONSTRUCTION TYPE : VB, UNPROTECTED

ALLOWABLE STORIES PER TABLE 504.4 - 2 STORIES
ACTUAL STORIES - 1 STORY
ALLOWABLE SQUARE FOOTAGE PER TABLE 506.2 - 9,000 S.F.
ACTUAL SQUARE FOOTAGE - 3,330 S.F. THUS NO AREA MODIFICATIONS ARE NEEDED

OCCUPANTS: OFFICES 1,820 GSF = 18 OCCUPANTS (100 SF/OCC.)
CREW OPERATIONS ROOM = WILL NOT EVER HAVE GATHERINGS OF MORE THAN 50 OCCUPANTS

EXITS REQD./ PROVIDED: ENTIRE BLDG. - BUSINESS: 2 / 4
CREW OPERATIONS ROOM - 2 EXITS DIRECTLY TO EXTERIOR
OPERABLE WALL DIVIDES ROOM INTO TWO ROOMS, EACH WITH 1 EXIT DIRECTLY TO EXTERIOR

ALL EGRESS DOORS ARE A MINIMUM OF 36" WIDE.

MAXIMUM TRAVEL DISTANCE 300' WITH SPRINKLER.

EGRESS CORRIDORS FOR B OCCUPANCY ARE NOT REQUIRED TO BE RATED PER IBC 1020.1.

EGRESS AISLES & PASSAGEWAYS WILL BE KEPT FREE AND CLEAR OF EQUIPMENT AND BARRIERS THAT WOULD LIMIT READY ACCESS TO AND THE USE OF FIRE FIGHTING EQUIPMENT.

NO DEAD END CORRIDORS OVER 20 FEET IN LENGTH.

EGRESS DOORS WILL BE SELF-CLOSING.

PORTABLE FIRE EXTINGUISHERS ARE PROVIDED.

ATTIC WILL NOT BE USED FOR COMBUSTIBLE STORAGE & REQUIRES NO DRAFT STOPPING IF UNDER 3,000 SF

THE MECHANICAL ROOM WILL NOT BE USED FOR STORAGE PURPOSES.

FLAMMABLE LIQUIDS WILL NOT BE STORED IN ANY AMOUNTS

THE BUILDING IS NOT REQUIRED TO HAVE : FIRE ALARM SYSTEM, PER IBC 907.2
SPRINKLER SYSTEM

FIRE SUPPRESSION SPRINKLERING IS PROVIDED IN ACCORDANCE WITH NFPA 13.

LEGEND

- DIRECTION TO PATH OF TRAVEL
- COMMON PATH OF TRAVEL
- FEC — FIRE EXTINGUISHER CABINET W/ ABC EXTINGUISHER
- EXIT SIGN - CEILING MOUNTED DIRECTIONAL
- EXIT SIGN - WALL MOUNTED
- WOMENS T.R. 113 — ROOM NAME

O:\NDE\120995_021 - St_Georges_Maintenan\CADD\Architectural\ALS-101 CREW OPERATION BUILDING LIFE SAFETY PLAN.dwg

CO-ALS-101

DELAWARE DEPARTMENT OF TRANSPORTATION

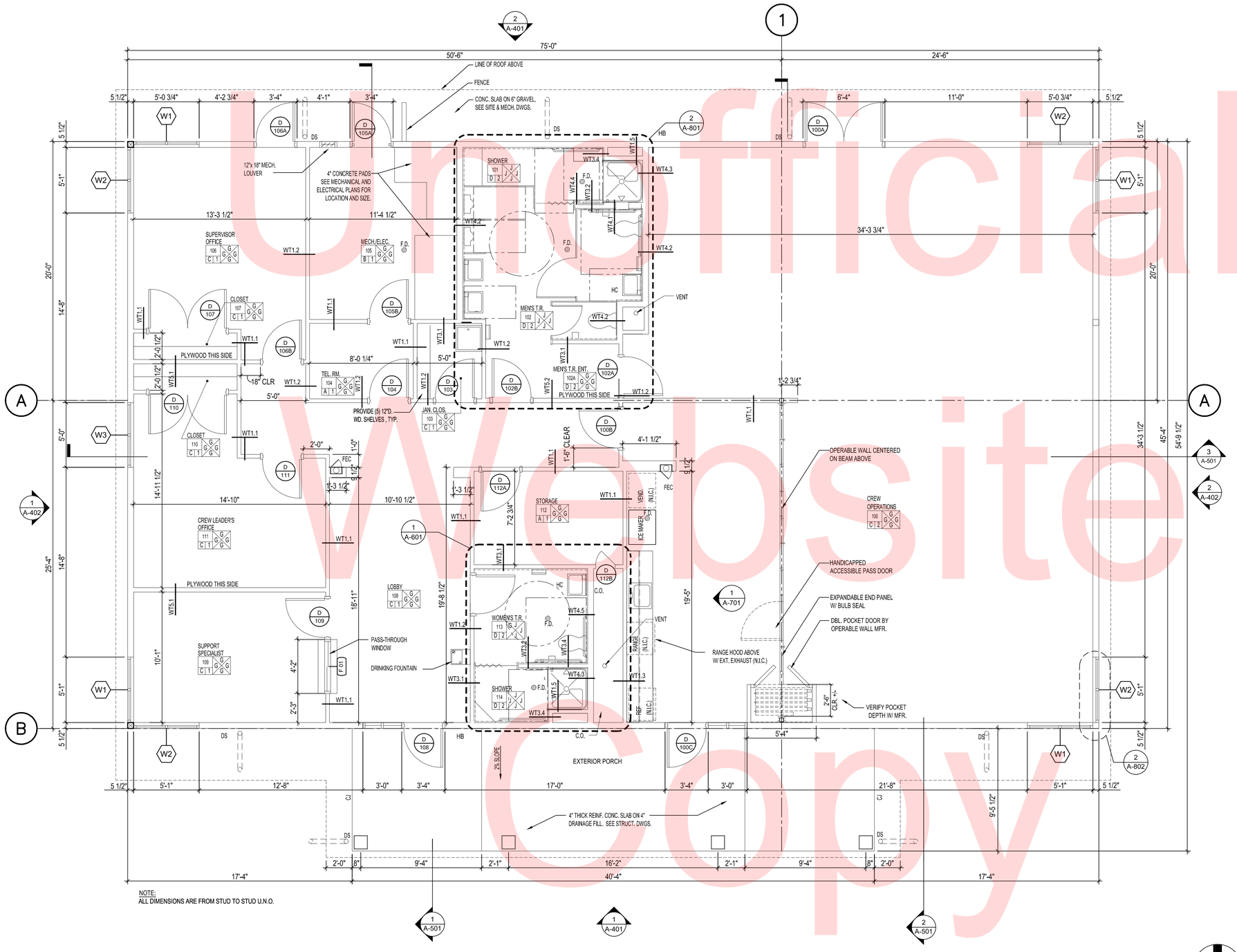
ADDENDUMS / REVISIONS	

ST. GEORGES MAINTENANCE YARD

CONTRACT	T201280103	BRIDGE NO.	
COUNTY	NEW CASTLE	DESIGNED BY: DCM	
		CHECKED BY: KNM	

CREW OPERATION BUILDING LIFE SAFETY PLAN

SHEET NO.	
28	
TOTAL SHTS.	
116	



NOTES

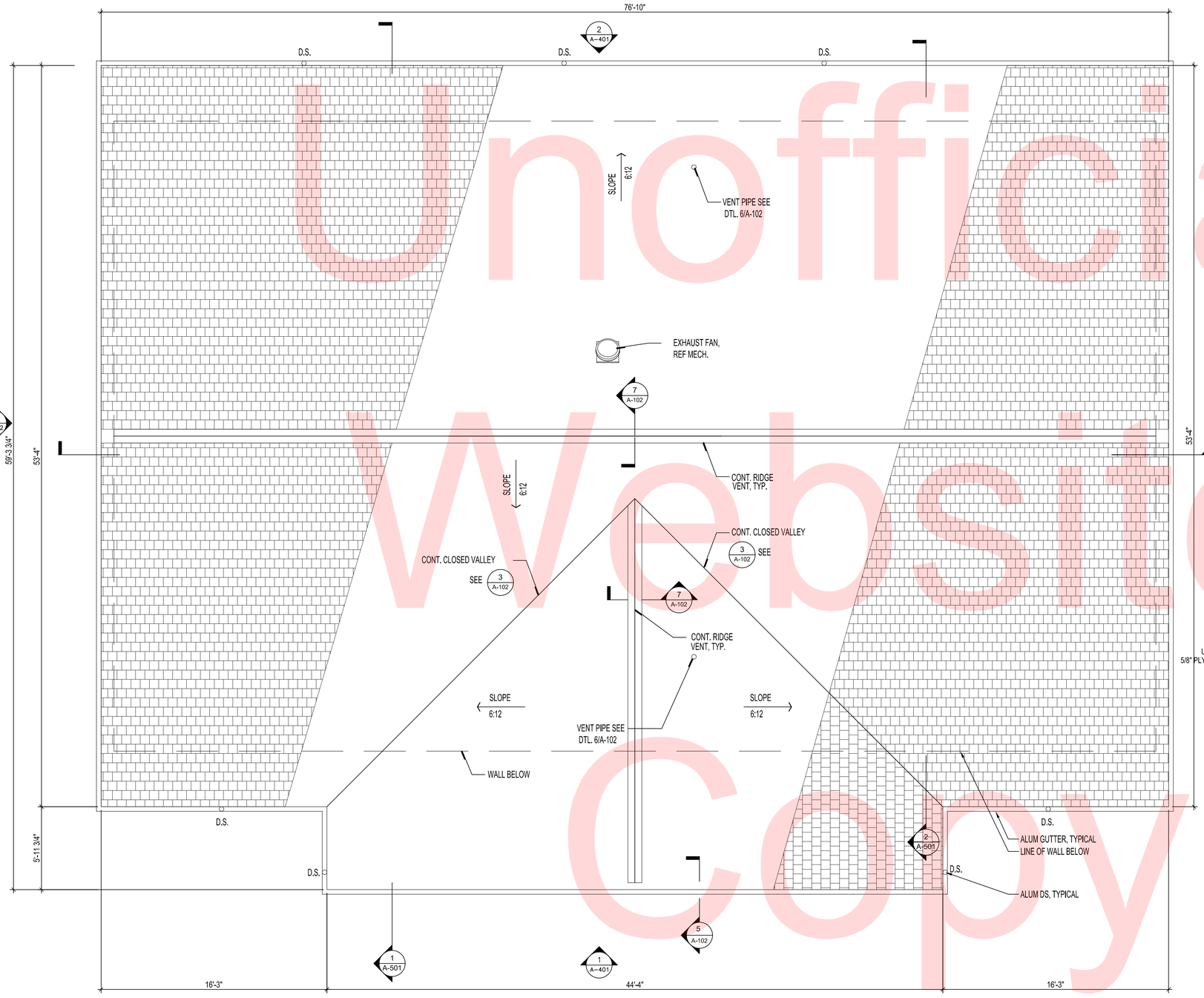
LEGEND

- NEW DOOR WITH DOOR TAG
- NEW WALL WITH DOOR TAG
- WINDOW TAG
- ROOM NAME AND TAG FINISH TAG
- EXTERIOR ELEVATION SYMBOL
- INTERIOR ELEVATION SYMBOL
- DRAWING SECTION SYMBOL
- ENLARGED VIEW SYMBOL
- FIRE EXTINGUISHER CABINET

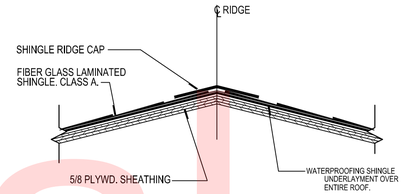
1 FLOOR PLAN-
SCALE : 1/4"= 1'-0"

CO-A-101

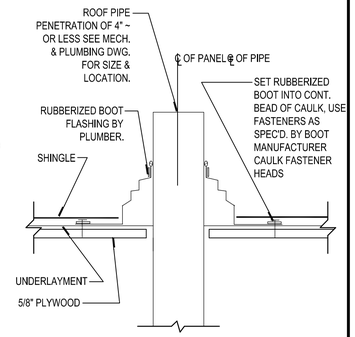
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	CREW OPERATION BUILDING FLOOR PLAN	SHEET NO. 29
				COUNTY NEW CASTLE	DESIGNED BY: DCH		TOTAL SHTS. 116
					CHECKED BY: KNM		

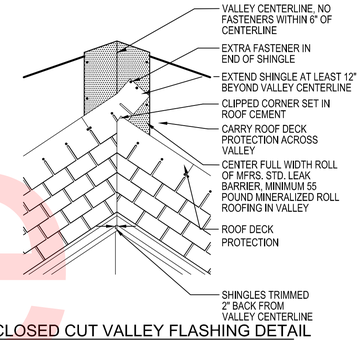


1 ROOF PLAN
SCALE : 1/4"= 1'-0"



2 RIDGE AND HIP DETAIL
NOT TO SCALE

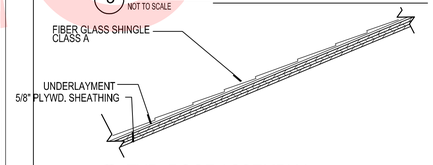




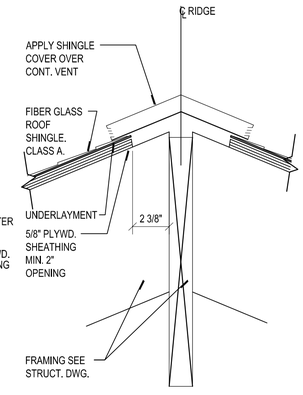
3 CLOSED CUT VALLEY FLASHING DETAIL
NOT TO SCALE

NOTES:
1. NOTE: POSITION SQUARE BASED BOOTS IN A DIAMOND ORIENTATION WHERE POSSIBLE TO AID IN DIVERTING WATER.

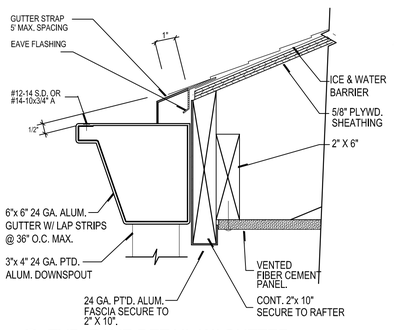
6 PIPE PENETRATION DETAIL
NOT TO SCALE



4 TYP. ROOF ASSEMBLY
NOT TO SCALE



7 RIDGE VENT DETAIL
NOT TO SCALE



5 TYP. EAVE DETAIL W/ GUTTER
NOT TO SCALE

NOTE: EXTEND ICE AND WATER BARRIER FROM EAVE TO 24" INSIDE EXTERIOR WALL.

CO-A-102

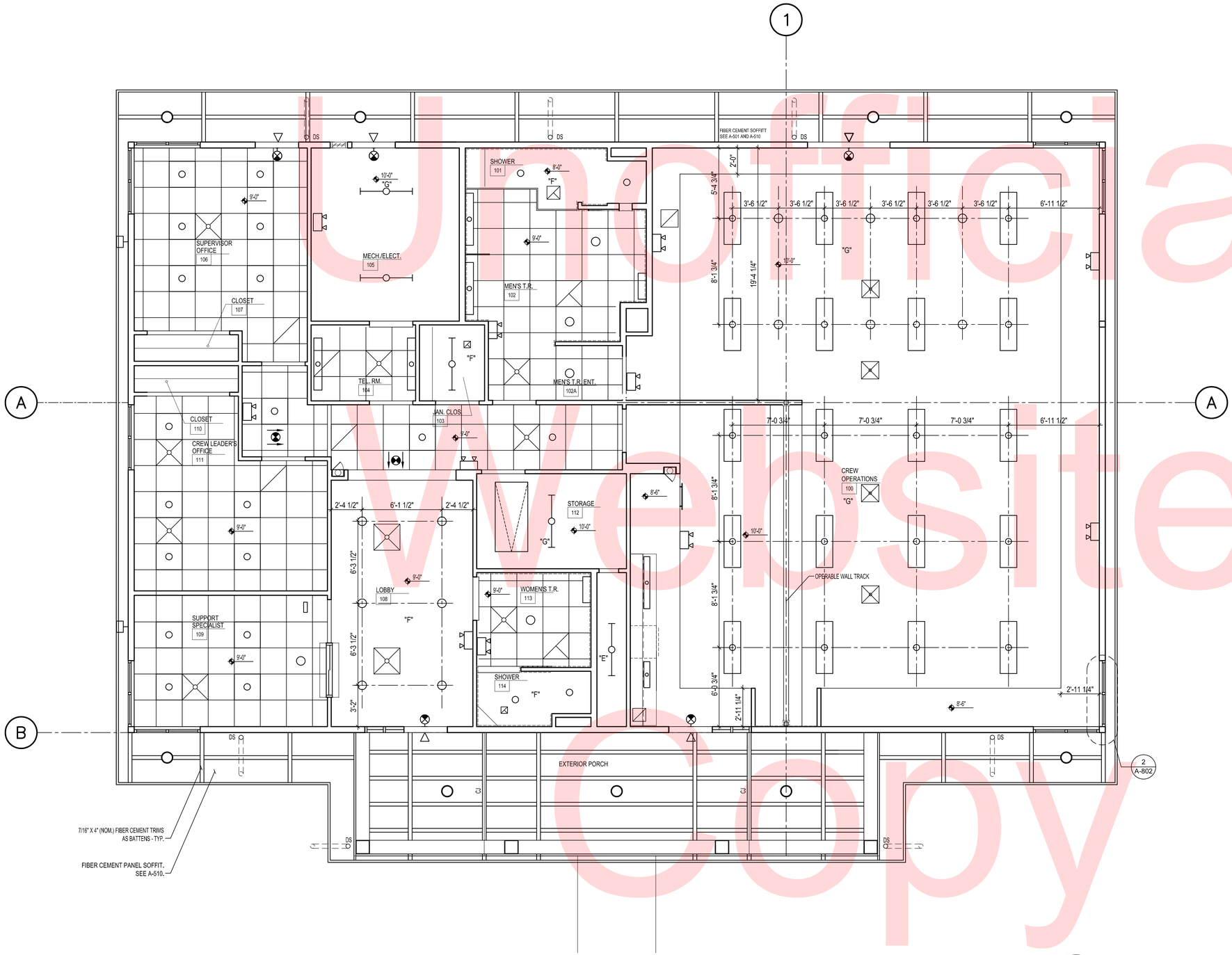
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	CREW OPERATION BUILDING ROOF PLAN
			COUNTY NEW CASTLE	DESIGNED BY: DCH	SHEET NO. 30
				CHECKED BY: KNM	TOTAL SHTS. 116

GENERAL NOTES:

1. G.C. TO COORDINATE FIXTURES SHOWN WITH ELECTRICAL PLANS AND SPECIFICATIONS.
2. G.C. TO SUPPLY ALL WOOD BLOCKING AND/ OR SUPPORTS FOR ALL LIGHTING FIXTURES.
3. ALL CEILING HEIGHTS SHALL BE 8'-6" ABOVE FINISH FLOOR UNLESS NOTED OTHERWISE
4. PROVIDE CONTINUOUS NON-COMBUSTIBLE SUPPORT TO UNDERSIDE OF FIBERGLASS BATT INSULATION IN ALL LOCATIONS.

CEILING FINISH LEGEND

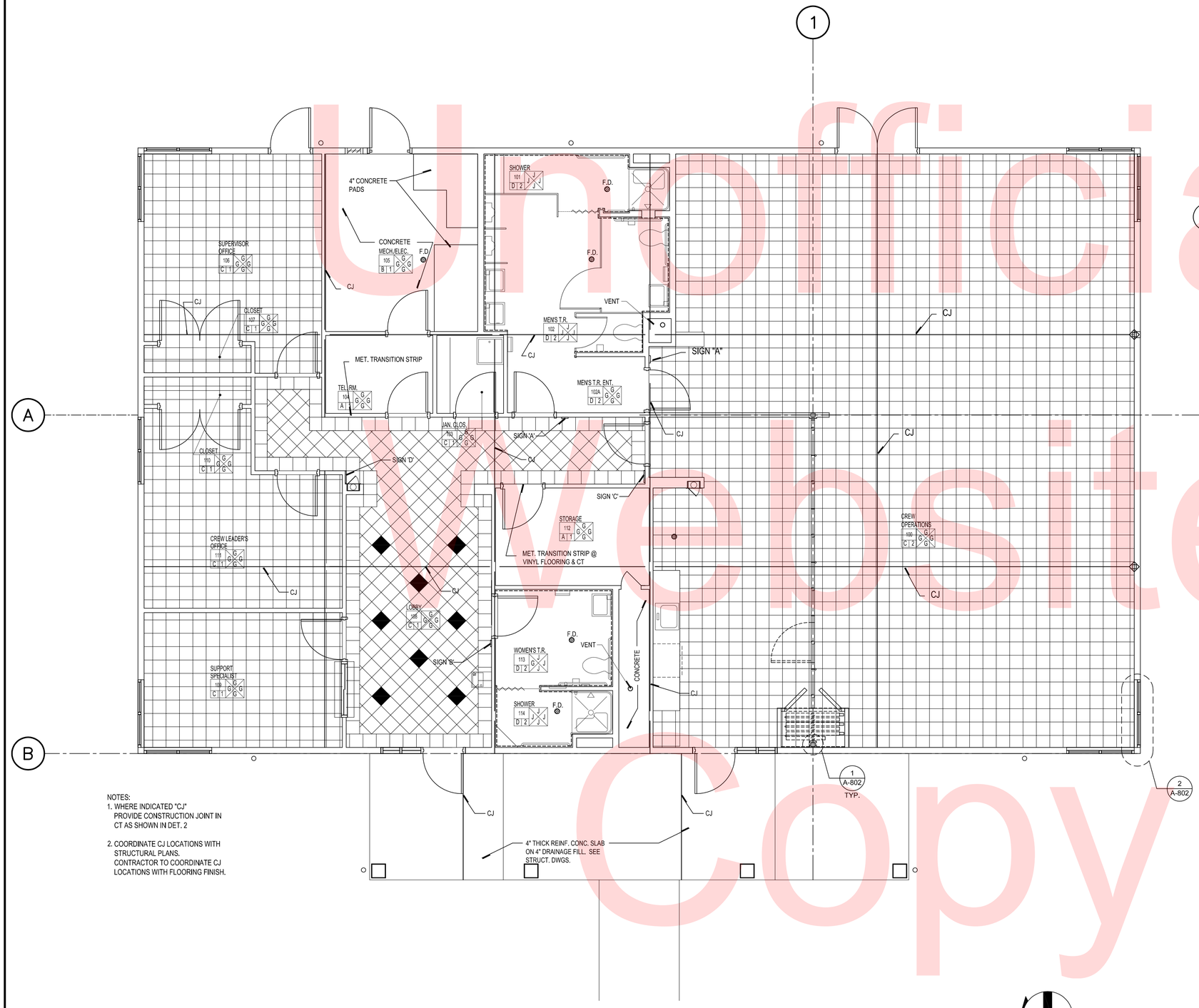
- CEILING SLOPE DOWN
- 2'x 2' SUSPENDED ACOUSTICAL CEILING SYSTEM
- "E" EXPOSED TO STRUCTURE ABOVE
- "F" 5/8" SUSPENDED GWB CEILING PER DETAIL 2/A-201. TAPE, SPACKLE, PAINT.
- "G" 5/8" GWB CEILING ATTACHED DIRECTLY TO CEILING JOISTS. TAPE, SPACKLE, PAINT.
- PULL DOWN ATTIC ACCESS STAIRS.
- PARABOLIC TROFFER FIXTURE
- SURFACE MOUNT LED FIXTURE
- SURFACE WALL MOUNT LED FIXTURE
- OPEN DOWNLIGHT LED FIXTURE SEE ELECT. DWG.
- STANDARD LED FIXTURE
- EMERGENCY LIGHT FIXTURE
- REMOTE EMERGENCY FIXTURE
- EXIT SIGN
- OUTDOOR LED WALL MOUNT FIXTURE
- SUPPLY AIR DIFFUSER
- RETURN AIR DIFFUSER
- EXHAUST LOUVER



1 REFLECTED CEILING PLAN
SCALE : 1/4"= 1'-0"

CO-A-201

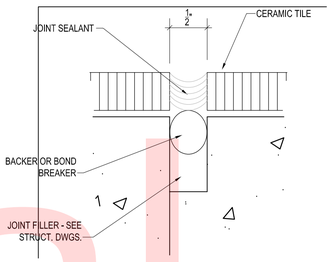
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	CREW OPERATION BUILDING REFLECTED CEILING PLAN	SHEET NO. 31
				COUNTY NEW CASTLE	DESIGNED BY: DCH		TOTAL SHTS. 116
					CHECKED BY: KNM		



NOTES:
1. WHERE INDICATED "CJ" PROVIDE CONSTRUCTION JOINT IN CT AS SHOWN IN DET. 2

2. COORDINATE CJ LOCATIONS WITH STRUCTURAL PLANS. CONTRACTOR TO COORDINATE CJ LOCATIONS WITH FLOORING FINISH.

1 FINISH PLAN
SCALE : 1/4"= 1'-0"



2 TILE DETAIL @ CONSTRUCTION JOINT
SCALE : NOT TO SCALE

ROOM FINISH LEGEND

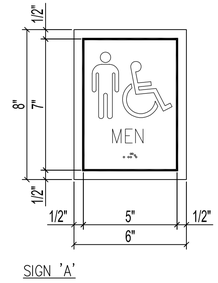
NOTES:
SEE REFLECTED CEILING PLANS FOR CEILING FINISHES

ROOM NO. — LOBBY 126 — WALL FIN. (N,S,E,W)
FLOOR FIN. — A T1 — H H H H
BASE FIN.

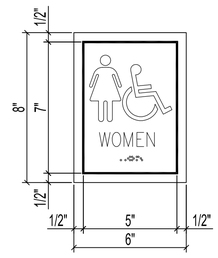
FLOORS
- A SHEET VINYL
- B SEALED CONCRETE
- C 12" X 12" CERAMIC TILE
- D 2" X 2" CERAMIC TILE

BASE
- 1 VINYL COVE BASE
- 2 CERAMIC TILE COVE TO MATCH FLR

WALLS
- G GWB/PAINTED
- J 4" X 4" CERAMIC TILE

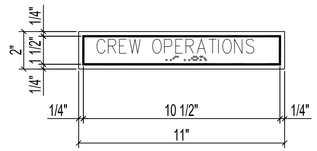


SIGN 'A'

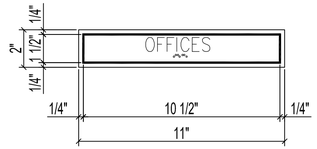


SIGN 'B'

3 TOILET ROOM SIGNAGE ELEVATION
SCALE : 1/4" = 1'-0"



SIGN 'C'

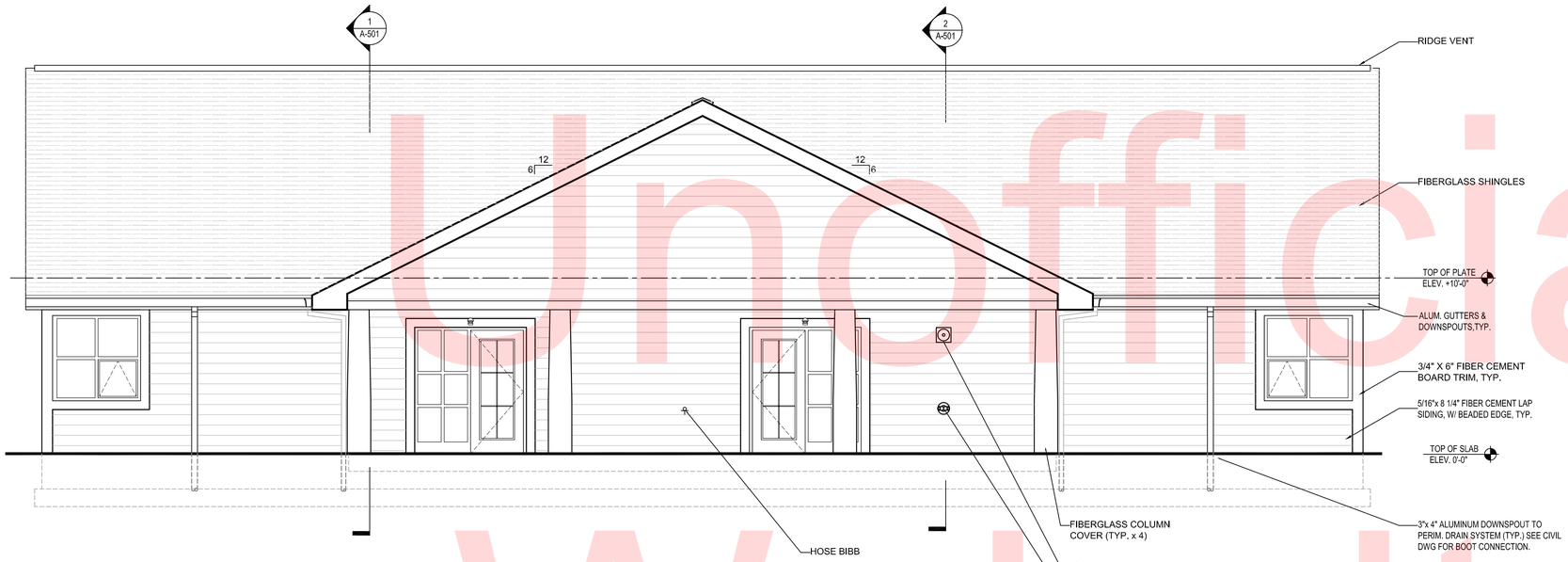


SIGN 'D'

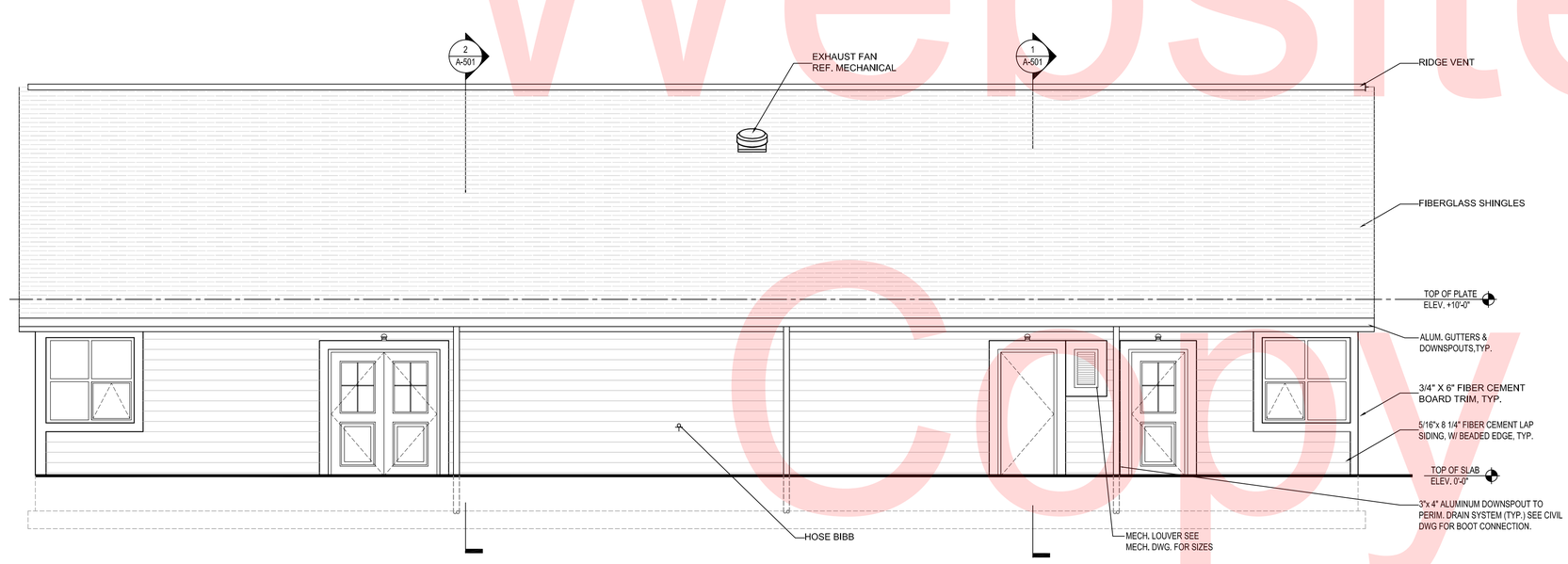
4 ROOM SIGNAGE ELEVATION
SCALE : 1/4" = 1'-0"

CO-A-301

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS: 2 PERMIT REVIEW COMMENTS 12/14/2015	ST. GEORGES MAINTENANCE FACILITY	CONTRACT T201280103; COUNTY NEW CASTLE; BRIDGE NO.; DESIGNED BY: DCH; CHECKED BY: KNM
CREW OPERATION BUILDING FINISH PLAN	SHEET NO. 32; TOTAL SHTS. 116		



1 NORTH ELEVATION
SCALE : 1/4"= 1'-0"



2 SOUTH ELEVATION
SCALE : 1/4"= 1'-0"

CO-A-401

DELAWARE
DEPARTMENT OF TRANSPORTATION

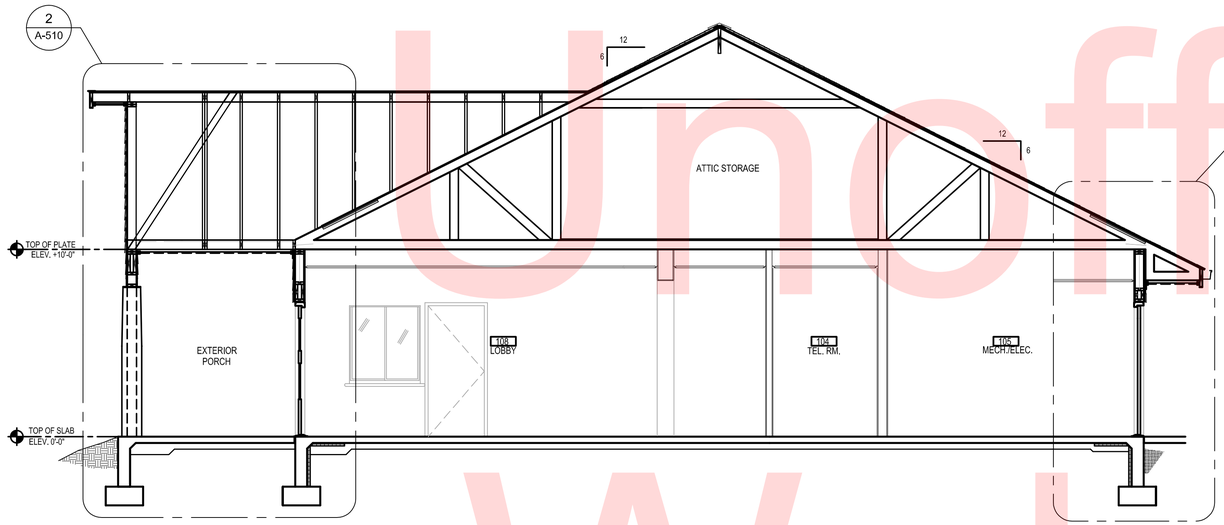
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

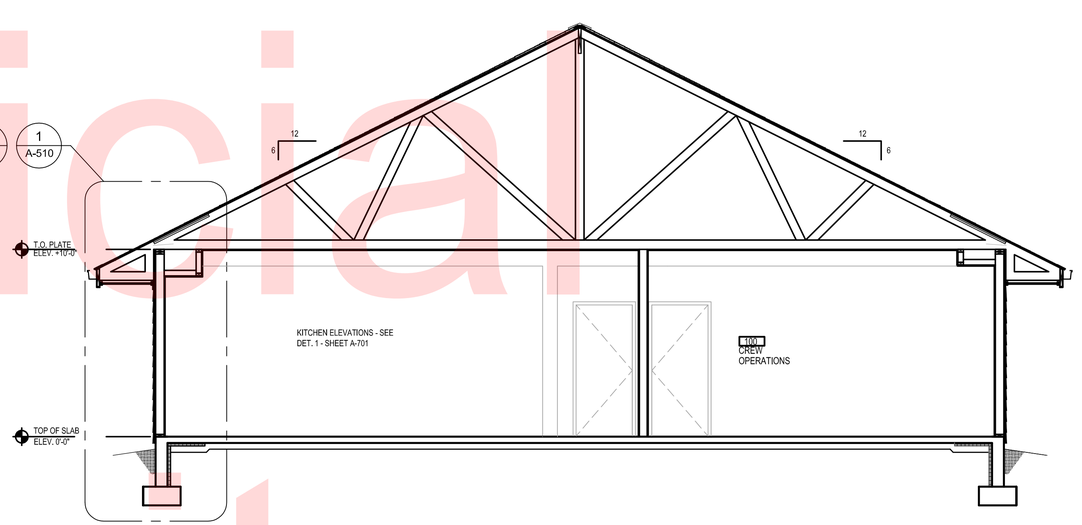
CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	DCH
COUNTY	CHECKED BY:	KNM
NEW CASTLE		

CREW OPERATION BUILDING
EXTERIOR ELEVATIONS

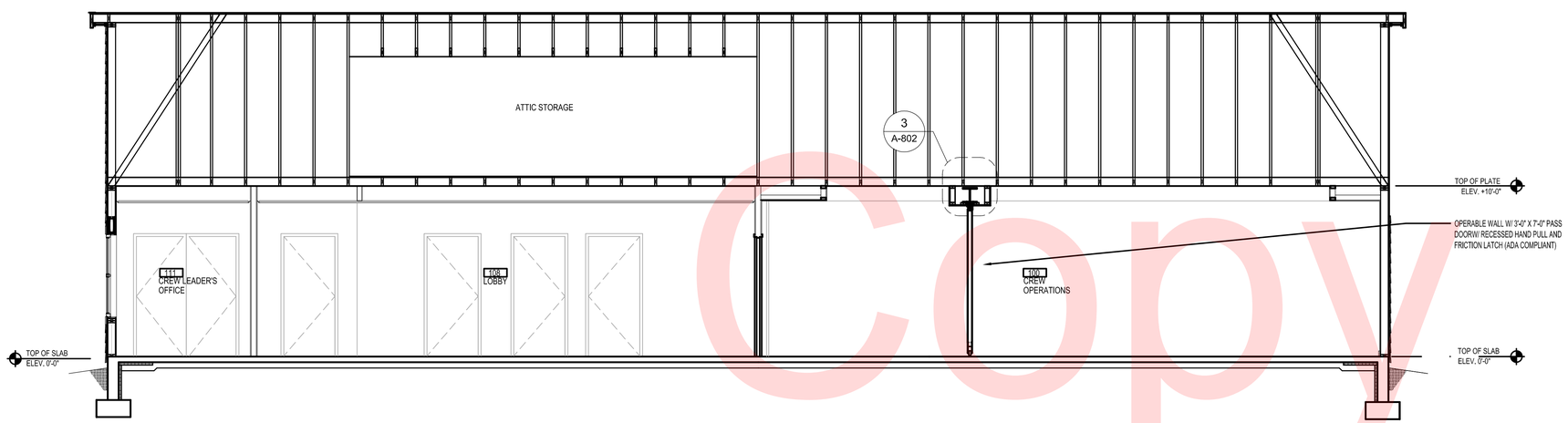
SHEET NO.
33
TOTAL SHTS.
116



1 BUILDING SECTION
SCALE : 1/4" = 1'-0"



2 BUILDING SECTION
SCALE : 1/4" = 1'-0"



3 BUILDING SECTION
SCALE : 1/4" = 1'-0"

CO-A-501

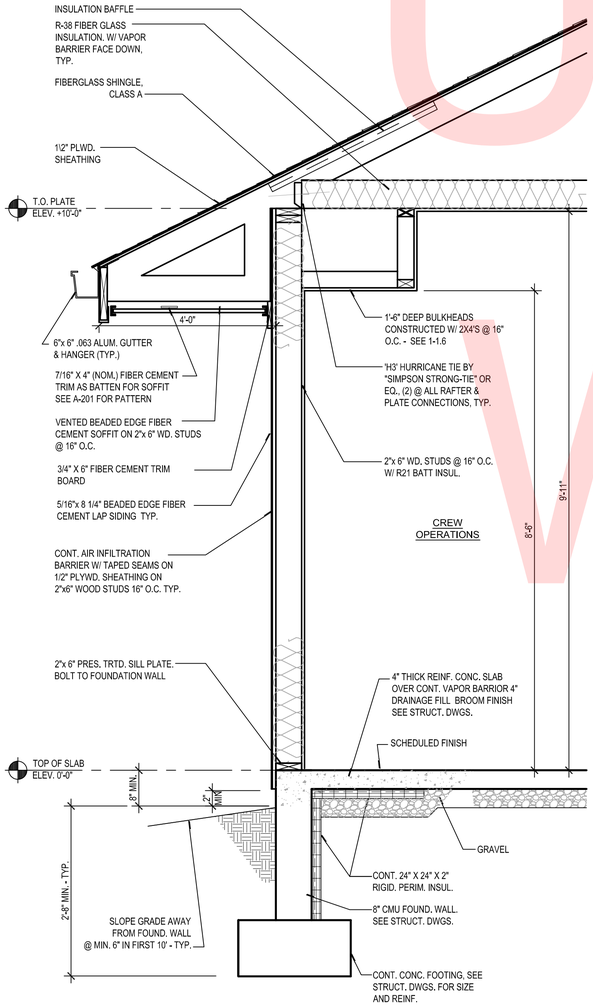
DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

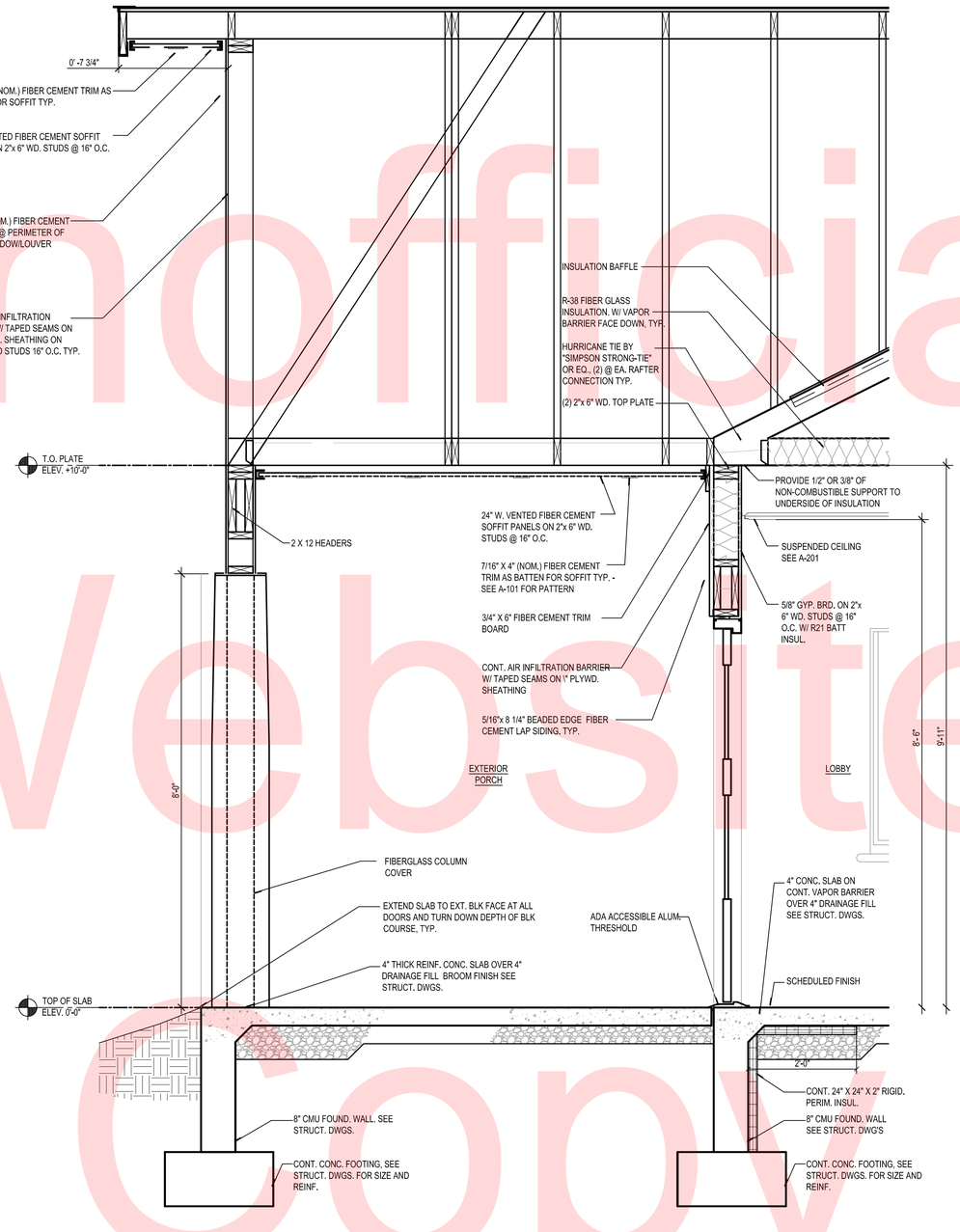
ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A	SHEET NO.
T201680104	DESIGNED BY: DCH		34
COUNTY			TOTAL SHTS.
NEW CASTLE	CHECKED BY: KNM		116

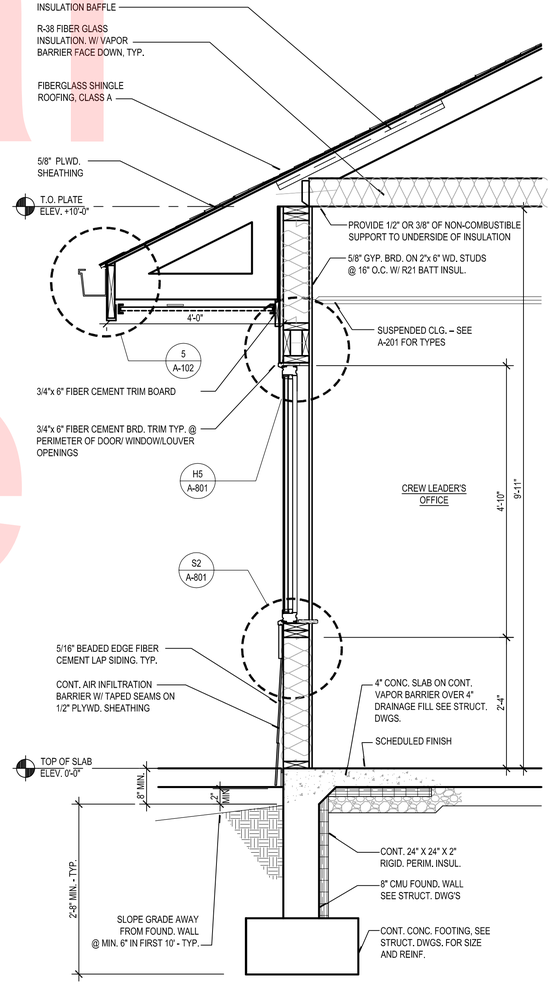
CREW OPERATION
BUILDING SECTION



1 WALL SECTION
SCALE : 3/4"= 1'-0"



2 WALL SECTION
SCALE : 3/4"= 1'-0"



3 WALL SECTION
SCALE : 3/4"= 1'-0"

CO-A-510

DELAWARE
DEPARTMENT OF TRANSPORTATION

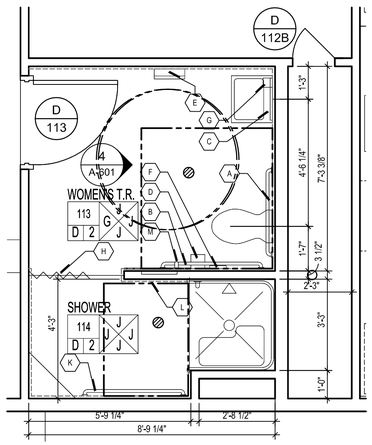
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD

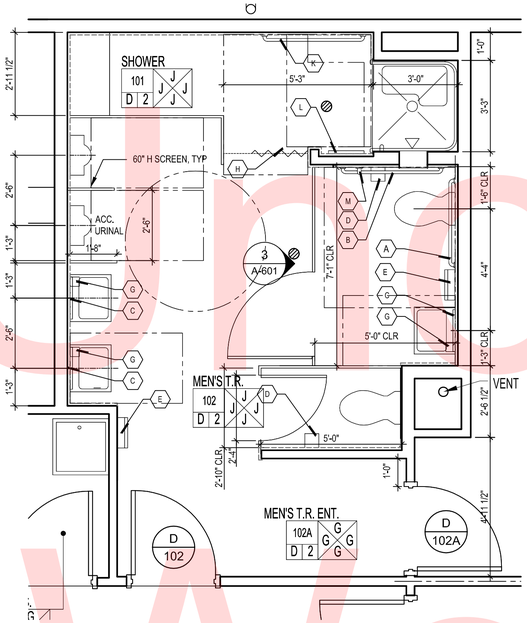
CONTRACT	T201280103	BRIDGE NO.	
COUNTY	NEW CASTLE	DESIGNED BY: DCH	
		CHECKED BY: KNM	

CREW OPERATION BUILDING
WALL SECTIONS

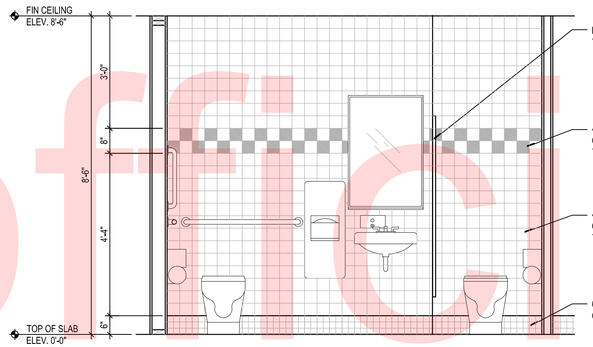
SHEET NO.	35
TOTAL SHTS.	116



1 WOMENS TOILETROOM
3/8" = 1'-0"



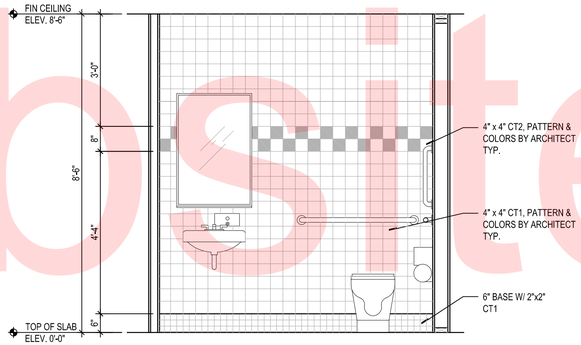
2 MENS TOILET ROOM
3/8" = 1'-0"



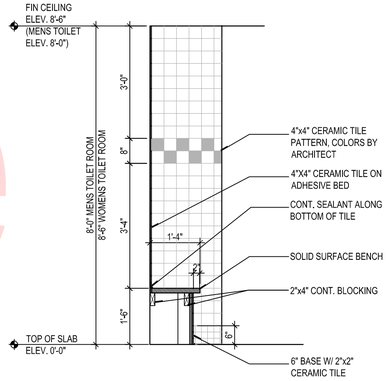
3 MENS TOILET ROOM ELEVATION
1/2"=1'-0"

TOILET ACCESSORIES SCHEDULE

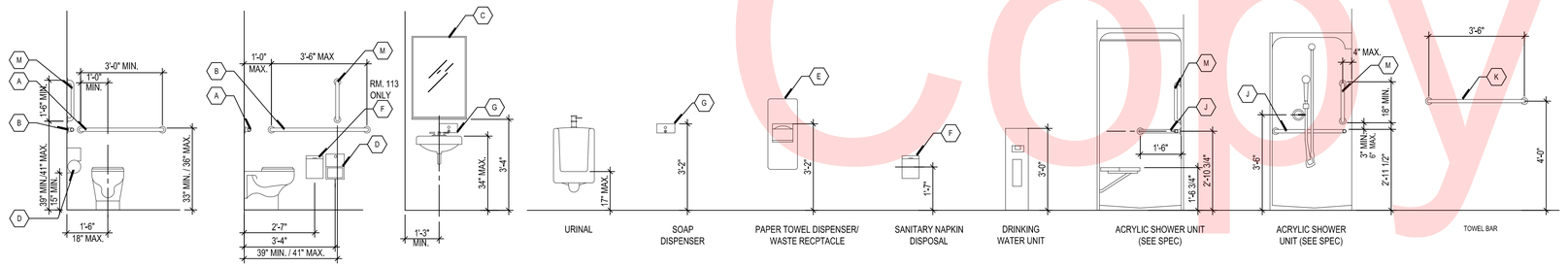
MARK	ITEM	MNT. HGT.	BOBRICK CATALOG NO.
A	1-1/2" GRAB BAR	36" AFF TO CENTERLINE	B-6806 X 36
B	1-1/2" GRAB BAR	36" AFF TO CENTERLINE	B-6806 X 42
C	MIRROR W/ STAINLESS STL. ANGLE FRAME, TEMPERED GLASS	40" AFF TO BOT. OF REFLECTIVE SURFACE	B-165 2436
D	TOILET PAPER DISPENSER	19" TO CENTERLINE	B-4288
E	PAPER TOWEL DISPENSER/WASTE RECEPTACLE, SURFACE MOUNTED	38" AFF TO BOT.	B-43699
F	SANITARY NAPKIN DISPOSAL	19" TO CENTERLINE	B-270
G	SOAP DISPENSER, SURFACE MOUNTED	38" AFF TO BOT.	B-2112
H	HEAVY DUTY SHOWER CURTIAN ROD, HOOKS & VINYL PRIVACY CURTAIN	78" AFF TO CENTERLINE	B-6107/ B-204-1/B-204-2
J	1-1/2" GRAB BAR	36" AFF TO CENTERLINE	BY SHOWER MANUF.
K	TOWEL BAR	48" AFF TO CENTERLINE	B-205-24
L	18" CLOTHES HOOK STRIP	60" AFF TO CENTERLINE	B-985
M	1-1/2" GRAB BAR	41" AFF TO CENTERLINE	B-6806 X 18



4 WOMENS TOILETROOM ELEVATION
1/2" = 1'-0"



4 TYPICAL SECTION @ SHOWER BENCH
1/2" = 1'-0"



2 ELEVATION- TYPICAL ROILET ROOM ACCESSORY MOUNTING LOCATIONS
SCALE : 3/8" = 1'-0"

NOTE:
ALL EXPOSED SINK PIPES TO BE ENCASED
W/ REMOVABLE ADA COMPLIANT INSULATION

C0-A-601

DELAWARE
DEPARTMENT OF TRANSPORTATION

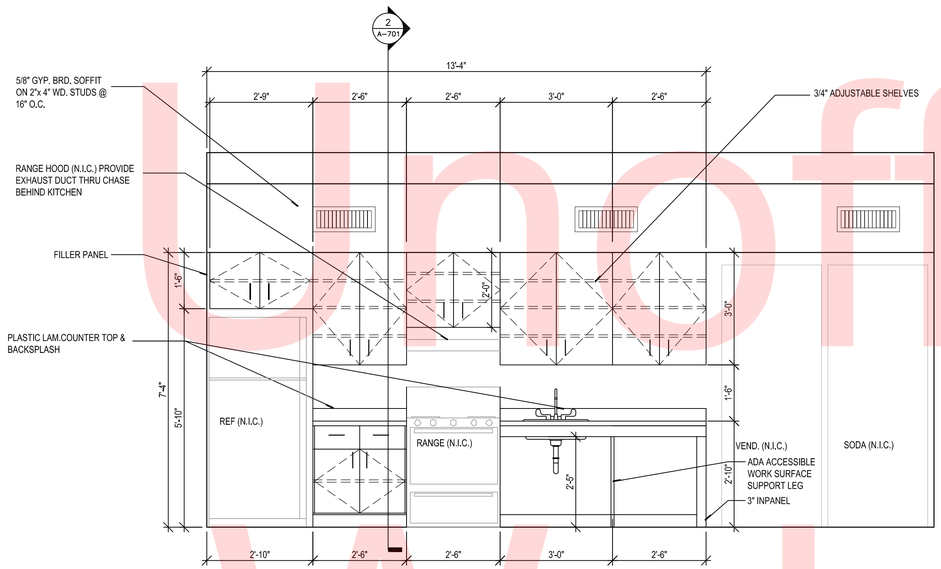
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

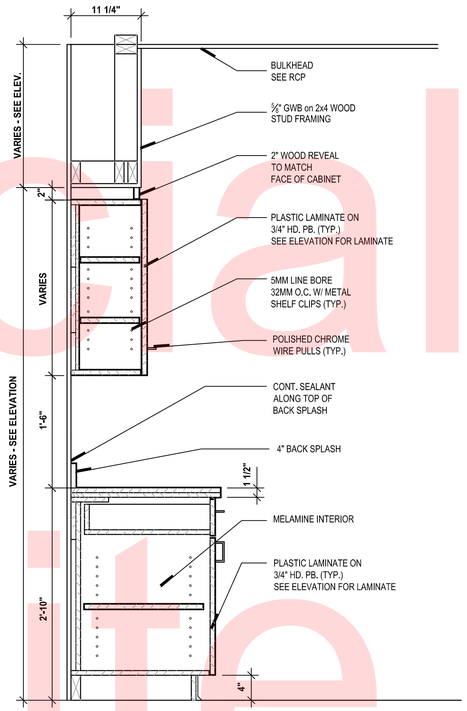
CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	DCH
COUNTY		
NEW CASTLE	CHECKED BY:	KNM

TOILET ROOM PLANS, ELEVATIONS AND DETAILS

SHEET NO.
36
TOTAL SHTS.
116



1 ELEVATION- CASEWORK IN CREW OPERATIONS ROOM
SCALE : 1/2"= 1'-0"



2 SECTION-CASEWORK
SCALE : 1"= 1'-0"

CO-A-701

Q:\NDE\120995_021_St_Georges_Maintenan\CADD\Architectural\A-701 CREW OPERATION BUILDING INTERIOR ELEVATIONS.dwg

DELAWARE
DEPARTMENT OF TRANSPORTATION

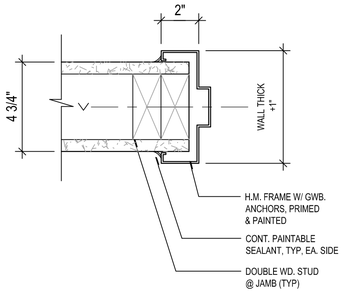
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD

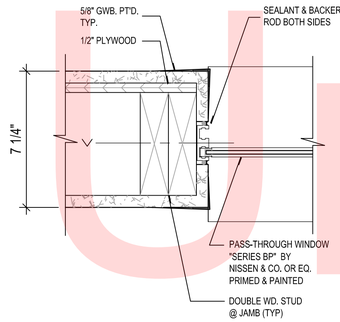
CONTRACT	BRIDGE NO.	
T201280103	DESIGNED BY: DCH	
COUNTY	CHECKED BY: KNM	
NEW CASTLE		

CREW OPERATION BUILDING
INTERIOR ELEVATIONS

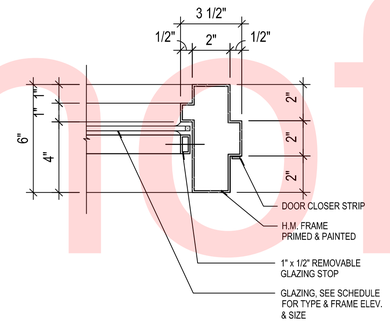
SHEET NO.
37
TOTAL SHTS.
116



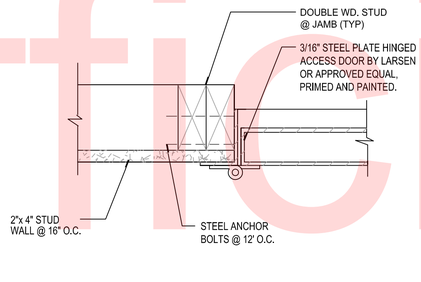
J1 H1 DETAIL- TYP. 2"x 4" GWB PARTITION
SCALE : 3"= 1'-0"



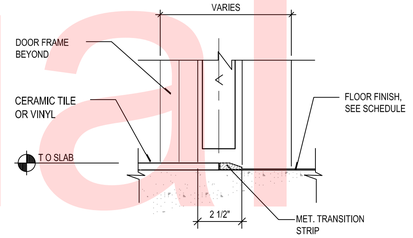
J3 DETAIL- @ PASS-THROUGH WINDOW
SCALE : 3"= 1'-0"



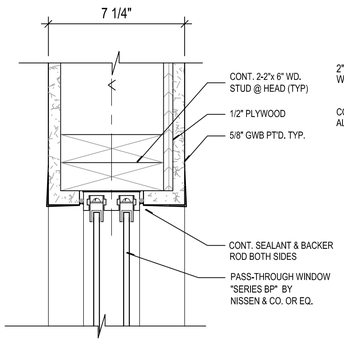
J4 DETAIL-
SCALE : 3"= 1'-0"



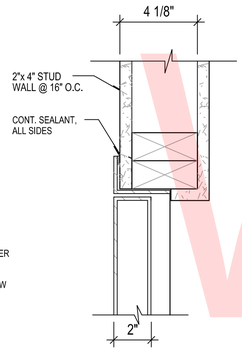
J5 DETAIL- ACCESS DOOR AT 112B
SCALE : 3"= 1'-0"



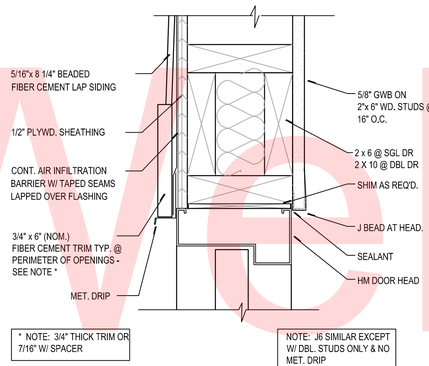
S1 DETAIL- TYP. DOOR SILL
SCALE : 3"= 1'-0"



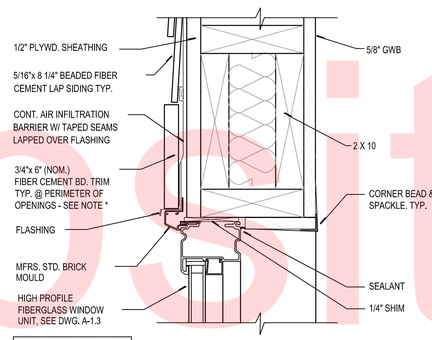
H3 DETAIL- @ PASS-THROUGH WINDOW
SCALE : 3"= 1'-0"



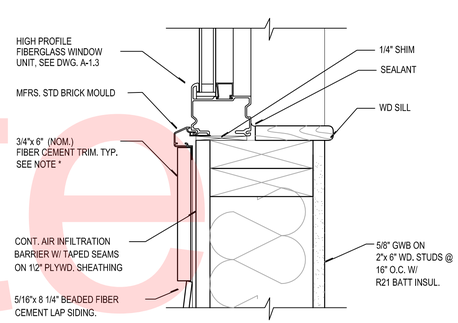
H4 DETAIL- ACCESS DOOR
SCALE : 3"= 1'-0"



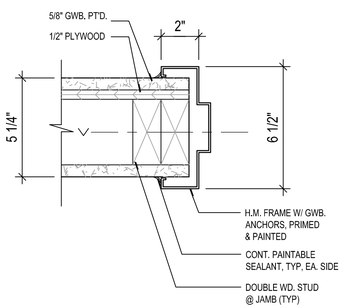
J6 H5 DETAIL- TYP. EXTERIOR DOOR
SCALE : 3"= 1'-0"



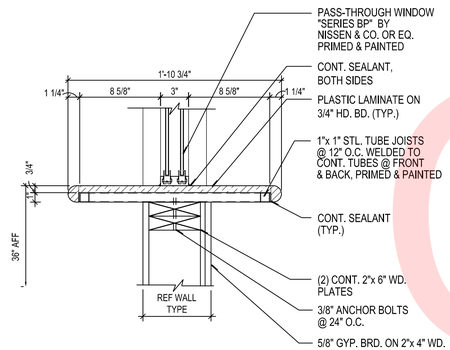
H6 DETAIL- TYP. EXTERIOR WINDOW
SCALE : 3"= 1'-0"



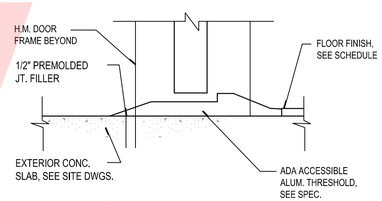
S2 DETAIL- TYP. EXTERIOR WINDOW
SCALE : 3"= 1'-0"



J7 H7 DETAIL- 2"x 4" GWB PARTITION AT SHEAR WALL
SCALE : 3"= 1'-0"



6 SECTION- @ SUPPORT SPECIALIST COUNTER
SCALE : 1 1/2"= 1'-0"



S3 DETAIL- TYP. EXTERIOR SILL
SCALE : 3"= 1'-0"

CO-A-801

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE FACILITY

CONTRACT	T201280103
COUNTY	NEW CASTLE

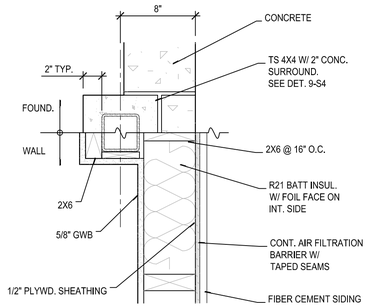
BRIDGE NO.
DESIGNED BY: DCH
CHECKED BY: KNM

CREW OPERATION BUILDING - SECTIONS & DETAILS

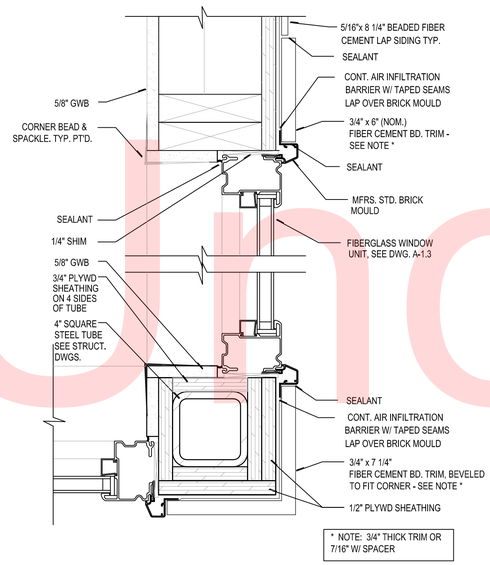
SHEET NO.	38
TOTAL SHTS.	116

$DATE_USER$
$FILE_SHEET$

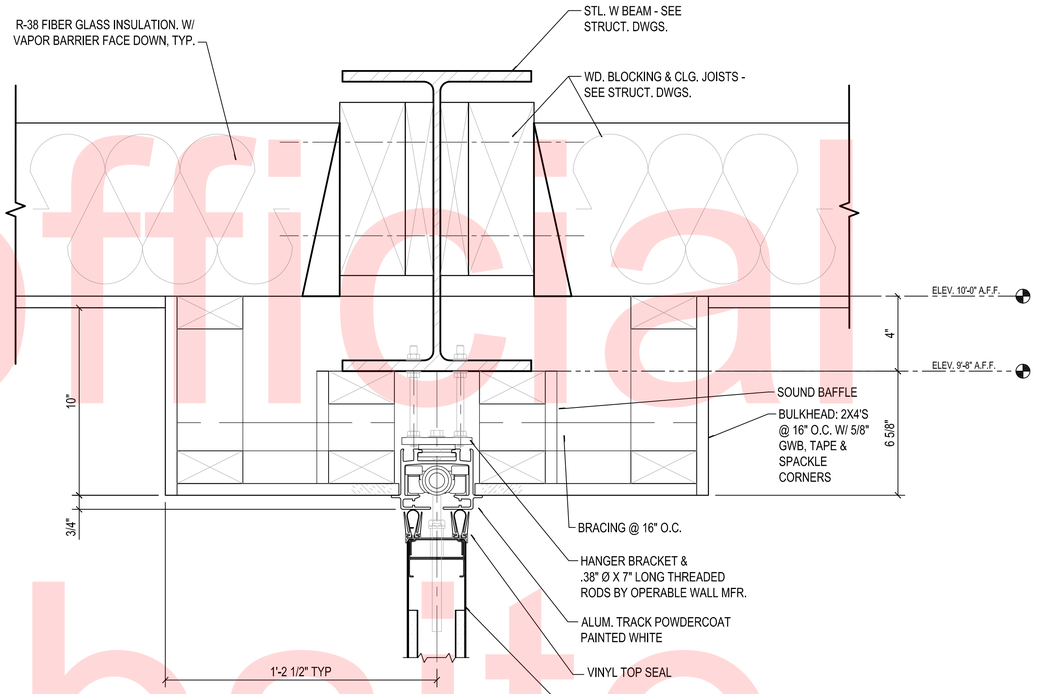
O:\NDE\120995_021_St_Georges_Maintenance\CADD\Architectural\A-801 CREW OPERATION BUILDING - SECTIONS & DETAILS.dwg



1 DETAIL — TYP. EXT. COL.
SCALE : 1-1/2"= 1'-0"



2 DETAIL — TYP. EXT. CORNER @ WINDOW
SCALE : 3"= 1'-0"



3 SECTION DETAIL — HEAD @ OPERABLE WALL
SCALE : 3"= 1'-0"

C0-A-802

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

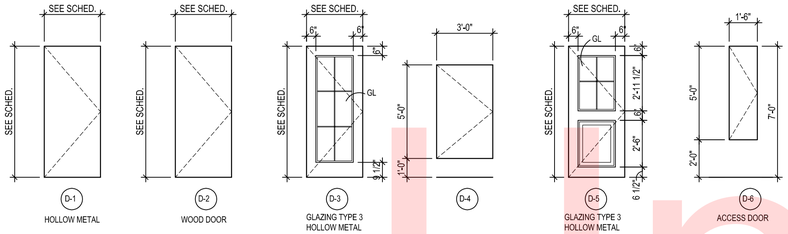
ST. GEORGES
MAINTENANCE YARD

CONTRACT	T201280103
COUNTY	NEW CASTLE

BRIDGE NO.	
DESIGNED BY:	DCH
CHECKED BY:	KNM

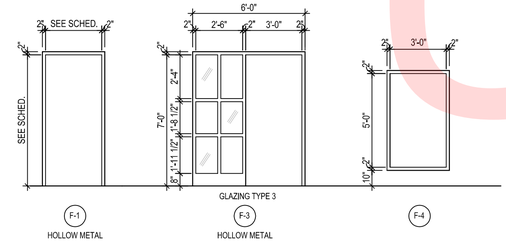
CREW OPERATION BUILDING - DETAILS

SHEET NO.	39
TOTAL SHTS.	116



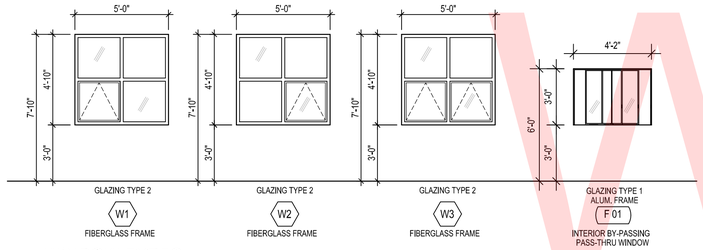
DOOR TYPES

SCALE : 1/4" = 1'-0"



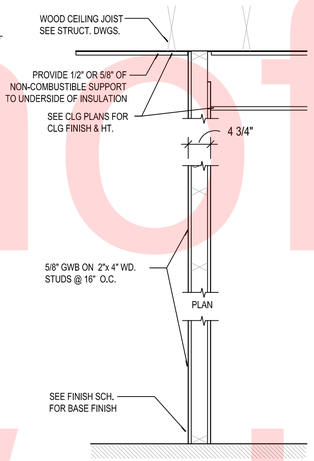
FRAME TYPES

SCALE : 1/4" = 1'-0"



WINDOW TYPES

SCALE : 1/4" = 1'-0"



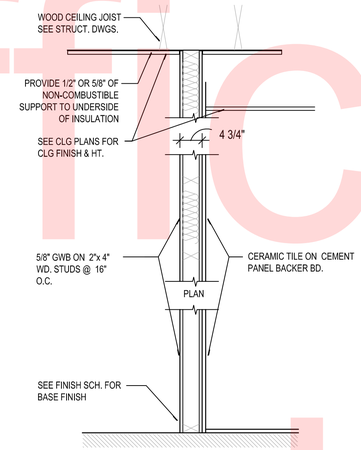
WT1.1 2"x 4" WD. STUDS @ 16" O.C. W/ 5/8" GWB BOTH SIDES.
HT. OF STUDS: 10'-0".
WALL THICKNESS: 4 3/4"

WT1.2 SAME AS WT1.1 W/ ACOUSTIC BATT INSUL.
FULL HT.

WT1.3 2"x 4" WD. STUDS @ 16" O.C. W/ 5/8" GWB ONE SIDE
HT. OF STUDS: 10'-0"
WALL THICKNESS: 4 1/8"

WT1.4 NOT USED

WT1.5 2"x 4" WD. STUDS @ 16" O.C.
SHOWER WALL ONE SIDE, NOTHING ON OTHER SIDE
HT. OF STUDS: 10'-0"
WALL THICKNESS: 3 1/2"

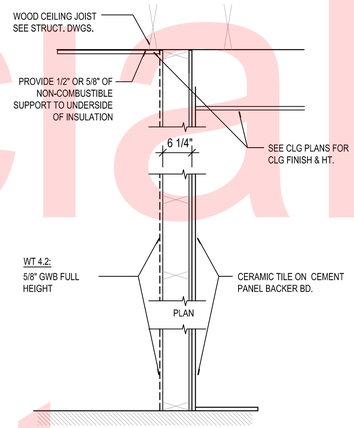


WT3.1 2"x 4" WD. STUDS @ 16" O.C., 5/8" GWB ONE SIDE, ON OTHER SIDE 1/4" CERAMIC TILE, 1/2" CEMENT PANEL BACKER BD.
HT. OF STUDS: 10'-0".
WALL THICKNESS: 5"

WT3.2 2" X 4" WD. STUDS @ 16" OC W/ CEMENT PANEL BACKER BD. & CERAMIC TILE. BOTH SIDES. NO BATTS
HT. OF STUDS: 10'-0"
WALL THICKNESS: 5 1/4"

WT3.3 NOT USED

WT3.4 2" X 4" WD. STUDS @ 16" OC W/ CEMENT PANEL BACKER BD. & CERAMIC TILE ON ONE SIDE & NOTHING ON THE OTHER SIDE.
HT. OF STUDS: 10'-0"
WALL THICKNESS: 4 1/4"



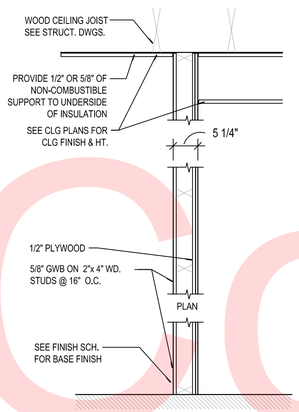
WT4.1 2"x 6" WD. STUDS @ 16" O.C. W/
CEMENT PANEL BACKER BD. & CERAMIC TILE ON ONE SIDE & NOTHING ON THE OTHER SIDE.
HT. OF WALL: 10'-0".
WALL THICKNESS: 6 1/2"

WT4.2 2"x 6" WD. STUDS @ 16" O.C., CEMENT PANEL BACKER BD. & 1/4" CERAMIC TILE ON ONE SIDE & 5/8" GWB ON THE OTHER SIDE.
HT. OF WALL: 10'-0".
WALL THICKNESS: 7"

WT4.3 2"x 6" WD. STUDS @ 16" O.C. W/
SHOWER WALL ONE SIDE, NOTHING ON OTHER SIDE
HT. OF STUDS: 10'-0"
WALL THICKNESS: 6 3/4"

WT4.4 2"x 6" WD. STUDS @ 16" O.C. W/
CERAMIC TILE ON 1/2" CEMENT PANEL BACKER BD. ON BOTH SIDES.
HT. OF WALL: 10'-0".
WALL THICKNESS: 7 1/4"

WT4.5 2"x 6" WD. STUDS @ 16" O.C. W/
CERAMIC TILE ON 1/2" CEMENT PANEL BACKER BD. NOTHING ON OTHER SIDE.



WT5.1 2"x 4" WD. STUDS @ 16" O.C. W/ 5/8" GWB BOTH SIDES.
1/2" PLYWOOD ON SIDE(S) INDICATED
HT. OF STUDS: 10'-0".
WALL THICKNESS: 5 1/4"

WT5.2 SAME AS WT1.1 W/ ACOUSTIC BATT INSUL.
FULL HT.

2 WALL TYPES

SCALE : 3/4" = 1'-0"

GLAZING SCHEDULE

TYPE NO.	DESCRIPTION
1	1/4" CLEAR GLASS, FULLY TEMPERED
2	1" INSULATED UNIT W/ 1/4" CLEAR INNER LITE, 1/2" ARGON GAS FILLED, & 1/4"-"LOW E" GLAZING
3	1/4" CLEAR LEXAN - 9034

DOOR SCHEDULE-

EXTERIOR DOOR	MARK	SIZE		TYPE				DETAILS			GLAZING TYPE	HARDWARE SET	FIRE RATING	REMARKS
		WIDTH X HEIGHT	THK.	DOOR TYPE	DOOR MTL.	FRAME TYPE	FRAME MTL.	H	J	S				
●	100A	(2) 3-0 x 7-0	1-3/4	D5	16 GA. HM.	F1	14 GA. HM.	H5	J6	S3	3	H12		
	100B	3-0 x 7-0	1-3/4	D2	WD	F1	16 GA. HM.	H1	J1	-	-	H1		
●	100C	3-0 x 7-0	1-3/4	D3	16 GA. HM.	F3	14 GA. HM.	H5	J6	S3	3	H11		
	102	3-0 x 7-0	1-3/4	D2	WD	F1	16 GA. HM.	H7	J7	-	-	H3		
	102A	3-0 x 7-0	1-3/4	D2	WD	F1	16 GA. HM.	H7	J7	-	-	H3		
	103	3-0 x 7-0	1-3/4	D2	WD	F1	16 GA. HM.	H1	J1	S1	-	H2		
	104	3-0 x 7-0	1-3/4	D2	WD	F1	16 GA. HM.	H1	J1	S1	-	H2		
●	105A	3-0 x 7-0	1-3/4	D1	16 GA. HM.	F1	14 GA. HM.	H5	J6	S3	-	H11		
	105B	3-0 x 7-0	1-3/4	D1	18 GA. HM	F1	16 GA. HM.	H1	J2	S1	-	H2		
●	106A	3-0 x 7-0	1-3/4	D5	16 GA. HM.	F1	14 GA. HM.	H5	J6	S3	3	H11		
	106B	3-0 x 7-0	1-3/4	D2	WD	F1	16 GA. HM.	H1	J1	-	-	H1		
	107	(2) 3-0 x 7-0	1-3/4	D2	WD	F1	16 GA. HM.	H1	J1	-	-	H4		
●	108	3-0 x 7-0	1-3/4	D3	16 GA. HM.	F3	14 GA. HM.	H5	J6	S3	3	H11		
	110	(2) 3-0 x 7-0	1-3/4	D2	WD	F1	16 GA. HM.	H1	J1	-	-	H4		
	111	3-0 x 7-0	1-3/4	D2	WD	F1	16 GA. HM.	H1	J1	-	-	H1		
	112A	3-0 x 7-0	1-3/4	D2	WD	F1	16 GA. HM.	H1	J1	S1	-	H2		
	112B	1'-6"x 5'-0"	-	D6	-	F4	-	H4	J5	-	-	-		REFER TO SECTION 083113
	113	3-0 x 7-0	1-3/4	D2	WD	F1	16 GA. HM.	H1	J1	-	-	H5		

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$DATE_USER$
$FILE_SHEET$

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD

CONTRACT	T201280103
COUNTY	NEW CASTLE
BRIDGE NO.	
DESIGNED BY:	DCH
CHECKED BY:	KNM

CREW OPERATION BUILDING
SCHEDULES - WINDOW AND
DOOR TYPES

SHEET NO.	40
TOTAL SHTS.	116

CO-A-901

GENERAL

1. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED.
2. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCE, AND TO ENSURE THE STABILITY OF THE BUILDING AND ITS COMPONENT PARTS, AND THE ADEQUACY OF TEMPORARY OR INCOMPLETE CONNECTIONS, DURING ERECTION. THIS INCLUDES THE ADDITION OF ANY SHORING, TEMPORARY GUYS, BRACING OR TIEDOWNS THAT MIGHT BE NECESSARY.
3. SUCH MATERIAL IS NOT SHOWN ON THE DRAWINGS. IF APPLIED, THEY SHALL BE REMOVED AS CONDITIONS PERMIT AND SHALL REMAIN THE CONTRACTOR'S PROPERTY. THE ENGINEER HAS NO EXPERTISE IN, AND TAKES NO RESPONSIBILITY FOR, CONSTRUCTION MEANS AND METHODS OR JOB SITE SAFETY DURING CONSTRUCTION.
4. PROCESSING AND/OR APPROVING SUBMITTALS MADE BY THE CONTRACTOR WHICH MAY CONTAIN INFORMATION RELATED TO CONSTRUCTION METHODS OR SAFETY ISSUES, OR PARTICIPATION IN MEETINGS WHERE SUCH ISSUES MIGHT BE DISCUSSED, SHALL NOT BE CONSTRUED AS VOLUNTARY ASSUMPTION BY THE ENGINEER OR ANY RESPONSIBILITY FOR SAFETY PROCEDURES.
5. IT IS SOLELY THE RESPONSIBILITY OF EACH CONTRACTOR TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASE OF CONSTRUCTION. THE ENGINEER IS NOT ENGAGED IN, AND DOESN'T SUPERVISE CONSTRUCTION.

OWNERSHIP OF DOCUMENTS:

THE CONTRACTOR ACKNOWLEDGES THESE PLANS AND SPECIFICATIONS PREPARED BY JMT, AS INSTRUMENTS OF PROFESSIONAL SERVICE. NEVERTHELESS, THE PLANS AND SPECIFICATIONS PREPARED UNDER THIS AGREEMENT SHALL REMAIN THE PROPERTY OF JMT. UPON COMPLETION OF THE WORK. THE CONTRACTOR AGREES TO HOLD HARMLESS AND INDEMNIFY AGAINST ALL DAMAGES, CLAIMS, AND LOSSES INCLUDING DEFENSE COSTS, ARISING OUT OF ANY REUSE OF THE PLANS AND SPECIFICATIONS WITHOUT THE WRITTEN AUTHORIZATION OF JMT.

SHOP DRAWINGS:

SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS MUST BE SUBMITTED BY GENERAL CONTRACTOR AND REVIEWED BY THE ENGINEER. ALL CONTRACTOR MODIFICATIONS (INCLUDING PRODUCTS SUBMISSION) MUST BE IDENTIFIED IN WRITING AS A PROPOSED "AS EQUAL" CHANGES AT TIME OF SUBMISSION. IF A CONTRACTOR OR OWNER FAILS TO SUBMIT THE SHOP DRAWINGS OR FAILS TO FOLLOW THE ABOVE "AS EQUAL" PROCEDURE, JMT WILL NOT BE RESPONSIBLE FOR THE STRUCTURAL CERTIFICATION AND DESIGN OF THE PROJECT. SHOP DRAWINGS ARE REVIEWED BY THE ENGINEER AS A CONVENIENCE TO THE CONTRACTOR AND ARE NOT A CONTRACT DOCUMENT.

UTILITIES

1. CONTRACTOR IS TO VERIFY LOCATIONS OF ALL UNDERGROUND UTILITIES PRIOR TO PERFORMING ANY SUBSURFACE OR EXCAVATION WORK.

2. PROTECTION: PROTECT EXISTING UTILITIES TO REMAIN DURING EXCAVATION, AND CUTTING AND PATCHING, TO PREVENT DAMAGE.

DESIGN BASIS:

INTERNATIONAL BUILDING CODE, 2015 EDITION
ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
ACI 318-11 MANUAL FOR CONCRETE CONSTRUCTION
NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION

PROJECT LOADS:

ROOF LIVE LOAD	20 PSF
FLOOR LIVE LOAD	100PSF
ATTIC STORAGE AREAS	30 PSF

WIND LOAD PER ASCE 7-10

BUILDING RISK CATEGORY:	II
BASIC WIND SPEED:	115MPH
DIRECTIONALITY FACTOR: Kd	0.85
EXPOSURE CATEGORY:	B
TOPOGRAPHIC FACTOR: Kzt	1.0
GUST EFFECT FACTOR: Gf	0.85
ENCLOSURE CLASSIFICATION:	ENCLOSED
INTERNAL PRESSURE COEFF:	±0.18
MWFRS DESIGN PROCEDURE:	DIRECTIONAL

MWFRS

	MAX / MIN
WINDWARD:	15 / 9 PSF
LEEWARD:	-5 / -11 PSF
SIDEWALL:	-7 / -14 PSF
ROOF PRESSURE:	-2 / -16 PSF

COMPONENTS AND CLADDING:

ROOF SURFACE PRESSURE (PSF)

AREA	20SF	50SF	100SF	200SF	500SF
NEG. ZONE 1	-22	-20	-20	-20	-20
NEG. ZONE 2	-35	-31	-28	-28	-28
NEG. ZONE 3	-53	-48	-44	-44	-44
OVERHANG 2	-45	-45	-44	-44	-44
OVERHANG 3	-67	-58	-51	-50	-50
POS. ALL ZONES	13	11	10	10	10

WALL SURFACE PRESSURE (PSF)

AREA	20SF	50SF	100SF	200SF	500SF
NEG. ZONE 4	-25	-23	-22	-22	-20
NEG. ZONE 5	-30	-27	-25	-24	-20
POS. ALL ZONES	23	21	20	20	18

** REFER TO ACSE 7-10, CHAPTER 30 FOR ZONE DEFINITIONS **

SEISMIC LOAD PER ASCE 7-10

RISK CATEGORY	II
IMPORTANCE FACTOR:	1.0
MAPPED SPECTRAL RESPONSE ACCELERATIONS,	Ss=0.174g, S1=0.056g
SITE CLASS =	D
SPECTRAL RESPONSE COEFFICIENTS,	Sds=0.185G, Sd1=0.09G
SEISMIC DESIGN CATEGORY :	B

SEISMIC DESIGN FACTORS

BASIC FORCE RESISTING SYSTEM:	FRAME WALLS W/ PANELS
RESPONSE MODIFICATION FACTOR:	7.0
SEISMIC RESPONSE COEFFICIENT:	Cs=0.0265
BASE SHEAR:	3.98 KIPS

SNOW LOADS

GROUND SNOW LOAD:	25.0 PSF
BALANCED SNOW LOAD:	19.4 PSF

CONTROLLED FILL AND BACKFILL:

1. SAMPLES OF ALL MATERIALS THAT THE CONTRACTOR PROPOSES TO USE FOR COMPACTED FILL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER.
2. COMPACTED FILL SHALL CONSIST OF LOCAL MATERIAL FREE OF DELETERIOUS MATTER AND CLASSIFIED CL, SC, GC, GM, OR SM PER ASTM D-2487.
3. THE CONTROL OF THE MOISTURE FOR PLACING THE FILL WILL BE BASED ON THE RESULTS OF COMPACTION TESTS PER ASTM D-1557.
4. ALL COMPACTED FILL SHALL HAVE A DENSITY OF AT LEAST 95% FOR COHESIONLESS SOILS AND 90% FOR COHESIVE SOILS OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698.
5. PRIOR TO PLACEMENT OF ANY FILLS, THE SITE SHALL BE STRIPPED OF ALL TOPSOIL, VEGETATION, ROCKS, AND ORGANIC MATERIALS AND THE EXPOSED SUBGRADE SHALL BE COMPACTED IN PLACE TO A CONFIRMED DENSITY OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY.
6. FILL MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 8" IN THICKNESS AND SHALL BE MIXED, SPREAD AND PLACED IN SUCH A WAY AS TO PRODUCE A UNIFORM THICKNESS OF MATERIAL AFTER PLACING.
7. COMPACTED FILL PLACED WITHIN 4 FEET OF STRUCTURES AND PIPES SHOULD BE PLACED IN HORIZONTAL LIFTS NOT TO EXCEED 4 INCHES THICKNESS AND COMPACTED WITH HAND TAMPERS OR LIGHT COMPACTION EQUIPMENT TO THE SAME STANDARD. HEAVY COMPACTION EQUIPMENT SHOULD NOT BE ALLOWED WITHIN 4 FEET OF STRUCTURES UNLESS A MINIMUM 2 FEET DEPTH OF FILL COVERS THE STRUCTURES.
8. WHENEVER IN PLACE DENSITIES ARE FOUND BELOW ACCEPTABLE LIMITS, ADDITIONAL ROLLING TO PRODUCE THE SPECIFIED DENSITIES SHALL BE REQUIRED.
9. MAINTAIN POSITIVE SURFACE DRAINAGE TO PREVENT THE ACCUMULATION OF WATER IN EXCAVATED AREAS. SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES.
10. PLACING OF FILL CONTAINING ORGANIC MATTER; PLACING OF FILL WITH MOISTURE CONTENT TOO HIGH OR TOO LOW FOR PROPER COMPACTION; PLACING OF FILL WHEN FREE WATER IS STANDING ON THE EXISTING FILL SURFACE; PLACING OF FILL IN A FROZEN CONDITION OR ON TOP OF FROZEN MATTER WILL NOT BE PERMITTED.
11. THE SOILS ENGINEER SHALL SUPERVISE THE PLACING OF THE COMPACTED FILL AND ALL THE MATERIAL AND EQUIPMENT USED FOR THIS PURPOSE AND SHALL MAKE SUCH SOILS TESTS AS MAY BE REQUIRED FOR THE COMPLETION OF THE WORK.

CONCRETE:

1. ALL CONCRETE WORK SHALL CONFORM TO ALL THE PROVISIONS OF THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301), AND TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318).
2. ALL STRUCTURAL CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI UNLESS NOTED OTHERWISE.
3. THE CONCRETE SHALL CONFORM TO ALL THE PROVISIONS OF "RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING" (ACI 305) AND "RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING" (ACI 306).
4. ALL FORMWORK SHALL BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "FORMWORK FOR CONCRETE" SPECIAL PUBLICATION NO. 4 AND ACI'S "STANDARD RECOMMENDED PRACTICE FOR CONCRETE FORMWORK" (ACI-347).
5. ALL CONCRETE EXPOSED TO THE WEATHER SHALL HAVE AN AIR ENTRAINMENT OF 6% ± 1%. NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED.
6. THE MAXIMUM SLUMP OF ALL CONCRETE SHALL BE 4", OR IN ACCORDANCE WITH APPROVED MIX DESIGN.
7. ALL CONCRETE SHALL BE CURED WITH LIQUID SEALING COMPOUND CONFORMING TO ASTM C-309, TYPE I AND FEDERAL SPECIFICATION TT-C-00800 OR OTHER APPROVED METHOD WHICH IS COMPATIBLE WITH FLOORING ADHESIVES AND OTHER SURFACE TREATMENTS.
8. ALL CONCRETE LEFT EXPOSED AT THE COMPLETION OF THE PROJECT SHALL BE TREATED WITH A CLEAR, PENETRATING ACRYLIC BASE POLYMER CAPABLE OF PREVENTING INFILTRATION OF WATER BORNE CHLORIDES SUCH AS CONSPEC #1 BY CONSPEC MARKETING & MANUFACTURING COMPANY OR APPROVED EQUAL.
9. LOADS GREATER THAN THE DESIGN LIVE LOADS SHALL NOT BE PLACED ON THE STRUCTURE.
10. A CONCRETE STRUCTURE MAY NOT SUPPORT ITS DESIGN LIVE LOAD FOR 28 DAYS. CONTRACTOR SHALL SUPPORT ADJACENT STRUCTURES, UTILITIES, AND EXCAVATIONS AS REQUIRED FOR COMPLETION OF WORK.
11. ONE SET OF COMPRESSIVE TEST CYLINDERS FOR EACH 50 CUBIC YARDS POURED, BUT NOT LESS THAN ONE SET FOR EACH DAY'S POUR AND EACH CLASS OF CONCRETE, ALONG WITH SLUMP TESTS SHALL BE PERFORMED BY A TESTING LABORATORY APPROVED BY THE STRUCTURAL ENGINEER.
12. REINFORCING STEEL SHALL BE DEFORMED BARS IN ACCORDANCE WITH ASTM A-615, GRADE 60. BENDS ARE TO BE FABRICATED AS PER DETAILS.
13. PLACE MAIN REINFORCING STEEL SO AS TO PROVIDE 3" MINIMUM COVER FOR FOUNDATIONS POURED ON EARTH, AND 2" FOR ALL REBAR IN EXPOSED CONCRETE (EXCEPT AS OTHERWISE DETAILED).
14. ALL WALL STEEL SHALL HAVE A MINIMUM EXTENSION INTO THE SUPPORTS IN ACCORDANCE WITH THE LATEST ADDITION OF THE ACI CODE, PROVIDE ACCESSORIES AND BAR SUPPORTS IN ACCORDANCE WITH THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315).

FOUNDATION:

1. CONCRETE SHALL NOT BE POURED ON FROZEN GROUND.
2. FILL ALL VOIDS AND REPLACE DISTURBED SOIL WITH LEAN CONCRETE.
3. BOTTOM OF ALL FOOTINGS SHALL BE A MINIMUM OF 2'-0" BELOW ORIGINAL GRADE OR PLACED IN APPROVED COMPACTED FILL.
4. BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE A MINIMUM OF 2'-8" BELOW FINISHED GRADE.
5. A SOIL BEARING CAPACITY OF 2000 PSF WAS USED IN THE FOUNDATION DESIGN, AND MUST BE FIELD VERIFIED BY A REGISTERED GEOTECHNICAL ENGINEER.
6. IF SOIL OF THIS BEARING CAPACITY IS NOT ENCOUNTERED AT THE ELEVATIONS INDICATED ON THE CONTRACT DRAWINGS, FOOTINGS SHALL BE LOWERED OR INCREASED IN SIZE AS DIRECTED BY THE STRUCTURAL ENGINEER.

STRUCTURAL STEEL:

1. STRUCTURAL STEEL PLATES, ANGLES, CHANNELS, BARS, AND ROLLED S, M, AND HP SHAPES SHALL CONFORM TO ASTM A-36.
2. ROLLED WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A-992, GRADE 50.
3. STRUCTURAL STEEL TUBULAR SHAPES SHALL CONFORM TO ASTM A-500, GRADE B (FY=46KSI)
4. AND STRUCTURAL STEEL PIPES SHAPES SHALL CONFORM TO ASTM A-53, TYPES E OR S, GRADE B (FY=35KSI). ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 36.
5. ALL CONNECTIONS WITH SLOTTED AND OVERSIZE HOLES SHALL HAVE SLIP CRITICAL CONNECTIONS. ALL OTHER CONNECTIONS MAY BE BEARING TYPE CONNECTIONS.
6. ALL BOLTS SHALL CONFORM TO ASTM A-325.
7. WELDS SHALL CONFORM TO ALL THE PROVISIONS OF THE STRUCTURAL WELDING CODE, AWS D1.1 OF THE AMERICAN WELDING SOCIETY EXCEPT SECTIONS 2.3, 2.4, 2.5, 8.13.1.2 AND 9.
8. NO OPENINGS IN BEAMS OTHER THAN SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.

FOUNDATION ANCHORAGE:

1. WOOD SILL PLATES AT EXTERIOR WALLS, INTERIOR LOAD BEARING WALLS, AND INTERIOR SHEAR WALLS TO BE ANCHORED TO THE CMU OR CONCRETE AS FOLLOWS.
   A. 5/8" ANCHOR BOLTS EMBEDDED 7". BOLTS TO BE SPACED AT 32" O.C. WITH ONE BOLT PLACED WITHIN 12" OF EACH CORNER AND AT THE ENDS OF EACH SILL PLATE. PROVIDE NUTS AND WASHERS FOR EACH BOLT. USE 3"x3"x1/4" THICK WASHERS.
   B. 5/8" DIAMETER THREADED RODS MAY BE SUBSTITUTED FOR THE ANCHOR BOLTS. DRILL AND EPOXY RODS INTO CMU OR CONCRETE USING EITHER SIMPSON AT, ET, OR SET ANCHORING ADHESIVES. EMBEDMENT AND SPACING ARE THE SAME AS STATED ABOVE.
2. AS AN ALTERNATIVE SIMPSON MAS MUDSILL ANCHOR PLACED 3-1/2" FROM THE EDGE OF THE CONCRETE POUR. SPACE THE ANCHOR 24" O.C. WITH AT LEAST ON ANCHOR PLACED WITHIN 12" OF EACH CORNER AND AT THE ENDS OF EACH SILL PLATE. THIS CONNECTION IS NOT TO BE USED TO ATTACHED WALLS TO CONCRETE CURBS SUCH AS IN THE GARAGE.

STUD WALL FRAMING:

1. FIRST FLOOR EXTERIOR STUD WALLS TO BE SPF #2 (OR BETTER) 2x6 @ 16" O.C. WITH A DOUBLE 2x6 TOP PLATE AND A SINGLE 2x6 TOE PLATE, UNLESS OTHERWISE NOTED ON THE PLANS.
2. ALL INTERIOR LOAD BEARING STUD WALLS TO BE A MINIMUM SPF#2 2x4 @ 16" O.C. WITH A DOUBLE 2x4 TOP PLATE AND A SINGLE 2x4 TOE PLATE.
3. TRIPLE STUDS REQUIRED AT EACH CORNER AND SIDE OF OPENINGS.
4. PROVIDE HORIZONTAL BRIDGING AT A MAXIMUM 4'-0" O.C..

STRUCTURAL TIMBER:

1. ALL STRUCTURAL TIMBER LISTED BELOW AND TJI JOISTS LISTED ON THE PLANS ARE MANUFACTURED BY TRUS-JOIST. OTHER MANUFACTURERS ARE ACCEPTABLE AS LONG AS THERE PRODUCTS MEET OR EXCEED THE DESIGN VALUES SHOWN BELOW.
2. ALL TIMBER TO BE MIN. GRADE & SPECIES AS PER THE LATEST EDITION OF THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION.
   A. INTERIOR/EXTERIOR STUDS: SEE STUD WALL FRAMING LOCATED ON GENERAL NOTES PAGE.
   B. BEAMS, HEADERS, POSTS, AND JOIST: SOUTHERN YELLOW PINE #2 UNLESS OTHERWISE NOTED ON THE PLANS.
3. DESIGN VALUES:
   A. MICROLLAM LVL : E= 1900 KSI, Fb= 2600 PSI, Fv= 285 PSI
   B. TIMBERSTRAND LSL: E= 1700 KSI, Fb= 2600 PSI, Fv= 400 PSI
   C. PARALLAM PSL: E= 1740 KSI, Fb= 2088 PSI, Fv= 177 PSI
   D. TJ STRAND RIM BOARD: E= 800 KSI, Fb= 1200 PSI, Fv= 400 PSI

*NOTE: DESIGN VALUES LISTED ARE FOR A 12" DEEP MEMBER.

4. PRESSURE TREATMENT IS REQUIRED FOR THE FOLLOWING:
   A. ALL FIRST FLOOR TOE PLATES OR WOOD IN CONTACT WITH CMU OR CONCRETE.
   B. ALL EXTERIOR BEAMS, POSTS, AND FLOOR JOISTS.
5. GLUE LAMINATED TIMBER TO BE SOUTHERN PINE WITH A COMBINATION SYMBOL OF 24F-V3.

WOOD FRAMING NOTES:

1. ALL WOOD FRAMING MATERIALS SHALL BE SOUTHERN YELLOW PINE OR EQUAL, UNLESS NOTED OTHERWISE, ALSO SEE THE STRUCTURAL TIMBER SECTION OF THE GENERAL NOTES.
2. ALL LUMBER SHALL BE CONTINUOUS WITHOUT SPLICES EXCEPT AS NOTED ON THE DRAWINGS. FACTORY MACHINED SPLICES ARE ACCEPTABLE AS LONG AS THE MINIMUM STRUCTURAL PROPERTIES OF THE MEMBER ARE MAINTAINED.
3. ALL EXTERIOR WALLS SHALL BE SHEATHED WITH APA RATED SHEATHING WITH BLOCKING AT ALL SEAMS. SHEATHING IS TO BE NAILED TO ALL STUDS, TOP PLATES, SILL PLATE BANDS AND BLOCKING.
4. ALL WOOD MEMBERS IN CONTACT WITH CONCRETE, MASONRY OR EXPOSED TO WEATHER SHALL BE PRESSURE TREATED.
5. ALL NAILING TO BE IN ACCORDANCE WITH THE STANDARDS PRESCRIBED BY THE INTERNATIONAL RESIDENTIAL CODE.
6. THE ENDS OF ALL RAFTERS AND OR TRUSSES SHALL BE ANCHORED WITH AN APPROPRIATELY DESIGNED STRAP. SHEATHING AND OR ANCHORS SHALL BE INSTALLED SO THAT THERE IS A CONTINUOUS LOAD PATH FROM THE ROOF DOWN TO THE FOUNDATION.
7. CONTRACTOR TO PROVIDE MULTIPLE STUDS UNDER ALL TRUSS GIRDERS AND OR STRUCTURAL BEAMS TO ACCOUNT FOR THE END REACTIONS. AT NO TIME SHALL THERE BE ANY LESS THAN THREE STUDS UNDER THE ABOVE STATED MEMBERS. CONTRACTOR IS TO ALSO ENSURE THAT BLOCKING IS PLACED WHERE NECESSARY TO TRANSFER LOAD FROM FLOOR TO FLOOR.
8. PROVIDE SOLID BLOCKING BETWEEN JOISTS WHENEVER JOISTS ARE SUPPORTING WALL ABOVE.
9. ALL LOAD BEARING WALLS AND OR SHEAR WALLS LOCATED PERPENDICULAR TO FLOOR JOISTS OR TRUSSES SHALL HAVE SOLID BLOCKING SECURELY PLACED BETWEEN THE FLOOR MEMBERS. THE SOLID WOOD BLOCKING SHALL BE THE FULL DEPTH OF THE FLOOR MEMBERS AND BE LOCATED DIRECTLY UNDER THE WALL FOR THE FULL BEARING AND WIDTH OF THE WALL.
10. UNLESS OTHERWISE NOTED PROVIDE DOUBLE JOISTS UNDER ALL PARTITION WALLS FRAMED PARALLEL TO THE FLOOR JOISTS.
11. EXTRA CONTINUOUS STUDS, NOT JACK STUDS, SHALL BE INSTALLED AT ALL OPENING JAMBS TO REPLACE THE TYPICALLY SPACED STUDS INTERRUPTED BY THE OPENINGS.
12. WHERE CEILING JOISTS ARE NOT PROVIDED AT THE TOP OF THE RAFTER SUPPORT WALLS, THE RIDGE FORMED BY THESE RAFTERS SHALL BE SUPPORTED BY A PROPERLY DESIGNED RIDGE BEAM.

WALL SHEATHING:

1. UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXTERIOR WALL SHEATHING TO BE A MINIMUM 7/16" OR 1/2" APA RATED SHEATHING OR STRUCTURAL I SHEATHING WITH 8d COMMON NAILS (OR EQUIVALENT) SPACED @ 4" O.C. AT THE EDGES AND 12" O.C. IN THE FIELD WITH TWO STAGGERED ROWS @ 4" O.C. INTO THE TOP PLATES AND ONE ROW AT 2" O.C. INTO THE TOE PLATES.

2. INTERIOR BEARING OR SHEAR WALLS: ALL LOAD BEARING WALLS OR INTERIOR SHEAR WALLS TO HAVE 1/2" GYPSUM BOARD SHEATHING APPLIED TO BOTH SIDES OF THE STUD WALL WITH 6d COMMON NAILS OR 1-1/4" TYPE W SCREWS @ 4" O.C. AT THE EDGES AND 8" O.C. AT THE INTERMEDIATE SUPPORTS.

3. ALL EXTERIOR SHEATHING IS TO BE CONTINUOUS BETWEEN FLOORS. SHEATHING TO BE ATTACHED TO STUDS ABOVE AND BELOW THE RIM BOARD WITH MINIMUM (8) 10d NAILS. AS AN ALTERNATIVE PROVIDE SIMPSON CS18 COILED STRAPS AT EVERY OTHER STUD TYING THE STUDS FROM ABOVE TO THE STUDS BELOW THE RIM BOARD TOGETHER. ATTACH EACH END WITH (10) 10d NAILS.

ROOF SHEATHING:

1. ALL ROOF SHEATHING TO BE MINIMUM 19/32" OR 5/8" APA RATED SHEATHING OR STRUCTURAL I SHEATHING WITH 10d COMMON NAILS (OR EQUIVALENT) SPACED @ 6" O.C. AT THE EDGES AND 12" O.C. IN THE FIELD; EDGE PANELS (EAVE OR GABLE) TO BE FASTENED WITH 8d OR 10d RING-SHANK NAILS SPACED @ 3" O.C. ON THE EDGES AND 9" O.C. IN THE FIELD.

TRUSS NOTES:

1. TRUSSES DESIGNED BY OTHERS. ATTACH EACH VALLEY TRUSS TO THE COMMON TRUSSES BELOW USING (1) SIMPSON VTC2 VALLEY TRUSS CLIP AT EACH END OF EACH VALLEY TRUSS.
2. IN AREAS WHERE ATTIC STORAGE IS LOCATED, PROVIDE 3/4" TONGUE AND GROOVE PLYWOOD.
3. TRUSS DESIGNER TO PROVIDE HANGERS FOR ALL TRUSSES ATTACHED TO TRUSS GIRDER.
4. ROOF DESIGN LOADS:
   A. TOP CHORD: DEAD LOAD: 12 PSF; LIVE LOAD: 16 PSF (4:12 SLOPE OR HIGHER)
   B. BOTTOM CHORD: DEAD LOAD: 8 PSF; LIVE LOAD: 30 PSF W/STORAGE, 10 PSF W/OUT STORAGE
5. LIVE LOAD DEFLECTION OF TRUSSES: L/240 MAXIMUM.
6. BRACE TRUSSES DURING ERECTION TO MAINTAIN PROPER POSITION AND SPACING.
7. PERMANENT LATERAL BRACING (MINIMUM):
   A. TOP CHORD: 2x4 @ 12'-0" O.C.
   B. BOTTOM CHORD: DIAGONAL AS PER MANUFACTURER'S RECOMMENDATIONS.
   C. WEBS: DIAGONAL AT MIDPOINTS AS PER MANUFACTURER'S RECOMMENDATIONS.
8. TRUSS BEARING ELEVATIONS TO BE DETERMINED BY ARCHITECT AND TRUSS DESIGNER.
9. PROVIDE PLATE CONNECTORS TO CONNECT TRUSS TO TRUSS OR TRUSS TO TRUSS GIRDER.
10. TRUSS MANUFACTURER IS RESPONSIBLE FOR FINAL DESIGN AND CONFIGURATION USING INDICATED LOADS. SUBMIT SHOP DRAWINGS FOR REVIEW BEFORE FABRICATION. PROVIDE HURRICANE STRAPS FOR UPLIFT FORCES PROVIDED BY TRUSS MANUFACTURER. SUBMIT TRUSS DESIGN CALCULATIONS SEALED BY A PROFESSIONAL ENGINEER LICENSED IN SOUTH CAROLINA.
11. THE TOP CHORD OF THE GABLE END TRUSSES ARE TO BE FAVRICATED 3-1/2" LOWER THAN THE TOP CHORD OF THE ADJACENT TRUSSES TO ACCOMIDATE 2x4 OUTRIGGERS SPACED AT 24" O.C.. SEE ARCHITECTURAL DRAWINGS FOR EAVE LENGTH.
12. HURRICANE STRAPS:
   A. TYPICAL STRAPPING FOR TRUSSES - 780#: USE (1) SIMPSON H10
   B. TYPICAL STRAPPING FOR 2-PLY TRUSS GIRDER - 3570#: USE (2) SIMPSON LGT2
   C. WHEN TWO STRAPS ARE USED FOR THE SAME TRUSS, ATTACH STRAPS ON OPPOSITE SIDES OF THE WALL. REFER TO ROOF TRUSS SHOP DRAWINGS FOR UPLIFT LOADS.

LEGEND

CONCRETE SLAB W/ 6x6-W1.4xW1.4 WWF 10MIL POLY VAPOR BARRIER, SEE PLAN FOR THICKNESS

SPREAD/CONTINUOUS FOOTING SEE FOOTING SCHEDULE FOR REINFORCEMENT

ROOF OVERFRAMING

MONOLITHIC FOOTING SEE FOOTING SCHEDULE FOR REINFORCEMENT

COLUMN ABOVE

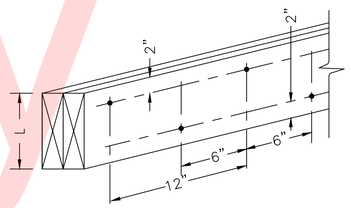
COLUMN BELOW

LOADBEARING WALL

CONTROL JOINT

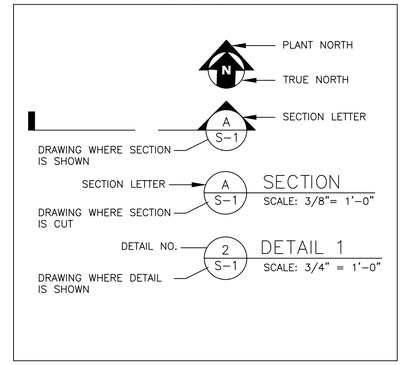
FRAMING BELOW

FRAMING ABOVE



NAILING OF MULTIPLE MEMBERS

LEGEND



ABBREVIATIONS

@ At
AB: Anchor Bolt
ABV: Above
ACI: American Concrete Institute
ADDL: Additional
AFF: Above Finished Floor
AISC: American Institute of Steel Construction
APPROX: Approximate
APRVD: Approved
ARCH: Architect, Architectural
ASTM: American Society for Testing Materials
AVG: Average
AWS: American Welding Society

BLDG: Building
BOTT: Bottom
BP: Base Plate
BRG: Bearing

C/C: Center to Center
CIR: Circle, Circular,
CJ: Control Joint
CL: Centerline,
CLR: Clear
CLR OPG: Clear Opening
CMU: Concrete Masonry Unit
COEF: Coefficient
COL: Column
CONC: Concrete
CONST: Construction
CONT: Continuous,
CTR: Center

DEMO: Demolition
DET: Detail
DIA: Diameter
DIM: Dimension
DL: Dead Load
DWG: Drawing

EA: Each
EF: Each Face
EJ: Expansion Joint
EL: Elevation
ELEC: Electrical
ELEV: Elevation
ENGR: Engineer
EQ: Equal
EQUIP: Equipment
EW: Each Way
EXP: Expansion
EXT: Exterior

FNDN: Foundation
FF: Far Face
FFE: Finished Floor Elevation
FT: Foot, Feet, Fully Tempered
FTG: Footing

ID: Inside Diameter
INT: Interior, Internal

JT: Joint

L: Angle, Left, Length
LB: Pound (weight)
LL: Live Load

MAINT: Maintenance
MATL: Material
MAX: Maximum
MECH: Mechanical
MEZZ: Mezzanine
MFR: Manufacture, Manufacturer
MIN: Minimum
MISC: Miscellaneous
MRD: Metal Roof Deck
MTD: Mounted
MTL: Metal

N: North,
NTS: Not To Scale

O.C.: On Center
OD: Outside Diameter
OPP: Opposite

GA: Gauge, Gage
GALV: Galvanized
GC: General Contractor
GRND: Ground

HOR: Horizontal
HT: Height
HVAC: Heating, Ventilating & Air Conditioning

THK: Thick, Thickness
THRU: Through
T.O. SLAB: Top of Slab
T.O.S: Top of Steel

UNO: Unless Noted Otherwise

VERT: Vertical

W/: With
WWM: Wire Mesh
WP: Working Point
WT: Weight
WWF: Welded Wire Fabric

XS: Extra Strong
XXS: Double Extra Strong
PAF: Powder Actuated Fasteners
PCF: Pounds per cubic foot
PERIM: Perimeter
PERP: Perpendicular
PL: Plate, Plan,
PLF: Pounds Per Lineal Foot

PSF: Pounds per square foot
PSI: Pounds per square inch
PT: Pressure Treated

QTY: Quantity

RCP: Reinforced Concrete Pipe
REBAR: Reinforcing Bar
REINF: Reinforcement, or Reinforce
REQD: Required
REV: Revise, Revision
RFG: Roofing
RGH OPNG:Rough Opening

SIM: Similar
SLOT: Slotted
SPECS: Specifications
SQ: Square
SS: Stainless Steel
STA: Station
STD: Standard
STL: Steel

CO-S-001

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104; COUNTY NEW CASTLE; BRIDGE NO. N/A; DESIGNED BY: DJO; CHECKED BY: SLB
		CREW OPERATION BUILDING STRUCTURAL NOTES	SHEET NO. 41; TOTAL SHTS. 116

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SPECIAL INSPECTIONS

MATERIAL		VERIFICATION AND INSPECTION	FREQUENCY		REFERENCED STANDARD	IBC REFERENCE	COMMENTS
			CONTINUOUS	PERIODIC			
SOILS	1.	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	-	x	ASTM D7380	-	
	2.	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	-	x	-	-	
	3.	PERFORM TESTING AND CLASSIFICATION OF FILL MATERIALS	-	x	ASTM D2487	-	
	4.	VERIFY PROPER USE OF MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF FILL.	x	-	ASTM 1557	-	
	5.	PRIOR TO PLACEMENT OF PREPARED FILL, ENSURE SITE PREPARATION I.A.W SOILS REPORT.	-	x	-	-	
CONCRETE	1.	INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS AND PLACEMENT.	-	x	ACI 318: 3.5, 7.1-7.7	1910.4	
	2.	INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH STEEL INSPECTIONS TABLE 1702.2.2, ITEM 2B.	-	-	AWS D1.4; ACI 318: 3.5.2	1705.5.2	
	3.	INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED.	-	x	ACI 318: 8.1.3,21.2.8	1908.5, 1909.1	
	4.	INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE.	-	x	ACI 318: 3.8.6, 8.1.3, 21.2.8	1909.1	
	5.	VERIFY USE OF REQUIRED DESIGN MIX.	-	x	ACI 318: CH. 4, 5.2-5.4	1904.2, 1910.2, 1910.3	
	6.	AT THE TIME OF PLACEMENT SAMPLE FRESH CONCRETE AND FABRICATE TEST SPECIMENS FOR STRENGTH TESTS. PERFORM SLUMP AND AIR TEST, AND DETERMINE TEMPERATURE OF CONCRETE.	x	-	ASTM C172, ASTM C31 ACI 318: 5.6, 5.8	1910.10	
	7.	INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUE.	x	-	ACI 318: 5.9-5.10	1910.6-.8	
	8.	INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	x	ACI 318: 5.11-5.13	1910.9	
	9.	INSPECTION OF FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	x	ACI 318: 6.1.1	-	
WOOD TRUSS CONSTRUCTION	1.	TEMPORARY & PERMANANT BRACING OF WOOD TRUSSES	x	-	-	1704.6.2	AMENDMENT TO IBC PER LOCAL ORDINANCE
STEEL		INSPECTION OF HIGH-STRENGTH BOLTING:					
	a.	INSPECTION PRIOR TO BOLTING:			AISC 360-10	1705	
		1) MANUFACTURERS CERTIFICATIONS FOR FASTENER MATERIALS	-	O	TABLE N5.6-1		
		2) FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	-	O			
		3) PROPER FASTENER SELECTED FOR JOINT DETAIL	-	O			
		4) CONNECTING ELEMENTS INCLUDING FAYING SURFACE AND HOLE PREPARATION	-	O			
		5) PRE-INSTALLATION VERIFICATION TESTING BY PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES	P	-			
		6) PROPER STORAGE OF BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS.	-	O			
	b.	INSPECTION DURING BOLTING:					
		1) FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHER ARE POSITIONED AS REQ'D.	-	O	TABLE N5.6-2		
		2) JOINT BROUGHT TO THE SNUG TIGHT CONDITION PRIOR TO THE PRE-TENSIONING OPERATION	-	O			
		3) FASTENER COMPONENT NOT TURNED BY WRENCH PREVENTED FROM ROTATING	-	O			
		4) FASTENERS ARE PRE-TENSIONED I.A.W. WITH RCSC *SPECIFICATION*	-	O			
	c.	INSPECTION AFTER BOLTING:					
		1) DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED MATERIALS	P	-	TABLE N5.6-3		
		INSPECTION OF WELDING:			AISC 360-10	1705	
	a.	INSPECTION PRIOR TO WELDING:					
		1) WELDING PROCEDURE SPECIFICATIONS (WPS) AVAILABLE	P	-	TABLE N5.4-1 AWS D1.1		
		2) MANUFACTURER'S CERTIFICATE FOR WELDING CONSUMABLES	P	-			
		3) MATERIAL IDENTIFICATION	-	O			
		4) WELDER IDENTIFICATION SYSTEM	-	O			
		5) FIT UP GROOVE WELDS	-	O			
		6) CONFIGURATION AND FINISH OF ACCESS HOLES	-	O			
		7) FIT UP FILLET WELDS	-	O			
		8) CHECK WELDING EQUIPMENT	-	O			
		INSPECTION DURING WELDING:					
	b.	1) USE OF QUALIFIED WELDERS	-	O	TABLE N5.4-2 AWS D1.1		
		2) HANDLING & CONTROL OF WELDING CONSUMABLES	-	O			
		3) NO WELDING OVER CRACKED TACK WELDS	-	O			
		4) ENVIRONMENTAL CONDITIONS	-	O			
		5) FOLLOW THE APPROVED WPS	-	O			
		6) WELDING TECHNIQUES	-	O			
		INSPECTION AFTER TO WELDING:					
	c.	1) WELDS CLEANED	-	O	TABLE N5.4-3 AWS D1.1		
		2) SIZE LENGTH AND LOCATION OF WELDS	P	-			
		3) WELDS MEET VISUAL ACCEPTANCE CRITERIA	P	-			
		4) ARC STRIKES	P	-			
		5) *K* - AREA	P	-			
		6) BACKING REMOVED AND WELD TABS REMOVED (WHEN REQUIRED)	P	-			
		7) REPAIR ACTIVITIES	P	-			
		8) DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	-			

STATEMENT OF SPECIAL INSPECTIONS PLAN

GENERAL NOTES

1. THE STATEMENT OF SPECIAL INSPECTIONS PLAN DRAWINGS PROVIDES PROJECT COMPLIANCE WITH THE PROVISIONS OF 2015 INTERNATIONAL BUILDING CODE (IBC) CHAPTER 17 FOR SPECIAL INSPECTION, STRUCTURAL OBSERVATION AND TESTING FOR WIND AND SEISMIC RESISTANCE EXCEPT WHERE OTHERWISE NOTED. THIS INSPECTION IS OWNER FURNISHED.

2. ITEMS IDENTIFIED IN THESE TABLES ARE REQUIRED TO MEET BUILDING CODE COMPLIANCE. THESE ARE NOT THE ENTIRE INSPECTIONS REQUIRED. EACH SPECIFICATION SECTION MAY REQUIRE ADDITIONAL INSPECTIONS AND QUALITY CONTROL MEASURES THAT ARE REQUIRED TO MEET THE STANDARDS ESTABLISHED FOR THE PROJECT CONTRACT. CONTRACTOR SHALL FURNISH ALL ELEMENTS, TESTS AND INSPECTIONS NOT INDICATED TO BE BY THE OWNER.

SPECIAL INSPECTION

1. SPECIAL INSPECTION WILL BE IN ACCORDANCE WITH IBC CHAPTER 17 TOGETHER WITH LOCAL AND STATE AMENDMENTS. REFER TO THE TABLES CONTAINED ON THESE GENERAL SHEETS FOR PROJECT SPECIFIC INSPECTION TYPES AND REFERENCES.

2. SPECIAL INSPECTIONS WILL BE PERFORMED BY A CERTIFIED OR QUALIFIED INSPECTOR AND ASSOCIATED TESTING WILL BE PERFORMED BY AN APPROVED ACCREDITED INDEPENDENT AGENCY. THE OWNER WILL SECURE AND PAY FOR THE SERVICES OF THE AGENCY TO PERFORM ALL SPECIAL INSPECTION AND ASSOCIATED TESTS. INSPECTORS FOR EACH SYSTEM AND MATERIAL WILL BE THE INTERNATIONAL CODE COUNCIL (ICC) CERTIFIED OR OTHERWISE APPROVED BY THE BUILDING OFFICIAL.

3. THE SPECIAL INSPECTOR WILL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONTRACT DOCUMENTS AND SUBMIT RECORDS OF INSPECTION. ALL DISCREPANCIES WILL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.

4. SPECIAL INSPECTION AND ASSOCIATED TESTING REPORTS WILL BE SUBMITTED BY THE ENGINEER, CONTRACTOR, BUILDING OFFICIAL, AND OWNER WITHIN ONE WEEK OF INSPECTION OR WITHIN ONE WEEK OF TEST COMPLETION. INSPECTIONS FOR WHICH REPORTING WILL BE REQUIRED ARE NOTED IN THE TABLES CONTAINED ON THIS PLAN.

5. AT THE CONCLUSION OF CONSTRUCTION, A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF PREVIOUSLY NOTED DISCREPANCIES WILL BE SUBMITTED.

GEOTECHNICAL OBSERVATION

1. GEOTECHNICAL OBSERVATION SHALL BE IN ACCORDANCE WITH IBC SECTION 1704.7, 1803.5 AND 1803.6 TOGETHER WITH LOCAL AND STATE AMENDMENTS.

2. GEOTECHNICAL OBSERVATION SHALL BE PERFORMED BY A REGISTERED DESIGN PROFESSIONAL FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS. GEOTECHNICAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR ANY REQUIRED SPECIAL INSPECTION OR INSPECTIONS BY THE BUILDING OFFICIAL.

3. THE CONTRACTOR SHALL SCHEDULE AND FACILITATE GEOTECHNICAL OBSERVATION.

STRUCTURAL OBSERVATION

1. STRUCTURAL OBSERVATION IN ACCORDANCE WITH IBC SECTION 1709 TOGETHER WITH LOCAL AND STATE AMENDMENTS ARE NOT APPLICABLE TO PROJECT.

2. STRUCTURAL OBSERVATION IF PERFORMED WILL BE BY A REGISTERED PROJECT DESIGN PROFESSIONAL FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS. ANY STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR ANY REQUIRED SPECIAL INSPECTIONS. INSPECTIONS BY THE BUILDING OFFICIAL OR SPECIFICATION REQUIRED QUALITY CONTROL.

3. STRUCTURAL OBSERVATION REPORTS, NOTING ANY DEFICIENCIES IN OBSERVED CONSTRUCTION, WILL BE DELIVERED TO THE CONTRACTOR, BUILDING OFFICIAL, AND OWNER FOLLOWING EACH OBSERVATION IF A VISIT IS PERFORMED. THE CONTRACTOR WILL BE NOTIFIED ON-SITE OR BY PHONE OR EMAIL WITHIN 24 HOURS UPON FINDING ANY DEFICIENCIES.

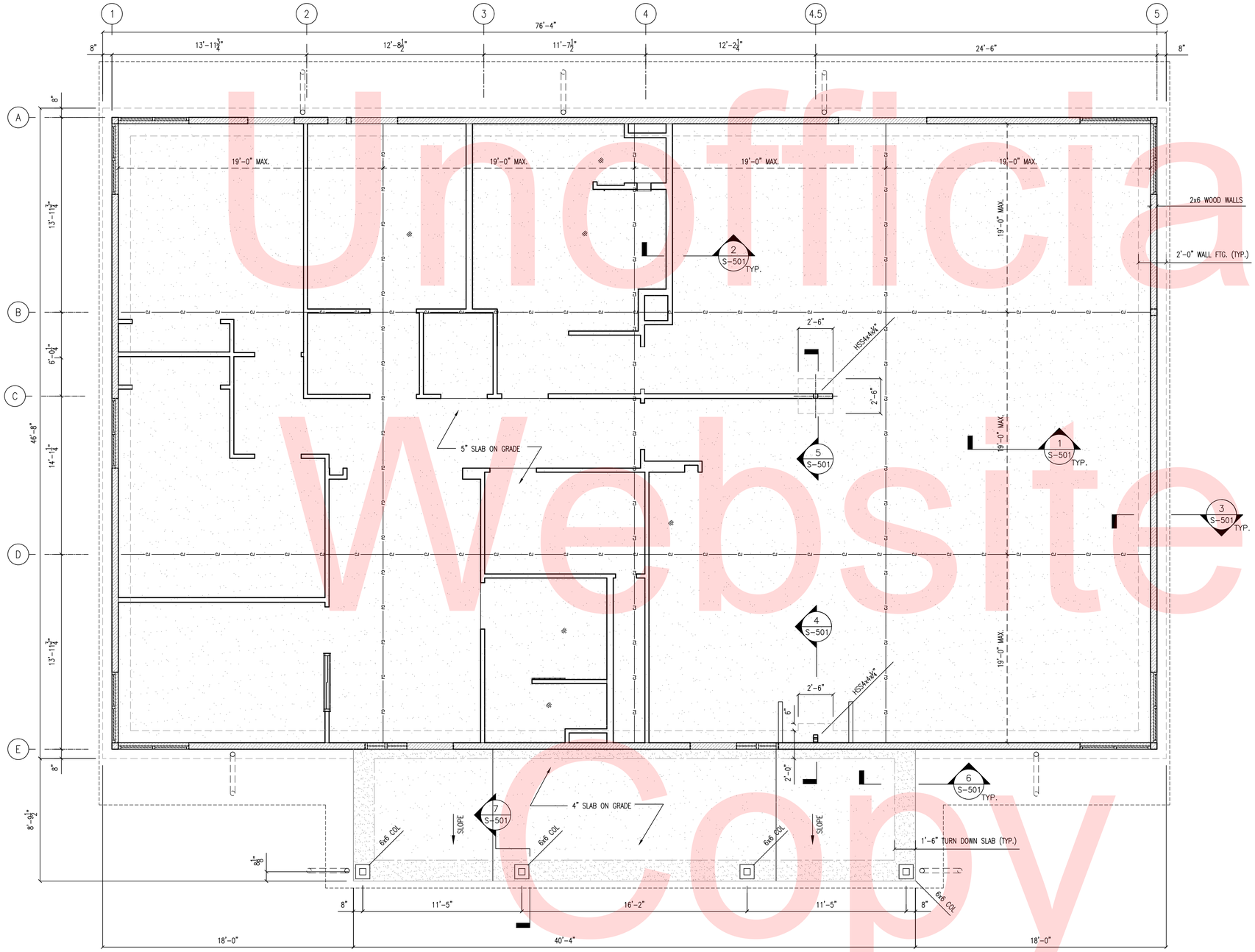
SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE

SPECIAL INSPECTION FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE REQUIREMENTS OF AISC 341. THE SPECIAL INSPECTOR SHALL EXAMINE DESIGNATED SEISMIC SYSTEMS REQUIRING SEISMIC QUALIFICATION IN ACCORDANCE WITH IBC SECTION 1705.12.3 AND VERIFY THAT THE LABEL, ANCHORAGE, OR MOUNTING CONFORMS TO THE CERTIFICATE OF COMPLIANCE.

TESTING FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE REQUIREMENTS OF AISC 341.

CO-S-002

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A
				COUNTY NEW CASTLE	DESIGNED BY: DJO
					CHECKED BY: SLB
				CREW OPERATION BUILDING SPECIAL INSPECTIONS	SHEET NO. 42
					TOTAL SHTS. 116



1 FOUNDATION PLAN
SCALE : 1/4"= 1'-0"

DRAWING NOTES

1. COORDINATE LOCATION OF "HOUSEKEEPING PAD" IN MECHANICAL ROOMS WITH ARCH & MEP. SEE SHEET S-501 FOR DETAILS.
2. SEE SHEET S501 FOR FOUNDATION SIZE AND REINFORCING DETAILS.
3. COORDINATE LOCATION OF INTERIOR WALLS WITH ARCH PLANS.
4. CONTRACTOR TO COORDINATE CONCRETE JOINTS WITH FLOOR FINISHES

CO-S-101

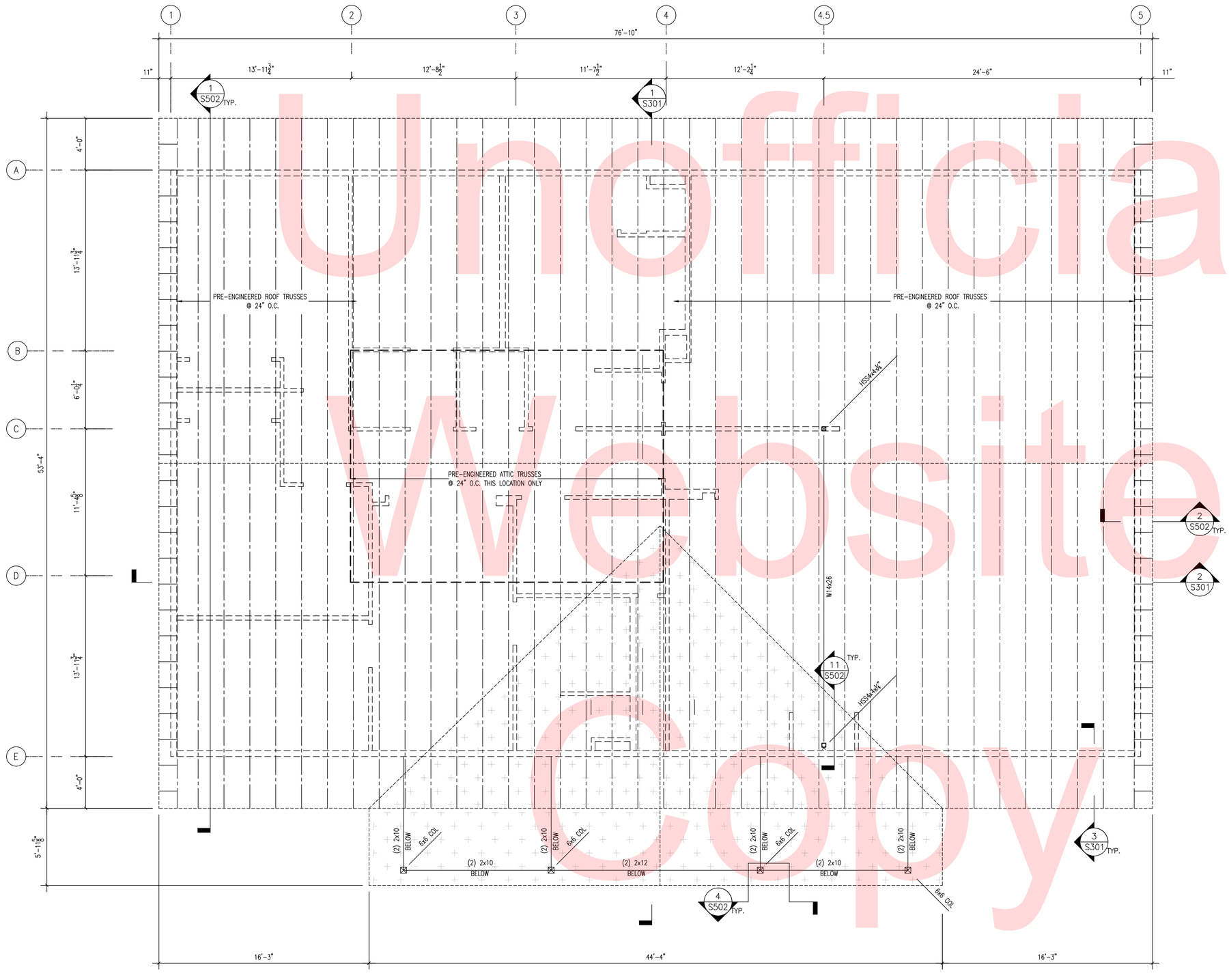
DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A	SHEET NO.
T201680104	DESIGNED BY: DJO		43
COUNTY			TOTAL SHTS.
NEW CASTLE	CHECKED BY: SLB		116

CREW OPERATIONS BUILDING
FOUNDATION PLAN



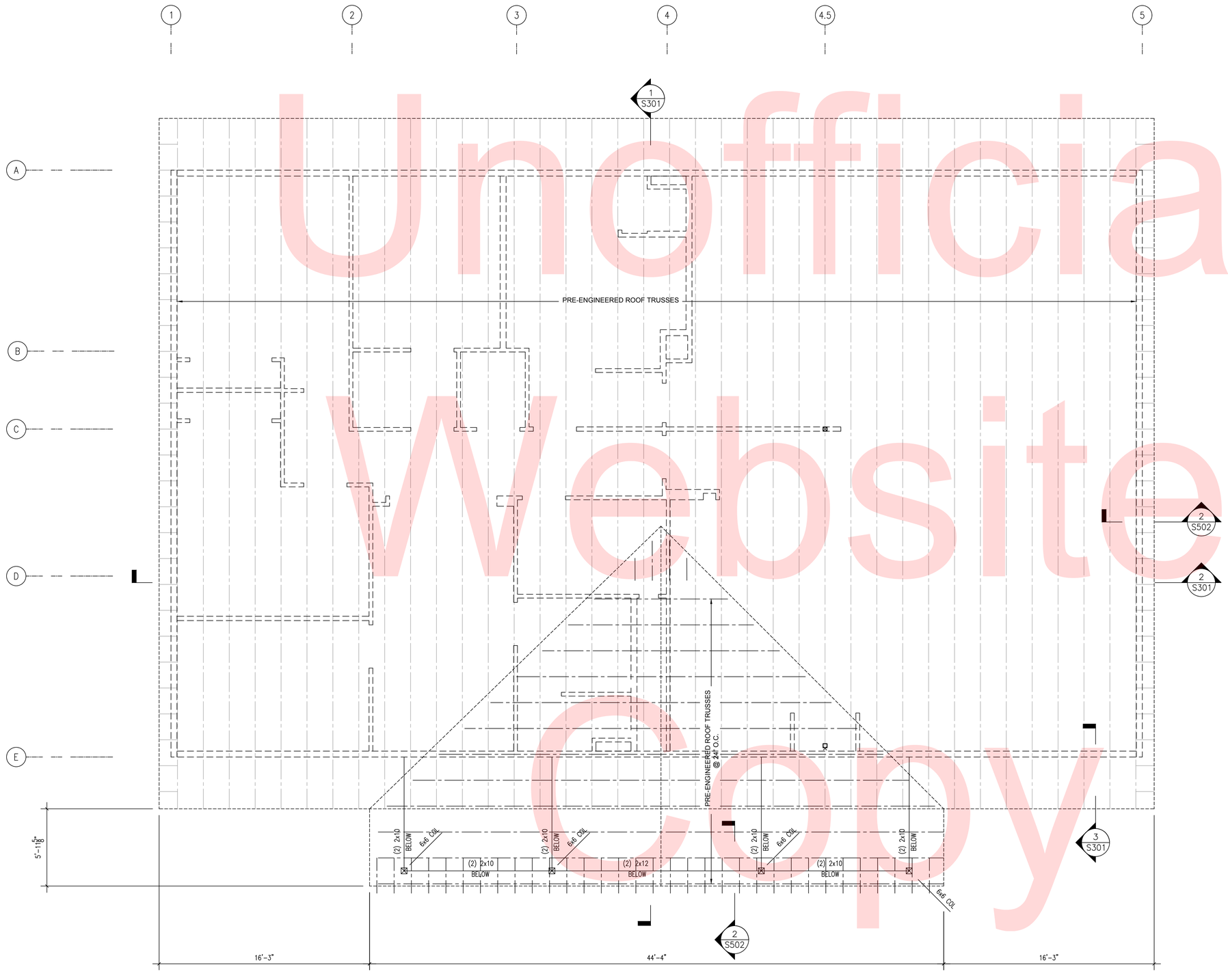
1 ROOF PLAN-
SCALE : 1/4"= 1'-0"

DRAWING NOTES

1. COORDINATE LOCATION OF ROOF OPENINGS WITH ARCH & MEP.
2. COORDINATE LOCATION OF INTERIOR WALLS WITH ARCH PLANS.
3. TRUSS MANUFACTURER TO ACCOUNT FOR ATTIC ACCESS STAIR IN DESIGN. COORDINATE WITH ARCH FOR LOCATION AND TYPE. PRE-ENGINEERED ROOF TRUSSES TO BE DESIGNED BY OTHERS.
4. SEE SHEET S-502 FOR TIMBER FRAMING DETAILS.

CO-S-201

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	CREW OPERATION BUILDING ROOF PLAN	SHEET NO. 44
				COUNTY NEW CASTLE	DESIGNED BY: DJO		TOTAL SHTS. 116
					CHECKED BY: SLB		



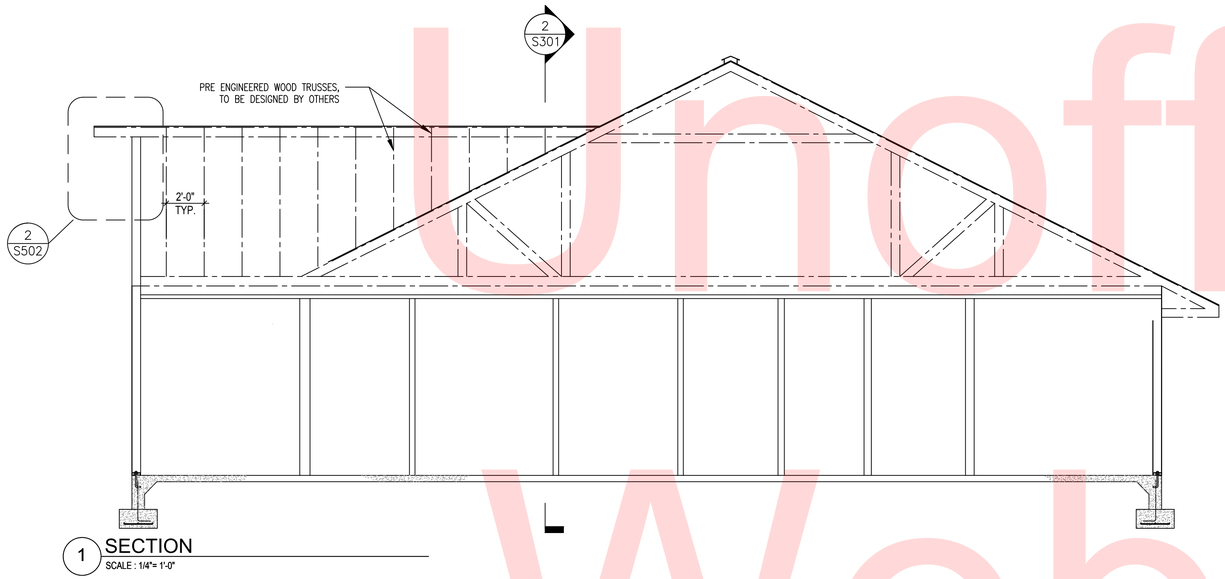
DRAWING NOTES

1. COORDINATE LOCATION OF ROOF OPENINGS WITH ARCH & MEP.
2. COORDINATE LOCATION OF INTERIOR WALLS WITH ARCH PLANS.

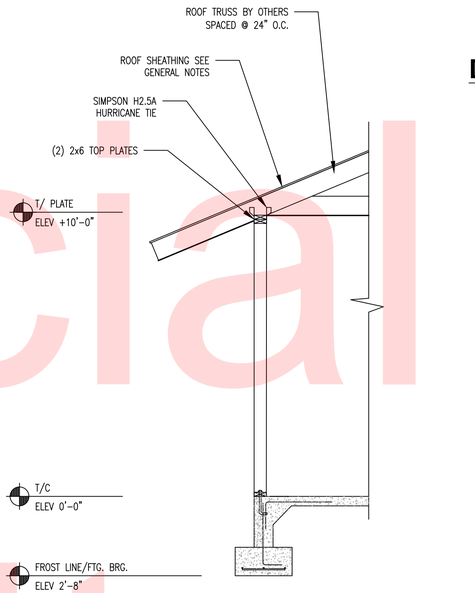
1 ROOF PLAN-
SCALE : 1/4"= 1'-0"

CO-S-202

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	CREW OPERATION BUILDING PORCH ROOF PLAN	SHEET NO. 45
				COUNTY NEW CASTLE	DESIGNED BY: DJO		TOTAL SHTS. 116
					CHECKED BY: SLB		



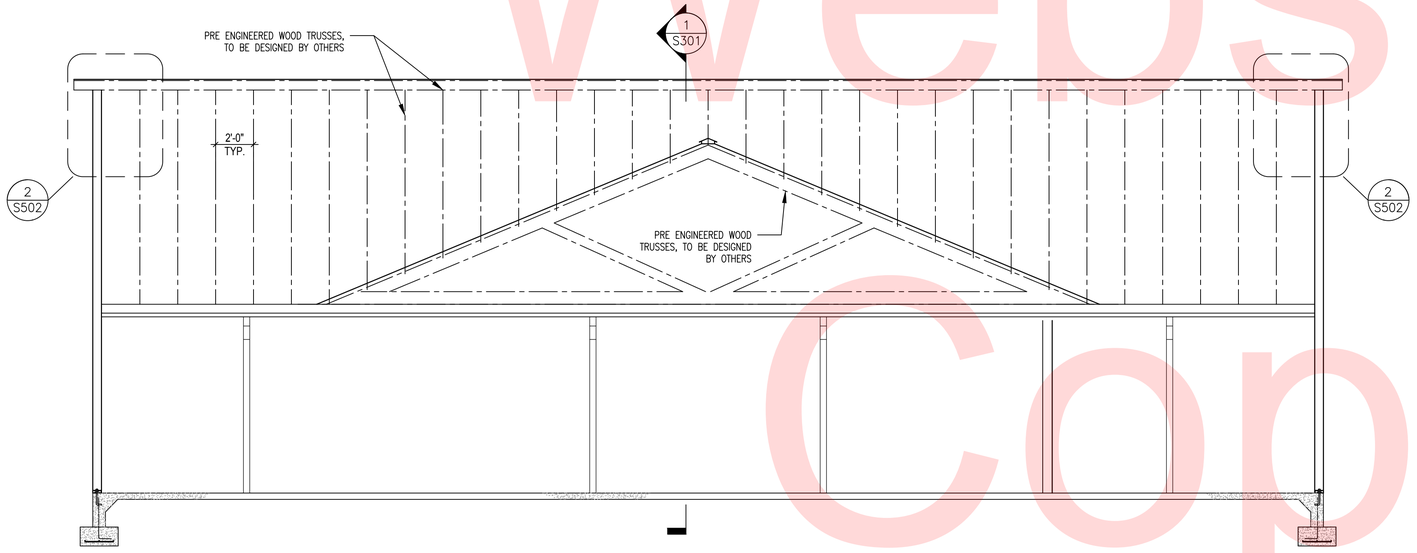
1 SECTION
SCALE : 1/4"= 1'-0"



3 WALL SECTION
SCALE : 3/8"= 1'-0"

DRAWING NOTES

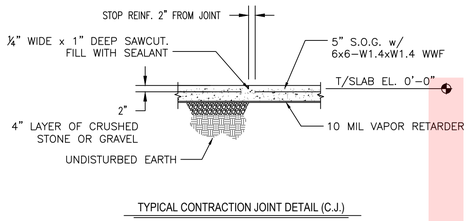
1. COORDINATE LOCATION OF ROOF OPENINGS WITH ARCH & MEP.
2. COORDINATE OVERHANG DETAILS WITH ARCH.



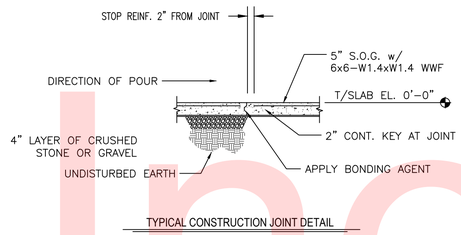
2 SECTION
SCALE : 1/4"= 1'-0"

CO-S-301

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	CREW OPERATION BUILDING SECTIONS	SHEET NO. 46
				COUNTY NEW CASTLE	DESIGNED BY: DJO		TOTAL SHTS. 116
					CHECKED BY: SLB		

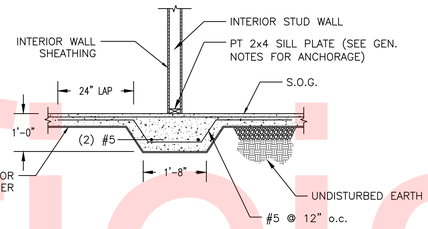


TYPICAL CONTRACTION JOINT DETAIL (C.J.)

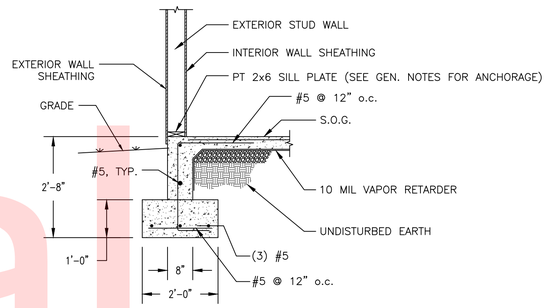


TYPICAL CONSTRUCTION JOINT DETAIL

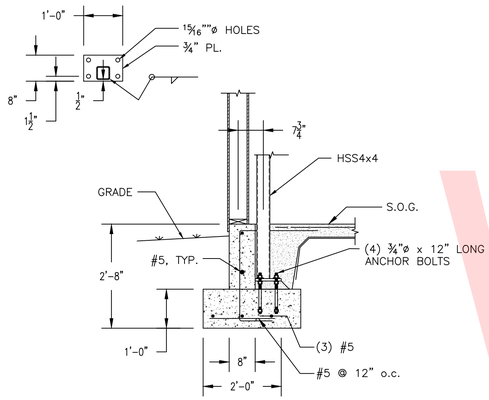
1 TYPICAL SLAB JOINT DETAILS
SCALE : NTS



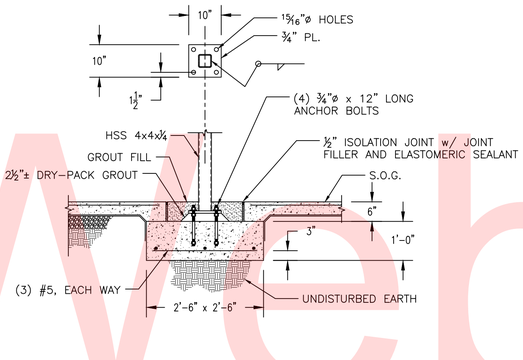
2 INTERIOR WALL THICKENED SLAB DETAIL
SCALE : NTS



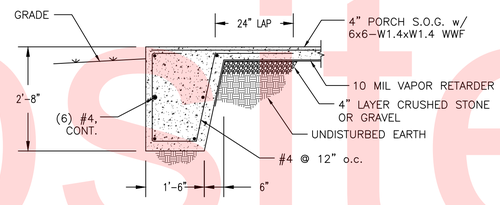
3 EXTERIOR WALL FOOTING DETAIL
SCALE : NTS



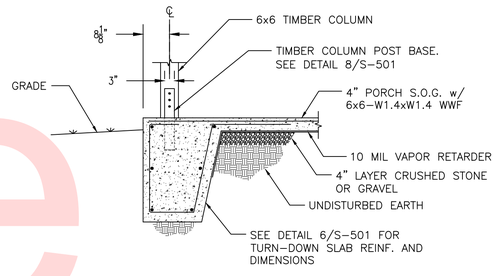
4 HSS COLUMN @ WALL FTG DETAIL
SCALE : NTS



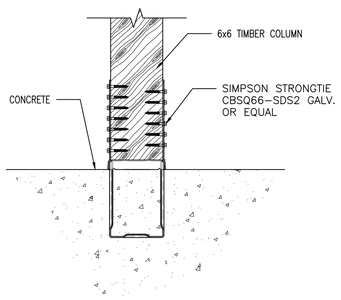
5 HSS COLUMN FOOTING DETAIL
SCALE : NTS



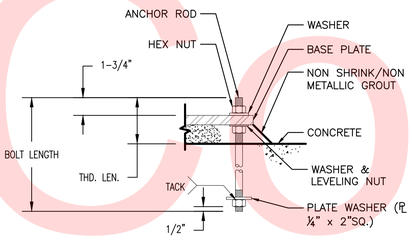
6 TURN-DOWN SLAB DETAIL
SCALE : NTS



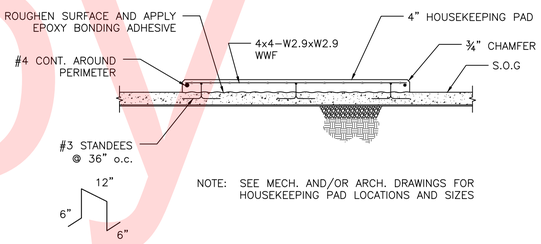
7 TIMBER COLUMN BASE CONN. DETAIL
SCALE : NTS



8 TIMBER COLUMN POST BASE DETAIL
SCALE : NTS



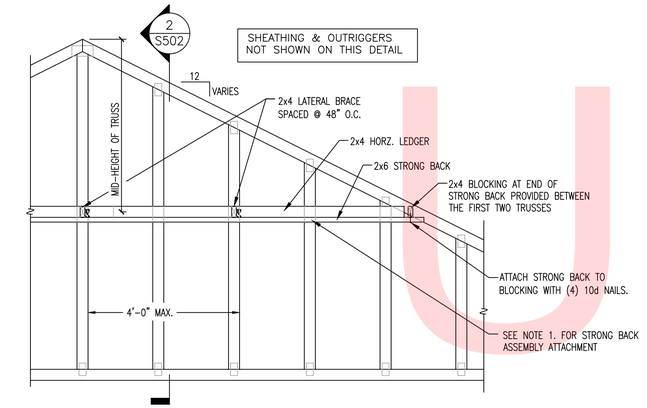
9 TYP. ANCHOR ROD DETAIL
SCALE : NTS



10 TYPICAL HOUSEKEEPING PAD DETAIL
SCALE : NTS

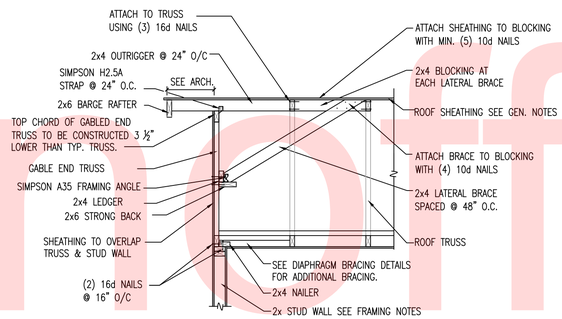
CO-S-501

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	CREW OPERATION BUILDING DETAILS	SHEET NO. 47
				COUNTY NEW CASTLE	DESIGNED BY: DJO		TOTAL SHTS. 116
					CHECKED BY: SLB		



NOTE 1. THE STRONG BACK ASSEMBLY IS TO BE ATTACHED TO EACH VERTICAL GABLE END STUD WITH (3) 16d NAILS.

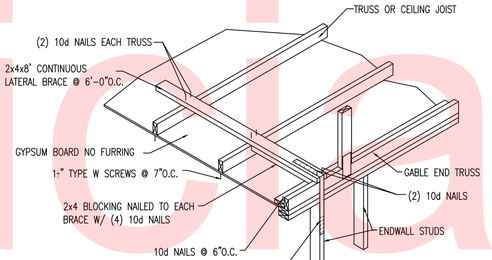
1 GABLE ENDWALL BRACING
SCALE : NTS



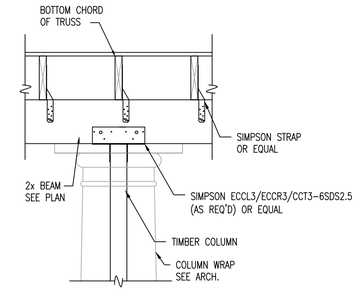
NOTE 1. STRONG BACK AND LATERAL BRACE IS REQUIRED ON ALL GABLE END TRUSSES WHEN THE HEIGHT OF THE TRUSS FROM PEAK TO BOTTOM CHORD EXCEEDS 6'-0".

NOTE 2. LOCATE LATERAL BRACE, THAT IS TO BE SPACED AT A MAXIMUM OF 48" O.C, DIRECTLY IN LINE WITH A VERTICAL STUD IN THE GABLE END TRUSS.

2 GABLE ENDWALL BRACING/OUTRIGGER DETAIL
SCALE : NTS



3 DIAPHRAM BRACING
SCALE : NTS



4 PORCH COLUMN-BEAM CONNECTION
SCALE : NTS

5 WALL OPENING FRAMING
SCALE : NTS

HEADER SCHEDULE	
SPAN	HEADER SIZE
3' – 0"	(2) – 2x8
4' – 0"	(2) – 2x10
6' – 0"	(2) – 2x12

6 OVER FRAMING DETAIL
SCALE : NTS

7 HURRICANE STRAP DETAIL
SCALE : NTS

8 HOLD DOWN DETAIL
SCALE : NTS

9 ROOF SHEATHING
SCALE : NTS

10 WALL SHEATHING
SCALE : NTS

11 STEEL COL - BEAM CONNECTION
SCALE : NTS

CO-S-502

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT T201680104
COUNTY NEW CASTLE
BRIDGE NO. N/A
DESIGNED BY: DJO
CHECKED BY: SLB

CREW OPERATION BUILDING
DETAILS

SHEET NO. 48
TOTAL SHTS. 116

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	SOIL, WASTE, OR SANITARY PIPE
CD	CONDENSATE DRAIN PIPE
	VENT PIPE
	DOMESTIC COLD WATER PIPE
	DOMESTIC HOT WATER PIPE
	DOMESTIC HOT WATER RETURN PIPE
S	SPRINKLER SUPPLY PIPE
GLS	GROUND LOOP SUPPLY PIPE
GLR	GROUND LOOP RETURN PIPE
CO CO	CLEANOUT (WALL/FLOOR)
T	THERMOSTAT OR TEMPERATURE SENSOR
	PIPE CAP
	BRANCH TAKE OFF
	PIPE DROP TEE
	PIPE RISE TEE
	AUTOMATIC CONTROL VALVE (2 WAY)
	AUTOMATIC CONTROL VALVE (3 WAY)
	SHUT-OFF VALVE
	GLOBE VALVE
	UNION
	STRAINER W/BLOWDOWN VALVE
	PIPE GUIDE
	PIPE ANCHORS
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER
	PRESSURE RELIEF VALVE
	BALANCING VALVE (W/MEMORY STOP)
	BACKWATER VALVE
	BUTTERFLY VALVE
	AUTOMATIC AIR VENT
	HOSE END DRAIN VALVE
	BACKFLOW PREVENTER
	CHECK VALVE; (ARROW INDICATES DIRECTION OF FLOW)
	FLOOR DRAIN

SYMBOL	DESCRIPTION
	GAUGE COCK
	FLANGED PIPE CONNECTION
	FLOW DIRECTION ARROW
UC	UNDERCUT DOOR
	AIR FLOW
	AUTOMATIC AIR VENT
	MANUAL AIR VENT
	PRESSURE GAUGE w/GAUGE COCK
	THERMOMETER
18"x12"	DUCT (FIRST FIGURE SIDE SHOWN)
D	DROP IN DIRECTION OF ARROW
R	RISE IN DIRECTION OF ARROW
SD	SMOKE DETECTOR
	SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE
	EXHAUST AIR GRILLE
F	FIRE DAMPER
	MANUAL VOLUME DAMPER
	SQUARE TO ROUND DUCT TRANSITION
	FLEXIBLE CONNECTION
	ACCESS DOOR
	MOTOR OPERATED DAMPER
	DUCT TRANSITION
	RECTANGULAR BRANCH TAKE-OFF
SUPPLY AIR DEVICE WITH 2'x2' LAY-IN PANEL	SUPPLY AIR DEVICE WITH 2'x2' LAY-IN PANEL
RETURN AIR DEVICE WITH 2'x2' LAY-IN PANEL	RETURN AIR DEVICE WITH 2'x2' LAY-IN PANEL
	SUPPLY/OUTSIDE AIR DUCT RISER
	RETURN AIR DUCT RISER
	EXHAUST/RELIEF AIR DUCT RISER
	ELBOW WITH DOUBLE THICKNESS TURNING VANES
ø	DIAMETER
	POINT OF CONNECTION, NEW TO EXISTING
	POINT OF DISCONNECTION FROM EXISTING
1	SYMBOL FOR SPECIFIC NOTE. NOTE APPLIES TO DRAWING ON WHICH IT OCCURS.

DESIGNATIONS

EQUIPMENT DESIGNATIONS

AS-	AIR SEPERATOR
DWH-	DOMESTIC WATER HEATER
EF-	EXHAUST FAN
ET-	EXPANSION TANK
GFS-1	GLYCOL FEEDER SYSTEM
GRH-	PUMP
P-	UNIT HEATER
UH-	THERMOSTATIC MIXING VALVE
TMV-	WATER TO AIR HEAT PUMP
WTAHP-	

X / X — SECTION REFERENCE: (SEE DATA BELOW FOR DETAILS)

/ SHT — DRAWING TITLE — SCALE

DETAIL = LETTER / SECTION = NUMBER

SHEET NUMBER FROM WHICH THE PARTIAL, SECTION, ELEVATION, OR DETAIL IS DRAWN

PLAN NORTH / TRUE NORTH — NORTH ARROW

NECK SIZE — 12"x12" D — XXX CFM — AIR DEVICE DESIG. (D/R/G)

AIR FLOW (TO BE BALANCED)

ABBREVIATIONS

@	AT
AAV	AUTOMATIC AIR VENT
ABV	ABOVE
ACV	AUTOMATIC CONTROL VALVE
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
APD	AIR PRESSURE DROP
APPROX	APPROXIMATELY
AWT	AVERAGE WATER TEMPERATURE
BFP	BACKFLOW PREVENTOR
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BLW	BELOW
BP	BYPASS
BTM	BOTTOM
BTU/HR	BRITISH THERMAL UNITS PER HOUR
BV	BALANCING VALVE
C	COMMON
CC	COOLING COIL
CCP	COOLING COIL PUMP
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
CO	CLEANOUT
CONC	CONCRETE
CONN	CONNECT, CONNECTION
CONT'N	CONTINUATION
CV	CHECK VALVE
CW	DOMESTIC COLD WATER
CX	CONNECT TO EXISTING
D	SUPPLY AIR DIFFUSER OR DEEP, DEPTH
DAM	DUCT AIR MONITOR
DB	DECIBEL OR DRY BULB
DIA, ø	DIAMETER
DIFF	DIFFERENTIAL
DL	DOOR LOUVER
DN	DOWN
DPR	DAMPER
DPS	DIFFERENTIAL PRESSURE SENSOR
DWG	DRAWING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB
EFF	EFFICIENCY
EF	EXHAUST FAN
EJ	EXPANSION JOINT
ELEC	ELECTRIC
ELEV	ELEVATION
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
EXH	EXHAUST
EXP	EXPANSION
F	FILTER
°F	DEGREES FAHRENHEIT
F&T	FLOAT & THERMOSTATIC
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER OR FOUNDATION DRAINAGE
FDC	FIRE DEPARTMENT CONNECTION
FDR	FLOOR DRAIN
FDV	FIRE DEPARTMENT VALVE
FL	FLOOR
FLA	FULL LOAD AMPERES
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT, '	FOOT, FEET OR FLASH TANK
FT HD	FEET OF HEAD
FZ	FREEZE STAT
FU	FIXTURE UNITS
G	RETURN/EXHAUST GRILLE
GAL	GALLON, GALLONS
GALV	GALVANIZED
GEN	GENERATOR
GLS	GROUND LOOP SUPPLY
GLR	GROUND LOOP RETURN
GPM	GALLONS PER MINUTE
H	HIGH, HEIGHT
H2O	WATER
HB	HOSE BIBB
HED	HOSE END DRAIN VALVE
HP	HORSEPOWER
HW	DOMESTIC HOT WATER
HWC	DOMESTIC HOT WATER CIRCULATING
IN, "	INCH, INCHES
INV	INVERT
ISOL	ISOLATION
KW	KILOWATTS
L	LONG, LENGTH
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LBS/HR	POUNDS PER HOUR
LDB	LEAVING DRY BULB
LF	LINEAR FEET
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE

MA	MIXED AIR
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MECH	MECHANICAL
MFD	MOTORIZED FIRE DAMPER
MFR	MANUFACTURER
MIN	MINIMUM
MOD	MOTOR OPERATED DAMPER
MTD	MOUNTED
MVD	MANUAL VOLUME DAMPER
NC	NOISE CRITERIA OR NORMALLY CLOSED
NIC	NOT IN CONTRACT
NOM	NOMINAL
NO	NORMALLY OPEN
No	NUMBER
OA	OUTDOOR AIR
OAI	OUTDOOR AIR INTAKE
OAT	OUTDOOR AIR TEMPERATURE
OC	ON CENTER
OED	OPEN END DUCT WITH 1/2" FRAMED WIRE MESH SCREEN
OFD	OVERFLOW DRAIN
OI	OIL INTERCEPTOR
OS&Y	OUTSIDE STEM & YOKE VALVE
%	PERCENT
PD	PRESSURE DROP OR PUMP DISCHARGE
PH	PHASE
POD	POINT OF DISCONNECTION
PR	PRESSURE RELIEF
PRESS, P	PRESSURE
PRG	PRESSURE RELIEF GRILLE
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SENSOR
PSI	POUNDS PER SQUARE INCH POUNDS
PSIG	PER SQUARE INCH GAUGE
PUH	PROPELLER UNIT HEATER
R	RETURN/EXHAUST/SUPPLY AIR REGISTER
RA	RETURN AIR
REQ'D	REQUIRED
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RV	RELIEF VENT
RX	REMOVE EXISTING
S	SPRINKLER SUPPLY PIPE
SA	SUPPLY AIR
SAN	SANITARY, SOIL, WASTE
SD	SMOKE DAMPER
SF	SUPPLY FAN OR SQUARE FEET
SL	SOUND LINING, SOUND LINED
S/M	SHEET METAL
SP	STATIC PRESSURE
SPD	STATIC PRESSURE DROP
SPEC	SPECIFICATION
SQ	SQUARE
SQ FT	SQUARE FOOT
SPR	SPRINKLER LINE
S/S	START/STOP
SS	STAINLESS STEEL
STL	STEEL
T	TEMPERATURE DROP
TEMP, T	TEMPERATURE
TG	TRANSFER GRILLE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UC	UNDERCUT DOOR
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VOLTS, VACUUM PIPE
ΔD	VOLUME DAMPER
VEL	VELOCITY
VENT	VENTILATION
VF	VENTILATION FAN
VFD	VARIABLE FREQUENCY DRIVE
VIB	VIBRATION
ISOL VLV	ISOLATION VALVE
VTR	VENT THROUGH ROOF
W	WIDTH
W/	WITH
WB	WET BULB
WC	WATER COLUMN
WH	WALL HYDRANT
W/O	WITHOUT
ZN	ZONE

GENERAL NOTES

1. WORK SHALL CONFORM TO THE CONTRACT DRAWINGS, SPECIFICATIONS AND THE LATEST APPLICABLE INTERNATIONAL MECHANICAL AND PLUMBING CODE AND THE NATIONAL ELECTRIC CODE. WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 70, THE NATIONAL ELECTRICAL CODE, THE NATIONAL ELECTRICAL SAFETY CODE, OSHA AND NATIONAL SAFETY CODE REQUIREMENTS.
2. THE SCOPE OF WORK INDICATED IN THESE DOCUMENTS SHALL INCLUDE MECHANICAL AND ELECTRICAL SYSTEMS, FULLY ADJUSTED, TESTED AND READY TO USE. PROVIDE ITEMS NECESSARY TO COMPLETE THE SYSTEMS. EXAMINE WORK INDICATED FOR TRADES IN ORDER TO DETERMINE THE EXTENT OF THE WORK REQUIRED TO BE COMPLETED.
3. IT IS THE INTENTION OF THESE DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN "FURNISH AND INSTALL COMPLETE, TESTED AND READY FOR USE."
4. THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW EVERY COMPONENT AND/OR ACCESSORY REQUIRED FOR A COMPLETE INSTALLATION. THE CONTRACTOR SHALL PROVIDE ITEMS NECESSARY FOR A PROPERLY WORKING SYSTEM IN COMPLIANCE WITH ACCEPTED INDUSTRY STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
5. PRIOR TO BID, THE CONTRACTOR SHALL VISIT THE SITE AND IDENTIFY ITEMS THAT MAY AFFECT THEIR BID. PRIOR TO THE INSTALLATION, FABRICATION, REMOVAL, OR RELOCATION OF ANY WORK, THE CONTRACTORS SHALL REVIEW THE ACTUAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND SHALL COORDINATE WORK WITH THE PLANS, EXISTING EQUIPMENT AND SYSTEMS, BUILDING STRUCTURE AND WORK OF OTHER TRADES. WHERE CONFLICTS OCCUR, OR IF CONNECTIONS THERETO CAN NOT BE MADE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER PRIOR TO MATERIAL FABRICATION OR INSTALLATION.
6. WHERE THE WORK OF VARIOUS TRADES WILL BE INSTALLED IN CLOSE PROXIMITY TO ONE ANOTHER OR WHERE THERE IS EVIDENCE THAT THE WORK OF ONE TRADE WILL INTERFERE WITH WORK OF ANOTHER, THE CONTRACTOR SHALL WORK OUT SPACE CONDITIONS TO MAKE A SATISFACTORY ADJUSTMENT. IF THE CONTRACTOR ALLOWS ONE TRADE TO INSTALL HIS WORK BEFORE COORDINATING WITH WORK OF OTHER TRADES THE CONTRACTOR SHALL MAKE NECESSARY CHANGES TO CORRECT THE CONDITIONS IN A MANNER ACCEPTABLE TO THE OWNER AND THE CONTRACTOR SHALL BEAR THE COST OF SUCH CORRECTIONS.
7. THE CONTRACTOR SHALL LOCATE EQUIPMENT WHICH MUST BE SERVICED, OPERATED, OR MAINTAINED IN FULLY ACCESSIBLE POSITION. EQUIPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO, VALVES, MOTORS, CONTROLLERS, DRAIN PANS, ETC. IF REQUIRED FOR ACCESSIBILITY, FURNISH ACCESS DOORS FOR THE PURPOSE. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ALLOW FOR BETTER ACCESSIBILITY.
8. WORK IN OCCUPIED SPACE SHALL BE COORDINATED WITH THE OWNER. SHOULD ANY OUTAGES BE REQUIRED IN THE COURSE OF THIS PROJECT, THE CONTRACTOR SHALL COORDINATE SUCH OUTAGES WITH THE OWNER'S DESIGNATED REPRESENTATIVE, SCHEDULING ANY OUTAGES DURING THE NON WORKING HOURS, SO AS NOT TO EFFECT FACILITY OPERATIONS, 72 HOURS NOTICE WILL BE REQUIRED PRIOR TO ANY OUTAGE. NO OUTAGE MAY BE EXECUTED PRIOR TO APPROVAL OF THE OWNER'S DESIGNATED REPRESENTATIVE AND THE FACILITY MANAGER.
9. THE CONTRACTOR SHALL LEAVE THE ENTIRE MECHANICAL SYSTEM INSTALLED UNDER THIS CONTRACT IN PROPER WORKING ORDER AND SHALL, WITHOUT CHARGE, REPLACE ANY WORK OR MATERIALS WHICH DEVELOP DEFECTS, EXCEPT FROM ORDINARY WEAR AND TEAR, WITHIN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
10. THE CONTRACTOR SHALL, DURING THE ONE YEAR WARRANTEE PERIOD, BE RESPONSIBLE FOR PROPER REPAIR AND ADJUSTMENTS OF MECHANICAL SYSTEMS AND EQUIPMENT, APPARATUS, DEVICES ETC. INSTALLED BY HIM, AND DO WORK NECESSARY TO ENSURE EFFICIENT AND PROPER FUNCTIONING.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR, AND SHALL INCUR FINANCIAL RESPONSIBILITIES FOR, ANY DAMAGES CAUSED BY OR RESULTING FROM DEFECTS IN HIS WORK.
12. WHEREVER PIPES, CONDUITS, OR OTHER ITEMS PASS THROUGH FIRE RATED WALLS AND FLOORS, THE SPACE BETWEEN THE ITEM AND THE MASONRY OR THE SPACE BETWEEN THE ITEM AND THE SLEEVE SHALL BE ADEQUATELY FIRE STOPPED WITH A NON COMBUSTIBLE, NON MELTING MATERIAL IN ACCORDANCE WITH NFPA STANDARDS.
13. WALL OPENINGS RESULTING FROM DEMOLITION SHALL BE CLOSED AND FINISHED TO MATCH EXISTING.
14. FINISHES DAMAGED DURING THE PROJECTS SHALL BE REPAIRED TO MATCH EXISTING.

CO-M-001

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT	BRIDGE NO.	N/A	MECHANICAL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES	SHEET NO.
				T201680104	DESIGNED BY:	TGK		49
				COUNTY				TOTAL SHTS.
				NEW CASTLE	CHECKED BY:	DMC		116

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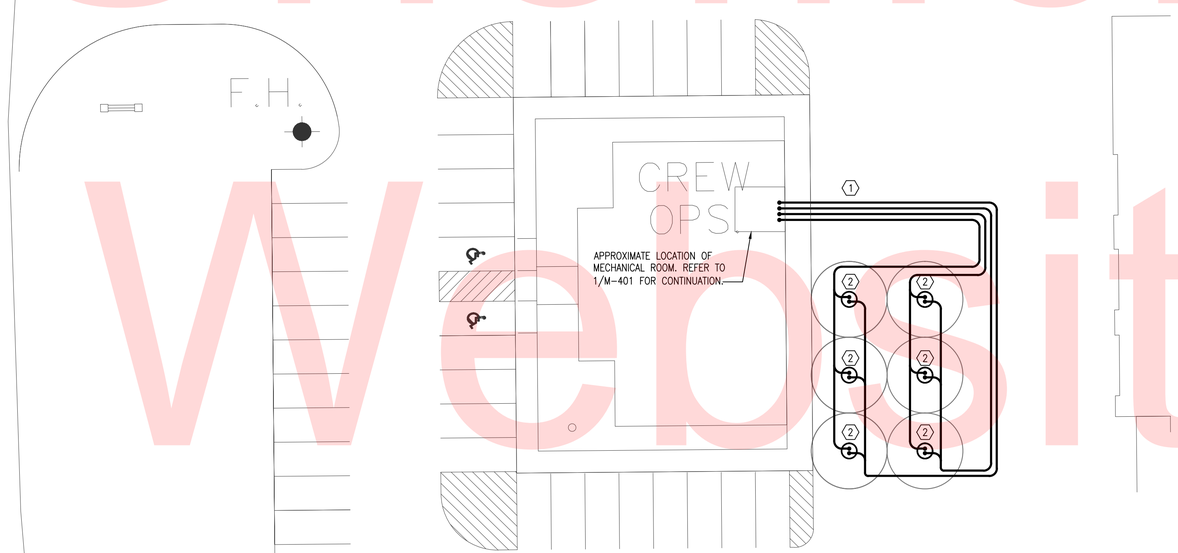
GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (———) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (———) SHALL BE EXISTING.
3. DO NOT LOCATE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT.

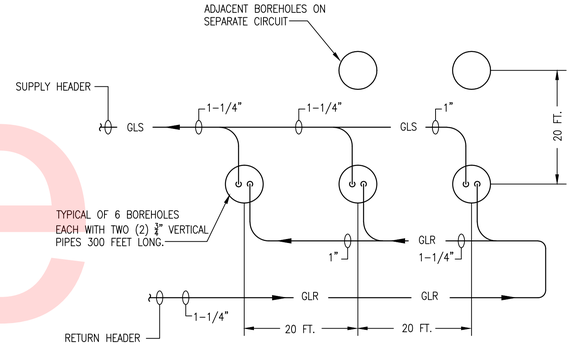
SHEET KEYNOTES:

(1) 1 1/4" GEOTHERMAL LOOP PIPING UNDERGROUND TO CREW QUARTERS MECHANICAL ROOM. SEE DWG. CO-M-401 FOR CONTINUATION.

(2) PROVIDE TWO GEOTHERMAL CIRCUITS WITH THREE WELLS PER CIRCUIT. EACH WELL SHALL BE LOCATED 20 FEET FROM ADJACENT WELLS AND BE 300 FEET DEEP. SEE DWG. CO-M-501 FOR ADDITIONAL WELL DETAILS.



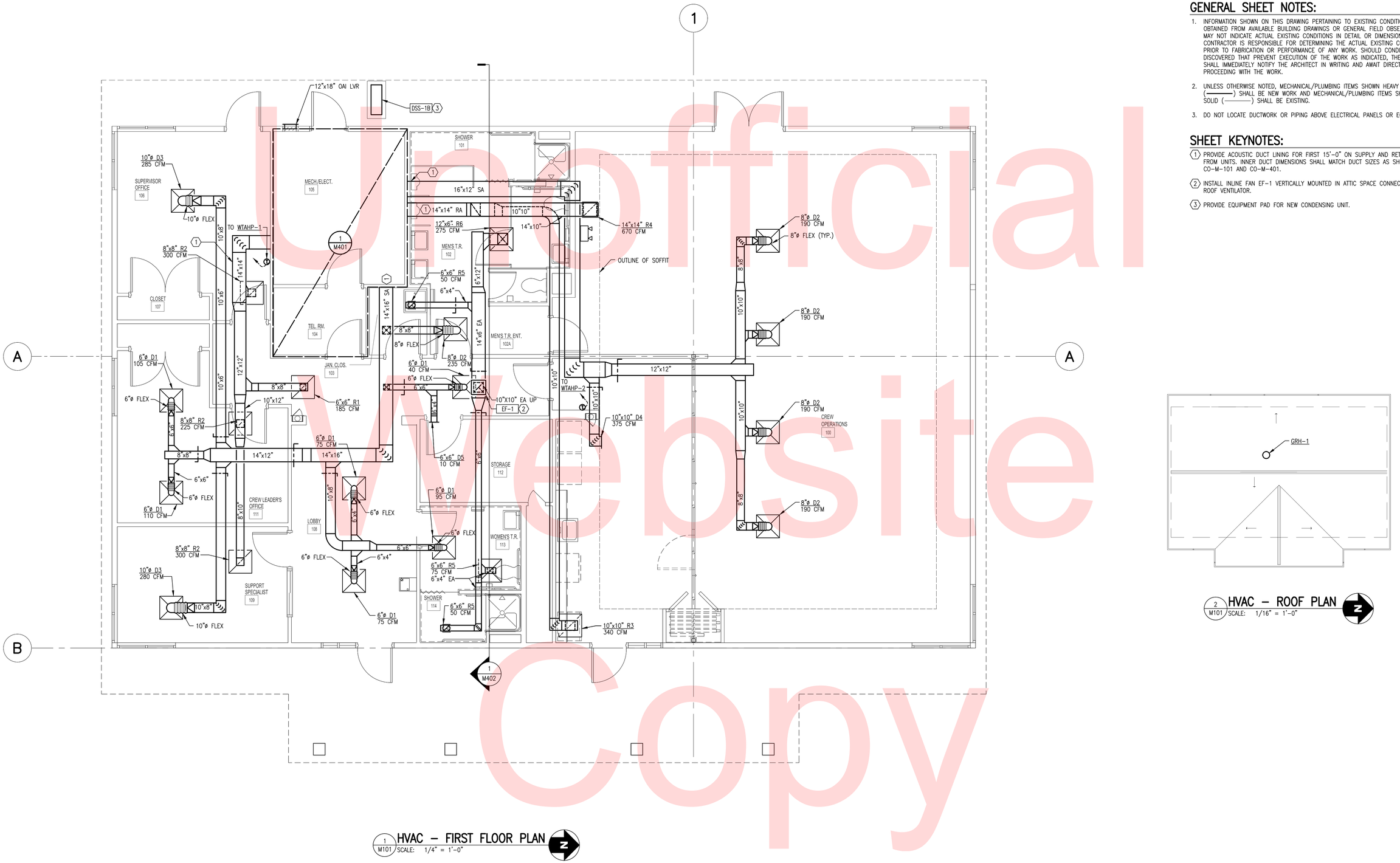
1 / M100 MECHANICAL – SITE PLAN
SCALE: 1" = 20'-0"



2 / M100 PIPING FOR GEOTHERMAL HEAT EXCHANGER CIRCUIT
SCALE: NONE

CO-M-100

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MECHANICAL SITE PLAN	SHEET NO. 50
				COUNTY NEW CASTLE	DESIGNED BY: TGK		TOTAL SHTS. 116
					CHECKED BY: DMC		



1 M101 HVAC – FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

2 M101 HVAC – ROOF PLAN
SCALE: 1/16" = 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (———) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (———) SHALL BE EXISTING.
3. DO NOT LOCATE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT.

SHEET KEYNOTES:

1. PROVIDE ACOUSTIC DUCT LINING FOR FIRST 15'-0" ON SUPPLY AND RETURN DUCTWORK FROM UNITS. INNER DUCT DIMENSIONS SHALL MATCH DUCT SIZES AS SHOWN ON DRAWINGS CO-M-101 AND CO-M-401.
2. INSTALL INLINE FAN EF-1 VERTICALLY MOUNTED IN ATTIC SPACE CONNECTED TO ASSOCIATED ROOF VENTILATOR.
3. PROVIDE EQUIPMENT PAD FOR NEW CONDENSING UNIT.

CO-M-101

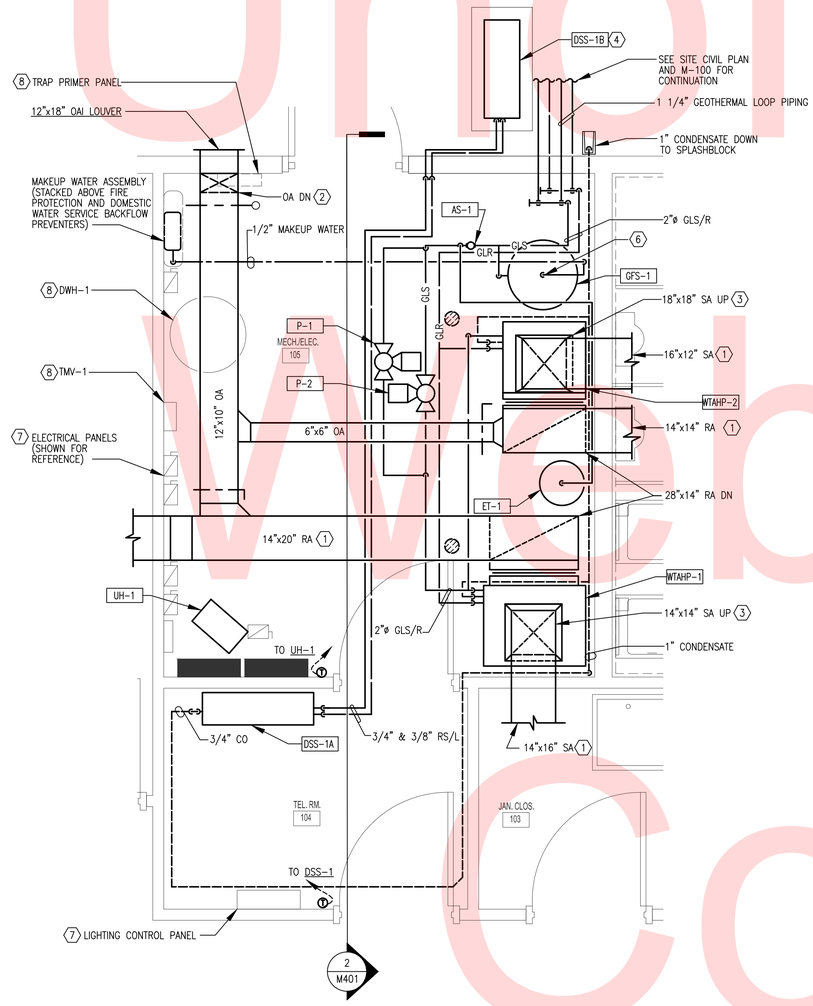
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MECHANICAL - FIRST FLOOR	SHEET NO. 51
				COUNTY NEW CASTLE	DESIGNED BY: TGK		TOTAL SHTS. 116
					CHECKED BY: DMC		

GENERAL SHEET NOTES:

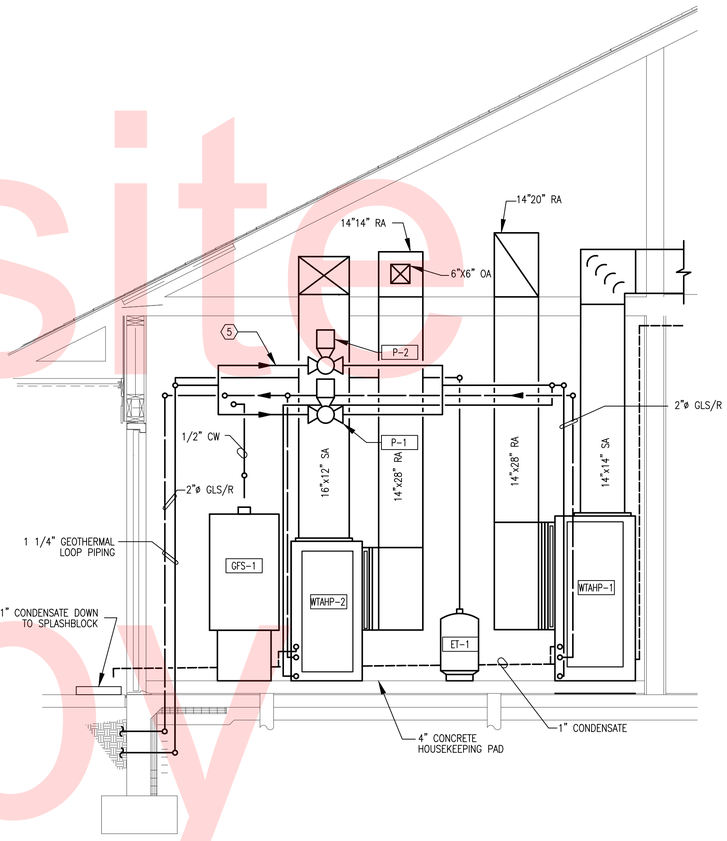
1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (————) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (————) SHALL BE EXISTING.
3. DO NOT LOCATE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT.

SHEET KEYNOTES:

1. PROVIDE ACOUSTIC DUCT LINING FOR FIRST 15'-0" ON SUPPLY AND RETURN DUCTWORK FROM UNITS. INNER DUCT DIMENSIONS SHALL MATCH DUCT SIZES AS SHOWN ON DRAWINGS CO-M-101 AND CO-M-401.
2. OA DUCT DOWN TO MEET OA LOUVER. TRANSITION DUCT CONNECTION TO FULL LOUVER SIZE AS SHOWN ON THIS SHEET. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER INSTALLATION DETAILS.
3. TRANSITION FROM UNIT CONNECTION TO LISTED SUPPLY DUCT IN VERTICAL DUCT.
4. PROVIDE EQUIPMENT PAD FOR NEW CONDENSING UNIT.
5. PIPING ELEVATION SHOWN FOR CLARITY. PIPING SHALL BE ROUTED AS HIGH AS POSSIBLE WITHOUT INTERFERING WITH DUCTWORK OR LIMITING MAINTENANCE ACCESS TO PUMPS AND PIPING COMPONENTS.
6. SEE 6/M-502 FOR MAKEUP WATER PIPING DETAIL.
7. PROVIDED UNDER DIVISION 26. SHOWN FOR REFERENCE.
8. PROVIDED UNDER DIVISION 22. SHOWN FOR REFERENCE.



1 M401 HVAC PART PLAN – MECHANICAL ROOM
SCALE: 1/2" = 1'-0"



2 M401 MECHANICAL ROOM DETAIL
SCALE: NOT TO SCALE

CO-M-401

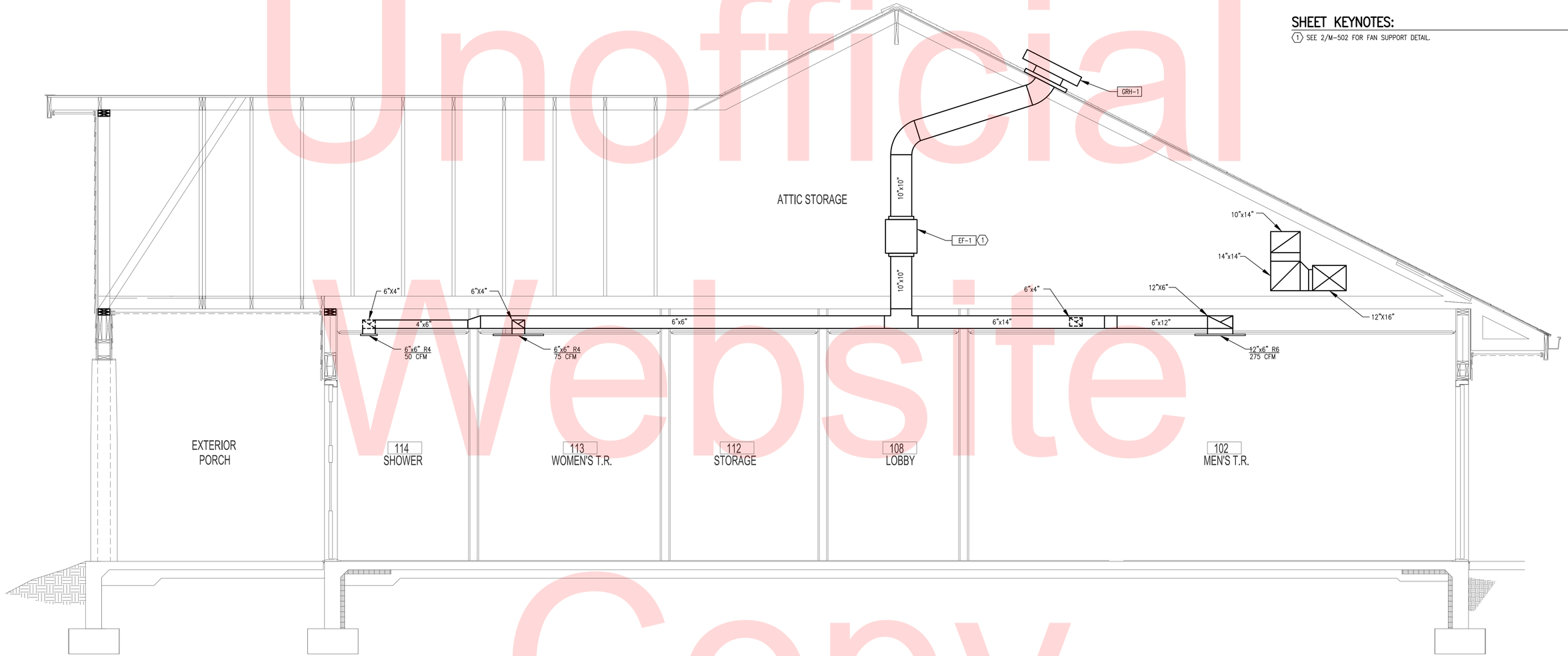
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MECHANICAL ROOM PART PLAN	SHEET NO. 52
				COUNTY NEW CASTLE	DESIGNED BY: TGK		TOTAL SHTS. 116
					CHECKED BY: DMC		

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (————) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (————) SHALL BE EXISTING.
3. DO NOT LOCATE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT.

SHEET KEYNOTES:

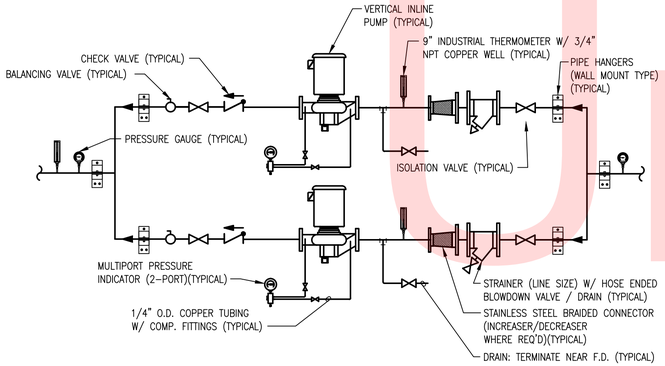
(1) SEE 2/M-502 FOR FAN SUPPORT DETAIL.



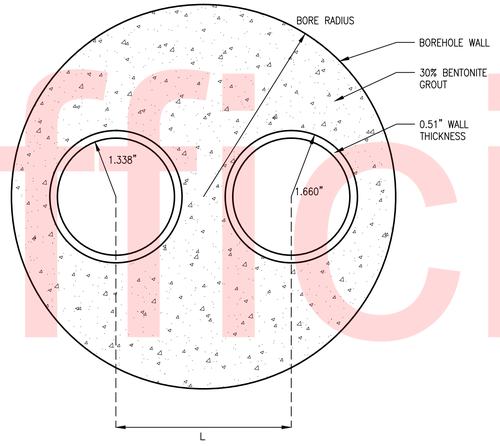
1 M402 HVAC BUILDING SECTION
SCALE: 1/2" = 1'-0"

CO-M-402

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT	BRIDGE NO.	N/A	MECHANICAL BUILDING SECTION	SHEET NO.
				T201680104	DESIGNED BY:	TGK		53
				COUNTY				TOTAL SHTS.
				NEW CASTLE	CHECKED BY:	DMC		116

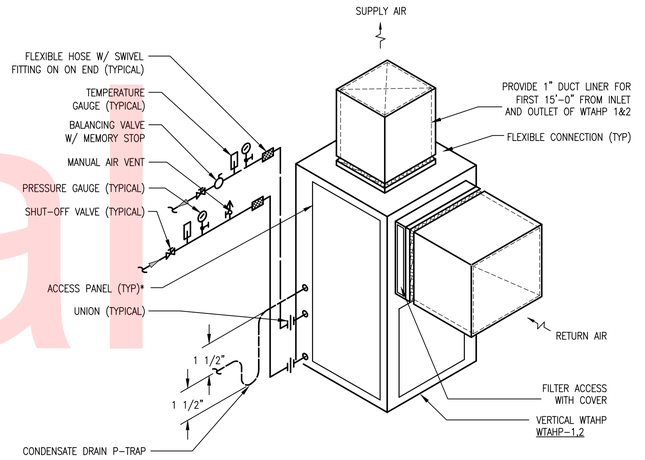


1 / M501 **IN-LINE PUMP INSTALLATION**
SCALE: NONE



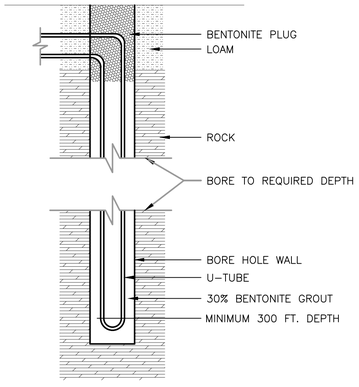
2 / M501 **TYPICAL GEOTHERMAL WELL PIPING SECTION**
SCALE: NONE

NOTES:
MINIMUM DISTANCE FROM LOT LINES, UTILITIES, FOUNDATIONS = 10 FEET.
MINIMUM DISTANCE FROM NONPUBLIC WELLS = 20 FEET.
MINIMUM DISTANCE FROM SEPTIC TANKS = 50 FEET.
MINIMUM DISTANCE FROM PUBLIC WELLS, SESS POOLS, SEWAGE FIELDS = 100 FEET.

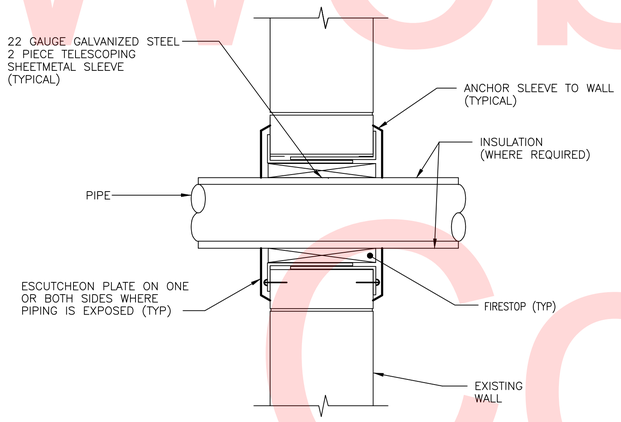


3 / M501 **VERTICAL WTAHP PIPING CONNECTION**
SCALE: NONE

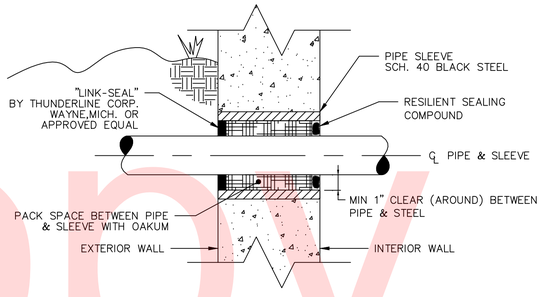
NOTE:
PIPING SHALL NOT BLOCK UNIT ACCESS PANELS



4 / M501 **TYPICAL GEOTHERMAL WELL PIPING**
SCALE: NONE



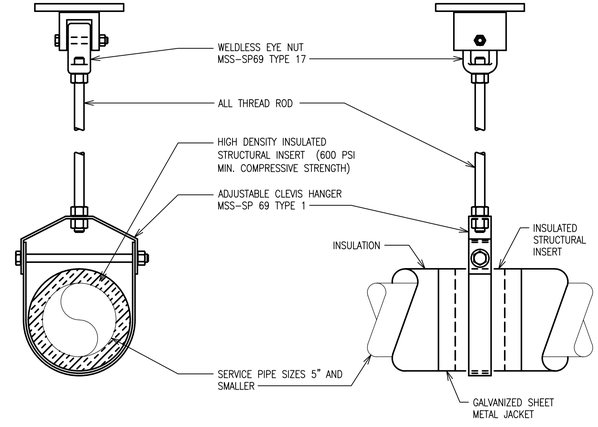
5 / 501 **PIPE PENETRATION DETAIL**
SCALE: NONE



6 / M501 **SLEEVE DETAIL – EXTERIOR WALL (UNDERGROUND)**
SCALE: NOT TO SCALE

MAX. HANGER LOADING

PIPE SIZE	ROD DIA.	MAX. SPACING
1/2" THRU 2"	1/2"	8'
2 1/2" & 3"	5/8"	10'
4" & 5"	5/8"	14'



NOTE:
1. THIS DETAIL SHALL BE USED AS A GUIDE. ALL HANGERS SHALL MEET THE REQUIREMENTS OF SPECIFICATION SECTION 230529 – 'HANGERS AND SUPPORTS'.

7 / M501 **HANGER SUPPORT**
SCALE: NONE

CO-M-501

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

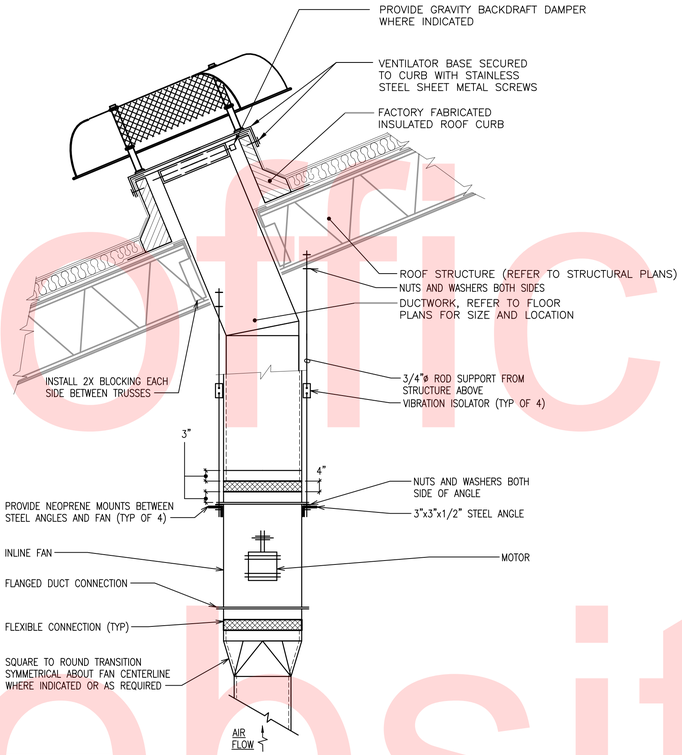
CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	WWR
COUNTY	CHECKED BY:	DMC
NEW CASTLE		

MECHANICAL DETAILS

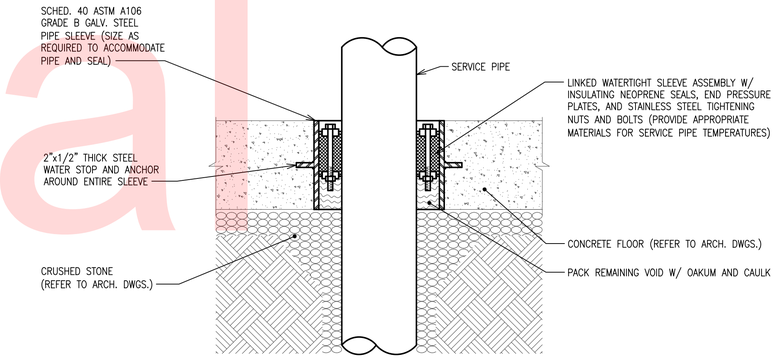
SHEET NO. 54
TOTAL SHTS. 116

JMT Q:\NDE\120995_021_St_Georges_Maintenan\CADD\Mechanical\Crew Quarters\120995-021_CQ_M-501-503.dwg

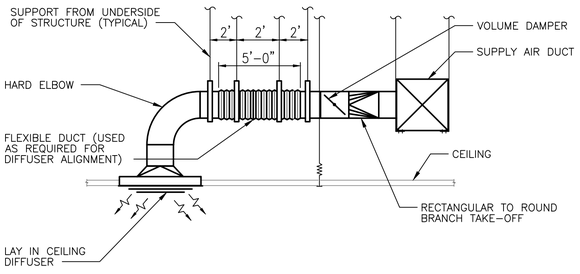
1 M502 **DUCT FITTINGS**
SCALE: NOT TO SCALE



2 M502 **INLINE FAN & RELIEF VENTILATOR INSTALLATION**
SCALE: NTS

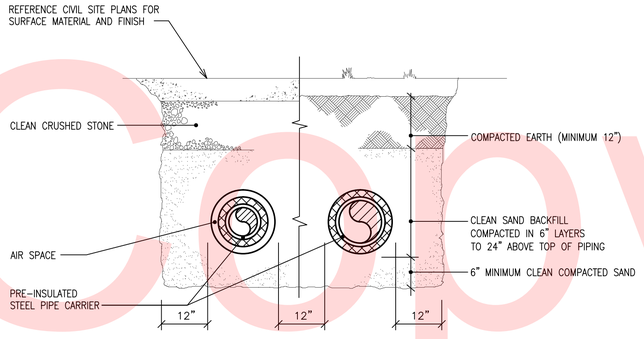


3 M502 **TYPICAL PIPE PENETRATION THROUGH GRADE FLOOR**
SCALE: NONE



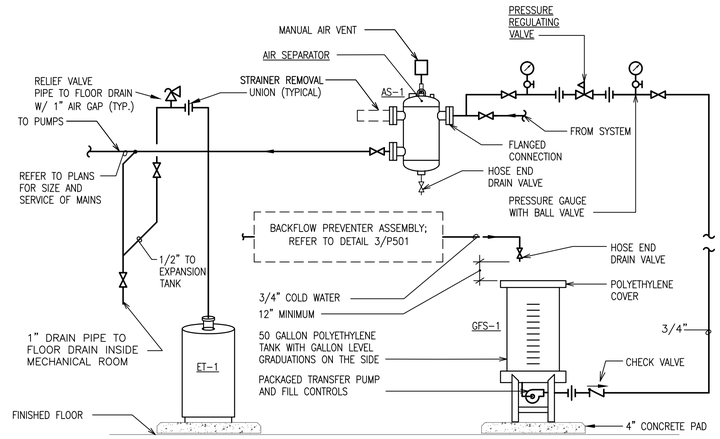
NOTES: MAXIMUM SAG 1/2" PER FOOT.

4 M502 **BRANCH AND DIFFUSER INSTALLATION**
SCALE: NOT TO SCALE



NOTE:
1. REFER TO CIVIL SPECIFICATION SECTION FOR EXCAVATION AND BACKFILL ADDITIONAL REQUIREMENTS.

5 M502 **BELOW GRADE PIPING INSTALLATION**
SCALE: NONE



6 M502 **AUTOMATIC GLYCOL FEED SYSTEM**
SCALE: NOT TO SCALE

CO-M-502

DELAWARE
DEPARTMENT OF TRANSPORTATION

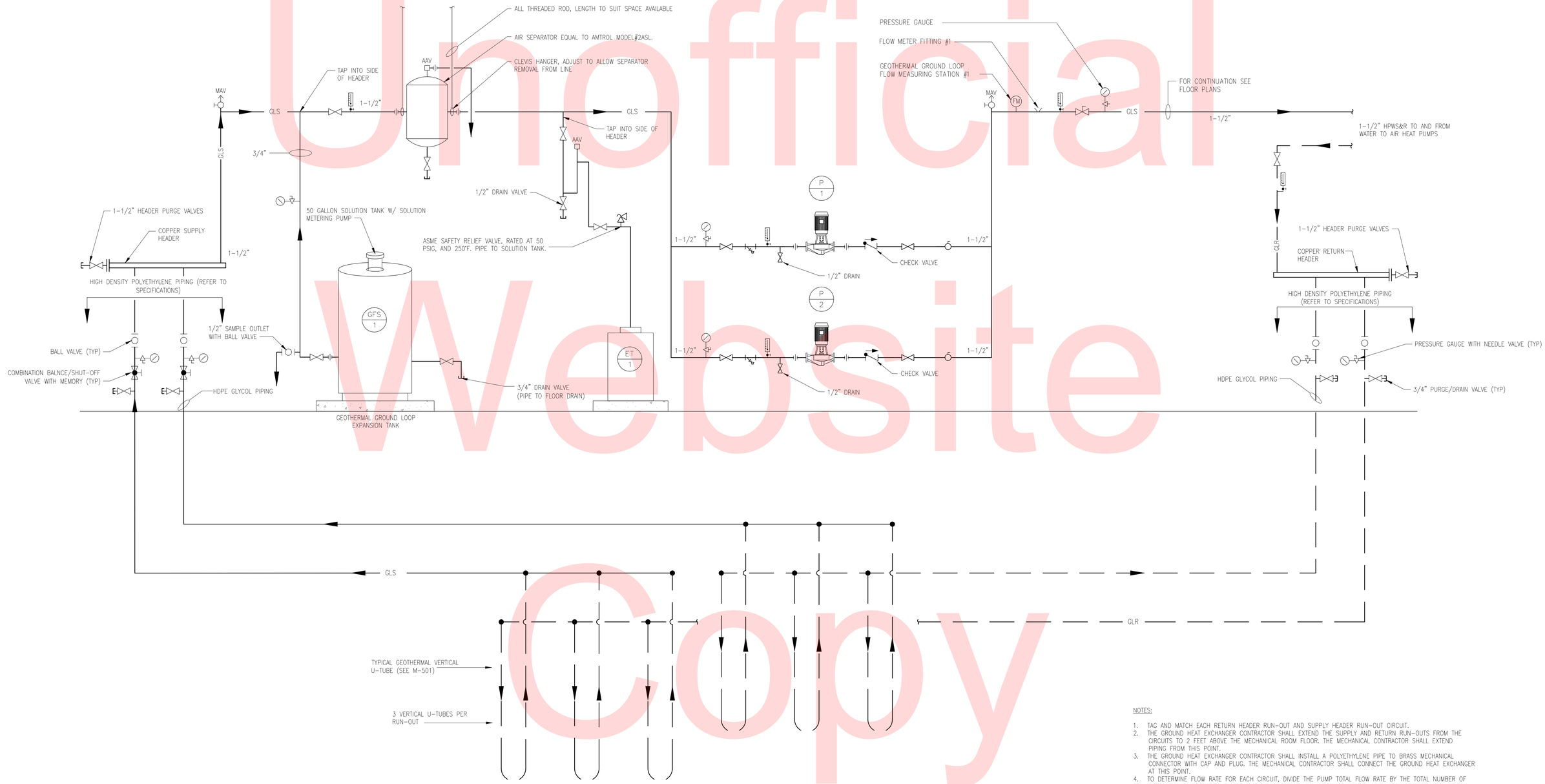
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY: WWR	
COUNTY	CHECKED BY: DMC	
NEW CASTLE		

MECHANICAL DETAILS

SHEET NO.
55
TOTAL SHTS.
116



NOTES:

1. TAG AND MATCH EACH RETURN HEADER RUN-OUT AND SUPPLY HEADER RUN-OUT CIRCUIT.
2. THE GROUND HEAT EXCHANGER CONTRACTOR SHALL EXTEND THE SUPPLY AND RETURN RUN-OUTS FROM THE CIRCUITS TO 2 FEET ABOVE THE MECHANICAL ROOM FLOOR. THE MECHANICAL CONTRACTOR SHALL EXTEND PIPING FROM THIS POINT.
3. THE GROUND HEAT EXCHANGER CONTRACTOR SHALL INSTALL A POLYETHYLENE PIPE TO BRASS MECHANICAL CONNECTOR WITH CAP AND PLUG. THE MECHANICAL CONTRACTOR SHALL CONNECT THE GROUND HEAT EXCHANGER AT THIS POINT.
4. TO DETERMINE FLOW RATE FOR EACH CIRCUIT, DIVIDE THE PUMP TOTAL FLOW RATE BY THE TOTAL NUMBER OF VERTICAL U-TUBES. THEN MULTIPLY THE VALUE BY THE NUMBER OF VERTICAL U-TUBES PER CIRCUIT.

1 / M503 MECHANICAL GROUND SOURCE PIPING SCHEMATIC
SCALE: NONE

CO-M-503

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT T201680104	BRIDGE NO.	N/A	SHEET NO. 56
COUNTY NEW CASTLE	DESIGNED BY: WWR		TOTAL SHTS. 116
	CHECKED BY: DMC		

MECHANICAL GEOTHERMAL SYSTEM PIPING DIAGRAM

WATER-TO-AIR HEAT PUMP SCHEDULE

DESIG.	SERVICE	FAN				CONDENSER COIL				HEATING						COOLING							FILTER			ELECTRICAL		DIMENSIONS			OPERATING WEIGHT (LBS)	BASIS	NOTES
		CFM	OA CFM	FAN SPEED	ESP (IN. W.G.)	FLUID GPM	MAX WPD (FT. W.G.)	GLYCOL	% GLYCOL	EWT (°F)	LWT (°F)	EAT (°F)	LAT (°F)	TOTAL CAPACITY (MBH)	COP	EWT (°F)	LWT (°F)	EAT (°F)	LAT (°F)	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EER	TYPE	NO.	THICKNESS (INCHES)	VOLTS/ PHASE	MCA	LENGTH (INCHES)	WIDTH (INCHES)	HEIGHT (INCHES)			
WTAHP-1	102.106.108.109.111.112.113	1,405	395	LOW	1.0	18.0	16.7	PROPYLENE	20	37.0	32.4	50.1	85.9	54.33	3.8	77.0	86.3	80.6	67.2	52.3	67.67	42.97	17.4	MERV 13	1	2	208/3	31.6	25.5	31.2	52.2	478	WATER FURNACE ENVISION COMPACT NB 070	1, 2, 3, 4
WTAHP-2	100	1,135	120	MEDIUM	1.0	10.5	19.2	PROPYLENE	20	37.0	32.5	62.6	87.6	30.61	4.0	77.0	86.3	77.1	64.1	54.7	39.02	27.50	16.1	MERV 13	1	2	208/3	18.4	22.5	26.2	44.2	291	WATER FURNACE VERSATEC BASE UB 042	1, 2, 3, 4

NOTES:
1). PROVIDE UNIT WITH FACTORY INSTALLED DISCONNECT.
2). PROVIDE MODULATING HOT GAS REHEAT WITH DUCT MOUNTED HUMIDITY SENSOR.
3). UNIT SHALL BE INSTALLED ON CONCRETE HOUSEKEEPING PAD. COORDINATE WITH STRUCTURAL DRAWINGS.
4). UNIT SHALL HAVE VERTICAL CONFIGURATION.

MISCELLANEOUS EQUIPMENT SCHEDULE

DESIGNATION	DESCRIPTION	BASIS
AIR SEPARATOR AS-1	2 1/2" NPT CONNECTIONS, 125 PSIG MAX WORKING PRESSURE,170 MAXIMUM GPM; ASME LABEL.	BELL AND GOSSETT ROLAIRTROL R-2 1/2
GLYCOL FEED SYSTEM GFS-1	50 GALLON TANK MIXED TO 20% PROP. GLYCOL SOLUTION. CUT-IN RANGE 10-45 PSI. CUT-OUT RANGE 20-60 PSI. LOW LEVEL FLOAT SWITCH.	NEPTUNE G-50-1
EXPANSION TANK ET-1	VERTICAL DIAPHRAM EXPANSION TANK,125 PSI MAXIMUM WORKING PRESSURE, 240°F MAXIMUM OPERATING TEMPERATURE, 8 GALLON TANK VOLUME, 2.4 GALLON ACCEPTANCE VOLUME; ASME LABEL.	BELL AND GOSSETT D-15V

DUCTLESS SPLIT SYSTEM SCHEDULE

DESIG.	HEATING CAPACITY (MBH)	COOLING CAPACITY (MBH)	COMPRESSOR		ELECTRICAL					INDOOR UNIT DIMENSIONS (IN)			OUTDOOR UNIT DIMENSIONS (IN)			INDOOR UNIT WEIGHT (LBS)	OUTDOOR UNIT WEIGHT (LBS)	BASIS			NOTES
			NO.	REFR.	VOLT	MCA	MOP	COOLING FLA	HEATING FLA	LENGTH	WIDTH	HEIGHT	LENGTH	WIDTH	HEIGHT			SYSTEM	INDOOR UNIT	OUTDOOR UNIT	
DSS-1	12	9	1	R410A	208	10.3	15	3.2	6.5	35 1/4	10 1/4	10 1/4	31 1/8	11 1/4	21 9/16	24.25	81.6	SAMSUNG AR09KSWSJWKCV	SAMSUNG AR09KSWSJWKNCV	SAMSUNG AR09KSWSJWKXCV	

NOTES:
1.) PROVIDE UNIT WITH FACTORY INSTALLED INVERTER CONTROLLED, ROTARY COMPRESSORS.

PUMP SCHEDULE

DESIG.	SERVICE	TYPE	GPM	FLUID PD (FT. W.G.)	MOTOR RPM	MOTOR HP	VOLTS/ PHASE	BASIS	NOTES
P-1	GROUND LOOP CIRCULATOR	INLINE	27	55	2950	1	208/1	BELL AND GOSSETT ECOCIRC XL 65-130	1,2
P-2	GROUND LOOP CIRCULATOR	INLINE	27	55	2950	1	208/1	BELL AND GOSSETT ECOCIRC XL 65-130	1,2

NOTES:
1). PROVIDE FACTORY INSTALLED THERMAL OVERLOAD PROTECTOR.
2.) SYSTEM FLUID IS 20% PROPYLENE GLYCOL SOLUTION.

UNIT HEATER SCHEDULE

DESIG.	SERVICE	TYPE	CFM	HEATING CAPACITY	ELECTRICAL		DIMENSIONS			WEIGHT (LBS)	BASIS	NOTES
				KW	VOLTS/ PHASE	TOTAL AMPS	LENGTH (INCHES)	WIDTH (INCHES)	HEIGHT (INCHES)			
UH-1	MECH/ELEC ROOM	SUSPENDED	310	3	208/3	14.4	9 1/8	15 9/16	16 3/8	40	EGEB-3	1, 2

NOTES:
1). PROVIDE LOCAL WALL THERMOSTAT WITH UNIT HEATER.
2.) PROVIDE UNIT HEATER WITH FACTORY INSTALLED DISCONNECT.

GRAVITY RELIEF HOOD

DESIG.	SERVICE	LOCATION	CFM	S.P. IN W.G.	THROAT SIZE		CURB CAP		BASIS	NOTES
					WIDTH (IN)	LENGTH (IN)	WIDTH (IN)	LENGTH (IN)		
GRH-1	CREW OPERATIONS BLDG EXHAUST	ROOF	450	0.04	14.25	14.25	29	29	GREENHECK GRSR-15	1

NOTES:
1. PROVIDE RELIEF HOOD WITH INTERNAL GRAVITY BACKDRAFT DAMPER.

EXHAUST FAN SCHEDULE

DESIG.	SERVICE	LOCATION	TYPE	CFM	ESP (IN. W.G.)	MOTOR RPM	MOTOR HP	DRIVE	VOLTS/ PHASE	APPROX WEIGHT (LBS)	BASIS	NOTES
EF-1	RESTROOM EXHAUST	ATTIC	INLINE	450	0.23	1,351	1/10	DIRECT	115/1	49	GREENHECK SQ-95-VG	1, 2, 3

NOTES:
1). PROVIDE FACTORY INSTALLED DISCONNECT AND THERMAL OVERLOAD PROTECTOR.
2). PROVIDE GREENHECK RELIEF VENTILATION MODEL GRSR SIZE 10, OR APPROVED EQUAL. PERFORMANCE SHALL BE 450 CFM AT 0.075" W.G. PRESSURE DROP.
3). PROVIDE MANUFACTURER'S SUPPLIED FAN SPEED CONTROLLER.

AIR DEVICE SCHEDULE

DESIG.	DUTY	FACE SIZE	NECK SIZE	CFM Range	BLOW	BASIS	NOTES
D1	SUPPLY	24"x24"	6" DIA.	40-120	4-WAY	TITUS TMSA-AA	1
D2	SUPPLY	24"x24"	8" DIA.	190-235	4-WAY	TITUS TMSA-AA	1
D3	SUPPLY	24"x24"	10" DIA.	280-285	4-WAY	TITUS TMSA-AA	1
D4	SUPPLY	10"x10"	-	375	1-WAY	TITUS 122RL	1
D5	SUPPLY	6"x6"	-	10	1-WAY	TITUS 122RL	1
R1	RETURN	24"x24"	6"X6"	185	1-WAY	TITUS PAR-AA	1
R2	RETURN	24"x24"	8"X8"	225-300	1-WAY	TITUS PAR-AA	1
R3	RETURN	24"x24"	10"x10"	340	1-WAY	TITUS PAR-AA	1
R4	RETURN	16"x16"	14"x14"	670	1-WAY	TITUS PAR-AA	1
R5	EXHAUST	6"x6"	-	50-75	1-WAY	TITUS 350ZFL	1
R6	EXHAUST	12"x6"	-	275	1-WAY	TITUS 350ZFL	1

NOTES:
1). PROVIDE NECK MOUNTED OPPOSED BLADE DAMPER.

CO-M-601

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

CONTRACT T201680104 | COUNTY NEW CASTLE | BRIDGE NO. N/A | DESIGNED BY: TGK | CHECKED BY: DMC

CREW OPERATIONS MECHANICAL SCHEDULES

SHEET NO. 57 | TOTAL SHTS. 116

GENERAL CONTROL NOTES

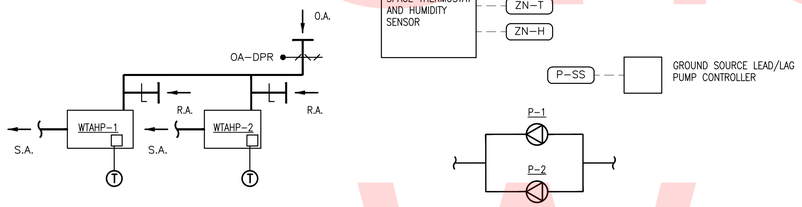
1. THESE CONTROL DRAWINGS INDICATE THE INTENDED SEQUENCES OF OPERATION FOR SYSTEMS TO BE CONTROLLED BY STANDALONE MEANS.
2. SENSORS AND MEASURING INSTRUMENTS SHOWN ON SEQUENCES THAT ARE NOT UTILIZED FOR THE SEQUENCE OF OPERATION ARE INTENDED TO PROVIDE OPERATOR INFORMATION AND ARE REQUIRED.
3. ALL SETPOINTS, RESET SCHEDULES, AND DEADBANDS IDENTIFIED HEREIN SHALL BE ADJUSTABLE BY THE BUILDING OPERATOR THROUGH THE MANUFACTURER'S CONTROLLER.
4. SETPOINT SHALL BE DEFINED AS A PERFORMANCE STANDARD FOR A COMPONENT OR SYSTEM UNDER CONTROL, WHICH IS ESTABLISHED BY THE CONTROL SYSTEM USER. TYPICALLY, A SETPOINT IS DEFINED WITH AN ACCEPTABLE DEADBAND, TO ALLOW THE MECHANICAL OR ELECTRICAL SYSTEM THE OPPORTUNITY TO DAMPEN OR ELIMINATE EXCESSIVE START/STOP OR OSCILLATION OF THE EQUIPMENT.
5. DEADBAND IS THE ACCEPTABLE RANGE ASSOCIATED WITH THE SETPOINT, IN WHICH THE CONTROL SYSTEM IS SATISFIED WITH NO MECHANICAL OR ELECTRICAL SYSTEM MODULATION NECESSARY FROM THE CONTROL SYSTEM. TYPICALLY, A DEADBAND IS EXPRESSED AS A + AND – RANGE AROUND THE NUMERICAL VALUE OF THE SETPOINT.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DEMONSTRATING THE LISTED SEQUENCES OF OPERATION FOR ALL MECHANICAL SYSTEMSTO THE OWNER OR OWNER'S REPRESENTATIVE. CONTRACTOR SHALL PROVIDE A MINIMUM OF 5 DAYS ADVANCED NOTICE OF DEMONSTRATIONS.

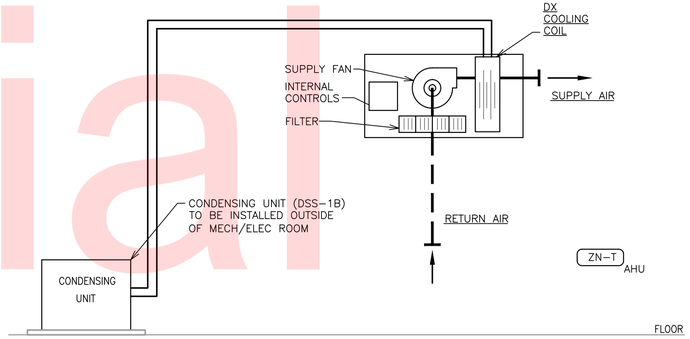
CONTROLS DESIGNATIONS

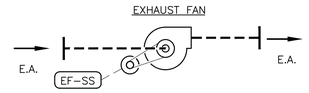
"X"–"Y" POINT INTEGRATED TO BAS

"X"	
EA	EXHAUST AIR
OA	OUTDOOR AIR
RA	RETURN AIR
SA	SUPPLY AIR
EF	EXHAUST FAN
SF	SUPPLY FAN
P	PUMP
ZN	ZONE

"Y"	
H	HUMIDITY
T	TEMPERATURE
DPR	DAMPER
SS	START/STOP







WATER TO AIR HEAT PUMPS

WATER TO AIR HEAT PUMP (WTAHP–1, 2, & 3) OPERATION

A. GENERAL

THE INTEGRAL WTAHP CONTROLLER SHALL PROVIDE OCCUPIED HEATING SETPOINT (ADJUSTABLE), OCCUPIED COOLING SETPOINT (ADJUSTABLE), UNOCCUPIED HEATING SETPOINT (ADJUSTABLE), UNOCCUPIED COOLING SETPOINT (ADJUSTABLE), OCCUPIED/UNOCCUPIED SCHEDULE (ADJUSTABLE), AND SPACE RELATIVE HUMIDITY SETPOINT (ADJUSTABLE) FOR DEHUMIDIFICATION. THE WTAHPS SHALL ONLY ENERGIZE IF FLOW FROM THE INLINE GROUND SOURCE PUMPS HAS BEEN VERIFIED.

B. OCCUPIED MODE

THE TIME CLOCK SHALL INDEX THE WTAHP INTO OCCUPIED MODE BASED UPON THE SEVEN DAY OCCUPIED/UNOCCUPIED SCHEDULE (ADJUSTABLE). THE SUPPLY FAN SHALL RUN CONTINUOUSLY AND THE WTAHP SHALL MODULATE THROUGH INTERNAL CONTROLS TO MAINTAIN HEATING/COOLING SPACE TEMPERATURE AND HUMIDITY SETPOINT DURING COOLING MODE (ADJUSTABLE). UNIT CONTROLLER SHALL ENABLE/DISABLE FAN AND COMPRESSOR OPERATION AND MONITOR ALL EQUIPMENT PROTECTION CONTROLS.

A ROOM TEMPERATURE SENSOR WITH AN LED DISPLAY SHALL BE PROVIDED WITH EACH UNIT. THE LED DISPLAY SHALL SHOW ROOM TEMPERATURE, TEMPERATURE SETPOINT, AND HEATING/COOLING MODE AS WELL AS ANY FAULT OR ALARM GENERATED BY THE UNIT. THE UNIT DISPLAY SHALL GIVE THE OPERATOR FULL ABILITY TO CHANGE SETPOINTS AND OCCUPIED/UNOCCUPIED MODES IF NECESSARY. THE UNIT DISPLAY SHALL INCLUDE THE ABILITY TO LOCK THE SCREEN TO PREVENT UNAUTHORIZED ADJUSTMENT OF SETPOINTS OR SCHEDULE.

WTAHP–1 & 2 SHALL BE EQUIPPED WITH A SPACE HUMIDITY SENSOR. IF HUMIDITY IS ABOVE 60% RH (ADJUSTABLE), A SIGNAL FROM THE HUMIDITY SENSOR SHALL MODULATE THE HOT GAS VALVE FOR HOT GAS REHEAT TO MAINTAIN SPACE TEMP SETPOINT (ADJUSTABLE).

C. UNOCCUPIED MODE

WHILE IN UNOCCUPIED MODE THE WTAHP SHALL NORMALLY BE DE–ENERGIZED. IF THE WTAHP'S SPACE SENSOR SENSES A SPACE TEMPERATURE ABOVE OR BELOW THE UNOCCUPIED HEATING SPACE TEMPERATURE SETPOINT (ADJ.) OR UNOCCUPIED COOLING SPACE TEMPERATURE SETPOINT (ADJ.) THEN THE WTAHP WILL MODULATE THROUGH INTERNAL CONTROLS TO MAINTAIN THE UNOCCUPIED HEATING/COOLING SPACE TEMPERATURES.

D. SAFETIES

THE WTAHP SHALL NOT ENERGIZE THE COMPRESSOR UNTIL INTERNAL CONTROLS SENSE A PROOF OF FLOW THROUGH THE CONDENSER.

OUTDOOT AIR DAMPER (OA–DPR) OPERATION

A. GENERAL

THE OUTDOOR AIR DAMPER (OA–DPR) SHALL BE CONTROLLED BY THE OCCUPIED/UNOCCUPIED TIME CLOCK. THE TIME CLOCK SHALL OPEN THE DAMPER WHENEVER THE BUILDING IS IN OCCUPIED MODE OTHERWISE THE DAMPER WILL BE NORMALLY CLOSED.

GROUND SOURCE INLINE PUMPS (P–1 & 2) OPERATION

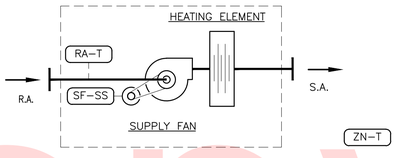
A. GENERAL

THE GROUND SOURCE INLINE PUMPS SHALL OPERATE IN A LEAD/LAG CONFIGURATION AND SHALL ENERGIZE WHENEVER ANY HEAT PUMP IS ENERGIZED. THE PUMPS SHALL SWITCH FROM LEAD TO LAG EVERY 168 HOURS OF RUN TIME. UPON A FAILURE OF THE LEAD PUMP, THE LAG PUMP SHALL ENERGIZE, AND AN AUDIBLE ALARM SHALL SOUND UNTIL MANUALLY CLEARED.

EXHAUST FAN EF–1

A. GENERAL

THE CONSTANT VOLUME EXHAUST FAN (EF–1) SHALL BE ENERGIZED DURING OCCUPIED MODE ONLY.



CEILING MOUNTED UNIT HEATER UH–1

A. CEILING MOUNTED UNIT HEATERS

THE CONSTANT VOLUME CEILING MOUNTED UNIT HEATER (UH–1) HAS A CONSTANT VOLUME FAN AND AN ELECTRIC HEATING ELEMENT. WHEN THE HEATING SPACE TEMPERATURE IS BELOW 65°F (ADJUSTABLE), THE UNIT HEATER FAN SHALL RUN ONCE THE HEATING ELEMENT REACHES OPERATING TEMPERATURE. THE SPACE TEMPERATURE SHALL BE MONITORED BY A SPACE THERMOSTAT.

SPLIT SYSTEM AIR HANDLING UNIT

A. GENERAL

THE SPLIT SYSTEM CONSISTS OF AN OUTDOOR HEAT PUMP TYPE CONDENSING UNIT AND AN INDOOR AIR HANDLING UNIT AND A DEDICATED THERMOSTAT. A PROGRAMMABLE THERMOSTAT SHALL BE INSTALLED IN THE SPACE. ALL SYSTEM ADJUSTMENTS, ETC. SHALL BE MADE AT THE THERMOSTAT. THIS UNIT SERVES THE COMMUNICATIONS ROOM.

INTERIOR AIR HANDLER (DSS–1) INTERNAL CONTROLS SHALL CYCLE THE SUPPLY FAN AS NEEDED TO MEET THE ZONE TEMPERATURE SETPOINT AS SELECTED ON THE THERMOSTAT PROVIDED WITH THE UNIT. THE AHU SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT (72°F COOLING, 70°F HEATING (ADJ.)).

THE AIR COOLED CONDENSING UNIT SHALL BE ENERGIZED WHEN THE INDOOR UNIT CALLS FOR HEATING OR COOLING. THE AIR COOLED CONDENSING UNIT SHALL MODULATE AS NEEDED TO SATISFY LOAD.

B. PROVIDED CONTROLS

ALL CONTROLS SHALL BE SUPPLIED AND INSTALLED BY FACTORY EQUIPMENT MANUFACTURER. CONTROLS SHALL HAVE BACNET INTERFACE.

CO-M-701

PLUMBING LEGEND

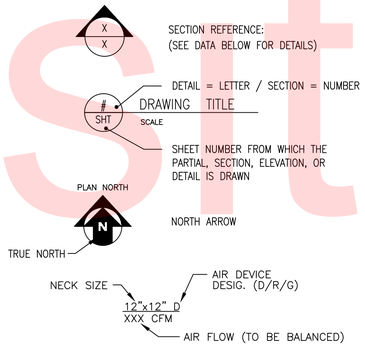
SYMBOL	DESCRIPTION
	SOIL, WASTE, OR SANITARY PIPE
GI	GREASE INTERCEPTOR SANITARY PIPE
	STORM WATER PIPE
OI	OIL INTERCEPTOR STORM WATER PIPE
	FOUNDATION DRAIN TILE
CD	CONDENSATE DRAIN PIPE
	VENT PIPE
	DOMESTIC COLD WATER PIPE
	DOMESTIC HOT WATER PIPE
	DOMESTIC HOT WATER RETURN PIPE
S	SPRINKLER SUPPLY PIPE
F	FIRE LINE PIPE
G	NATURAL GAS PIPE
CO CO	CLEANOUT (WALL/FLOOR)
	PIPE CAP
	BRANCH TAKE OFF
	PIPE DROP TEE
	PIPE RISE TEE
	SHUT-OFF VALVE
	GLOBE VALVE
	UNION
	STRAINER W/BLOWDOWN VALVE
	PIPE GUIDE
	PIPE ANCHORS
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	BALANCING VALVE (W/MEMORY STOP)
	BACKWATER VALVE
	BUTTERFLY VALVE
	AUTOMATIC AIR VENT
	HOSE END DRAIN VALVE
	BACKFLOW PREVENTER
	CHECK VALVE; (ARROW INDICATES DIRECTION OF FLOW)
	FLOOR DRAIN
	WALL HYDRANT
	HOSE BIBB
	FIRE DEPARTMENT CONNECTION (SIAMESE)

SYMBOL	DESCRIPTION
	FLANGED PIPE CONNECTION
	FLOW DIRECTION ARROW
	VALVE IN VERTICAL PIPE
	WATER HAMMER ARRESTER
UC	UNDERCUT DOOR
	AIR FLOW
DL	DOOR LOUVER
	THERMOMETER
ø	DIAMETER
	POINT OF CONNECTION, NEW TO EXISTING
	POINT OF DISCONNECTION FROM EXISTING
1	SYMBOL FOR SPECIFIC NOTE. NOTE APPLIES TO DRAWING ON WHICH IT OCCURS.

DESIGNATIONS

EQUIPMENT DESIGNATIONS

DWH-	DOMESTIC WATER HEATER
PET-	POTABLE EXPANSION TANK
RP-	RECIRCULATION PUMP
TMV-	THERMOSTATIC MIXING VALVE
V-	VALVE
P-_	PLUMBING FIXTURE



ABBREVIATIONS

@	AT
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
ATC	AUTOMATIC TEMPERATURE CONTROL
CD	CONDENSATE DRAIN
CO	CLEANOUT
CV	CHECK VALVE
CW	DOMESTIC COLD WATER
CX	CONNECT TO EXISTING
D	DEPTH
DIA, ø	DIAMETER
DN	DOWN
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
EXP	EXPANSION
°F	DEGREES FAHRENHEIT
FDC	FIRE DEPARTMENT CONNECTION
FDR	FLOOR DRAIN
FDV	FIRE DEPARTMENT VALVE
FT, '	FOOT, FEET OR FLASH TANK
FT HD	FEET OF HEAD
FU	FIXTURE UNITS
G	NATURAL GAS PIPE
GAL	GALLON, GALLONS
GPM	GALLONS PER MINUTE
H	HIGH, HEIGHT
H2O	WATER
HB	HOSE BIBB
HED	HOSE END DRAIN VALVE
HP	HORSEPOWER
HW	DOMESTIC HOT WATER
HWC	DOMESTIC HOT WATER CIRCULATING
IN, "	INCH, INCHES
INV	INVERT
KW	KILOWATTS
L	LONG, LENGTH
LBS	POUNDS
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MTD	MOUNTED
NIC	NOT IN CONTRACT
NOM	NOMINAL
NO	NORMALLY OPEN
OFD	OVERFLOW DRAIN
OI	OIL INTERCEPTOR
OS&Y	OUTSIDE STEM & YOKE VALVE
PH	PHASE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH POUNDS
RX	REMOVE EXISTING
SAN	SANITARY, SOIL, WASTE
SW	STORM WATER
△T	TEMPERATURE DROP
TEMP, T	TEMPERATURE
TYP	TYPICAL
V	VOLTS, VACUUM PIPE
VP	SANITARY VENT PIPE
VTR	VENT THROUGH ROOF
WC	WATER COLUMN
WH	WALL HYDRANT

GENERAL NOTES

1. WORK SHALL CONFORM TO THE CONTRACT DRAWINGS, SPECIFICATIONS AND THE LATEST APPLICABLE INTERNATIONAL MECHANICAL AND PLUMBING CODE AND THE NATIONAL ELECTRIC CODE. WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 70, THE NATIONAL ELECTRICAL CODE, THE NATIONAL ELECTRICAL SAFETY CODE, OSHA AND NATIONAL SAFETY CODE REQUIREMENTS.
2. THE SCOPE OF WORK INDICATED IN THESE DOCUMENTS SHALL INCLUDE MECHANICAL AND ELECTRICAL SYSTEMS, FULLY ADJUSTED, TESTED AND READY TO USE. PROVIDE ITEMS NECESSARY TO COMPLETE THE SYSTEMS. EXAMINE WORK INDICATED FOR TRADES IN ORDER TO DETERMINE THE EXTENT OF THE WORK REQUIRED TO BE COMPLETED.
3. IT IS THE INTENTION OF THESE DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN "FURNISH AND INSTALL COMPLETE, TESTED AND READY FOR USE."
4. THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW EVERY COMPONENT AND/OR ACCESSORY REQUIRED FOR A COMPLETE INSTALLATION. THE CONTRACTOR SHALL PROVIDE ITEMS NECESSARY FOR A PROPERLY WORKING SYSTEM IN COMPLIANCE WITH ACCEPTED INDUSTRY STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
5. PRIOR TO BID, THE CONTRACTOR SHALL VISIT THE SITE AND IDENTIFY ITEMS THAT MAY AFFECT THEIR BID. PRIOR TO THE INSTALLATION, FABRICATION, REMOVAL, OR RELOCATION OF ANY WORK, THE CONTRACTORS SHALL REVIEW THE ACTUAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND SHALL COORDINATE WORK WITH THE PLANS, EXISTING EQUIPMENT AND SYSTEMS, BUILDING STRUCTURE AND WORK OF OTHER TRADES. WHERE CONFLICTS OCCUR, OR IF CONNECTIONS THERETO CAN NOT BE MADE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER PRIOR TO MATERIAL FABRICATION OR INSTALLATION.
6. WHERE THE WORK OF VARIOUS TRADES WILL BE INSTALLED IN CLOSE PROXIMITY TO ONE ANOTHER OR WHERE THERE IS EVIDENCE THAT THE WORK OF ONE TRADE WILL INTERFERE WITH WORK OF ANOTHER, THE CONTRACTOR SHALL WORK OUT SPACE CONDITIONS TO MAKE A SATISFACTORY ADJUSTMENT. IF THE CONTRACTOR ALLOWS ONE TRADE TO INSTALL HIS WORK BEFORE COORDINATING WITH WORK OF OTHER TRADES THE CONTRACTOR SHALL MAKE NECESSARY CHANGES TO CORRECT THE CONDITIONS IN A MANNER ACCEPTABLE TO THE OWNER AND THE CONTRACTOR SHALL BEAR THE COST OF SUCH CORRECTIONS.
7. THE CONTRACTOR SHALL LOCATE EQUIPMENT WHICH MUST BE SERVICED, OPERATED, OR MAINTAINED IN FULLY ACCESSIBLE POSITION. EQUIPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO, VALVES, MOTORS, CONTROLLERS, DRAIN PANS, ETC. IF REQUIRED FOR ACCESSIBILITY, FURNISH ACCESS DOORS FOR THE PURPOSE. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ALLOW FOR BETTER ACCESSIBILITY.
8. WORK IN OCCUPIED SPACE SHALL BE COORDINATED WITH THE OWNER. SHOULD ANY OUTAGES BE REQUIRED IN THE COURSE OF THIS PROJECT, THE CONTRACTOR SHALL COORDINATE SUCH OUTAGES WITH THE OWNER'S DESIGNATED REPRESENTATIVE, SCHEDULING ANY OUTAGES DURING THE NON WORKING HOURS, SO AS NOT TO EFFECT FACILITY OPERATIONS, 72 HOURS NOTICE WILL BE REQUIRED PRIOR TO ANY OUTAGE. NO OUTAGE MAY BE EXECUTED PRIOR TO APPROVAL OF THE OWNER'S DESIGNATED REPRESENTATIVE AND THE FACILITY MANAGER.
9. THE CONTRACTOR SHALL LEAVE THE ENTIRE MECHANICAL SYSTEM INSTALLED UNDER THIS CONTRACT IN PROPER WORKING ORDER AND SHALL, WITHOUT CHARGE, REPLACE ANY WORK OR MATERIALS WHICH DEVELOP DEFECTS, EXCEPT FROM ORDINARY WEAR AND TEAR, WITHIN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
10. THE CONTRACTOR SHALL, DURING THE ONE YEAR WARRANTEE PERIOD, BE RESPONSIBLE FOR PROPER REPAIR AND ADJUSTMENTS OF MECHANICAL SYSTEMS AND EQUIPMENT, APPARATUS, DEVICES ETC. INSTALLED BY HIM, AND DO WORK NECESSARY TO ENSURE EFFICIENT AND PROPER FUNCTIONING.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR, AND SHALL INCUR FINANCIAL RESPONSIBILITIES FOR, ANY DAMAGES CAUSED BY OR RESULTING FROM DEFECTS IN HIS WORK.
12. WHEREVER PIPES, CONDUITS, OR OTHER ITEMS PASS THROUGH FIRE RATED WALLS AND FLOORS, THE SPACE BETWEEN THE ITEM AND THE MASONRY OR THE SPACE BETWEEN THE ITEM AND THE SLEEVE SHALL BE ADEQUATELY FIRE STOPPED WITH A NON COMBUSTIBLE, NON MELTING MATERIAL IN ACCORDANCE WITH NFPA STANDARDS.
13. WALL OPENINGS RESULTING FROM DEMOLITION SHALL BE CLOSED AND FINISHED TO MATCH EXISTING.
14. FINISHES DAMAGED DURING THE PROJECTS SHALL BE REPAIRED TO MATCH EXISTING.

CO-P-001

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT	BRIDGE NO.	N/A	PLUMBING SYMBOLS, ABBREVIATIONS AND GENERAL NOTES	SHEET NO.
				T201680104	DESIGNED BY:	BWC		59
				COUNTY				TOTAL SHTS.
				NEW CASTLE	CHECKED BY:	WWR		116

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (———) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (———) SHALL BE EXISTING.
3. DO NOT LOCATE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT.

SHEET KEYNOTES:

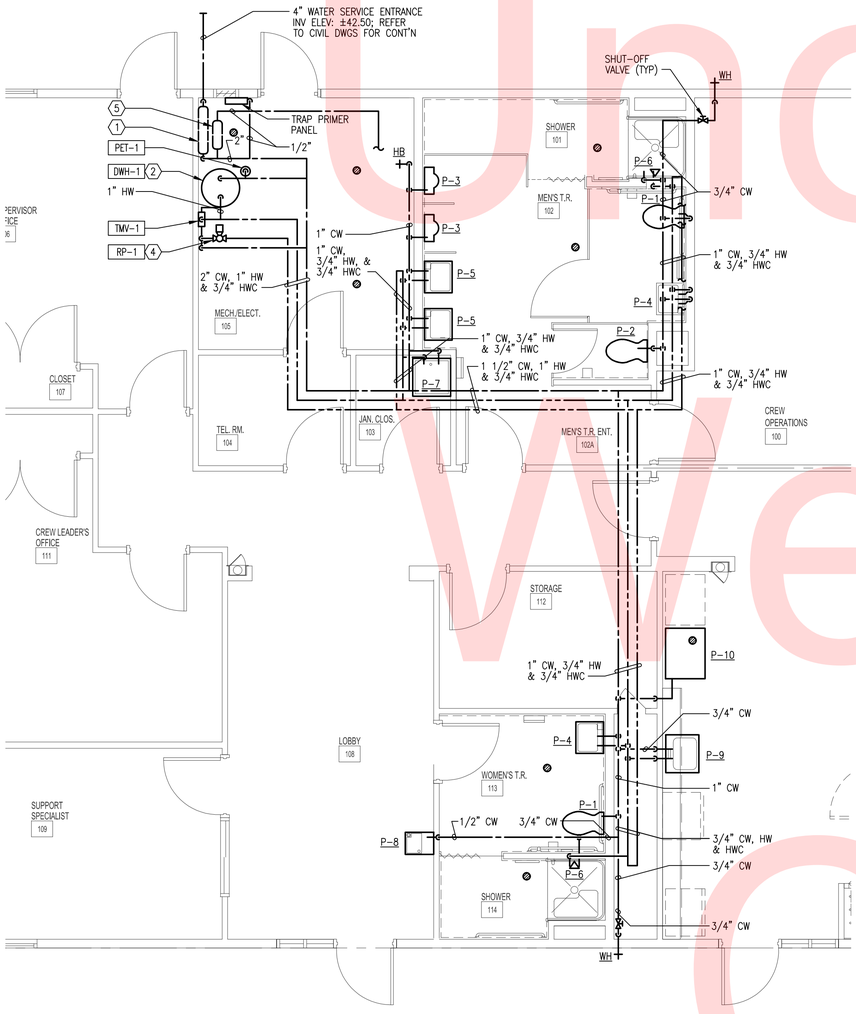
(1) PROVIDE SERVICE ENTRANCE BACKFLOW PREVENTER ASSEMBLY. REFER TO SHEET P-501 FOR INSTALLATION DETAIL.

(2) PROVIDE DOMESTIC WATER HEATER; ASSOCIATED PIPES, SUPPORTS AND CONTROLS. ROUTE CONDENSATE DRAIN TO NEAREST FLOOR DRAIN. REFER TO DETAILS FOR INSTALLATION.

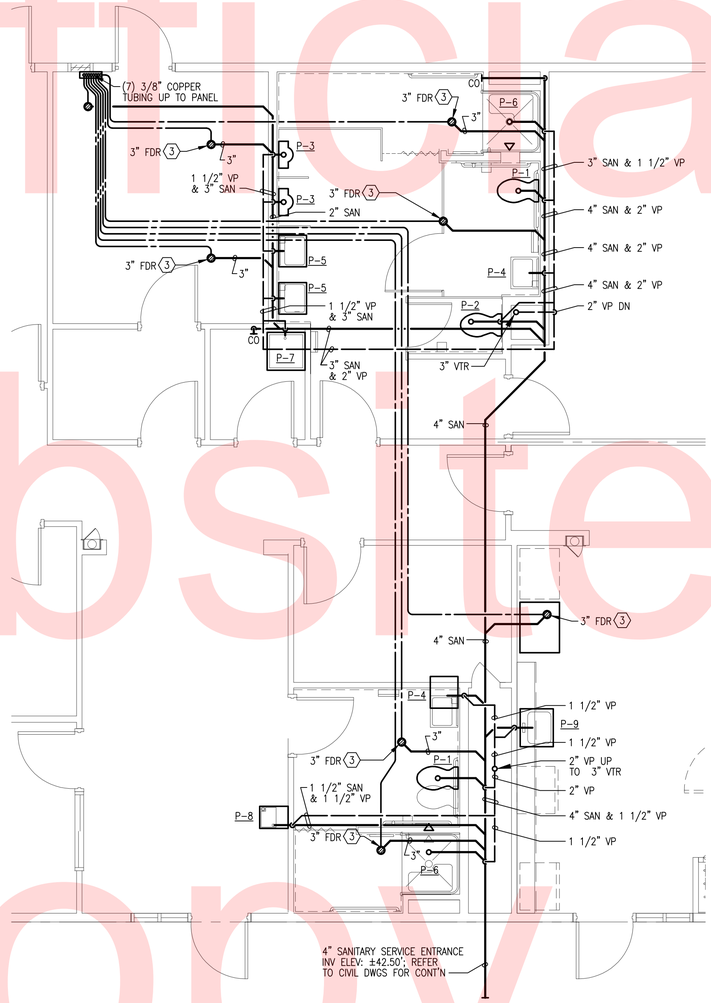
(3) REFER TO DOMESTIC PLUMBING FLOOR PLAN FOR TRAP PRIMING PIPING.

(4) TANKLESS DOMESTIC WATER HEATER; ROUTE CONDENSATE DRAIN TO NEAREST FLOOR DRAIN OR EXTERIOR.

(5) PROVIDE BACKFLOW PREVENTOR ASSEMBLY FOR GLYCOL FEEDER SYSTEM MAKE-UP WATER ASSEMBLY. REFER TO DRAWING 1/M401 FOR MORE INFORMATION.



1 P101 **DOMESTIC PLUMBING FLOOR PLAN**
SCALE: 1/4" = 1'-0"



2 P101 **SANITARY PLUMBING FLOOR PLAN**
SCALE: 1/4" = 1'-0"

KEYPLAN
SCALE: NTS

2' 0 2' 4'
SCALE: ¼"= 1'-0"

CO-P-101

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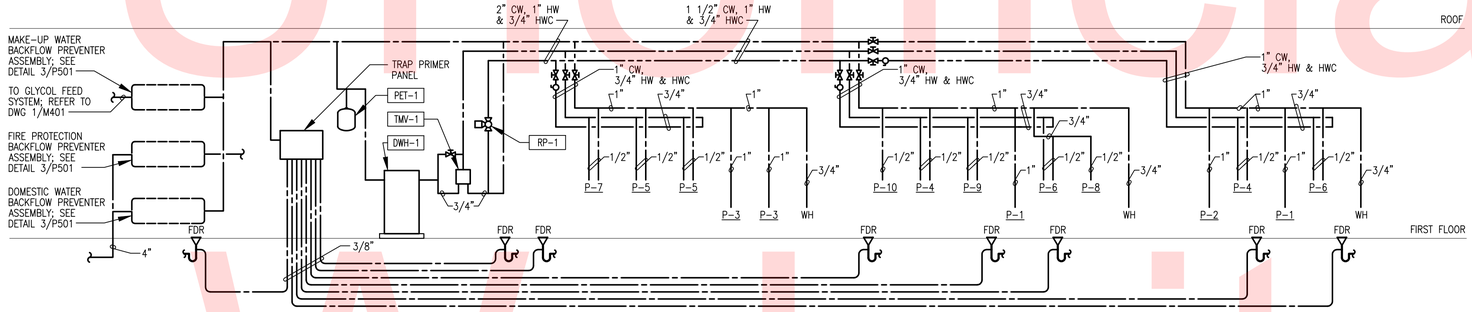
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	PLUMBING NEW WORK FLOOR PLAN
				COUNTY NEW CASTLE	DESIGNED BY: CHB TGK	SHEET NO. 60
					CHECKED BY: MAS N/A	TOTAL SHTS. 116

GENERAL SHEET NOTES:

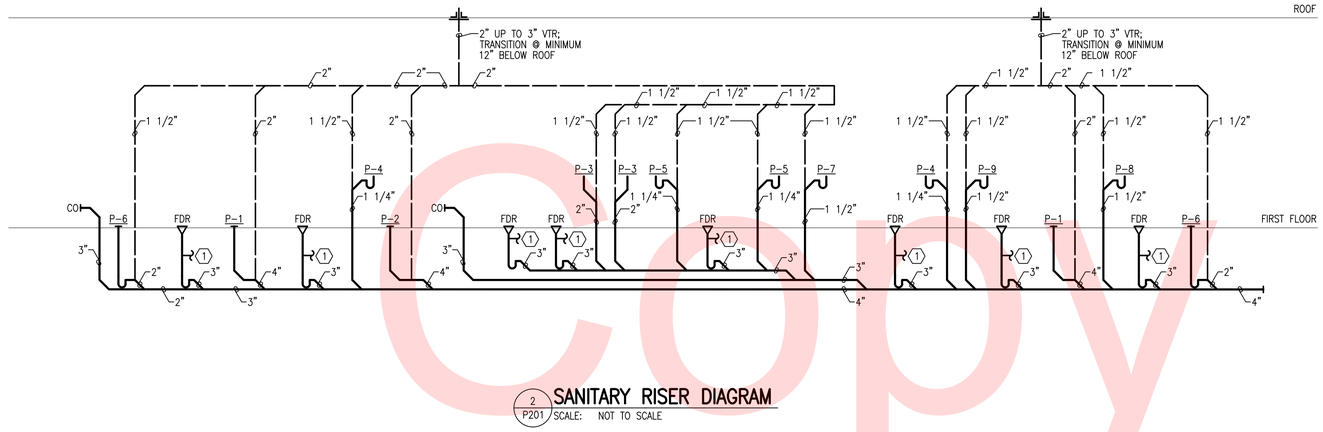
1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (———) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (———) SHALL BE EXISTING.
3. DO NOT LOCATE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT.

SHEET KEYNOTES:

(1) 3/8" TRAP PRIMING LINE TO FLOOR DRAIN. REFER TO SHEET CO-P-501 FOR TRAP PRIMING DETAIL.



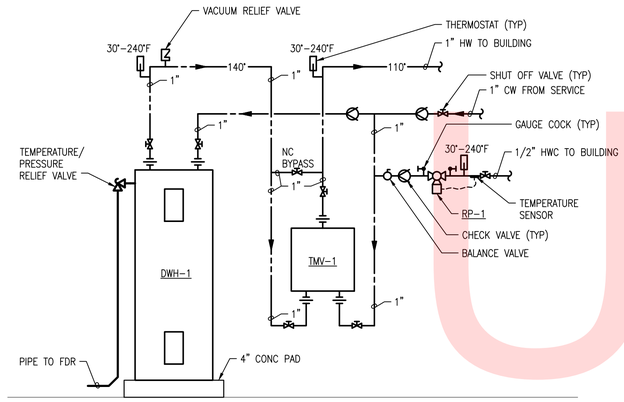
1 P201 **DOMESTIC WATER RISER DIAGRAM**
SCALE: NOT TO SCALE



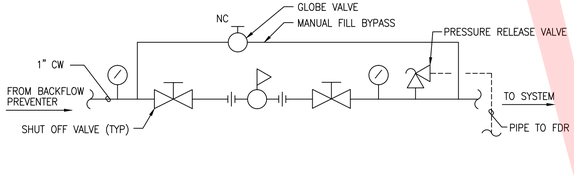
2 P201 **SANITARY RISER DIAGRAM**
SCALE: NOT TO SCALE

CO-P-201

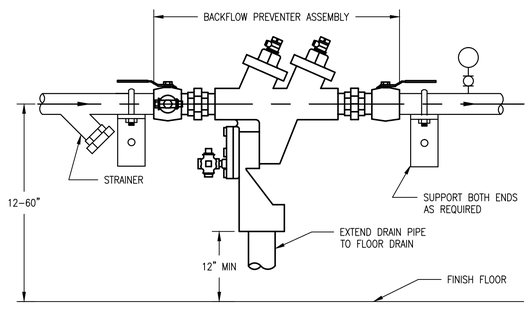
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	PLUMBING RISER DIAGRAMS	SHEET NO. 61
				COUNTY NEW CASTLE	DESIGNED BY: BWC		TOTAL SHTS. 116
					CHECKED BY: WWR		



1 P501 **ELECTRIC WATER HEATER**
SCALE: NONE



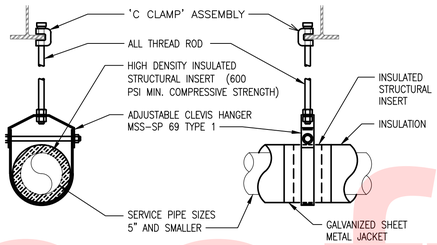
2 P501 **MAKE-UP WATER ASSEMBLY**
SCALE: NTS



NOTES:

BACKFLOW PREVENTER SHALL BE 48" ABOVE FINISH FLOOR AND 12" CLEAR ON ALL SIDES.

3 P501 **BACKFLOW PREVENTER**
SCALE: NOT TO SCALE

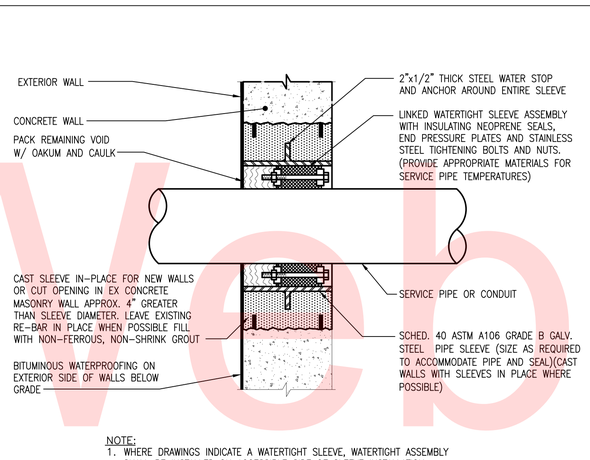


NOTES:
1. THIS DETAIL SHALL BE USED AS A GUIDE. ALL HANGERS SHALL MEET THE REQUIREMENTS OF SPECIFICATIONS SECTION 23-0529 'HANGERS AND SUPPORTS'.

MAX. HANGER LOADING

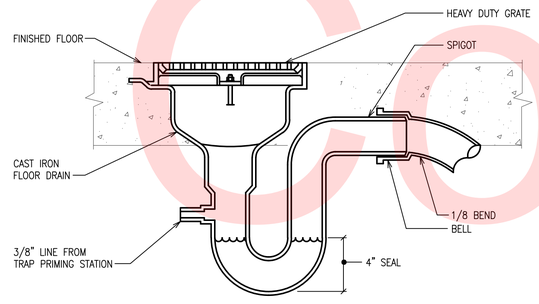
PIPE SIZE	ROD DIA.	MAX. SPACING
1/2" THRU 2"	1/2"	8'
2 1/2" THRU 5"	5/8"	10'

4 P501 **HANGER SUPPORT**
SCALE: NOT TO SCALE

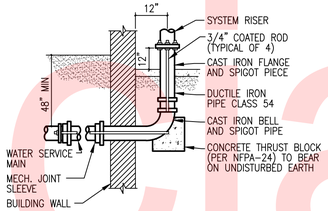


NOTE:
1. WHERE DRAWINGS INDICATE A WATERTIGHT SLEEVE, WATERTIGHT ASSEMBLY SHALL BE INSTALLED ON ACCESSIBLE SIDE OF SLEEVE INSTALLATION.
2. MASONARY WALLS TO BE DONE IN A SIMILAR MANNER.

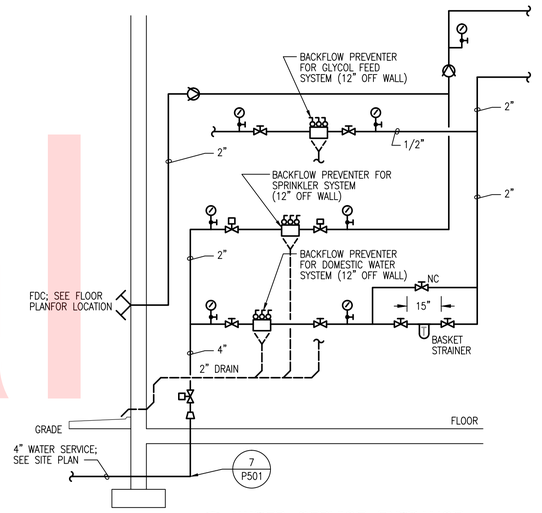
5 P501 **WATERTIGHT SLEEVE ASSEMBLY**
SCALE: NONE



6 P501 **FLOOR DRAIN**
SCALE: NONE



7 P501 **THRUST BLOCK INSTALLATION**
SCALE: NOT TO SCALE



8 P501 **WATER SERVICE ENTRANCE**
SCALE: NOT TO SCALE

RECIRCULATION PUMP SCHEDULE

DESIG.	SERVICE	TYPE	GPM	FLUID PD (FT.W.G.)	MOTOR RPM	MOTOR WATTS	VOLTS/ PHASE	BASIS	NOTES
RP-1	HW CIRCULATOR	IN-LINE	5	10	2800	39	120/1	BELL & GOSSETT NBF	1

NOTES:
1). PROVIDE FACTORY INSTALLED THERMAL OVERLOAD PROTECTOR.

MISCELLANEOUS EQUIPMENT SCHEDULE

DESIG.	DESCRIPTION	BASIS
EXPANSION TANK PET-1	VERTICAL POTABLE WATER DIAPHRAGM EXPANSION TANK, 150 PSI MAXIMUM WORKING PRESSURE, 200°F MAXIMUM OPERATING TEMPERATURE, 2 GALLON TANK VOLUME, 0.9 GALLON ACCEPTANCE VOLUME; ASME LABEL	BELL AND GOSSETT PTA
THERMOSTATIC MIXING VALVE TMV-1	MULTI-VALVE ASSEMBLY, 0.5 GPM MINIMUM FLOW, 20 GPM @ 10 PSI PD, BOTTOM INLETS AND TOP OUTLET	POWERS SERIES MM430

WATER HEATER

DESIG.	LOCATION	ELECTRIC		WATER			SHIPPING WEIGHT (LBS)	BASIS	NOTES
		KW	VOLT/PH	TEMP RISE (°F)	GPH	CAPACITY (GAL)			
DWH-1	MECH/ELEC	(2) 4.5	208/1	100	36	80.0	175.0	AO SMITH LTE	1

NOTES:
1.) DISCONNECT SHALL BE PROVIDED UNDER DIVISION 26

PLUMBING FIXTURE ROUGH-IN SCHEDULE

DESIG.	FIXTURE	ROUGH-IN CONNECTION				REMARKS
		TW	CW	HW	SAN	
P-1	WATER CLOSET (ADA)	--	1-1/4"	--	4"	ADA FLOOR MOUNTED
P-2	WATER CLOSET	--	1-1/4"	--	4"	FLOOR MOUNTED
P-3	URINAL (ADA)	--	1"	--	2"	ADA WALL MOUNTED
P-4	LAVATORY SINK (ADA)	--	1/2"	1/2"	1-1/4"	ADA WALL MOUNTED
P-5	LAVATORY SINK	--	1/2"	1/2"	1-1/4"	WALL MOUNTED
P-6	SHOWER (ADA)	--	1/2"	1/2"		ADA COMPLIANT, 3" DEEP SEAL
P-7	SERVICE SINK	--	1/2"	1/2"	3"	FLOOR MOUNTED
P-8	DRINKING FOUNTAIN (ADA)	--	1/2"	--	1-1/2"	WALL MOUNTED
P-9	KITCHEN SINK	--	1/2"	1/2"	1-1/2"	COUNTERTOP
P-10	ICE MACHINE	--	1/2"	--	--	STAND ALONE
HB	HOSE BIBB	--	1/2"	--		
WH	WALL HYDRANT	--	1/2"			EXTERIOR
FDR	FLOOR DRAIN	--			3"	

CO-P-501

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	BWC
COUNTY	CHECKED BY:	WWR
NEW CASTLE		

PLUMBING DETAILS
& SCHEDULES

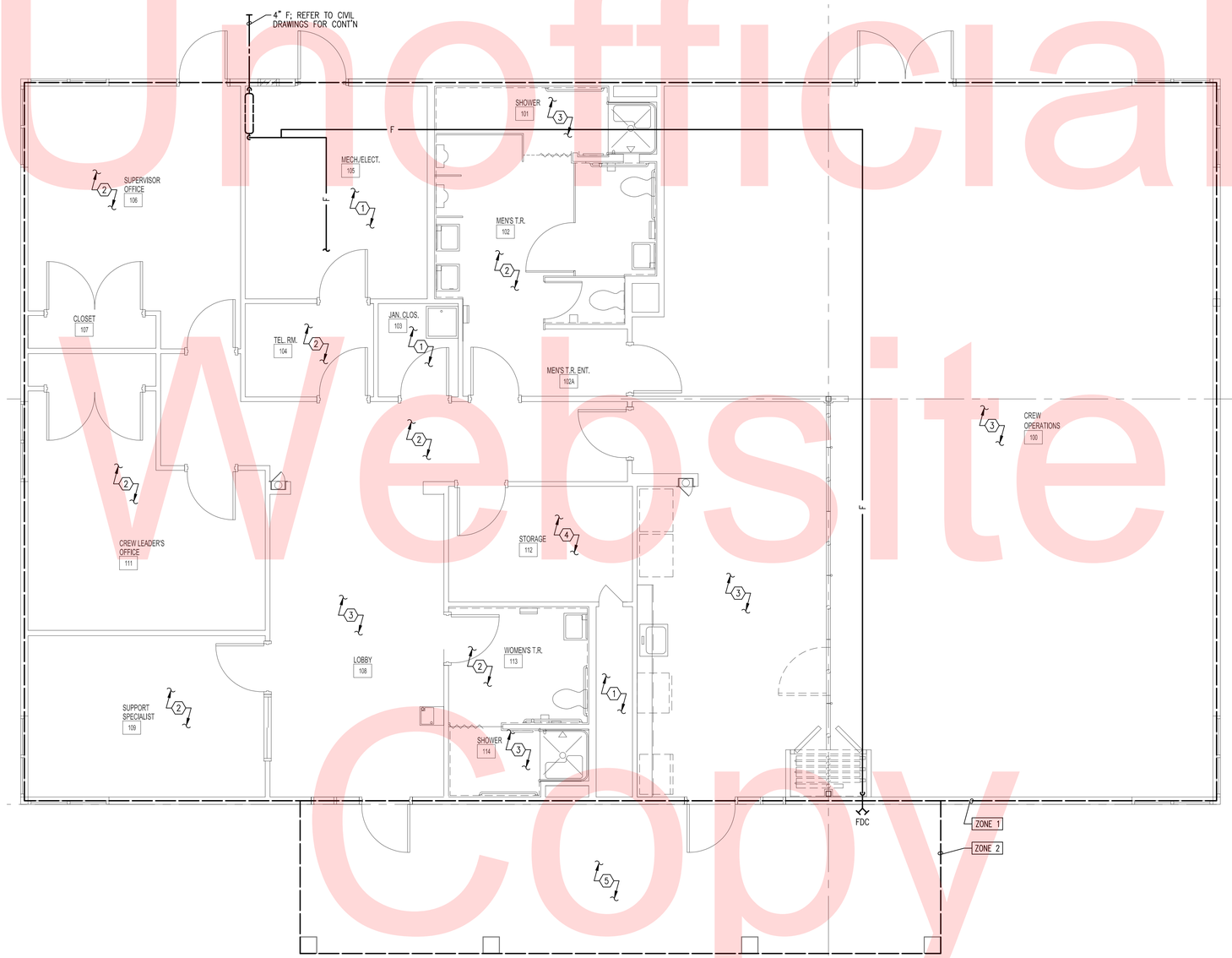
SHEET NO.
62
TOTAL SHTS.
116

SHEET KEYNOTES:

1. PROVIDE UPRIGHT SPRINKLER HEADS WITHIN AREA. SPRINKLER PIPING MAY RUN WITHIN SPACE. SIZE, LOCATE AND INSTALL SYSTEM PER SITE AND NFPA 13 REQUIREMENTS.
2. PROVIDE SEMI-RECESSED SPRINKLER HEADS CENTERED IN ACOUSTICAL TILES WITHIN AREA AND ASSOCIATED SPACES. SIZE, LOCATE AND INSTALL SYSTEM PER SITE AND NFPA 13 REQUIREMENTS.
3. PROVIDE SEMI-RECESSED SPRINKLER HEADS IN GYPSUM BOARD CEILING WITHIN AREA. SIZE, LOCATE AND INSTALL SYSTEM PER SITE AND NFPA 13 REQUIREMENTS.
4. PROVIDE SIDE-WALL MOUNTED SPRINKLER HEADS IN WALLS WITHIN AREA. SIZE, LOCATE AND INSTALL SYSTEM PER SITE AND NFPA 13 REQUIREMENTS.
5. PROVIDE SIDE-WALL MOUNTED, DRY PENDANT SPRINKLER HEADS IN WALLS WITHIN AREA. SIZE, LOCATE AND INSTALL SYSTEM PER SITE AND NFPA 13 REQUIREMENTS.

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, FIRE PROTECTION ITEMS SHOWN HEAVY SOLID (———) SHALL BE NEW WORK AND FIRE PROTECTION ITEMS SHOWN LIGHT SOLID (———) SHALL BE EXISTING.
3. DO NOT LOCATE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT.



1 FP101 FIRE PROTECTION – FLOOR PLAN
SCALE: 1/4" = 1'-0"

2' 0 2' 4'
SCALE: ¼"= 1'-0"

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CO-FP-101

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	FIRE PROTECTION NEW WORK FLOOR PLAN	SHEET NO. 63
				COUNTY NEW CASTLE	DESIGNED BY: BWC		TOTAL SHTS. 116
					CHECKED BY: WWR		

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	208/120V PANELBOARD, SURFACE MOUNTED
	208/120V PANELBOARD, FLUSH MOUNTED
	CONTROL PANEL/CABINET, SURFACE MOUNTED
	CONTROL PANEL/CABINET, FLUSH MOUNTED
	2' X 4' RECESSED MOUNTED LIGHT FIXTURE
	1' X 4' RECESSED MOUNTED LIGHT FIXTURE
	2' X 2' RECESSED MOUNTED LIGHT FIXTURE
	2' X 4' SURFACE MOUNTED LIGHT FIXTURE
	2' X 4' PENDANT MOUNTED LIGHT FIXTURE
	1' X 4' SURFACE MOUNTED LIGHT FIXTURE
	2' X 2' SURFACE MOUNTED LIGHT FIXTURE
	4' INDUSTRIAL/STRIP FIXTURE, PENDANT MOUNT
	WALL MOUNTED LIGHT FIXTURE
	RECESSED DOWN LIGHT FIXTURE
	LED EXIT SIGN (NUMBER OF FACES AND ARROWS AS INDICATED ON DRAWINGS)
	EMERGENCY BATTERY UNIT – TWO HEADS
OS	OCCUPANCY SENSOR, DUAL TECHNOLOGY, CEILING MOUNTED
PP	LIGHTING POWER PACK
DL	DAYLIGHT SENSOR
	125 VOLT, 2 POLE, 3 WIRE, 20 AMP RECEPTACLE "2" DENOTES CIRCUIT NUMBER
	125 VOLT, 2 POLE, 3 WIRE, 20 AMP DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER
	125 VOLT, 2 POLE, 3 WIRE, 20 AMP DOUBLE DUPLEX RECEPTACLE
GFCI	125 VOLT, 2 POLE, 3 WIRE, 20 AMP DUPLEX RECEPTACLE EQUIPPED WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER
GFCI/WP	125 VOLT, 2 POLE, 3 WIRE, 20 AMP WEATHERPROOF DUPLEX RECEPTACLE EQUIPPED WITH GROUND FAULT CIRCUIT INTERRUPTER
	125 VOLT, 2 POLE, 3 WIRE, 20 AMP, DUPLEX RECEPTACLE RECESSED CEILING MOUNTED
	SPECIAL RECEPTACLE, NEMA CONFIGURATION AS INDICATED ON PLANS
	125 VOLT, 2 POLE, 3 WIRE, 20 AMP SINGLE RECEPTACLE
S^{b}_{3}	SWITCH, TOGGLE "b" DENOTES SWITCH CONTROL "k" DENOTES KEY OPERATED SWITCH "3" DENOTES THREE POLE SWITCH "4" DENOTES FOUR POLE SWITCH
S_{LV}	WALL SWITCH, LOW VOLTAGE
S_{OS}	WALL SWITCH, OCCUPANCY SENSOR
	JUNCTION BOX – WALL MOUNTED
J	JUNCTION BOX
	COMMUNICATIONS – VOICE/DATA – OUTLET BOX. PROVIDE BACK BOX, 1" CONDUIT WITH PULL STRING TO IT ROOM. MOUNT 18" AFF UNLESS OTHERWISE NOTED.
C	CLOSED CIRCUIT SECURITY CAMERA OUTLET BOX. PROVIDE OCTAGON BOX, 1" CONDUIT WITH PULL STRING TO IT ROOM. CEILING MOUNTED UNLESS OTHERWISE NOTED.

SYMBOL	DESCRIPTION
H	HAND HOLE
	EMERGENCY POWER SHUT–OFF PUSH–BUTTON
AF P OR AF/NF/P/3R	NON–FUSED DISCONNECT SWITCH, SIZE AS INDICATED WHERE: "AF" – INDICATES AMPERE SWITCH SIZE "NF" – DENOTES NON–FUSED "P" – DENOTES POLE "3R" – DENOTES NEMA TYPE ENCLOSURE
AF OR AT 3P L2 AF/AT/P/3R	FUSED DISCONNECT SWITCH, SIZE AS INDICATED WHERE: "AF" – INDICATES AMPERE SWITCH SIZE "AT" – INDICATES AMPERE FUSE SIZE "P" – DENOTES POLE "3R" – DENOTES NEMA TYPE ENCLOSURE
OR	COMBINATION MOTOR STARTER AND DISCONNECT SWITCH
M	MOTOR TERMINATION
S_M	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION
VFD	VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECT
F	FIRE ALARM MANUAL PULL STATION
F 75cd	FIRE ALARM AUDIO/VISUAL SIGNALING DEVICE WALL MOUNTED 75cd – DENOTES CANDELA RATING (15cd UNLESS OTHERWISE NOTED)
F 75cd	FIRE ALARM VISUAL SIGNALING DEVICE WALL MOUNTED 75cd – DENOTES CANDELA RATING (15cd UNLESS OTHERWISE NOTED)
F	FIRE ALARM AUDIO/VISUAL SIGNALING DEVICE FLUSH CEILING MOUNTED (15cd UNLESS OTHERWISE NOTED)
V	FIRE ALARM VISUAL SIGNALING DEVICE FLUSH CEILING MOUNTED (15cd UNLESS OTHERWISE NOTED)
F	FIRE ALARM VOICE EVACUATION SPEAKER AND VISUAL SIGNALING DEVICE, WALL MOUNTED
H	FIRE ALARM VOICE EVACUATION SPEAKER WALL MOUNTED
SD E	SMOKE DETECTOR "E" – DENOTES ELEVATOR RECALL
HD F	HEAT DETECTOR "F" – DENOTES FIXED TEMPERATURE
S DS R	DUCT MOUNTED SMOKE DETECTOR "S" – DENOTES MOUNTED ON SUPPLY SIDE "R" – DENOTES MOUNTED ON RETURN SIDE
FS	FLOW SWITCH ON FIRE PROTECTION PIPING
TS	TAMPER SWITCH ON FIRE PROTECTION PIPING
D	FIRE ALARM MAGNETIC SMOKE DOOR HOLDER
RAI T	FIRE ALARM REMOTE ALARM INDICATOR WITH TEST SWITCH
FACP	FIRE ALARM SYSTEM CONTROL PANEL
FAAP	FIRE ALARM GRAPHIC ANNUNCIATOR PANEL
KB	FIREMAN'S KNOX BOX
NAC	FIRE ALARM NOTIFICATION APPLIANCE CIRCUIT PANEL
CR	CARD READER OUTLET BOX.
TV	TV OUTLET BOX.

SYMBOL	DESCRIPTION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICE
GFP	GROUND FAULT PROTECTION
KI	KIRK KEY INTERLOCK
	TRANSFORMER
	ENCLOSED CIRCUIT BREAKER
	DELTA CONFIGURATION
	START (WYE) CONFIGURATION
ø	ELECTRICAL PHASE

GENERAL ABBREVIATIONS

A	AMPERES
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ARCH	ARCHITECT
ATS	AUTOMATIC TRANSFER SWITCH
ATC	AUTOMATIC TEMPERATURE CONTROL
AWG	AMERICAN WIRE GAUGE
BFG	BELOW FINISH GRADE
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CL	CENTERLINE
CLF	CURRENT LIMITING FUSE
COL	COLUMN
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CU	COPPER
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
ECB	ENCLOSED CIRCUIT BREAKER
EF	EXHAUST FAN
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EPO	EMERGENCY POWER OFF
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EX	EXISTING
F	FUSE
FA	FIRE ALARM
FLA	FULL LOAD AMPERES
FMC	FLEXIBLE METAL CONDUIT
FT	FEET
G,GND	GROUND OR GROUNDING
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRMC	GALVANIZED RIGID METALLIC CONDUIT
HOA	HAND, OFF, AUTOMATIC SWITCH
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
IMC	INTERMEDIATE METAL CONDUIT
INT	INTERLOCK
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERES
KW	KILOWATTS
LTG	LIGHTING
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
MAU	MAKE–UP AIR UNIT
MC	METAL CLAD CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NO	NORMALLY OPEN OR NUMBER
NTS	NOT TO SCALE
P	POLE
PB	PUSHBUTTON
PNL	PANEL
PVC	POLYVINYL CHLORIDE
PWR	POWER
QTY	QUANTITY
REL	RELOCATE
REQ'D	REQUIRED
REX	REPLACE EXISTING
RMC	RIGID METAL CONDUIT
RMS	ROOT MEAN SQUARED
RNMC	RIGID NON–METALLIC CONDUIT
RTU	ROOF TOP UNIT
RX	REMOVE EXISTING
SW	SWITCH
SYM	SYMMETRICAL
TEL	TELEPHONE
TMCB	THERMAL MAGNETIC CIRCUIT BREAKER
UL	UNDERWRITERS LABORATORIES
V	VOLT
VFC	VARIABLE FREQUENCY CONTROLLER
W	WIRE
WH	WATER HEATER
WP	WEATHERPROOF
XFMR	TRANSFORMER

ELECTRICAL CONVENTIONS

PRESENTATION

ELECTRICAL EQUIPMENT DESIGNATED BY SOLID HEAVY LINE WEIGHT INDICATES NEW WORK TO BE PROVIDED.

ELECTRICAL EQUIPMENT DESIGNATED BY SOLID LIGHT LINE WEIGHT INDICATES EXISTING EQUIPMENT TO REMAIN, UNLESS OTHERWISE INDICATED.

ELECTRICAL EQUIPMENT DESIGNATED BY DASHED HEAVY LINE WEIGHT REPRESENTS EXISTING EQUIPMENT TO BE REMOVED AND DISPOSED, UNLESS INDICATED TO BE REMOUNTED, RELOCATED, OR TURNED OVER TO OWNER.

WIRING

LP2A–1,3,5 — HOMERUN TO PANEL "LP2A", CIRCUITS #1,3,5 (VIA 20A–1P C/B'S). PROVIDE INSULATED GROUND CONDUCTOR IN ACCORDANCE WITH SPECIFICATIONS. NUMBER OF CIRCUITS INDICATED BY QUANTITY OF ARROW HEADS.

HASH MARKS INDICATE QUANTITY OF #12 AWG COPPER CONDUCTORS IN CONDUIT. WHEN NO HASH MARKS ARE INDICATED, CONDUIT SHALL CONTAIN (2) #12 WIRES AND (1) #12 GROUND WIRE. ASSUME 3/4" DIAMETER CONDUIT UNLESS NOTED OTHERWISE. EXAMPLE SHOWN AT LEFT INDICATES 2 HOT, 2 NEUTRAL (LONG LINES), AND 1 GROUND WIRES.

CONCEALED CONDUIT AND/OR WIRING.

BELOW GRADE CONDUIT AND/OR WIRING.

EXPOSED CONDUIT AND/OR WIRING.

CIRCUITRY TURNING DOWN

CIRCUITRY TURNING UP

ANNOTATION

DETAIL REFERENCE
"#" DENOTES DETAIL NUMBER
"SHT" DENOTES SHEET NUMBER

ELEVATION OR SECTION IDENTIFIER
"X" DENOTES ELEVATION OR SECTION NUMBER
"#" DENOTES SHEET NUMBER

SHEET KEYNOTE NUMBER

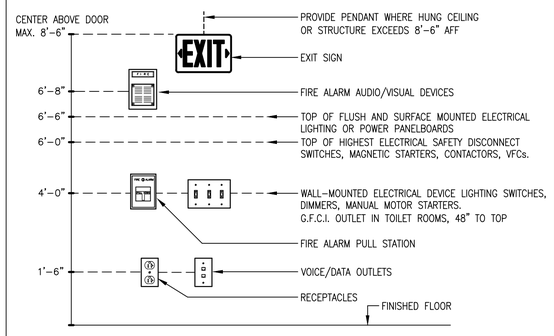
FEEDER TAG (REFER TO FEEDER SCHEDULE)

REVISION NUMBER

LIGHTING

LUMINAIRE TYPE – SEE LUMINAIRE SCHEDULE
CIRCUIT NUMBER
CONTROL POINT DESIGNATION

MOUNTING LEGEND



MOUNTING NOTES:

1. THE ABOVE MOUNTING HEIGHTS SHALL BE ADHERED TO UNLESS SPECIFICALLY NOTED OR DETAILED OTHERWISE ON THE DRAWINGS OR SPECIFICATIONS.
2. LOCATION AND INSTALLATION HEIGHT OF ALL WALL DEVICES TO BE COORDINATE WITH MILLWORKS IN ALL LOCATIONS.
3. RECESSED OUTLETS IN MASONRY CONSTRUCTION THE ABOVE MOUNTING HEIGHTS SHALL BE USED FOR REFERENCE TO NEAREST BLOCK OR BRICK COURSING.

CO-E-001

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DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	T201680104
COUNTY	NEW CASTLE
BRIDGE NO.	N/A
DESIGNED BY:	JDT
CHECKED BY:	JDT

ELECTRICAL SYMBOLS, LEGEND AND ABBREVIATIONS

SHEET NO.	64
TOTAL SHTS.	116

GENERAL NOTES

1. THE SCOPE OF WORK CONSISTS OF FURNISHING AND INSTALLING OF A COMPLETE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN. THE CONTRACTOR SHALL PROVIDE SUPERVISION, LABOR, MATERIALS, EQUIPMENT, MACHINERY, ADDITIONAL DESIGN AND ALL INCIDENTALS NECESSARY TO COMPLETE THE ELECTRICAL SYSTEM. THE CONTRACTOR SHALL PROVIDE AND INSTALL THE NUMBER OF ITEMS OF EQUIPMENT AS INDICATED ON THE DRAWINGS AND/OR AS REQUIRED FOR A COMPLETE SYSTEM. COORDINATE WORK TO BE PERFORMED OR INSTALLED BY OTHERS AFFECTING ELECTRICAL WORK AND PROVIDE AND INSTALL ALL NECESSARY ANCHORS, SLEEVES, HANGERS, ACCESSORIES, ETC. FOR ATTACHING OR CONNECTING ELECTRICAL WORK TO RELATED WORK OF OTHER TRADES. ALL WORK SHALL BE PERFORMED BY A QUALIFIED ELECTRICAL CONTRACTOR LICENSED IN THE STATE OF DELAWARE THAT HAS PREVIOUSLY PERFORMED WORK OF THIS SIZE AND TYPE.

2. REFER TO THE SPECIFICATIONS THAT ARE PART OF THIS CONTRACT AND ARE COMPLEMENTARY TO THESE GENERAL NOTES. IN CASE OF A CONFLICT BETWEEN THE SPECIFICATIONS AND DRAWINGS, THE MOST STRINGENT REQUIREMENTS SHALL APPLY AS DETERMINED BY THE ARCHITECT/ENGINEER/OWNER.

3. PERFORM WORK AS REQUIRED BY CODES, REGULATIONS AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENTS AND OTHER AUTHORITIES WITH LAWFUL JURISDICTION. INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

   a. THE 2014 VERSION OF N.E.C., AND LOCAL N.E.C. AMENDMENTS.
   b. ALL LOCAL CODES.
   c. NFPA 72 AND THE LATEST VERSION OF THE LOCALLY RECOGNIZED BUILDING CODE.
   d. THE AMERICANS WITH DISABILITIES ACT (ADA).
   e. THE 2014 IECC CODE.

4. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN TO "FURNISH AND INSTALL COMPLETE AND READY FOR USE." CONTRACTOR SHALL PROVIDE ALL TESTING AND INSTRUCTION REQUIRED FOR OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEM BY OWNER UNLESS OTHERWISE NOTED.

5. MATERIAL AND EQUIPMENT SHALL BE UL, NEMA, ANSI, IEEE, ADA & CBM APPROVED FOR INTENDED SERVICE. MATERIAL AND INSTALLATION SHALL MEET REQUIREMENTS OF NATIONAL AND STATE ELECTRICAL CODE.

6. ELECTRICAL DRAWINGS WHICH CONSTITUTE A PART OF THIS CONTRACT ARE DIAGRAMMATIC ONLY AND INDICATE THE GENERAL ARRANGEMENT OF CIRCUITS AND OUTLETS, LOCATIONS OF SWITCHES, PANELBOARDS CONDUIT AND OTHER WORK. ALL ITEMS NOT SPECIFICALLY MENTIONED HEREIN, WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED AT NO EXTRA COST.

7. CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND PLUMBING DRAWINGS TO FAMILIARIZE HIMSELF WITH ALL ASPECTS OF THOSE DESIGNS AFFECTING HIS WORK. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH ALL OTHER TRADES.

8. PRIOR TO SUBMITTING BID, THE CONTRACTOR SHALL VISIT THE SITE AND BE THOROUGHLY FAMILIAR WITH THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION. CONTRACTOR SHALL INCLUDE IN THEIR BID ALL MATERIAL, LABOR AND ALL INCIDENTALS FOR A COMPLETE INSTALLATION WHETHER SPECIFICALLY CALLED FOR OR NOT. ALL ERROR, DISCREPANCIES AND MISSED ITEMS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER DURING THE BIDDING PROCESS BY THE CONTRACTOR. THESE ITEMS SHALL BE INCLUDED IN THE BID PRICE. NO EXTRA COST WILL BE ALLOWED FOR ANY DISCREPANCY WHICH COULD HAVE BEEN NOTICED AT THE SITE VISIT BY THE CONTRACTOR.

9. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE REQUIRED NOTICES, PERMITS, LICENSES, FEES, BACK CHARGES AND APPROVALS REQUIRED FOR THIS PROJECT.

10. THE CONTRACTOR SHALL MAINTAIN AT THE SITE FOR THE OWNER ONE COPY OF ALL DRAWINGS, SPECIFICATIONS, ADDENDA, APPROVED SHOP OR SETTING DRAWINGS, CHANGE ORDERS AND OTHER MODIFICATIONS IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES AS THEY OCCUR DURING CONSTRUCTION. THESE SHALL BE AVAILABLE TO THE ARCHITECT/ENGINEER, THE OWNER, THE PROJECT INSPECTOR, THE OWNER'S OTHER INSPECTORS AND TO THE OWNER'S TESTING PERSONNEL. THE DRAWINGS SHALL BE NEATLY AND CLEARLY MARKED IN COLOR DURING CONSTRUCTION TO RECORD ALL VARIATIONS MADE DURING CONSTRUCTION. THE REPRESENTATION OF SUCH VARIATIONS SHALL INCLUDE SUCH SUPPLEMENTARY NOTES, SYMBOLS, LEGENDS, AND DETAILS AS MAY BE NECESSARY TO CLEARLY SHOW THE AS-BUILT CONSTRUCTION. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL DELIVER TO THE ARCHITECT/ENGINEER, ONE COMPLETE SET OF "AS-BUILT DRAWINGS"

11. ALL WORKMANSHIP, MATERIALS AND EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF TWO YEARS AFTER ACCEPTANCE OF AREA BY OWNER. REPAIR OR REPLACE DEFECTIVE MATERIALS OR INSTALLATION AT NO COST TO OWNER DURING THE GUARANTEE PERIOD. CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE AT NO COST TO OWNER.

12. SUBMIT GUARANTEE TO CONTRACT OFFICER BEFORE FINAL PAYMENT.

13. STATEMENT OF GUARANTEE REQUIREMENTS SHALL NOT BE INTERPRETED TO LIMIT OWNER'S RIGHTS UNDER LAW AND THIS CONTRACT.

14. ADDRESS QUESTIONS REGARDING DRAWINGS TO ENGINEER IN WRITING BEFORE AWARD OF CONTRACT. OTHERWISE, ENGINEER INTERPRETATION OF MEANING AND INTENT OF DRAWINGS SHALL BE FINAL.

15. THE CONSTRUCTION ADMINISTRATION PHASE SERVICES ARE INTENDED TO BENEFIT THE CLIENT ONLY. SERVICES RENDERED BY ENGINEER DO NOT RELIEVE CONTRACTOR FROM OBLIGATIONS UNDER THE CONSTRUCTION DOCUMENTS. ENGINEER DOES NOT HAVE AUTHORITY TO SUPERVISE, DIRECT OR CONTROL CONTRACTOR, AND IS NOT RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OF CONSTRUCTION OR FOR SAFETY PROGRAMS OR PRECAUTIONS DURING CONSTRUCTION. NOR IS ENGINEER RESPONSIBLE FOR CONTRACTORS FAILURE TO PERFORM THE WORK IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS OR APPLICABLE LAWS OR CODES.

16. SUBMIT SHOP DRAWINGS AND PRODUCT DATA WITHIN 21 DAYS AFTER AWARD OF CONTRACT. CHECK, STAMP AND MARK WITH PROJECT NAMES SUBMITTALS BEFORE TRANSMITTING TO ARCHITECT. INDICATE DEVIATIONS FROM CONTRACT DOCUMENTS. SHOP DRAWINGS SHALL BE PROVIDED FOR ALL EQUIPMENT SHOWN ON THE DRAWINGS. SUBMITTALS SHALL BE APPROVED BY THE ENGINEER BEFORE PURCHASE OF MATERIALS.

17. DEVIATION FROM CONTRACT DOCUMENTS, OR PROPOSED SUBSTITUTION OF MATERIALS OR EQUIPMENT FOR THOSE SPECIFIED, SHALL BE REQUESTED IN SEPARATE LETTER, WHETHER DEVIATIONS ARE DUE TO FIELD CONDITIONS, STANDARD SHOP PRACTICE, OR OTHER CAUSE.

18. SCHEDULE AT LEAST TEN WORKING DAYS, EXCLUSIVE OF TRANSMITTAL TIME FOR SUBMITTAL REVIEW.

19. ALL WORK SHALL BE EXECUTED IN WORKMANLIKE MANNER AND SHALL PRESENT NEAT, RECTILINEAR AND MECHANICAL APPEARANCE WHEN COMPLETED. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE BEST ENGINEERING PRACTICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL EQUIPMENT IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. THIS SHALL INCLUDE PROVIDING CLEARANCES AS DEFINED IN THE INSTALLATION INSTRUCTIONS AND IN ACCORDANCE WITH NEC REQUIREMENTS. PROVIDE ALL AUXILIARY ITEMS REQUIRED TO PERFORM FUNCTION INTENDED.

20. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER OR HIS AUTHORIZED REPRESENTATIVE AND SHALL BE PERFORMED IN ACCORDANCE WITH ALL BUILDING RULES AND REGULATIONS AS PROVIDED BY THE BUILDING OWNER.

21. LOCATION OF MECHANICAL EQUIPMENT THAT REQUIRE ELECTRICAL CONNECTIONS ARE SHOWN ON THE MECHANICAL DRAWINGS. COORDINATE ALL WORK AND MAKE ALL FINAL CONNECTIONS REQUIRED FOR A COMPLETE INSTALLATION OF MECHANICAL EQUIPMENT AND CONTROLS. MECHANICAL EQUIPMENT RATINGS ARE APPROXIMATE AND MAY VARY BY MANUFACTURERS. VERIFY EXACT ELECTRICAL REQUIREMENTS WITH APPROVED SHOP DRAWINGS ADJUST SIZE OF CIRCUIT BREAKERS, SWITCHES, WIRES, MULTIPLE POWER SOURCES AND MOTOR CONTROLS INCLUDING HEATER ELEMENTS BASED UPON THE ACTUAL EQUIPMENT INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

22. CONTRACTOR SHALL REVIEW ALL TRADES' CONTRACT DOCUMENTS TO DETERMINE SPECIFIC MOUNTING LOCATIONS FOR ELECTRICAL EQUIPMENT.

23. CONDUIT HOMERUNS SHOWN ON THE DRAWING WITH MORE THAN 3 CURRENT CARRYING CONDUCTORS ARE SHOWN DIAGRAMMATIC. THE CONTRACTOR SHALL NOT INSTALL MORE THAN 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY UNLESS DONE SO STRICTLY TO COMPLY WITH THE NATIONAL ELECTRIC CODE REQUIREMENTS FOR APPLYING ADJUSTMENT FACTORS FOR MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN A RACEWAY.

24. ALL CONDUCTORS SHALL BE COPPER, MINIMUM SIZE CONDUCTOR SHALL BE NO. 12 AWG WITH 600 VOLT TYPE "THWN" INSULATION, RATED MINIMUM 75° C. AND ROUTED IN CONDUIT. CONDUCTORS NO. 8 AWG AND LARGER SHALL BE STRANDED. THE USE OF ALUMINUM CONDUCTORS SHALL NOT BE ACCEPTABLE.

25. ALL 120 VOLT CIRCUIT HOME RUNS WHICH ARE OVER 75 LINEAR FEET SHALL BE #10 CONDUCTORS MINIMUM. CONTRACTOR SHALL INCREASE WIRE SIZE AS REQUIRED TO MAINTAIN A MAXIMUM VOLTAGE DROP OF 3%.

26. COLOR CODING AND LABELING OF UTILITIES SHALL BE ACCOMPLISHED PER THE REQUIREMENTS OF DELMARVA POWER.

27. COLOR CODE SECONDARY SERVICE, FEEDERS AND BRANCH CIRCUIT CONDUCTORS AS FOLLOWS:

    <u>208Y/120V</u>
    BLACK FOR PHASE A,
    RED FOR PHASE B,
    BLUE FOR PHASE C,
    WHITE FOR NEUTRAL.
    PROVIDE WITH SOLID GREEN GROUNDING CONDUCTOR.

28. BRANCH CIRCUIT CONDUCTORS #12 AND #10 SHALL HAVE SOLID COLOR COMPOUND, SOLID COLOR COATING. NEUTRALS AND EQUIPMENT GROUNDS SHALL HAVE SOLID COMPOUND OR SOLID COLOR COATING (WHITE, GRAY AND GREEN), EXCEPT THAT NEUTRALS WITH COLORED STRIPE SHALL BE USED WHERE REQUIRED BY NEC. CONDUCTORS #8 AND LARGER WITH STRIPES, BANDS OR HASH MARKS SHALL HAVE BACKGROUND COLOR OTHER THAN WHITE, GREEN, AND GRAY.

35. ALL CIRCUITS MUST HAVE SEPARATE INSULATED GROUND WIRE. THE CONDUIT CANNOT BE USED IN PLACE OF THE GROUND WIRE.

36. A DEDICATED NEUTRAL SHALL BE INSTALLED WITH EACH LIGHTING, COMPUTER AND APPLIANCE PANELBOARD BRANCH CIRCUIT. A SHARED NEUTRAL IS NOT PERMITTED. FOR ELECTRIFIED FURNITURE SYSTEMS, THE PREFERRED FURNITURE WIRING ARRANGEMENT IS TO PROVIDE A SEPARATE NEUTRAL FOR EACH PHASE CONDUCTOR. WHEN A SHARED NEUTRAL IS PROVIDED IN ELECTRIFIED FURNITURE, A COMMON NEUTRAL OF #10 MINIMUM SIZE SHALL BE PROVIDED IN THE BRANCH CIRCUIT(S).

37. CONDUCTORS SHALL BE CONTINUOUS FROM TERMINATION TO TERMINATION. PROVIDE JUNCTION BOXES WHERE SPLICES ARE ABSOLUTELY NECESSARY, SPLICE IN READILY ACCESSIBLE JUNCTION BOX OR OUTLET BOX.

38. CONTROL/POWER WIRING REQUIRED BUT NOT SHOWN FOR, AND NOT LIMITED TO, THERMOSTATS, CONTROLLERS, VARIABLE FREQUENCY DRIVE CONTROLS, EQUIPMENT MANUFACTURER CONTROL PANELS, DAMPER MOTORS, CONTROL MOTORS, VALVES, SENSING DEVICES (TEMPERATURE, PRESSURE, HUMIDITY, LEVEL, FLOW, ON-OFF, FIRE ALARM DEVICES) SHALL BE SUPPLIED AND INSTALLED TO PROVIDE A COMPLETE AND USABLE FACILITY AS SPECIFIED. COORDINATE WITH MECHANICAL DIVISION AND PROVIDE AS REQUIRED.

39. ALL WIRING SHALL BE INSTALLED IN CONDUIT. MINIMUM CONDUIT SIZE SHALL BE 3/4-INCH.

40. ALL WIRING IN FINISHED SPACES SHALL BE INSTALLED CONCEALED IN CEILINGS AND WALLS IN EMT CONDUIT UNLESS SHOWN OR SPECIFIED OTHERWISE. PVC CONDUITS SHALL NOT BE INSTALLED IN ANY INDOOR AREA.

41. GALVANIZED RIGID METAL CONDUIT (GRC) OR GALVANIZED INTERMEDIATE METAL CONDUIT (IMC) SHALL BE USED IN CONCEALED MASONRY WALLS, FLOOR SLABS AND UTILITY ROOMS.

42. INTERMEDIATE METAL CONDUIT (IMC) CONDUIT SHALL NOT BE USED IN WET LOCATIONS OR HIGH CORROSIVE AREAS. OTHERWISE, NFPA 70 ARTICLE 342 FULLY APPLIES.

43. IN HAZARDOUS LOCATIONS GALVANIZED RIGID METAL CONDUIT (GRC) SHALL BE USED.

44. EXPOSED INDOOR CONDUIT SHALL BE GALVANIZED RIGID METAL CONDUIT (GRC).

45. PVC-COATED RIGID GALVANIZED METAL CONDUIT SHALL NOT BE USED INDOORS.

46. GALVANIZED RIGID METAL CONDUIT (GRC) CONDUIT SHALL BE USED FOR ALL FIRE ALARM SYSTEM WIRES AND CABLES.

47. ELECTRICAL METALLIC TUBING (EMT) CONDUIT SHALL NOT EXCEED 2 INCHES DIAMETER FOR POWER FEEDER OR BRANCH CIRCUITS AND SHALL NOT EXCEED 4 INCHES DIAMETER FOR CONTROL CIRCUITS AND COMMUNICATIONS SYSTEMS.

48. CONNECTIONS TO MOTORS AND BUILDING EQUIPMENT THAT CAN BE MOVED BY HAND FOR ACCESS AND SERVICING SHALL BE FLEXIBLE METAL CONDUIT, NO MORE THAN 18 INCHES LONG.

49. EXPOSED OUTDOOR CONDUITS SHALL BE GALVANIZED RIGID METAL CONDUIT (GRC). 3/4-INCH DIAMETER MINIMUM. IN HIGH-TRAFFIC AREAS, AND OTHER AREAS PRONE TO POLLUTION, CONDUITS SHALL BE PVC-COATED RIGID GALVANIZED METAL, 3/4-INCH SIZE MINIMUM.

50. CONDUITS SHALL BE INDEPENDENTLY SUPPORTED; DO NOT SUPPORT CONDUITS FROM DUCTWORK.

51. EXPANSION FITTINGS SHALL BE INSTALLED IN CONDUITS CROSSING EXPANSION JOINTS.

52. CONDUITS IN FINISHED AREAS SHALL BE CONCEALED AND THOSE IN UNFINISHED AREAS SHALL BE SURFACE MOUNTED.

53. PROVIDE POLYETHYLENE CORDS FOR PULLING WIRE.

54. PROVIDE PULLING WIRES FOR COMMUNICATION AND OTHER EMPTY CONDUIT SYSTEMS REQUIRED, WITHOUT SPLICES AND WITH AMPLE EXPOSED LENGTHS AT EACH END.

55. TOP ENTRIES OF CONDUITS INTO ELECTRICAL ENCLOSURES LOCATED IN AREAS SUBJECT TO WATER OR CONDENSATION SHALL NOT BE PERMITTED.

56. ALL CIRCUITRY RUNS INDICATED ARE DIAGRAMMATIC. THE CONTRACTOR SHALL DETERMINE IN THE FIELD THE MOST SUITABLE ROUTES. THE CONTRACTOR SHALL PROVIDE "AS-BUILT" DOCUMENTATION OF ALL CIRCUITRY RUNS.

57. PROVIDE ACCESS PANELS WHERE REQUIRED FOR PROPER ACCESS TO JUNCTION BOXES, PULL BOXES ETC.

58. ALL JUNCTION BOXES ABOVE CEILINGS SHALL BE MARKED WITH PANEL AND CIRCUIT DESIGNATION FOR CIRCUITS CONTAINED WITHIN.

59. CONTRACTOR SHALL PROVIDE ALL FIREPROOFING FOR ELECTRICAL PENETRATIONS.

60. FURNISH AND INSTALL NAMEPLATES ON ALL ELECTRICAL EQUIPMENT (SCREW ON TYPE).

61. ALL GROUNDING SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL AND STATE ELECTRICAL CODES.

62. COORDINATE ALL ELECTRICAL ITEMS WITH EXISTING FIELD CONDITIONS. LOCATIONS SHOWN ARE APPROXIMATE AND MAY REQUIRE MINOR ADJUSTMENT IN THE FIELD TO SATISFY THE DESIGN INTENT.

63. DAMAGE TO EXISTING FACILITIES AND EQUIPMENT SHALL BE REPAIRED OR REPLACED IMMEDIATELY BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.

64. THE LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE AND REQUIRE COORDINATION WITH ALL OTHER TRADES AND VERIFICATION OF EXISTING CONDITIONS. ROUTING OF CONDUIT IS DIAGRAMMATIC IN NATURE AND NOT INTENDED TO SHOW ALL REQUIRED OFFSETS AND DETAILS. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING ASSOCIATED EQUIPMENT AND CONDITIONS. COORDINATE THE LOCATION OF ALL EQUIPMENT WITH THE ENGINEER AND THE OWNER. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL OTHER TRADES' DRAWINGS AND SPECIFICATIONS AND COORDINATING WITH OTHER TRADE DURING BIDDING AND CONSTRUCTION.

65. REPAIR AND PATCH ANY DISTURBED AREA TO MATCH EXISTING CONDITIONS.

66. ALL ELECTRICAL WORK INDICATED TO REMAIN SHALL BE SUITABLY PROTECTED TO PREVENT ANY DAMAGE.

67. ALL ELECTRICAL CURRENT CARRYING PARTS SHALL BE COPPER FOR ALL EQUIPMENT.

68. SWITCHBOARDS AND PANELBOARDS SHALL BE FULLY RATED. SERIES RATING IS NOT ACCEPTABLE. CIRCUIT BREAKERS SHALL BE THE BOLT-ON TYPE WITH FULL COPPER BUSSING, 100% NEUTRAL AND ISOLATED GROUND BUSS REMOVABLE COVER AND NAMEPLATE. U.O.N

69. PROVIDE TEMPORARY POWER AND LIGHTING FOR ALL TRADES AND REQUIRED TO COMPLETE THE PROJECT. ALL TEMPORARY AND INTERIM EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS INCLUDING. BUT NOT LIMITED TO, NFPA 70. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THIS REQUIREMENT WITH ALL OTHER TRADES AND INCLUDING ALL ASSOCIATED COST IN BID PRICE.

70. ENGAGE A QUALIFIED ELECTRICAL TESTING COMPANY TO LOCATE ALL UNDERGROUND UTILITIES IN PROPOSED CONSTRUCTION AREAS FOR ALL TRADES BEFORE DIGGING. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THIS ORGANIZATION AND INCLUDING ALL ASSOCIATED COSTS IN THE BID PRICE.

71. PROVIDE FIRE SEALANT FOR PENETRATIONS THROUGH FIRE RATED FLOORS AND WALLS TO MAINTAIN THE APPLICABLE FIRE RATING. ALL WALL PENETRATIONS SHALL BE A MINIMUM OF ONE HOUR FIRE RATED. ALL FIREPROOFING FOR ELECTRICAL PENETRATIONS SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR.

72. PROVIDE CONCRETE FOUNDATION HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED EQUIPMENT.

73. THE EXISTING ELECTRICAL EQUIPMENT AND DEVICES WITHIN DEMOLITION AREA SHALL BE DEMOLISHED ALONG WITH ALL FEEDERS AND CONDUITS BACK TO SOURCE UNLESS OTHERWISE NOTED. CONTRACTOR SHALL DISCONNECT, MAKE SAFE, AND REMOVE ALL LIGHT FIXTURES, CORD DROP RECEPTACLES, AND OTHER ASSOCIATED ELECTRICAL EQUIPMENT AND ALL ASSOCIATED CIRCUITRY WITHIN THIS AREA, EXCEPT AS SHOWN OTHERWISE. UPON REMOVAL, INVENTORY MAJOR ELECTRICAL ITEMS THAT ARE REMOVED AND PROVIDE A LIST TO THE OWNER FOR THEIR SELECTION OF ITEMS TO BE RETAINED. ALL ITEMS REJECTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.

74. THIS DOCUMENT INCLUDES INFORMATION AND DEPICTIONS OF DELMARVA POWER ELECTRIC UTILITIES LOCATED WITHIN THE PROJECT AREA, LOCATIONS, DIMENSIONS, DEPTHS, AND OTHER DETAILS OF ANY SUCH UTILITIES MAY NOT BE AS-BUILT, AND THE INFORMATION SHALL NOT BE RELIED UPON WITHOUT FIELD VERIFICATION, EXCAVATORS MUST EMPLOY SAFE DIGGING BEST PRACTICES WHEN APPROACHING DELMARVA POWER ELECTRIC UTILITIES AND COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, INCLUDING, BUT NOT LIMITED TO, THE "MISS UTILITY LAW". NO REPRESENTATION, GUARANTEES, OR WARRANTIES, EXPRESS OR IMPLIED, ARE MADE BY DELMARVA POWER AS TO THE QUALITY, COMPLETENESS, OR ACCURACY OF THE DELMARVA POWER UTILITY INFORMATION, AND IN ACCEPTING THIS DOCUMENT, THE RECIPIENT EXPRESSLY ACKNOWLEDGES AND AGREES THAT IT IS NOT RELYING ON THE ACCURACY OF THE SAME.

CO-E-002

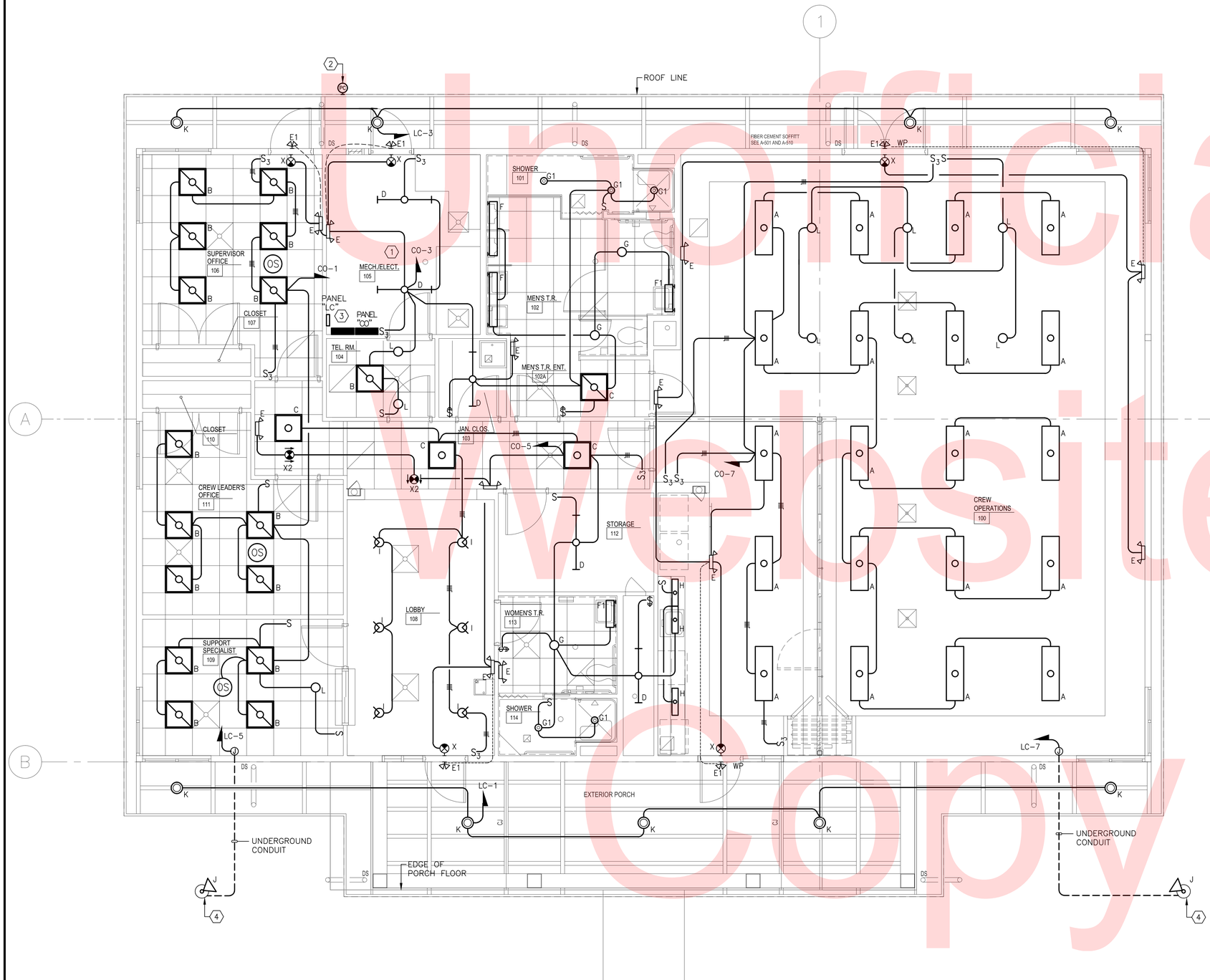
DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A	SHEET NO.
T201680104			65
COUNTY	DESIGNED BY:	JDT	TOTAL SHTS.
NEW CASTLE	CHECKED BY:	JDT	116

ELECTRICAL GENERAL NOTES



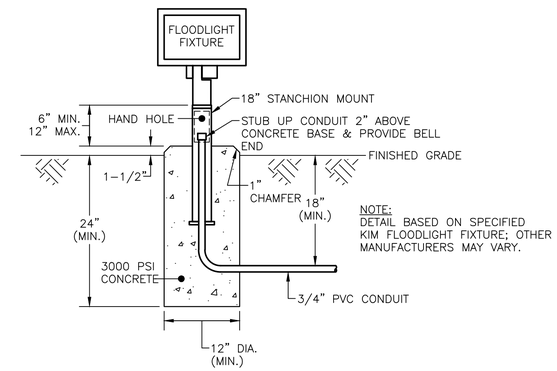
1 COE101 **LIGHTING – GROUND FLOOR PLAN**
SCALE: 1/4" = 1'-0"

SHEET GENERAL NOTES

1. SEE ARCHITECTURAL PLANS, ELEVATIONS, DETAILS AND SPECIFICATION FOR ELECTRICAL EQUIPMENT LOCATIONS AND HEIGHTS. COORDINATE EXACT LOCATION IN FIELD PRIOR TO INSTALLATION.
2. NO ELECTRICAL CORDS ARE ALLOWED TO PENETRATE WALLS, MILLWORK, OR CEILING PANELS. ALL ELECTRICAL OUTLETS MUST BE READILY ACCESSIBLE.
3. ALL WIRING SHALL BE INSTALLED IN CONDUIT, INCLUSIVE OF LOW VOLTAGE/CONTROL WIRING.
4. 2X2 RECESSED FIXTURES MOUNTED ON SUSPENDED CEILINGS SHALL BE SUPPORTED FROM THE ROOF CONSTRUCTION ABOVE BY MEANS OF A MINIMUM OF FOUR SEPARATE GALVANIZED CHAINS OR WIRES PER FIXTURE ONE AT EACH CORNER OF THE FIXTURE. EACH CHAIN SHALL BE CAPABLE OF SUPPORTING 100 LBS AND EACH WIRE SHALL BE A MINIMUM OF 12 AWG MILD STEEL.
5. SEE LIGHTING FIXTURE SCHEDULE ON DWG CO-E-501.
6. LIGHTING SWITCHES TO BE TOGGLE SWITCH WITH PILOT LIGHT.

SHEET KEY NOTES:

1. EXACT LOCATION OF LIGHTING FIXTURE(S) IN THIS AREA TO BE COORDINATED WITH MECHANICAL DUCTWORK AND PIPING.
2. PROVIDE PHOTOCELL TO CONTROL OUTDOOR LIGHTING SIMILAR TO HUBBELL LX PHOTO SENSOR CONTROL MODULE OR EQUAL COMPATIBLE WITH THE LIGHTING CONTROL PANEL. PROVIDE ALL REQUIRED INTERFACES, POWER MODULES AND ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM. EXACT MOUNTING LOCATION TO BE FIELD-DETERMINED PER MANUFACTURER'S RECOMMENDATIONS.
3. SEE SITE PLANS (S-E SERIES) FOR EXTERIOR LIGHTING CONTROLLED BY PANEL "LC" – CONDUIT & WIRING.
4. SEE STANCHION MOUNT FOOTING DETAIL THIS SHEET FOR MOUNTING OF TYPE "J" FLOODLIGHT FIXTURE. LOCATE NEAR FLAGPOLE PER ARCHITECTURAL/CIVIL SITE PLAN DRAWINGS. EXACT DISTANCE FROM FLAGPOLE AND AIMING ANGLES TO BE DETERMINED PER FLOODLIGHT MANUFACTURER'S RECOMMENDATIONS.



NOTE:
DETAIL BASED ON SPECIFIED KIM FLOODLIGHT FIXTURE; OTHER MANUFACTURERS MAY VARY.

2 COE101 **STANCHION MOUNT FOOTING DETAIL**
SCALE: NTS

CO-E-101

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	CREW OPERATIONS BUILDING ELECTRICAL FLOOR PLAN LIGHTING	SHEET NO. 66
				COUNTY NEW CASTLE	DESIGNED BY: JDT		TOTAL SHTS. 116
					CHECKED BY: JL		

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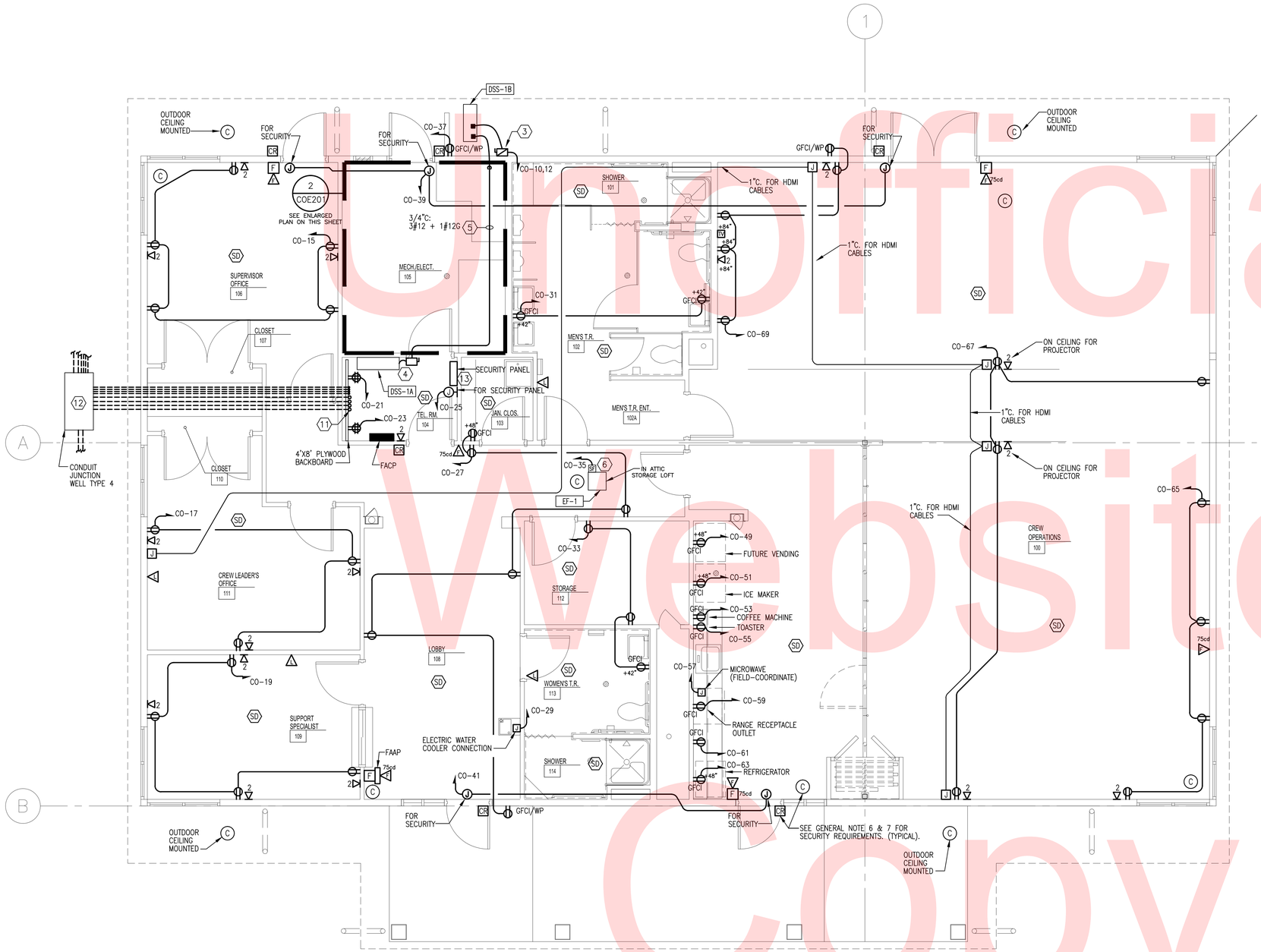
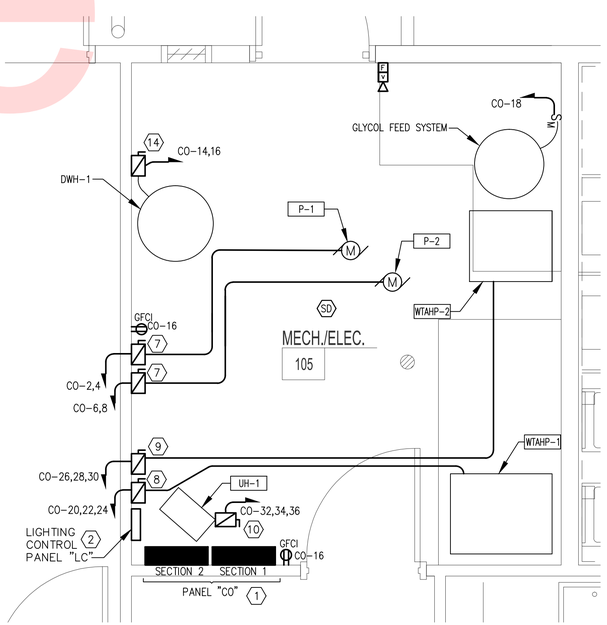


1 COE201 **POWER – GROUND FLOOR PLAN**
SCALE: 1/4" = 1'-0"



2 COE201 **POWER – ENLARGED MECH./ELEC. ROOM**
SCALE: 1/2" = 1'-0"

SHEET GENERAL NOTES

1. SEE ARCHITECTURAL PLANS, ELEVATIONS, DETAILS AND SPECIFICATION FOR ELECTRICAL EQUIPMENT LOCATIONS AND HEIGHTS. COORDINATE EXACT LOCATION IN FIELD PRIOR TO INSTALLATION.
2. LOCATION AND INSTALLATION HEIGHT OF ALL WALL DEVICES TO BE COORDINATE WITH MILLWORK IN ALL LOCATIONS.
3. ALL WIRING SHALL BE INSTALLED IN CONDUIT, INCLUSIVE OF LOW VOLTAGE/CONTROL WIRING (I.E. THERMOSTATS, AUDIO, VISUAL, COMM. ETC.)
4. ALL COMMUNICATIONS DEVICES SHALL RETURN TO THE COMMUNICATIONS DEMARCATION IN MINIMUM 1" CONDUIT.
5. ALL OUTDOOR RECEPTACLES SHALL BE GROUND FAULT CIRCUIT INTERRUPTER (GFCI) WITH WEATHER PROOF OUTDOOR RATED METALLIC COVER.
6. CONTRACTOR SHALL FURNISH AND INSTALL ALL DOOR HARDWARE IN ACCORDANCE TO DelDOT SPECIFICATIONS. AS WELL AS ALL CONDUITS, BACKBOXES AND REQUIRED ACCESSORIES AS NECESSARY TO SUPPORT THE COMPLETE INSTALLATION OF ALL ACCESS CONTROLLED DOORS. THE CONTRACTOR SHALL COORDINATE WITH THE DelDOT INTEGRATOR TO DETERMINE ALL CONDUIT REQUIREMENTS PRIOR TO THE COMMENCEMENT OF ANY WORK. (TYPICAL ALL LOCATIONS).
7. CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUITS, BACKBOXES AND REQUIRED ACCESSORIES AS NECESSARY TO SUPPORT THE COMPLETE INSTALLATION OF ALL FIXED VIDEO SURVEILLANCE CAMERAS. THE CONTRACTOR SHALL COORDINATE WITH THE DelDOT INTEGRATOR TO DETERMINE ALL CONDUIT REQUIREMENTS PRIOR TO THE COMMENCEMENT OF ANY WORK. (TYPICAL ALL LOCATIONS).

SHEET KEY NOTES:

1. SEE PANEL SCHEDULES ON DWG CO-E-501
2. SEE LIGHTING CONTROL PANEL "LC" SCHEDULE ON DWG CO-E-501.
3. PROVIDE FUSED SAFETY SWITCH: 30A/2P, 240V, HEAVY DUTY IN NEMA 3R ENCLOSURE (PROVIDE SQUARE D CLASS 3110 OR APPROVED EQUAL). PROVIDE 20A CLASS R FUSE.
4. PROVIDE NON-FUSED SAFETY SWITCH: 30A/2P, 240V, HEAVY DUTY IN NEMA 1 ENCLOSURE (PROVIDE SQUARE D CLASS 3110 OR APPROVED EQUAL).
5. PROVIDE POWER SUPPLY & CONTROL CIRCUIT FOR INDOOR UNIT AC/1 (FED DIRECTLY FROM OUTDOOR UNIT CU/1).
6. FAN SPEED CONTROL FURNISHED BY MECHANICAL EQUIPMENT MANUFACTURER AND INSTALLED BY ELECTRICAL CONTRACTOR.
7. PROVIDE FUSED SAFETY SWITCH: 20A/2P, 240V, HEAVY DUTY IN NEMA 1 ENCLOSURE (PROVIDE SQUARE D CLASS 3110 OR APPROVED EQUAL). PROVIDE 20A CLASS R FUSES.
8. PROVIDE FUSED SAFETY SWITCH: 60A/3P, 240V, HEAVY DUTY IN NEMA 1 ENCLOSURE (PROVIDE SQUARE D CLASS 3110 OR APPROVED EQUAL). PROVIDE 40A CLASS R FUSES.
9. PROVIDE FUSED SAFETY SWITCH: 30A/3P, 240V, HEAVY DUTY IN NEMA 1 ENCLOSURE (PROVIDE SQUARE D CLASS 3110 OR APPROVED EQUAL). PROVIDE 30A CLASS R FUSES.
10. PROVIDE FUSED SAFETY SWITCH: 30A/3P, 240V, HEAVY DUTY IN NEMA 1 ENCLOSURE (PROVIDE SQUARE D CLASS 3110 OR APPROVED EQUAL). PROVIDE 20A CLASS R FUSES.
11. STUB UP CONDUITS 6" ABOVE FINISHED FLOOR.
12. SEE DRAWING S-E-201 FOR SITE PLAN AND CONDUIT INFORMATION. SEE DETAIL "5" ON DWG S-E-205 FOR JUNCTION WELL TYPE 4.
13. PROPOSED LOCATION FOR SECURITY ACCESS PANEL. COORDINATE EXACT LOCATION IN FIELD WITH PROJECT MANAGER. CONDUITS FROM ALL ACCESS CONTROLLED DOORS (CARD READERS) SHALL RUN TO THE FINAL LOCATION OF THE SECURITY PANEL. SEE SCHEMATIC ACCESS CONTROL SYSTEM RISER DIAGRAM ON DWG. CO-E-401.
14. PROVIDE FUSED SAFETY SWITCH: 60A/2P, 240V, HEAVY DUTY IN NEMA 1 ENCLOSURE (PROVIDE SQUARE D CLASS 3110 OR APPROVED EQUAL). PROVIDE 60A CLASS R FUSES.

CO-E-201

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	CREW OPERATIONS BUILDING ELECTRICAL FLOOR PLAN POWER AND SPECIAL SYSTEMS
			COUNTY NEW CASTLE	DESIGNED BY: JDT	SHEET NO. 67
				CHECKED BY: JL	TOTAL SHTS. 116

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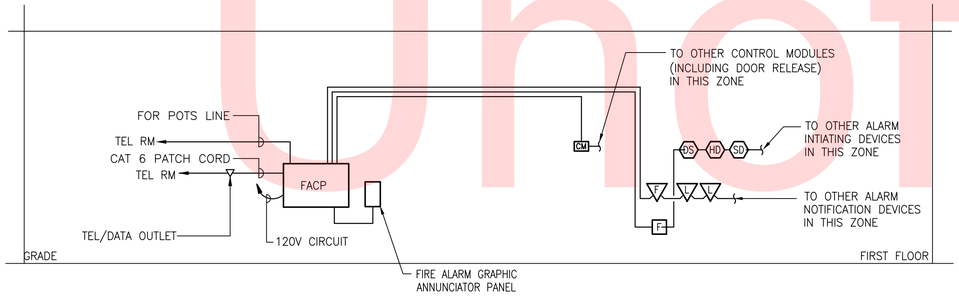
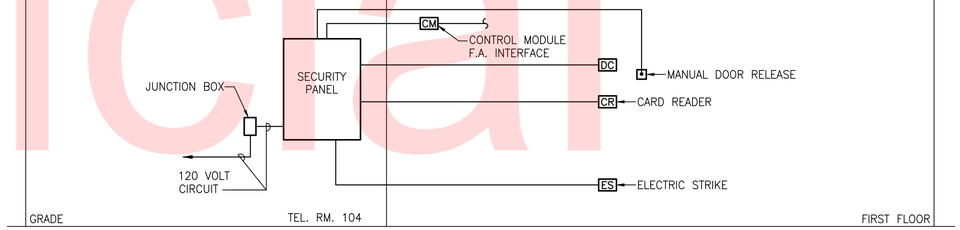


1 SCHEMATIC FIRE ALARM RISER DIAGRAM

SCALE NOT TO SCALE

NOTES:

1. REFER TO FLOOR PLANS FOR EXACT DEVICE COUNT AND LOCATIONS. PROVIDE CONDUIT AND WIRING AS REQUIRED BY SYSTEM MANUFACTURER.

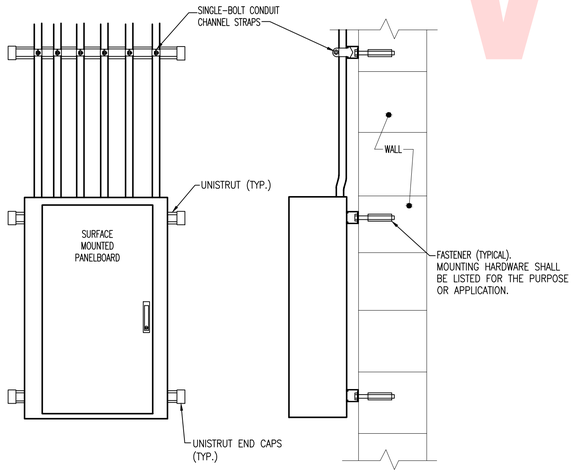


2 SCHEMATIC ACCESS CONTROL SYSTEM RISER DIAGRAM

SCALE NOT TO SCALE

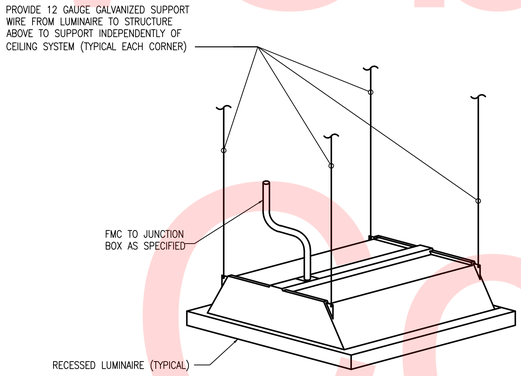
NOTES:

1. REFER TO FLOOR PLANS FOR EXACT DEVICE COUNT AND LOCATIONS. PROVIDE BOXES AND EMPTY CONDUIT WITH PULL STRING AS REQUIRED BY SYSTEM MANUFACTURER.
2. CONTRACTOR SHALL FURNISH AND INSTALL ALL DOOR HARDWARE IN ACCORDANCE TO DelDOT SPECIFICATIONS. AS WELL AS ALL CONDUITS, BACKBOXES AND REQUIRED ACCESSORIES AS NECESSARY TO SUPPORT THE COMPLETE INSTALLATION OF ALL ACCESS CONTROLLED DOORS. THE CONTRACTOR SHALL COORDINATE WITH THE DelDOT INTEGRATOR TO DETERMINE ALL CONDUIT REQUIREMENTS PRIOR TO THE COMMENCEMENT OF ANY WORK. (TYPICAL ALL LOCATIONS).



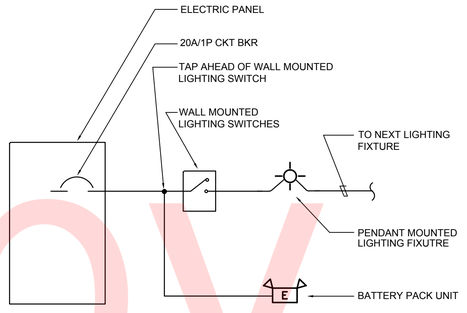
3 PANELBOARD MOUNTING DETAIL

SCALE NOT TO SCALE



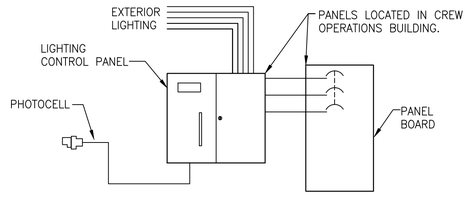
4 RECESSED LUMINAIRE SUPPORT DETAIL

SCALE NOT TO SCALE



5 BATTERY PACK UNIT CONNECTION DETAIL

SCALE NOT TO SCALE



NOTES:

1. PROVIDE LIGHTING CONTROL PANEL SIMILAR TO HUBBELL LXIN-32-16-08 WITH ENCLOSURE LEXEN-32-S OR EQUAL. SEE CREW OPERATIONS BUILDING DRAWING CO-E-501 FOR PANEL SCHEDULE.
2. PROVIDE ALL NECESSARY ACCESSORIES FOR COMPLETE AND FUNCTIONAL INSTALLATION.

5 LIGHTING RELAY CONTROL PANEL "LC"

SCALE NOT TO SCALE

CO-E-401

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	JDT
COUNTY	CHECKED BY:	JDT
NEW CASTLE		

CREW OPERATIONS BUILDING
ELECTRICAL DETAILS

SHEET NO.
68
TOTAL SHTS.
116

JMT Q:\NDE\120995_021_St_Georges_Maintenan\CADD\Electrical\Crew Operations\CO-E-401 CO DETAILS - Copy.dwg

CREW OPERATIONS BUILDING LIGHTING FIXTURE SCHEDULE

TYPE	SYMBOL	DESCRIPTION	EQUAL MANUFACTURER	CATALOG NO.	LAMP QTY.	LAMP TYPE	LAMP COLOR	LAMP CRI	LAMP LIFE	FIXTURE VOLTAGE	FIXTURE WATTS	FINISH	MOUNTING	NOTES
A	A	4' SURFACE VOLUMETRIC LED LUMINAIRE	LITHONIA	SLT4 40L MVOLT EZ1 LP840	1	LED	4000 °K	≥90	50,000 HRS	120V	35W	WHITE PAINT	SURFACE	SEE NOTE 1, 2, 3, 4 & 5
B	B	RECESSED 2'X2' LED LUMINAIRE	LITHONIA	2BLT2 40L ADP EZ1 LP935	1	LED	3500 °K	≥90	50,000 HRS	120V	39W	WHITE PAINT	RECESSED IN T-GRID CEILING	SEE NOTE 1, 2, 3, 4 & 5
C	C	RECESSED 2'X2' LED LUMINAIRE WITH FROSTED ACRYLIC TILE.	LITHONIA	2ACL2 33L EZ1 LP835	1	LED	3500 °K	≥80	50,000 HRS	120V	29W	WHITE PAINT	RECESSED IN T-GRID CEILING	SEE NOTE 1, 2, 3, 4 & 5
D	D	LOW-PROFILE CURVED BASKET LED WRAPAROUND	LITHONIA	LBL4 48L EZ1 LP835	1	LED	3500 °K	≥90	50,000 HRS	120V	39W	WHITE PAINT	SURFACE CEILING	SEE NOTE 1, 2, 3, 4 & 5
E	E	EMERGENCY LIGHT WITH BATTERY PACK	LITHONIA	ELM2 LED HO	2	LED	–	–	–	120V	3W	THERMOPLASTIC WHITE	SURFACE WALL 8' AFF	SEE NOTE 1, 2, 3, 4 & 5
E1	E1	OUTDOOR REMOTE EMERGENCY LIGHTING	LITHONIA	ELA TQWP L0304SD	2	LED	–	–	–	120V	3W	THERMOPLASTIC WHITE	SURFACE WALL 8' AFF	SEE NOTE 1, 2, 3, 4 & 5
F	F	SURFACE 4' WALL MOUNTED VANITY LED	LITHONIA	FMVTSL 48IN MVOLT 35K 90CRI BN	1	LED	3500 °K	≥90	50,000 HRS	120V	34W	BRUSHED NICKEL	SURFACE WALL 8' AFF	SEE NOTE 1, 2, 3, 4 & 5
F1	F1	SURFACE 2' WALL MOUNTED VANITY LED	LITHONIA	FMVTSL 24IN MVOLT 35K 90CRI BN	1	LED	3500 °K	≥90	50,000 HRS	120V	17W	BRUSHED NICKEL	SURFACE WALL 8' AFF	SEE NOTE 1, 2, 3, 4 & 5
G	G	RECESSED 8" LED DOWNLIGHT	GOTHAM	EVO 35/30 8AR MWD LSS 120 EZ1 TRW LS AR	1	LED	3500 °K	≥80	50,000 HRS	120V	47W	SPECULAR(LS). CLEAR(AR)	RECESSED	SEE NOTE 1, 2, 3, 4 & 5
G1	G1	RECESSED 6" LED NON-CONDUCTIVE SHOWER LIGHT	GOTHAM	EVO 35/35 6 DFR 120 EZ1 LS AR	1	LED	3500 °K	≥80	50,000 HRS	120V	30W	SPECULAR(LS). CLEAR(AR)	RECESSED	SEE NOTE 1, 2, 3, 4 & 5
H	H	UNDER CABINET MOUNT 2' LED	LITHONIA	UCLD 24IN 35K 90CRI WH UC ERC	1	LED	3500 °K	≥90	50,000 HRS	120V	39W	WHITE PAINT	SURFACE UNDER CABINET	SEE NOTE 1, 2, 3, 4 & 5
I	I	RECESSED 6" LED DOWNLIGHT WALL WASH	GOTHAM	EVO WW 35/25 AR LSS CRI90	1	LED	3500 °K	≥90	50,000 HRS	120V	30W	CLEAR	RECESSED IN T-GRID CEILING	SEE NOTE 1, 2, 3, 4 & 5
J	J	FLOOD LIGHT FIXTURE	LITHONIA	DSXF3 LED 6 P2 40K FL MVOLT THK DBLXD	1	LED	4000 °K	≥70	50,000 HRS	120V	183W	BLACK	18" STANCHION MOUNT	SEE NOTE 1, 2, 3, 4 & 5
K	K	VANDAL RESISTANT 8" LED DOWNLIGHT	GOTHAM	EVO VR 35/30 8WR T73 120	1	LED	3500 °K	≥90	50,000 HRS	120V	39W	WITHE W/PRISMATIC LENS	RECESSED	SEE NOTE 1, 2, 3, 4 & 5
L	L	RECESSED 6" LED DOWNLIGHT	PHILIPS LIGHTOLIER	FRAME: C6RN ENGINE: C6L35940MZ10U TRIM: C6RDLCL	1	LED	4000 °K	≥90	50,000 HRS	120V	30W	SPECULAR CLEAR WHITE FLANGE	RECESSED	SEE NOTE 1, 2, 3, 4 & 5
X	X	LED EMERGENCY EXIT SIGN	BARRON EXITRONIX	402E-WB-BL-G2	1	LED	3500 °K	–	–	120V	≤2.5W	BLACK W/ ALUMINUM FACE	WALL	SEE NOTE 1, 2, 3, 4, 5 & 6
X2	X2	LED EMERGENCY EXIT SIGN DOUBLE FACE WITH ARROWS AS REQUIRED	BARRON EXITRONIX	403E-WB-BL-G2	1	LED	3500 °K	–	–	120V	≤5W	BLACK W/ ALUMINUM FACE	CEILING	SEE NOTE 1, 2, 3, 4, 5 & 6

FIXTURE SCHEDULE NOTES:

1. COORDINATE ALL FIXTURE QUANTITIES AND PLACEMENT REQUIREMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ORDERING AND COORDINATING ALL FIXTURE OPTIONS AND ACCESSORIES TO ENSURE A COMPLETE QUALITY INSTALLATION.
3. FOR ALL LIGHT FIXTURES, FINISH SHOULD BE COORDINATED WITH ARCHITECT.
4. FOR ALL LIGHT FIXTURES, REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHT.

PANEL: LC

MOUNTING: SURFACE

MAIN: MLO

AMP: 100 VOLT: 208Y/120

PHASE: 3 4 WIRE + GND

AIC: 14K AMPS RMS SYM

Branch Circuit Load Description	KVA Load A	KVA Load B	KVA Load C	Trip Poles	Circuit Wiring NO	Circuit Wiring Size	Circuit Wiring GND	Circuit Wiring C	Ckt. No.	Phase	Ckt. No.	Circuit Wiring NO	Circuit Wiring Size	Circuit Wiring GND	Circuit Wiring C	Trip Poles	KVA Load A	KVA Load B	KVA Load C	Branch Circuit Load Description
CREW OUTDOOR LIGHTS	0.50			20/1	2	#12	#12	3/4"	1	A	2	2	#10	#10	1"	20/2	0.50			OUTDOOR LIGHTS (1)
CREW OUTDOOR LIGHTS		0.50		20/1	2	#12	#12	3/4"	3	B	4	-	-	-	-	-		0.50		-
CREW OUTDOOR LIGHTS			0.20	20/1	2	#12	#12	3/4"	5	C	6	2	#10	#10	1"	20/2			0.50	OUTDOOR LIGHTS (1)
CREW OUTDOOR LIGHTS	0.20			20/1	2	#12	#12	3/4"	7	A	8	-	-	-	-	-	0.50			-
OUTDOOR SIGN LIGTH (1)		0.00		20/1	2	#10	#10	1"	9	B	10	2	#10	#10	1"	20/2		0.50		OUTDOOR LIGHTS (1)
SPARE			0.00	20/1	-	-	-	-	11	C	12	-	-	-	-	-			0.50	-
SPARE	0.00			20/1	-	-	-	-	13	A	14	2	#10	#10	1"	20/2	0.50			OUTDOOR LIGHTS (1)
SPARE		0.00		20/1	-	-	-	-	15	B	16	-	-	-	-	-		0.50		-
SPARE			0.00	20/1	-	-	-	-	17	C	18	2	#10	#10	1"	20/2			0.50	OUTDOOR LIGHTS (1)
SPARE	0.00			20/1	-	-	-	-	19	A	20	-	-	-	-	-	0.50			-
SPARE		0.00		20/1	-	-	-	-	21	B	22	-	-	-	-	20/2		0.00		SPARE
SPARE			0.00	20/1	-	-	-	-	23	C	24	-	-	-	-	-			0.00	0
SPARE	0.00			20/1	-	-	-	-	25	A	26	-	-	-	-	20/2	0.00			SPARE
SPARE		0.00		20/1	-	-	-	-	27	B	28	-	-	-	-	-		0.00		0
SPARE			0.00	20/1	-	-	-	-	29	C	30	-	-	-	-	20/2			0.00	SPARE
SPARE	0.00			20/1	-	-	-	-	31	A	32	-	-	-	-	-	0.00			0
	0.70	0.50	0.20	<< PHASE SUB-TOTALS >>													2.00	1.50	1.50	MECH EQUIP. CIRCUIT BREAKERS SHALL BE HACR RATED.

PROVIDE THE FOLLOWING:

PHASE A	2.70	kVA
PHASE B	2.00	kVA
PHASE C	1.70	kVA

6.40 kVA TOTAL CONNECTED LOAD

6.40 kVA TOTAL DEMAND LOAD

(1) : SEE SITE PLAN ON DRAWING S-E-201 FOR OUTDOOR LIGTHS LOCATION

PANEL: CO SECTION 1

MOUNTING: SURFACE

MAIN: 225 MCB

AMP: 225 VOLT: 208Y/120

PHASE: 3 4 WIRE + GND

AIC: 22K AMPS RMS SYM

Branch Circuit Load Description	KVA Load A	KVA Load B	KVA Load C	Trip Poles	Circuit Wiring NO	Circuit Wiring Size	Circuit Wiring GND	Circuit Wiring C	Ckt. No.	Phase	Ckt. No.	Circuit Wiring NO	Circuit Wiring Size	Circuit Wiring GND	Circuit Wiring C	Trip Poles	KVA Load A	KVA Load B	KVA Load C	Branch Circuit Load Description
LIGHTS RM. 106-111	0.70			20/1	2	#12	#12	3/4"	1	A	2	2	#12	#12	3/4"	20/2	1.00			CIRC. PUMP P-1
LIGHTS RM105,104,103,102		0.70		20/1	2	#12	#12	3/4"	3	B	4	-	-	-	-	-		1.00		SPACE
LIGHTS 108,112,113,114			0.90	20/1	2	#12	#12	3/4"	5	C	6	2	#12	#12	3/4"	20/2			1.00	CIRC. PUMP P-2
LIGHTS CO 100	0.40			20/1	2	#12	#12	3/4"	7	A	8	-	-	-	-	-	1.00			-
LIGHTING CONTROL PANEL		0.40		40/3	4	#8	#10	1"	9	B	10	2	#12	#12	3/4"	20/2		0.70		D.SPLIT SYSTEM DSS-1
-			0.40	-	-	-	-	-	11	C	12	-	-	-	-	-			0.70	-
-	0.00			-	-	-	-	-	13	A	14	2	#6	#10	1"	60/2	4.50			W.HEATER DWH-1
RECEPTACLES RM.106		1.00		20/1	2	#12	#12	3/4"	15	B	16	-	-	-	-	-		4.50		-
RECEPTACLES RM.111			1.00	20/1	2	#12	#12	3/4"	17	C	18	2	#12	#12	3/4"	20/1			0.90	GLYCOL FEED SYSTEM GFS-1
RECEPTACLES RM.109	1.00			20/1	2	#12	#12	3/4"	19	A	20	3	#8	#10	1"	40/3	3.80			W. A. HEAT PUMP WTAHP-1
RECEPTACLE IT RM.104		1.00		20/1	2	#12	#12	3/4"	21	B	22	-	-	-	-	-		3.80		-
RECEPTACLE IT RM.104			1.00	20/1	2	#12	#12	3/4"	23	C	24	-	-	-	-	-			3.80	-
RECEPTACLE SEC. RM.104	1.00			20/1	2	#12	#12	3/4"	25	A	26	3	#10	#10	3/4"	30/3	2.30			W. A. HEAT PUMP WTAHP-2
RECEPTACLES LOBBY/CORR. 106		1.00		20/1	2	#12	#12	3/4"	27	B	28	-	-	-	-	-		2.30		-
WATER COOLER			1.00	20/1	2	#12	#12	3/4"	29	C	30	-	-	-	-	-			2.30	-
RECEPTACLES MENS TR.102	1.00			20/1	2	#12	#12	3/4"	31	A	32	3	#12	#12	3/4"	20/3	1.00			SUSPENDED UNIT HEATER UH-1
RECEPTACLES W.TR.113-ST.112		1.00		20/1	2	#12	#12	3/4"	33	B	34	-	-	-	-	-		1.00		-
EXHAUST FAN EF-1			0.20	20/1	2	#12	#12	3/4"	35	C	36	-	-	-	-	-			1.00	-
RECEPTACLE OUTDOOR	0.20			20/1	2	#12	#12	3/4"	37	A	38	3	#10	#10	1"	20/2	1.00			CIRC. PUMP P-2
SECURITY DOORS		0.90		20/1	2	#12	#12	3/4"	39	B	40	-	-	-	-	-		1.00		SPACE
SECURITY DOORS			0.60	20/1	2	#12	#12	3/4"	41	C	42	-	-	-	-	20/1			0.00	SPARE
	4.30	6.00	5.10	<< PHASE SUB-TOTALS >>													14.60	14.30	9.70	MECH EQUIP. CIRCUIT BREAKERS SHALL BE HACR RATED.

PROVIDE THE FOLLOWING:

PHASE A	18.90	kVA
PHASE B	20.30	kVA
PHASE C	14.80	kVA

54.00 kVA CONNECTED LOAD (SECTION 1)

15.90 kVA CONNECTED LOAD (SECTION 2)

69.90 kVA TOTAL CONNECTED LOAD

65.49 kVA TOTAL DEMAND LOAD

NOTE:

1. REFER TO THE SITE S-E SERIES DRAWINGS FOR MAIN DISTRIBUTION EQUIPMENT LOCATION AND ELECTRICAL SINGLE LINE DIAGRAM

PANEL: CO SECTION 2

MOUNTING: SURFACE

MAIN: MLO

AMP: 225 VOLT: 208Y/120

PHASE: 3 4 WIRE + GND

AIC: 22K AMPS RMS SYM

Branch Circuit Load Description	KVA Load A	KVA Load B	KVA Load C	Trip Poles	Circuit Wiring NO	Circuit Wiring Size	Circuit Wiring GND	Circuit Wiring C	Ckt. No.	Phase	Ckt. No.	Circuit Wiring NO	Circuit Wiring Size	Circuit Wiring GND	Circuit Wiring C	Trip Poles	KVA Load A	KVA Load B	KVA Load C	Branch Circuit Load Description
FUEL STATION	2.00			30/3	4	#8	#10	1"	43	A	44	-	-	-	-	-	0.00			SPACE
-		2.00		-	-	-	-	-	45	B	46	-	-	-	-	-		0.00		SPACE
-			2.00	-	-	-	-	-	47	C	48	-	-	-	-	-			0.00	**SPACE**
VENDING RM.108	1.00			20/1	2	#12	#12	3/4"	49	A	50	-	-	-	-	-	0.00			SPACE
ICE MAKER RM.108		1.20		20/1	2	#12	#12	3/4"	51	B	52	-	-	-	-	-		0.00		SPACE
COFFEE RM.108			1.00	20/1	2	#12	#12	3/4"	53	C	54	-	-	-	-	-			0.00	SPACE
TOASTER RM.108	1.00			20/1	2	#12	#12	3/4"	55	A	56	-	-	-	-	-	0.00			SPACE
MICROWAVE RM.108		1.20		20/1	2	#12	#12	3/4"	57	B	58	-	-	-	-	-		0.00		SPACE
RANGE RM.108			1.50	20/1	2	#12	#12	3/4"	59	C	60	-	-	-	-	-			0.00	SPACE
REC.COUNTER RM.108	1.00			20/1	2	#12	#12	3/4"	61	A	62	-	-	-	-	-	0.00			SPACE
REFRIGERATOR RM.108		1.00		20/1	2	#12	#12	3/4"	63	B	64	-	-	-	-	-		0.00		SPACE
RECEPTACLES RM. 108			1.00	20/1	2	#12	#12	3/4"	65	C	66	-	-	-	-	-			0.00	SPACE
SPARE	0.00			20/1	-	-	-	-	67	A	68	-	-	-	-	-	0.00			SPACE
SPARE		0.00		20/1	-	-	-	-	69	B	70	-	-	-	-	-		0.00		SPACE
SPARE			0.00	20/1	-	-	-	-	71	C	72	-	-	-	-	-			0.00	SPACE
SPARE	0.00			20/1	-	-	-	-	73	A	74	-	-	-	-	-	0.00			SPACE
SPARE		0.00		20/1	-	-	-	-	75	B	76	-	-	-	-	-		0.00		SPACE
SPARE			0.00	20/1	-	-	-	-	77	C	78	-	-	-	-	-			0.00	**SPACE**
SPARE	0.00			20/1	-	-	-	-	79	A	80	-	-	-	-	-	0.00			**SPACE**
SPARE		0.00		20/1	-	-	-	-	81	B	82	-	-	-	-	-		0.00		SPACE
SPARE			0.00	20/1	-	-	-	-	83	C	84	-	-	-	-	-			0.00	SPACE
	5.00	5.40	5.50	<< PHASE SUB-TOTALS >>													0.00	0.00	0.00	MECH EQUIP. CIRCUIT BREAKERS SHALL BE HACR RATED.

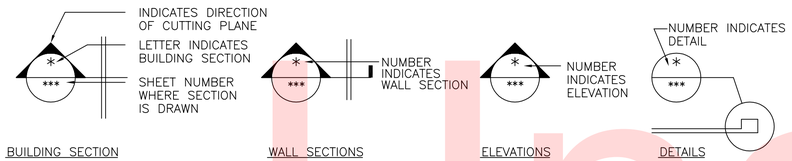
PROVIDE THE FOLLOWING:

PHASE A	5.00	kVA
PHASE B	5.40	kVA
PHASE C	5.50	kVA

15.90 kVA TOTAL CONNECTED LOAD

0.00 kVA TOTAL DEMAND LOAD

DETAIL SYMBOLS



ABBREVIATIONS

AFF	above finish floor	MBL	marble	GMU	glazed masonry unit
AT	acoustical tile	MBM	metal building manufacturer	GWB	gypsum wall board
AC	air conditioning	MDO	medium density overlay	GYP	gypsum
ALT	alternate	MO	masonry opening	HDW	hardware
ALUM	aluminum	MTL	metal	HGT	height
AB	anchor bolt	MAX	maximum	HTG	heating
APPROX	approximate	MECH	mechanical	HVAC	heating ventilating air conditioning
ARCH	architect (ural)	MED	medium		
ASPH	asphalt	MIN	minimum	HC	hollow core
AUTO	automatic	MISC	miscellaneous	HM	hollow metal
BSMT	basement	NOM	nominal	HOR	horizontal
BPL	bearing plate	N	north	HB	hose bib
BFF	below finish floor	NIC	not in contract	HWH	hot water heater
BM	bench mark	NTS	not to scale	INCL	include (d) (ing)
BIT	bituminous	NUM	number	ID	inside diameter
BLK	block	OC	on center	INSUL	insulation
BD	board	OPG	opening	IG	insulated glass
BS	both sides	OD	outside diameter	INT	interior
BOT	bottom	OA	overall	PL	property line
BLDG	building	OH	overhead	QT	quarry tile
BUR	built up roof	PFG	polished float glass	R	radius
C	cove	PNL	panel	REF	reference
CI	cast iron	PER	perimeter	RA	return air
CB	catch basin	PLAS	plaster	REV	revision, revised
CLG	ceiling	PL	plate	ROW	right of way
CEM	cement	PLK	concrete plank–painted	R	riser
CT	ceramic tile	PWD	plywood	RM	room
COL	column	PT	point	RO	rough opening
CONC	concrete	PVC	pounds per	SCH	schedule
CMU	concrete masonry unit	PSF	polyvinyl chloride	SEC	section
CONST	construction		square foot	SIM	similar
CONT	continuous, continue	PSI	pounds per	S	south, switch (es)
CJT	control joint		square inch	SF	seamless floor
CU	cubic	E	east, enamel paint	SPEC	specification (s)
DL	dead load	ELEC	electric (al)	SQ	square
DEM	demolish, demolition	EWC	electric water cooler	ST	straight
DTL	detail	ELEV	elevation	STL	steel
DIA	diameter	EMER	emergency	STO	storage
DIM	dimension	EST	estimate	STR	structural
DR	door	EW	each way	SYS	system
DS	downspout	EXH	exhaust	TFG	tempered float glass
D	drain	EXIST	existing	TH	threshold
DWG	drawing	EXP	expansion, exposed	TIG	tempered insulated glass
DF	drinking fountain	EXT	exterior	THK	thick (ness)
HW	hand wash station	FIN	finish (ed)	T&G	tongue & groove
INV	invert	FE	fire extinguisher	T	tread
JT	joint	FEC	fire extinguisher cabinet	TYP	typical
KO	knock out	FFL	finished floor line	VERT	vertical
LBL	label	FLG	flashing	VCT	vinyl composition tile
LAV	lavatory	FLR	floor (ing)	VB	vinyl base
LH	left hand	FD	floor drain	VCD	vinyl covered drywall
L	length, latex	FTG	footing	WC	water closet
LT	light	FND	foundation	WP	waterproof (ing)
LL	live load	GA	gauge	WWF	welded wire fabric
MH	manhole	GC	general contractor	W	west, width, wide
MFR	manufacture (er)	GD	grade, grading	W/	with
MAS	masonry	GHM	galvanized hollow metal	WD	wood
				WB	wood base

PROJECT INFORMATION

PROJECT NAME/ADDRESS:
DELAWARE DEPARTMENT OF TRANSPORTATION
ST. GEORGES MAINTENANCE YARD SHOP
LOREWOOD GROVE ROAD
MIDDLETOWN, DELAWARE 19709

APPLICABLE CODES:
INTERNATIONAL BUILDING CODE 2015 EDITION
NFPA 101 LIFE SAFETY CODE 2015 YEAR
NATIONAL ELECTRICAL CODE
INTERNATIONAL PLUMBING CODE

1. USE AND OCCUPANCY: S–1
2. TYPE OF CONSTRUCTION: TYPE II B
3. ALLOWABLE BUILDING HEIGHTS AND AREA
   (TABLE 504.3)(504.4)(506.2)
   AREA = 17,500
   HEIGHT = 2 STORY, 55FT

   ACTUAL HEIGHT: 1 STORY WITH EQUIPMENT MEZZANINE

   ACTUAL FLOOR AREA:
   TOTAL FOOTPRINT = 9,384 SQ. FT. MEZZ (EQUIP/STORAGE) NOT INCLUDED PER 505
4. FIRE RESISTANCE RATING FOR BUILDING ELEMENTS:

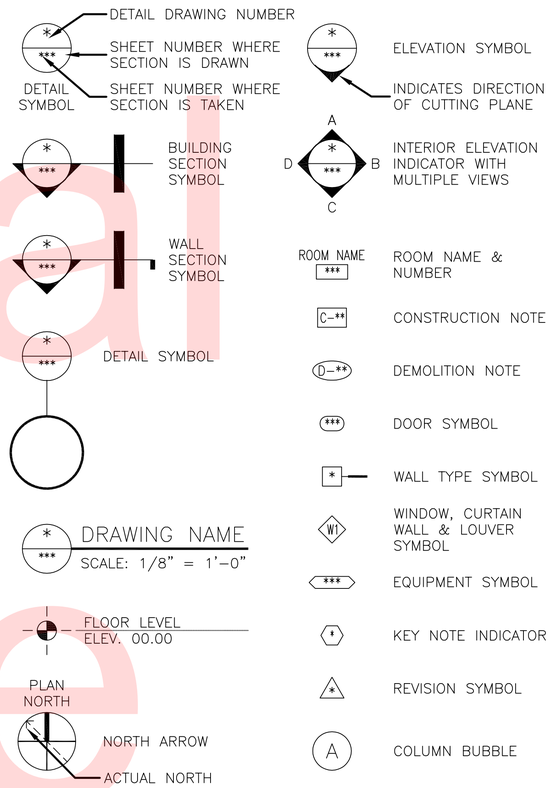
STRUCTURAL FRAME:	0 HOUR
BEARING WALLS:	0 HOUR
NON–BEARING WALL (INT):	0 HOUR
FLOOR CONSTRUCTION:	0 HOUR
ROOF CONSTRUCTION:	0 HOUR

   FIRE SEPARATION DISTANCE: GREATER THAN 30', (TABLE 602) MIN. 60' OPEN YARD
5. AUTOMATIC SPRINKLER SYSTEM: NOT REQUIRED
6. ALLOWABLE OCCUPANCY: 100 SQ. FT. PER PERSON
7. DESIGN OCCUPANT LOAD:
   9,384 X SQ. FT. AREA
   (100 S.F. PER PERSON) = 94 PEOPLE
8. ACTUAL OCCUPANT LOAD: 4± PEOPLE EXPECTED
9. MINIMUM NUMBER OF EXITS REQUIRED: 2 EXITS
10. EXITS PROVIDED: 5 EXITS
11. MAXIMUM ACCESS TRAVEL DISTANCE:
    (PER TABLE 1017.2)
    ALLOWABLE: 200'–0"
    ACTUAL: APPROX. 75'–0" MAX.

GENERAL NOTES

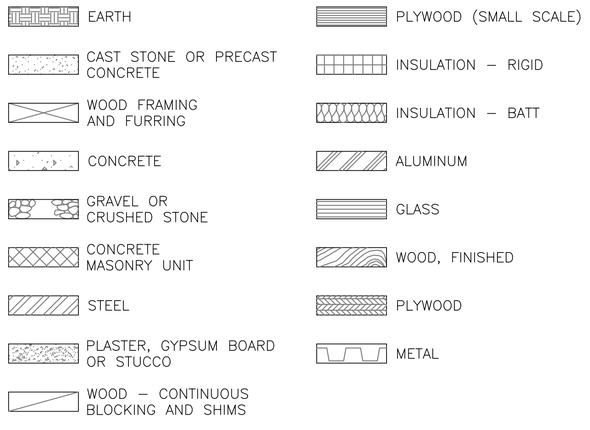
1. ALL PLAN DIMENSIONS ARE TO FACE OF SUBSTRATE, VERIFY IN FIELD.
2. PROVIDE SURFACE MOUNTED FIRE EXTINGUISHERS MOUNTED ON MASONRY WALL AS REQUIRED BY NFPA 10. FINAL LOCATION AND SIZE TO BE DETERMINED BY FIRE MARSHAL.
3. CONTRACTOR TO VERIFY ALL ± DIMENSIONS PRIOR TO COMMENCEMENT TO CONSTRUCTION, AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
4. TOILET SIZE IS BASED UPON ADA REQUIREMENTS REFER TO TOILET ROOM PLAN FOR TOILET, GRAB BARS, ACCESSORY HEIGHTS & WALL HUNG SINK.
5. ALL PARTITIONS NOT DESIGNATED, SHALL BE CONSIDERED WALL TYPE "A"
6. DO NOT SCALE DRAWINGS. USE WRITTEN DIMENSIONS ONLY.
7. ALL DIMENSIONS, NOTES, FINISHES AND FIXTURES SHOWN ON TYPICAL FLOOR PLANS, SECTIONS, OR DETAILS SHALL APPLY TO ALL SIMILAR, SYMMETRICAL OR OPPOSITE HAND PLANS, SECTIONS OR DETAILS.
8. ALL DOOR JAMBS SHALL BE LOCATED 4" FROM INTERSECTING WALL, U.N.O.
9. CONTRACTOR TO PROVIDE AND INSTALL EXIT SIGNS AND EMERGENCY LIGHTING AS REQUIRED BY APPLICABLE CODES. COORDINATE WITH ELECTRICAL DRAWINGS.
10. GENERAL CONTRACTOR TO VERIFY ALL EXISTING UTILITIES
    A. DOMESTIC WATER SERVICE
    B. SANITARY SEWER SERVICE
    C. ELECTRIC POWER SOURCE
11. COORDINATE ALL PROPOSED FLOOR, WALL AND ROOF PENETRATIONS

DETAIL SYMBOLS



MATERIALS

(ARCHITECTURAL AND STRUCTURAL DRAWINGS)



MB-A-100

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

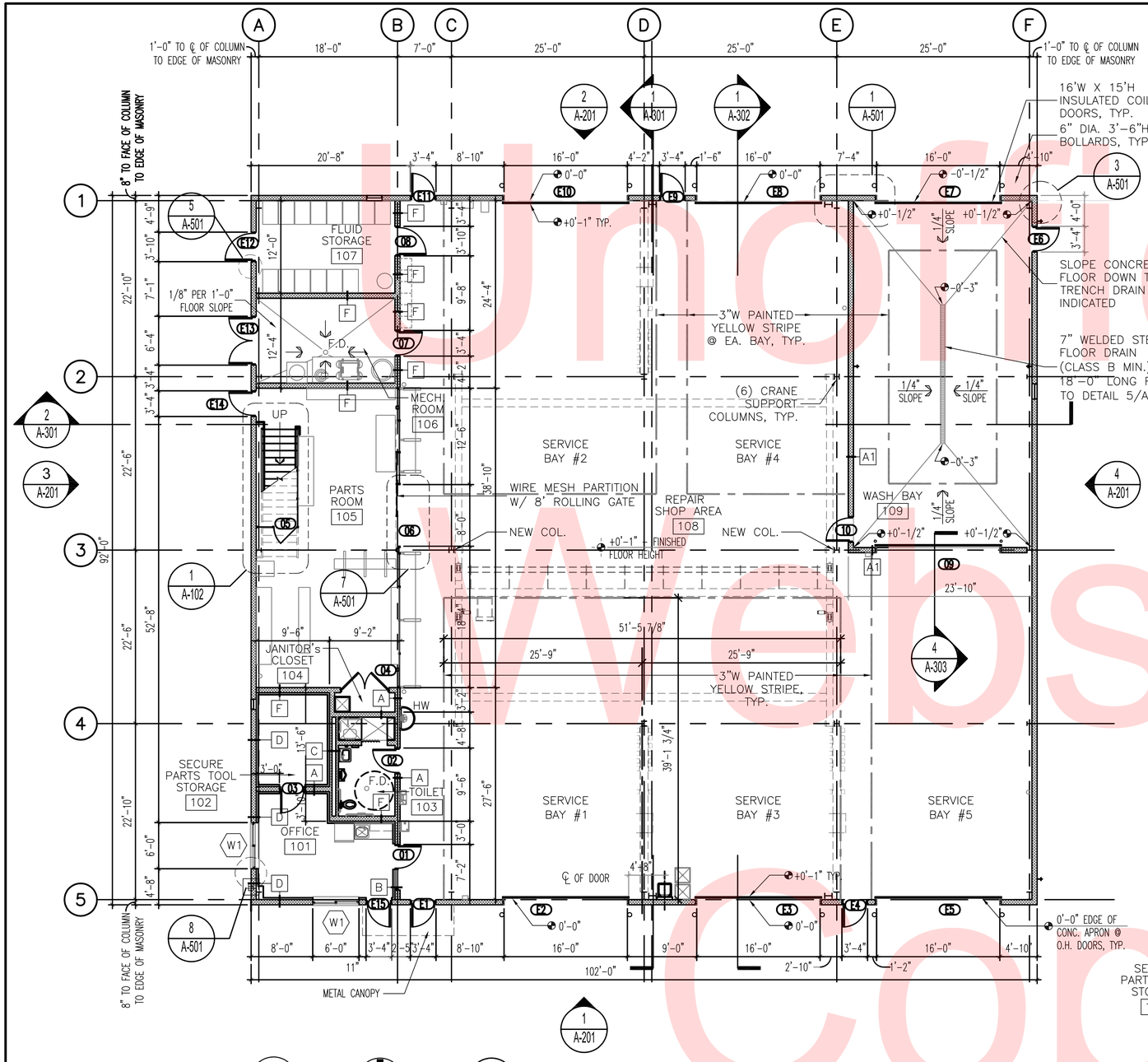
ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY: DCH	
COUNTY	CHECKED BY: KNM	
NEW CASTLE		

MAINTENANCE BUILDING CODE ANALYSIS, ABBREVIATIONS, & SYMBOLS

SHEET NO. 70
TOTAL SHTS. 116

Q:\NDE\120995_021_St_Georges_Maintenan\CADD\Architectural\MAINTENANCE BUILDING CAD\A1.0_CODE ANALYSIS, ABBREVIATIONS & SYMBOLS.dwg



3 A-101 GROUND FLOOR PLAN
SCALE: 1/8" = 1'-0"

TRUE NORTH

PLAN NORTH

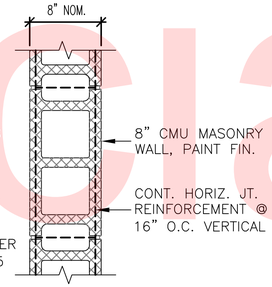
GENERAL NOTE:
ALL METAL BUILDING ENGINEERING & CONSTRUCTION BY METAL BUILDING MANUFACTURER.

NEW COLUMNS ASSUMED TO BE CRANE COLUMNS (NOT PART OF THE BUILDING FRAME) COLUMN CONNECTIONS MUST BE DESIGNED FOR CRANE LATERAL LOADS AND STRUCTURE MUST BE DESIGNED TO RESIST THESE LOADS. FOUNDATION DESIGN LOADS REMAIN THE SAME.

GRAPHIC SCALE

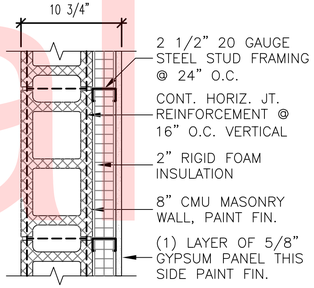
(IN FEET)
1/8 inch = 1 ft.

(IN INCHES)
1 1/2 inch = 1 ft.

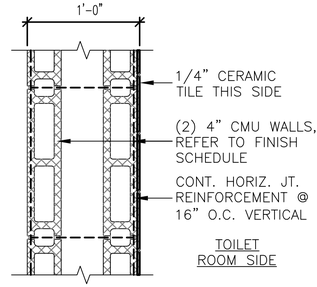


A 8" CMU MASONRY WALL TO UNDERSIDE OF MEZZANINE

A1 8" CMU MASONRY WALL @ 10'-8" HEIGHT



B 8" CMU MASONRY WALL W/ FURRING



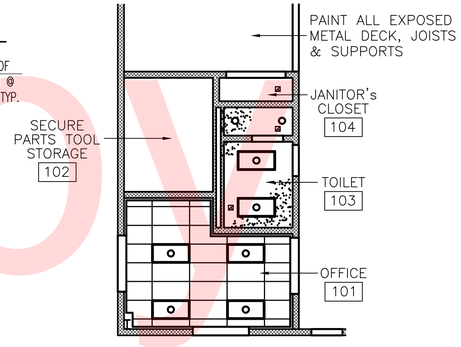
C MASONRY PLUMBING WALL W/ WAINSCOAT

D STEEL STUD & GYPSUM BOARD WALL FURRING

E WASH BAY STEEL STUD HIGH PARTITION

F 8" CMU MASONRY WALL – 2 HOUR FIRE RATING (UL DESIGN NO. U905)

2 A-101 WALL TYPES
SCALE: 1 1/2" = 1'-0"



3 A-101 PARTIAL CEILING PLAN
SCALE: 1/4" = 1'-0"

CEILING LEGEND

	1/2" MOISTURE RESISTANT GYPSUM BOARD CEILING METAL STUD FRAMING.
	2 X 4 SUSPENDED ACOUSTICAL TILE CEILING SYSTEM.
	2 X 4 LED LIGHT FIXTURES REFER TO ELECTRICAL DRAWINGS FOR EXACT LOCATIONS & VERIFICATION OF FIXTURE QUANTITIES.
	6" LED DOWNLIGHT
	EXHAUST FAN, REFER TO MECHANICAL

GENERAL CEILING NOTE:

1. FOR EXIT & EMERGENCY LIGHTING REFER TO ELECTRICAL DRAWINGS & SPECIFICATIONS.
2. FOR SWITCHING & WIRING REFER TO ELECTRICAL DRAWINGS & SPECIFICATIONS.
3. FIRE ALARM SYSTEM SHALL BE COORDINATED ON THE ELECTRICAL DRAWINGS & SPECIFICATIONS.
4. FLOOR CONSTRUCTION ABOVE ROOMS 101 AND 102 TO HAVE 2-HR RATING COMPLYING WITH UL#D716.

MB-A-101

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	DCH
COUNTY	CHECKED BY:	KNM
NEW CASTLE		

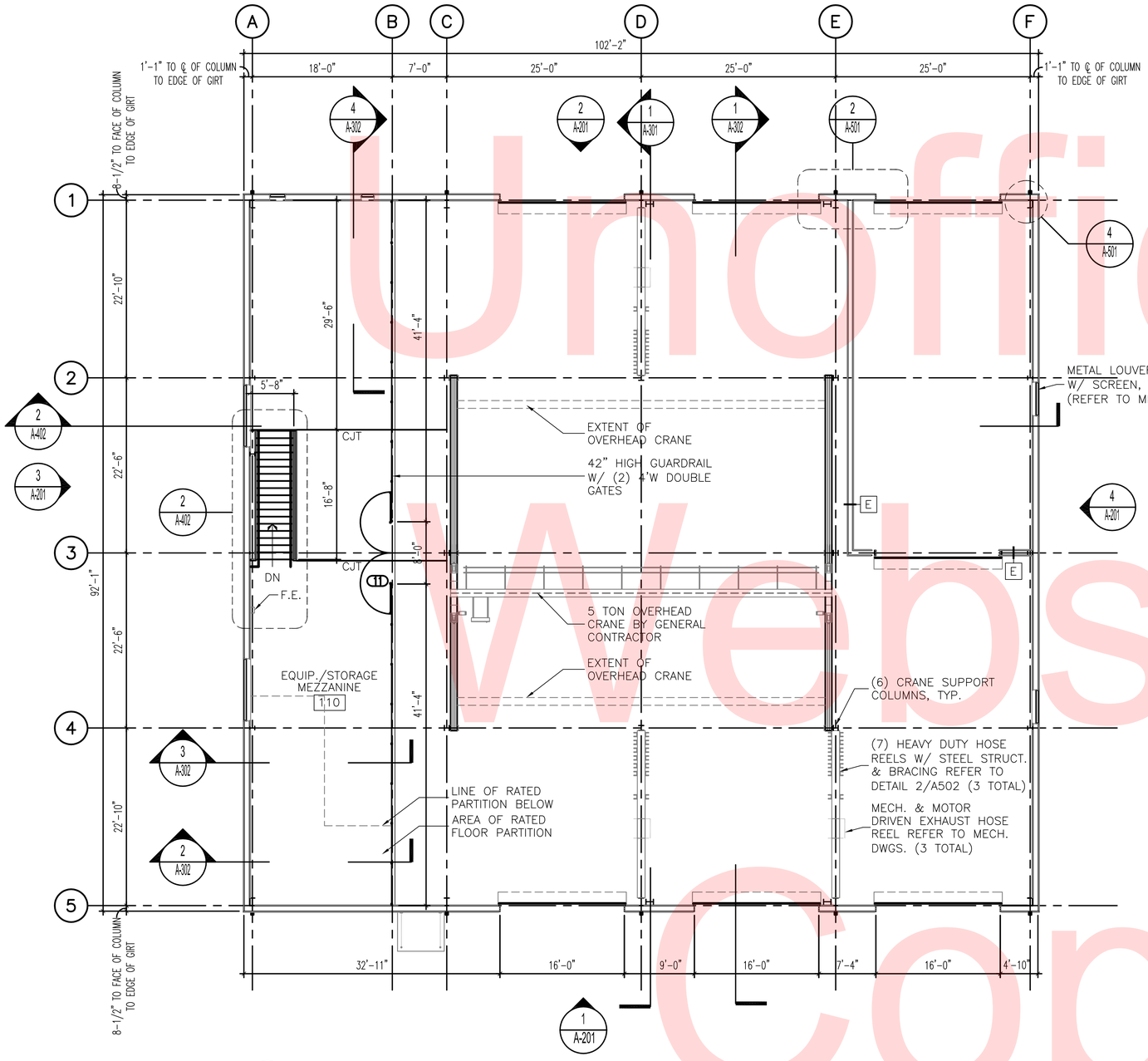
MAINTENANCE BUILDING
GROUND LEVEL PLAN

SHEET NO.
71
TOTAL SHTS.
116

GRAPHIC SCALE

(IN FEET)
1/8 inch = 1 ft.

(IN INCHES)
1 1/2 inch = 1 ft.



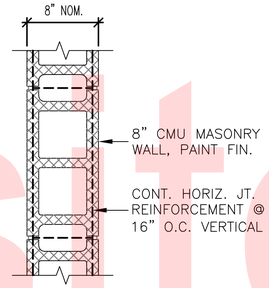
TRUE NORTH

PLAN NORTH

1 A-102 MEZZANINE FLOOR PLAN
SCALE: 1/8" = 1'-0"

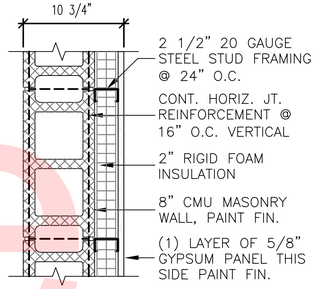
NOTE:
1. FLOOR AREA INDICATED ON PLAN TO BE FIRE RATED SHALL COMPLY WITH UL#D716-2HOUR ASSEMBLY

GENERAL NOTE:
ALL METAL BUILDING ENGINEERING & CONSTRUCTION BY METAL BUILDING MANUFACTURER.

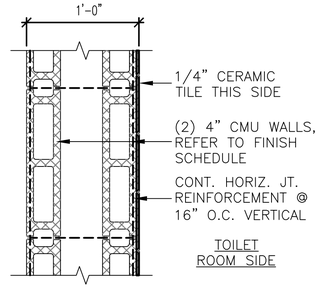


A 8" CMU MASONRY WALL TO UNDERSIDE OF MEZZANINE

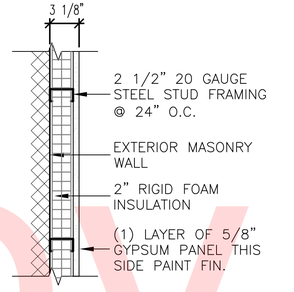
A1 8" CMU MASONRY WALL @ 10'-8" HEIGHT



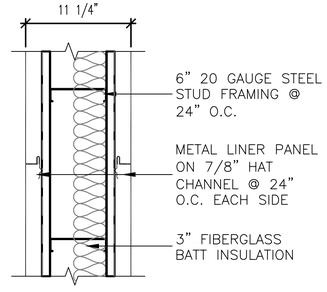
B 8" CMU MASONRY WALL W/ FURRING



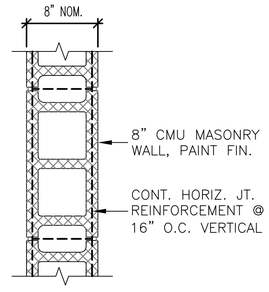
C MASONRY PLUMBING WALL W/ WAINSCOAT



D STEEL STUD & GYPSUM BOARD WALL FURRING



E WASH BAY STEEL STUD HIGH PARTITION

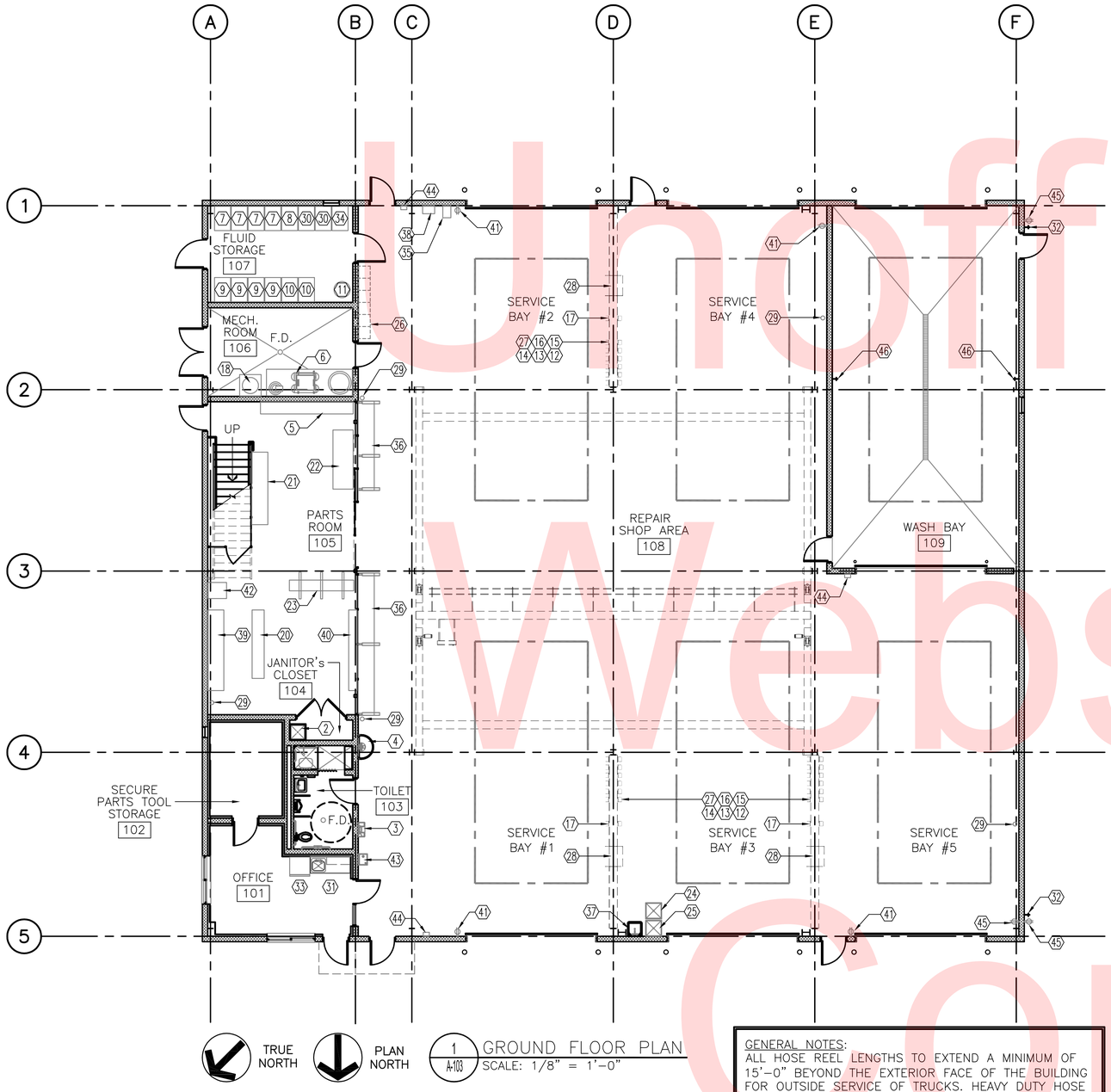


F 8" CMU MASONRY WALL – 2 HOUR FIRE RATING (UL DESIGN NO. U905)

2 A-102 WALL TYPES
SCALE: 1 1/2" = 1'-0"

MB-A-102

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MAINTENANCE BUILDING MEZZANINE FLOOR PLAN	SHEET NO. 72
				COUNTY NEW CASTLE	DESIGNED BY: DCH		TOTAL SHTS. 116
					CHECKED BY: KNM		



GRAPHIC SCALE

8 0 4 8 16

(IN FEET)

1/8 inch = 1 ft.

XX EQUIPMENT SCHEDULE

EQUIP. NO.	EQUIPMENT DESCRIPTION	EQUIP. QUANT.	FURNISHED BY	SIZE (DxHxL)
01	FOUR HOSE HEAVY DUTY MOBILE VEHICLE LIFT SYSTEM – 64,000 LBS. CAPACITY – 208V 3–PHASE 30A TWIST LOCK PLUG IN DEVICE	2	NIC – BY OWNER	–
02	MOP SINK	1	BY GENERAL CONTRACTOR	18" x 18"
03	EYE WASH	1	BY GENERAL CONTRACTOR	–
04	HALF ROUND HAND SINK	1	BY GENERAL CONTRACTOR	–
05	PARTS CABINET	1	NIC – BY OWNER	1'–6" x 11'–6"
06	AIR COMPRESSOR – 110 GALLON TANK REFER TO MECHANICAL DRAWINGS	1	BY GENERAL CONTRACTOR	–
07	15–40 MOTOR OIL PUMP ASSEMBLY AND 60 GAL. BULK STORAGE CUBE	4	BY GENERAL CONTRACTOR	–
08	10–30 MOTOR OIL PUMP ASSEMBLY AND 60 GAL. BULK STORAGE CUBE	1	BY GENERAL CONTRACTOR	–
09	HYDRAULIC OIL PUMP ASSEMBLY AND STATIONARY 60 GAL. CUBE	4	BY GENERAL CONTRACTOR	–
10	TRANSMISSION FLUID PUMP ASSEMBLY AND STATIONARY 60 GAL. CUBE	2	BY GENERAL CONTRACTOR	–
11	GREASE PUMP ASSEMBLY AND 55 GAL. DRUM WITH MOUNTING BRACKETS, PUMP, AND FLANGE FOR CONNECTION	1	BY GENERAL CONTRACTOR	–
12	CLG. MOUNTED HEAVY DUTY SERIES HOSE REEL – MOTOR OIL 15–40	3	BY GENERAL CONTRACTOR	–
13	CLG. MOUNTED HEAVY DUTY SERIES HOSE REEL – ANTI–FREEZE (PIPED IN COPPER)	3	BY GENERAL CONTRACTOR	–
14	CLG. MOUNTED HEAVY DUTY SERIES HOSE REEL – GREASE	3	BY GENERAL CONTRACTOR	–
15	CLG. MOUNTED HEAVY DUTY SERIES HOSE REEL – HYDRAULIC FLUID	3	BY GENERAL CONTRACTOR	–
16	CLG. MOUNTED HEAVY DUTY SERIES HOSE REEL – TRANSMISSION FLUID	3	BY GENERAL CONTRACTOR	–
17	CLG. MOUNTED HEAVY DUTY SERIES HOSE REEL – COMPRESSED AIR LINES	3	BY GENERAL CONTRACTOR	–
18	NATURAL GAS FIRED 50 GAL. HOT WATER HEATER REFER TO MECH. DRAWINGS	1	BY GENERAL CONTRACTOR	–
19	PORTABLE WELDER – 220V 1–PHASE 50A TWIST LOCK PLUG IN DEVICE, 3 OUTLETS TO BE PROVIDED AROUND SHOP	1	NIC – BY OWNER	–
20	RACK	1	NIC – BY OWNER	1'–6" X 8'–6"
21	PART CABINET	1	NIC – BY OWNER	2'–0" X 9'–0"
22	PARTS CASE	1	NIC – BY OWNER	2'–6" X 7'–4"
23	PARTS RACK	1	NIC – BY OWNER	1'–4" X 8'–4"
24	250 GAL. DOUBLE WALLED WASTE OIL RECOVERY TANK WITH INTERIOR BASIN	1	BY GENERAL CONTRACTOR	–
25	500 GAL. DOUBLE WALLED WASTE HYDRAULIC RECOVERY OIL TANK WITH INTERIOR BASIN	1	BY GENERAL CONTRACTOR	–
26	SINGLE TIER FULL HEIGHT FLOOR MOUNTED METAL LOCKER	6	NIC – BY OWNER	18" X 18" X 7'–0"
27	CEILING MOUNTED HEAVY DUTY SERIES REEL – ELECTRIC LINE	3	BY GENERAL CONTRACTOR	–
28	OVERHEAD EXHAUST REMOVAL SYSTEM HOSE REEL W/ Y ADAPTER & ADD'L HOSE	3	BY GENERAL CONTRACTOR	–
29	WALL MOUNTED COMPRESSED AIR DROPS STATIONS AT 48" AFF.	4	BY GENERAL CONTRACTOR	–
30	ANTI–FREEZE PUMP ASSEMBLY AND 60 GAL. BULK STORAGE CUBE	2	BY GENERAL CONTRACTOR	–
31	BASE CABINETS, COUNTER AND SINK W/ (2) 110 V. ELEC. OUTLETS AT 48" AFF.	1	BY GENERAL CONTRACTOR	2'–0" X 5'–0"
32	FROST–PROOF HOSE BIB W/ WALL MTD. HOSE RACK FOR 75' LG. X 3/4" WATER HOSE	2	NIC – BY OWNER	75' LG. X 3/4" WATER HOSE N.I.C.
33	REFRIGERATOR – DO NOT PROVIDE WATER LINE	1	NIC – BY OWNER	–
34	LUBE OIL 60 GAL. BULK STORAGE CUBE	1	BY GENERAL CONTRACTOR	–
35	DRILL PRESS – 208V 3–PHASE 20A PLUG IN DEVICE ON A DEDICATED CIRCUIT	1	NIC – BY OWNER	–
36	WORK BENCH W/ (2) 110 V. ELEC. OUTLETS AT 48" AFF.	2	NIC – BY OWNER	–
37	ENAMELED CAST IRON WALL MOUNTED UTILITY SINK	1	BY GENERAL CONTRACTOR	22" X 18"
38	PEDESTAL GRINDER – 120V 1–PHASE 20A PLUG IN DEVICE ON A DEDICATED CIRCUIT	1	NIC – BY OWNER	–
39	TOOL CABINET W/ (2) 110 V. ELEC. OUTLETS AT 48" AFF.	1	NIC – BY OWNER	2'–0" X 10'–0"
40	FREESTANDING BOOKCASE	1	NIC – BY OWNER	1'–0" X 10'–0"
41	OUTLET FOR PORTABLE WELDER	3	NIC – BY OWNER	–
42	MANUAL 20 TON HYDRAULIC PRESS	1	NIC – BY OWNER	–
43	WALL MOUNTED ELECTRIC DRINKING FOUNTAIN	1	BY GENERAL CONTRACTOR	–
44	FIRE EXTINGUISHERS – WALL MOUNTED	4	BY GENERAL CONTRACTOR	–
45	ELECTRICAL OUTLET 48" AFF.	3	BY GENERAL CONTRACTOR	–
46	STANDARD HOSE BIB & W.P. ELECTRICAL OUTLET FOR WASH EQUIPMENT	2	BY GENERAL CONTRACTOR	–

GENERAL NOTES:

ALL HOSE REEL LENGTHS TO EXTEND A MINIMUM OF 15'–0" BEYOND THE EXTERIOR FACE OF THE BUILDING FOR OUTSIDE SERVICE OF TRUCKS. HEAVY DUTY HOSE REELS TO ACCOMMODATE 75 FOOT HOSE.

THE (5) HEAVY DUTY SERIES HOSE REELS SHALL BE PROVIDED AND GROUPED TOGETHER FOR THE FLUIDS LISTED IN THE EQUIPMENT SCHEDULE. (4) OF THE (5) HOSE REEL FLUIDS TO BE PROVIDED WITH STEEL PIPE, THE REEL CONTAINING ANTI–FREEZE SHALL USE COPPER PIPING. PROVIDE HOSE REELS FOR COMPRESSED AIR AND ELECTRIC AT SAME LOCATION.

ALL EQUIPMENT SHOWN DIAGRAMMATICALLY, COORDINATE EXACT LOCATION WITH OWNER BEFORE INSTALLATION.

ALL METAL BUILDING ENGINEERING & CONSTRUCTION BY METAL BUILDING MANUFACTURER.

MB-A-103

DELAWARE
DEPARTMENT OF TRANSPORTATION

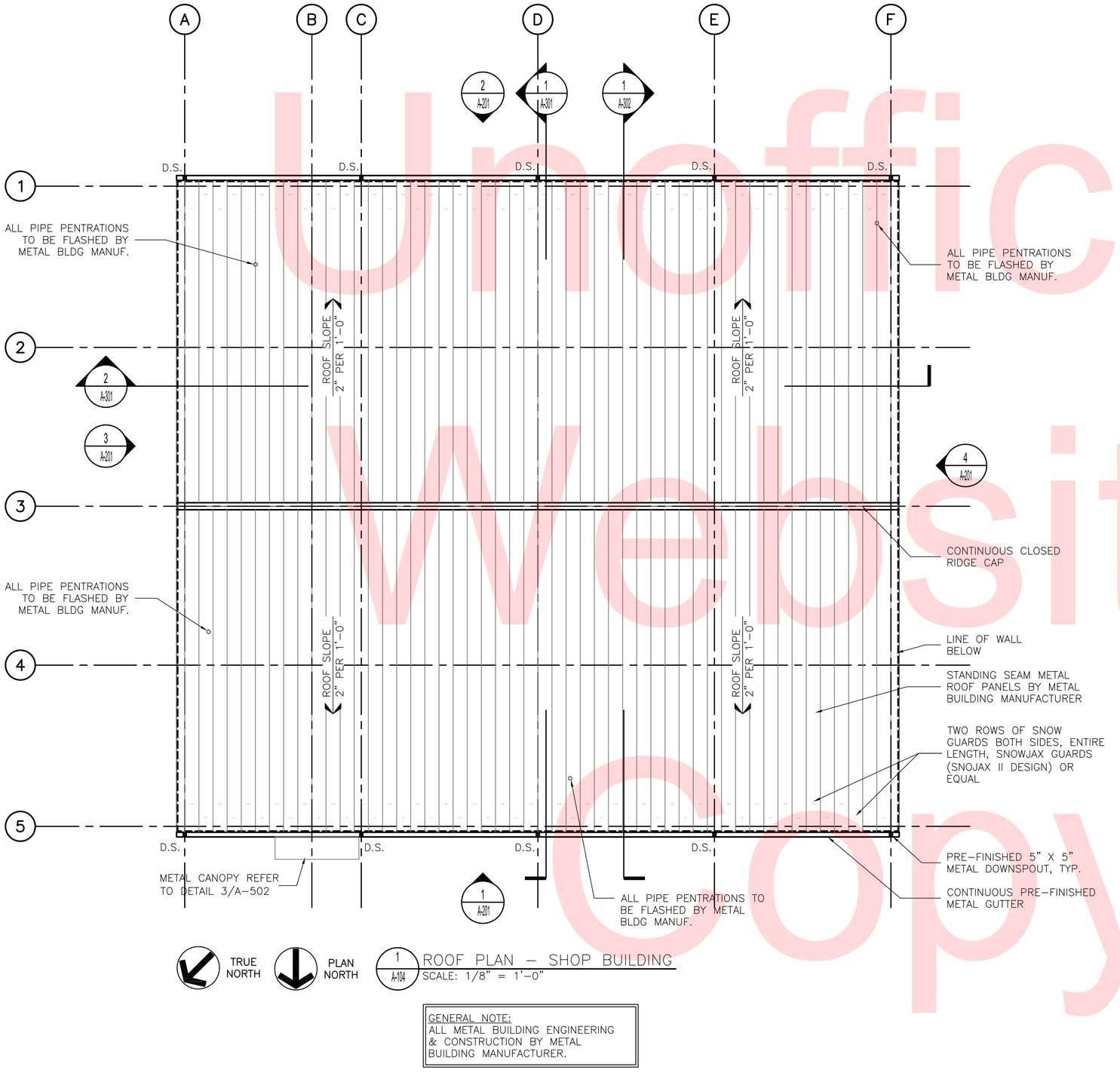
ADDENDUMS / REVISIONS

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	DCH
COUNTY	CHECKED BY:	KNM
NEW CASTLE		

MAINTENANCE BUILDING
EQUIPMENT FLOOR PLAN

SHEET NO. 73
TOTAL SHTS. 116



1 A-104 ROOF PLAN – SHOP BUILDING
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE
8 0 4 8 16
(IN FEET)
1/8 inch = 1 ft.

GENERAL NOTE:
ALL METAL BUILDING ENGINEERING & CONSTRUCTION BY METAL BUILDING MANUFACTURER.

MB-A-104

DELAWARE
DEPARTMENT OF TRANSPORTATION

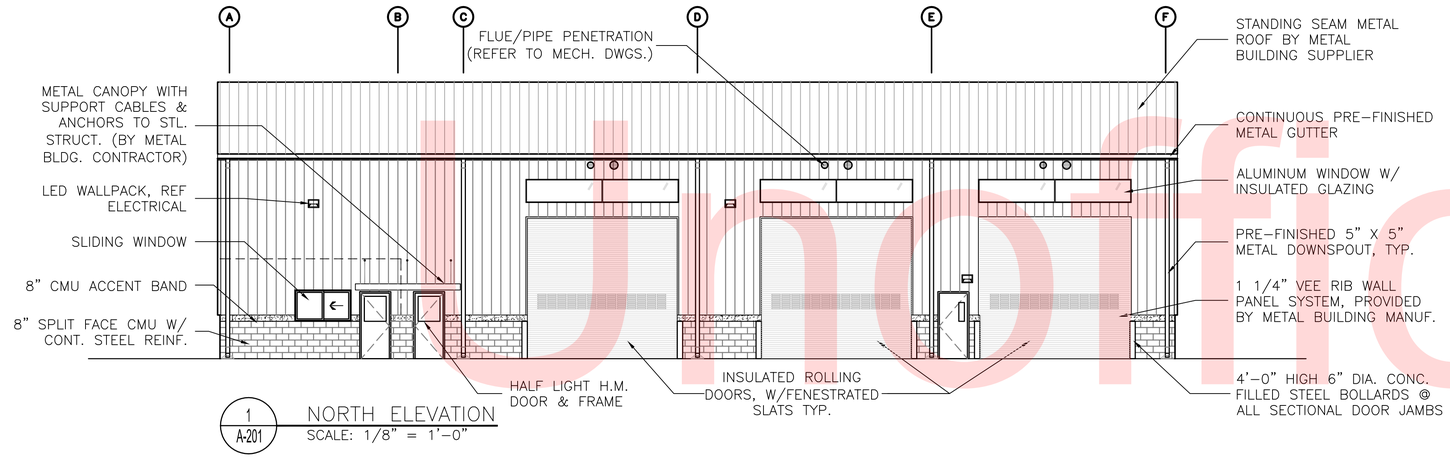
ADDENDUMS / REVISIONS

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

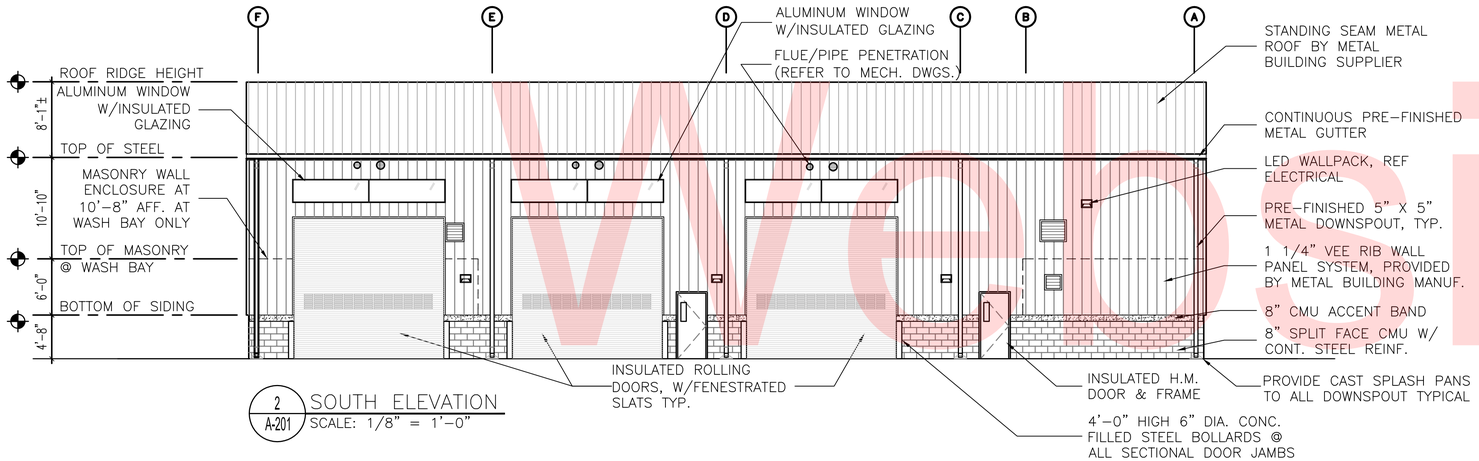
CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	DCH
COUNTY	CHECKED BY:	KNM
NEW CASTLE		

MAINTENANCE BUILDING
ROOF PLAN

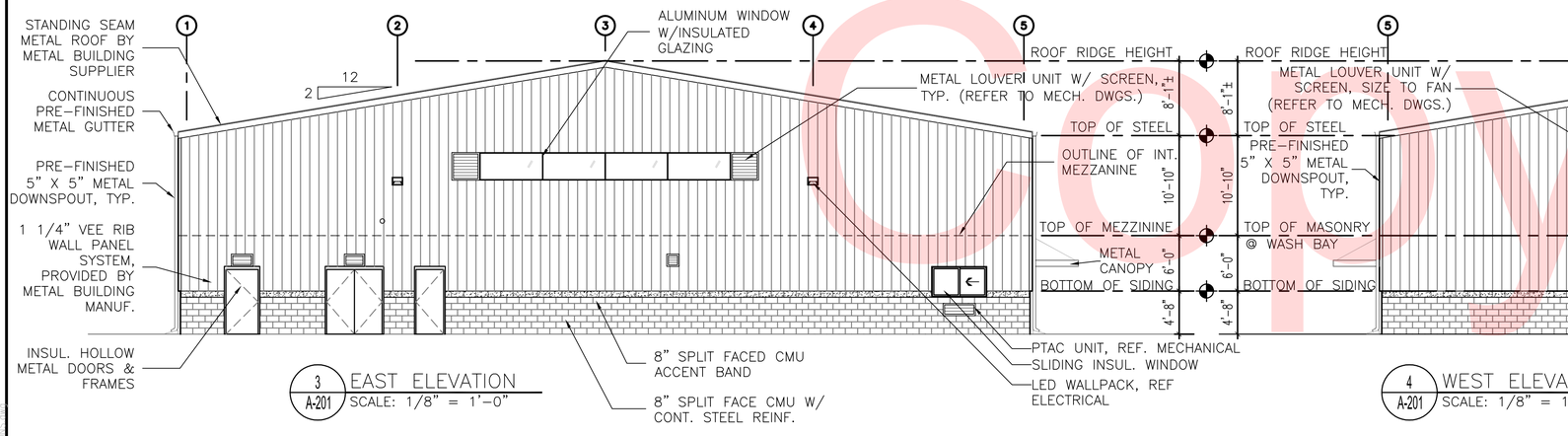
SHEET NO.
74
TOTAL SHTS.
116



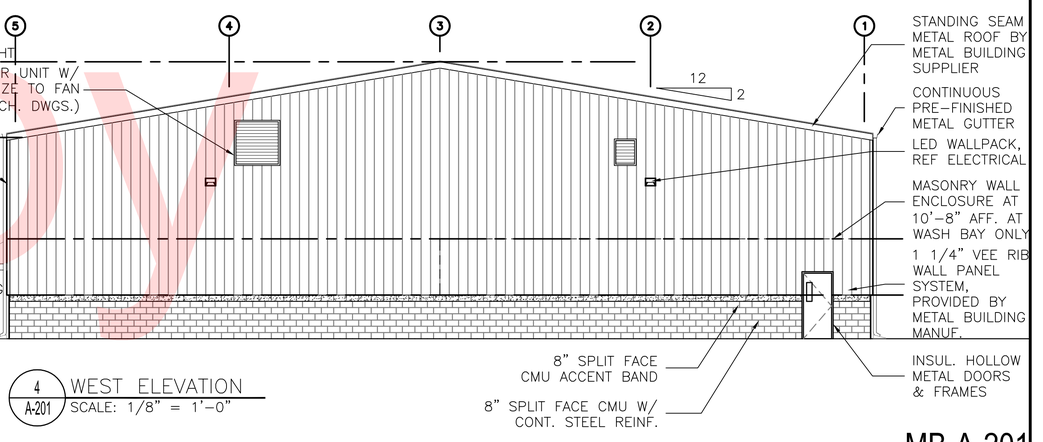
1 A-201 NORTH ELEVATION
SCALE: 1/8" = 1'-0"



2 A-201 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



3 A-201 EAST ELEVATION
SCALE: 1/8" = 1'-0"



4 A-201 WEST ELEVATION
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE
8 0 4 8 16
(IN FEET)
1/8 inch = 1 ft.

GENERAL NOTES:
ALL METAL BUILDING ENGINEERING & CONSTRUCTION BY METAL BUILDING MANUFACTURER.

FOR SIZES OF METAL LOUVER UNIT W/ INSECT SCREEN REFER TO MECHANICAL DRAWINGS.

FOR LIGHT FIXTURE MOUNTING HEIGHTS REFER TO ELECTRICAL

MB-A-201

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DELAWARE
DEPARTMENT OF TRANSPORTATION

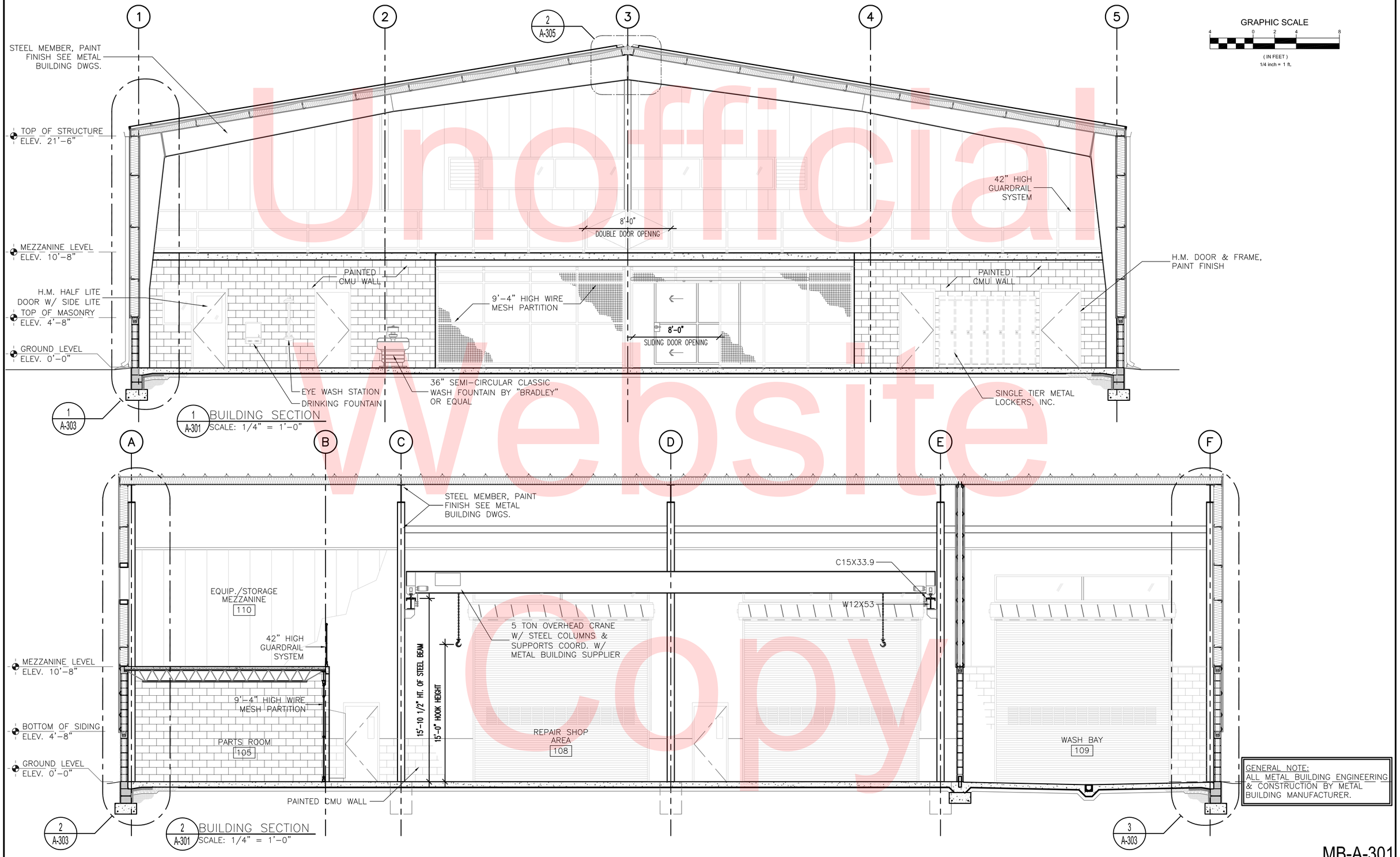
ADDENDUMS / REVISIONS

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT T201680104
COUNTY NEW CASTLE
BRIDGE NO. N/A
DESIGNED BY: DCH
CHECKED BY: KNM

MAINTENANCE BUILDING
BUILDING ELEVATIONS

SHEET NO. 75
TOTAL SHTS. 116



GENERAL NOTE:
ALL METAL BUILDING ENGINEERING & CONSTRUCTION BY METAL BUILDING MANUFACTURER.

MB-A-301

G:\NDE\120995_021_St. Georges Maintenan\CADD\Architecture\MAINTENANCE BUILDING CAD\A3.1_BUILDING SECTIONS.dwg

DELAWARE
DEPARTMENT OF TRANSPORTATION

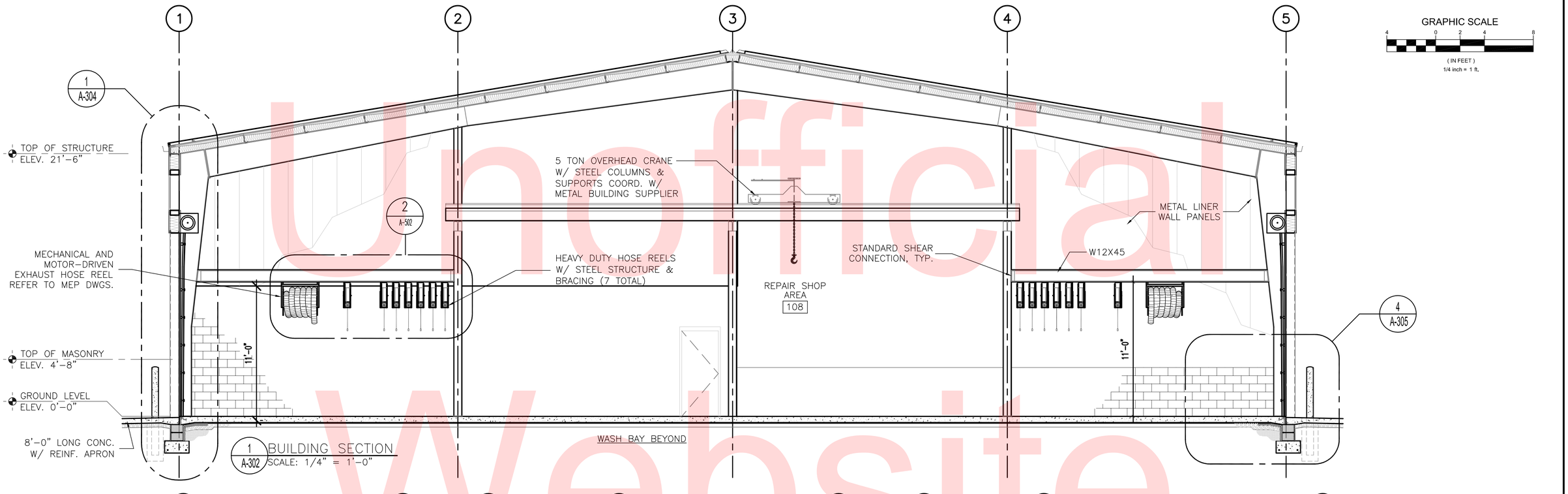
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	DCH
COUNTY	CHECKED BY:	KNM
NEW CASTLE		

MAINTENANCE BUILDING
BUILDING SECTIONS

SHEET NO.
76
TOTAL SHTS.
116



GENERAL NOTE:
ALL METAL BUILDING ENGINEERING & CONSTRUCTION BY METAL BUILDING MANUFACTURER.

MB-A-302

DELAWARE
DEPARTMENT OF TRANSPORTATION

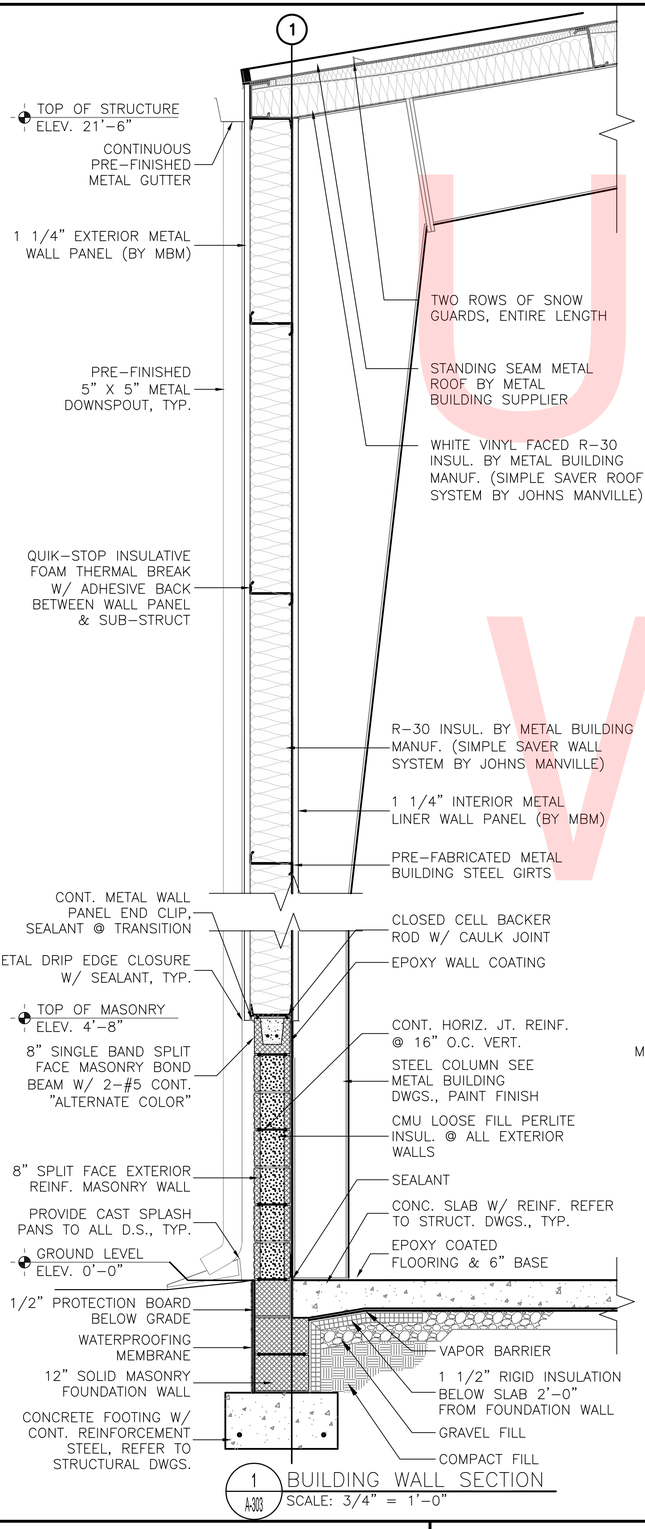
ADDENDUMS / REVISIONS	

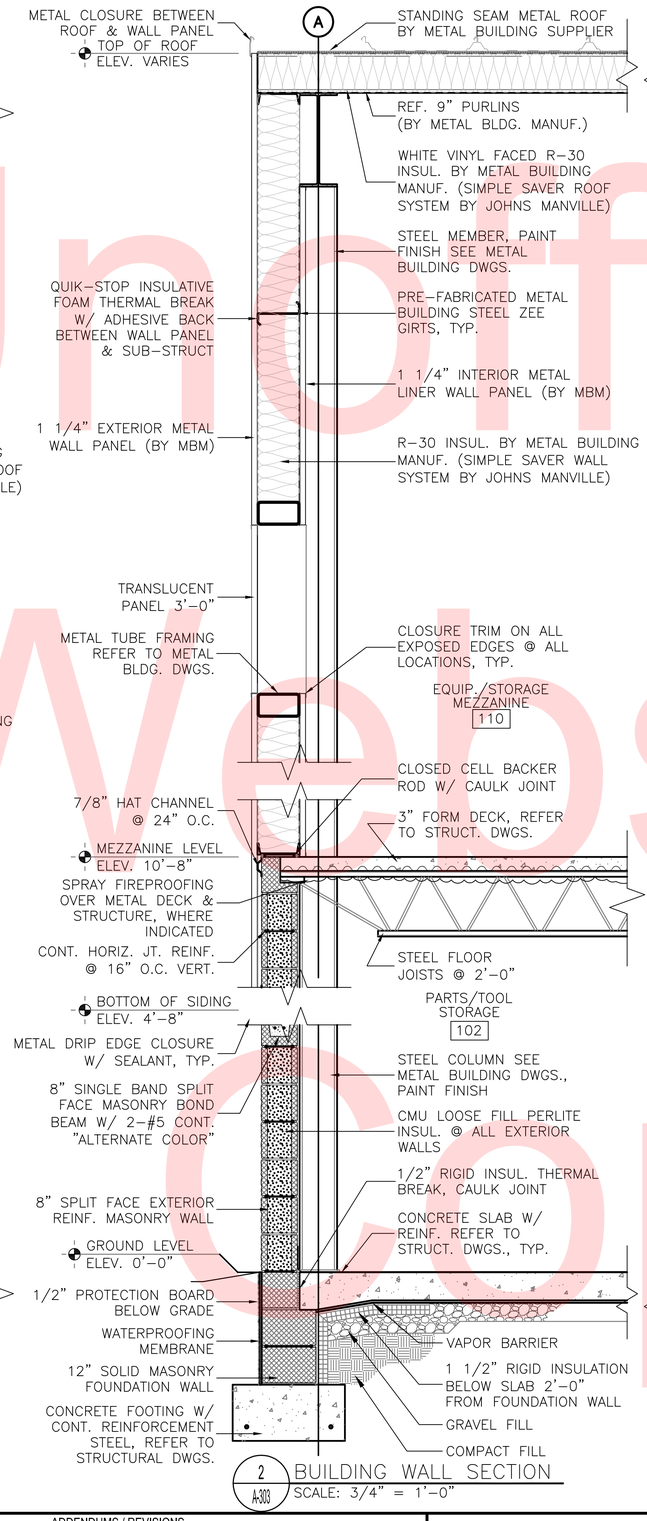
ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

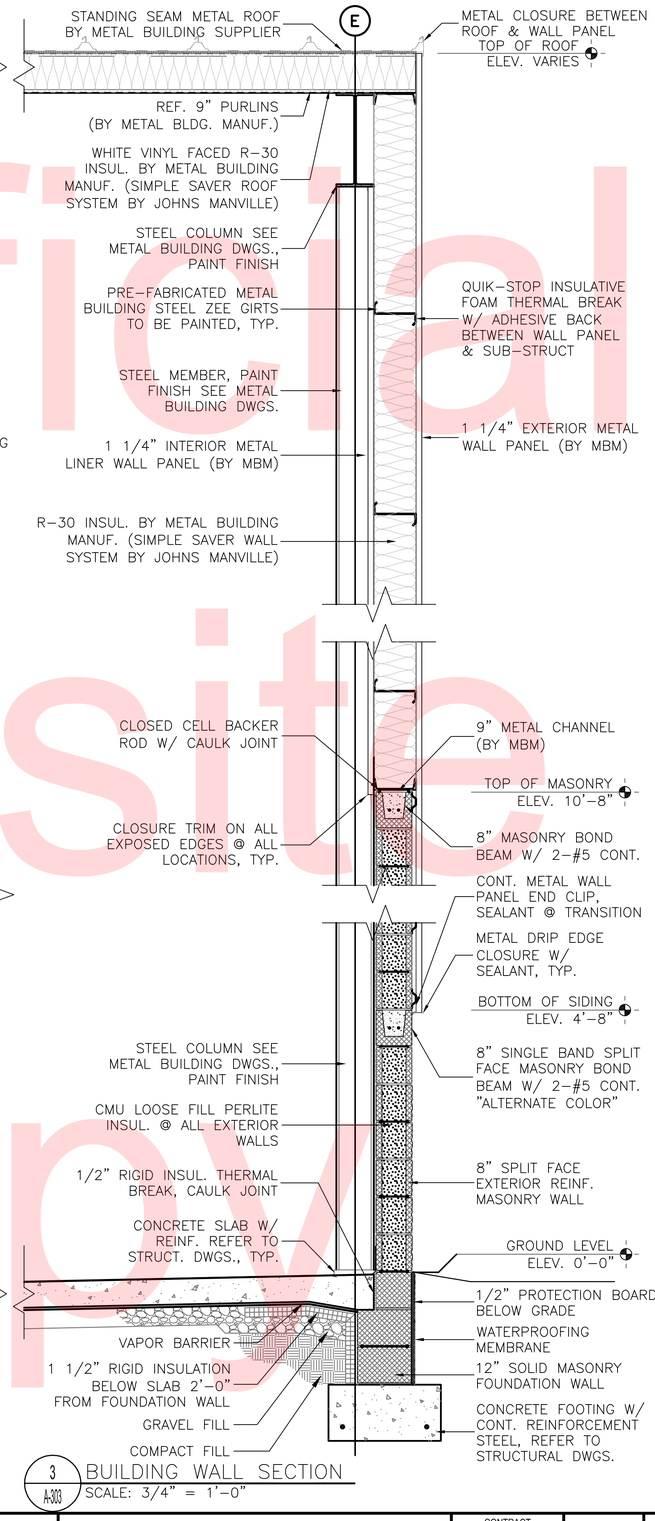
CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	DCH
COUNTY	CHECKED BY:	KNM
NEW CASTLE		

MAINTENANCE BUILDING
BUILDING SECTIONS

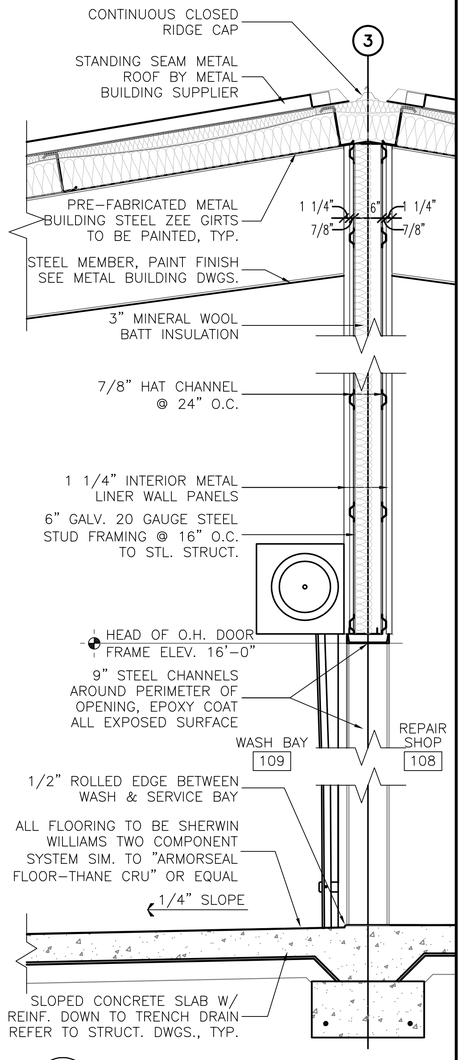
SHEET NO.
77
TOTAL SHTS.
116







GRAPHIC SCALE
16 0 8 16 32
(IN INCHES)
3/4 inch = 1 ft.



GENERAL NOTE:
ALL METAL BUILDING ENGINEERING & CONSTRUCTION BY METAL BUILDING MANUFACTURER.

MB-A-303

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

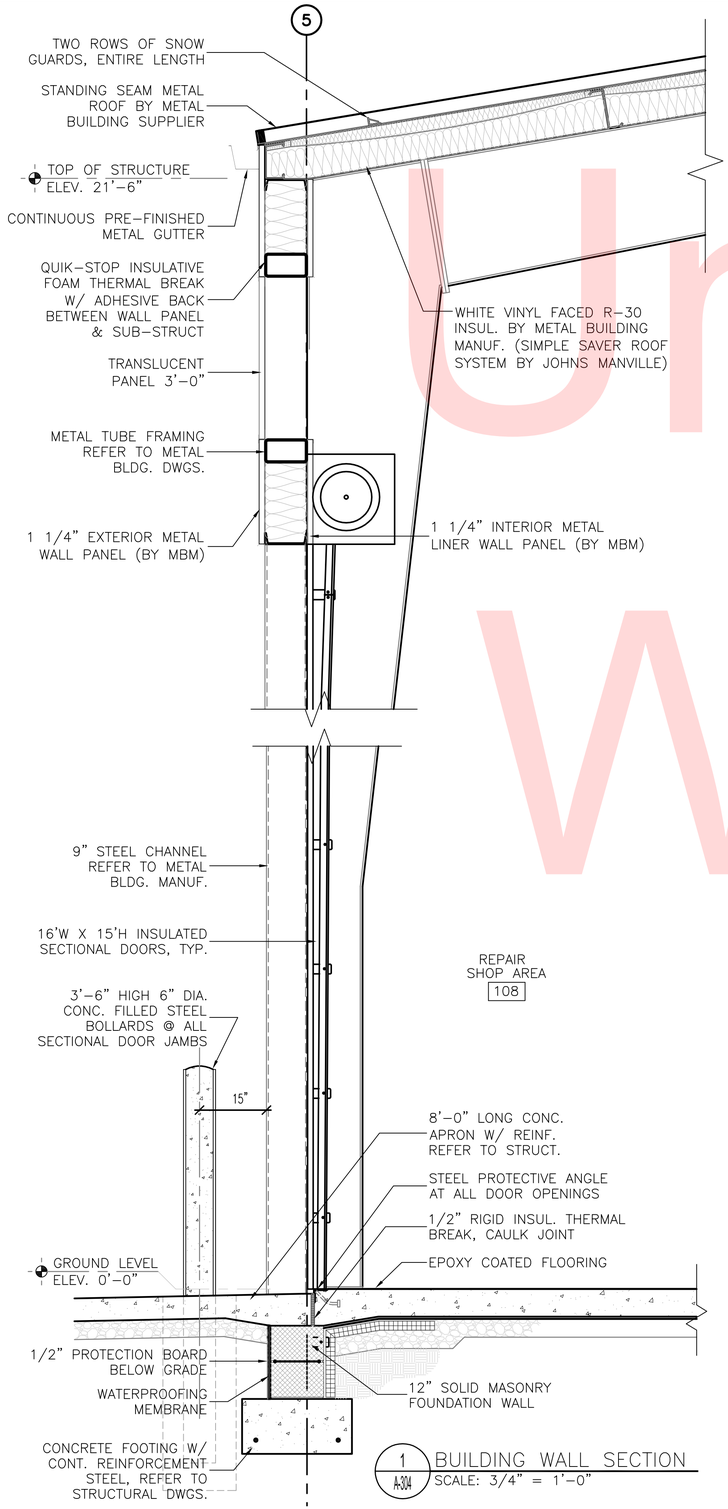
ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	T201680104	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY:	DCH
		CHECKED BY:	KNM

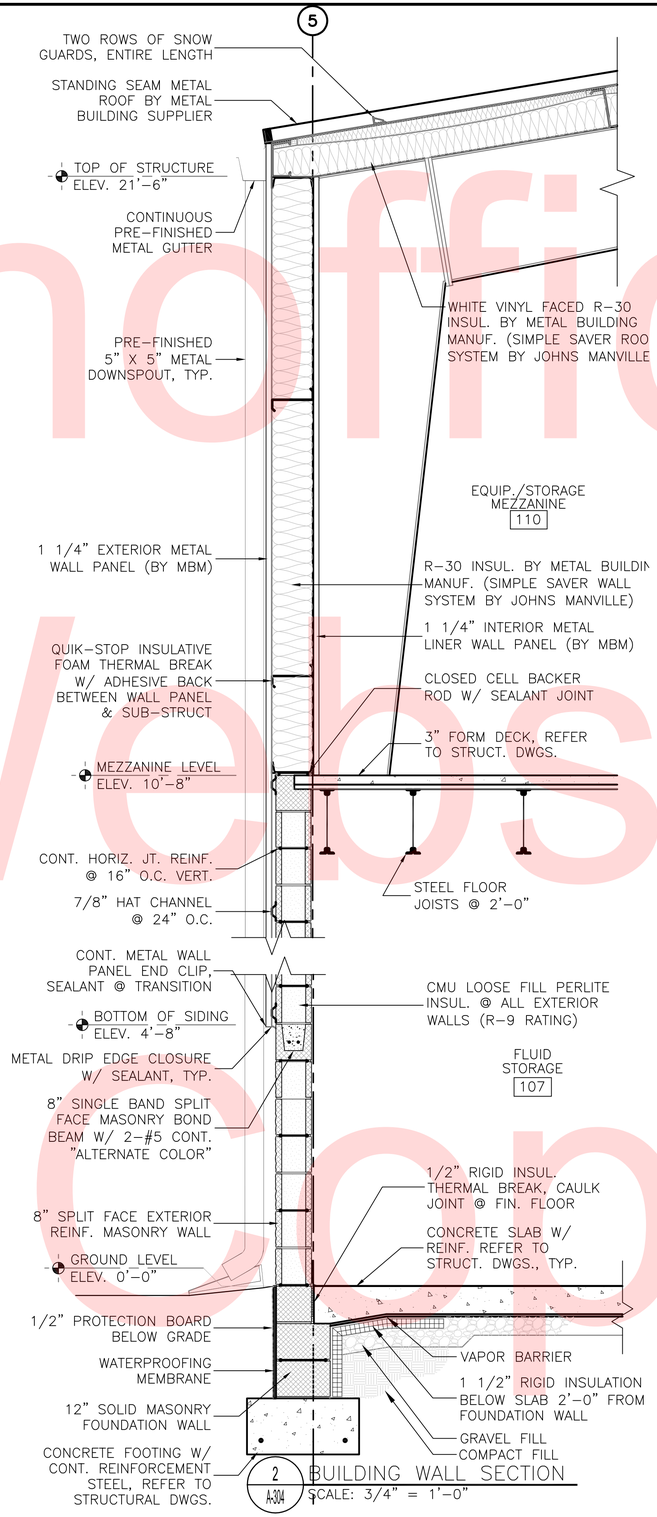
MAINTENANCE BUILDING
WALL SECTIONS

SHEET NO.	78
TOTAL SHTS.	116

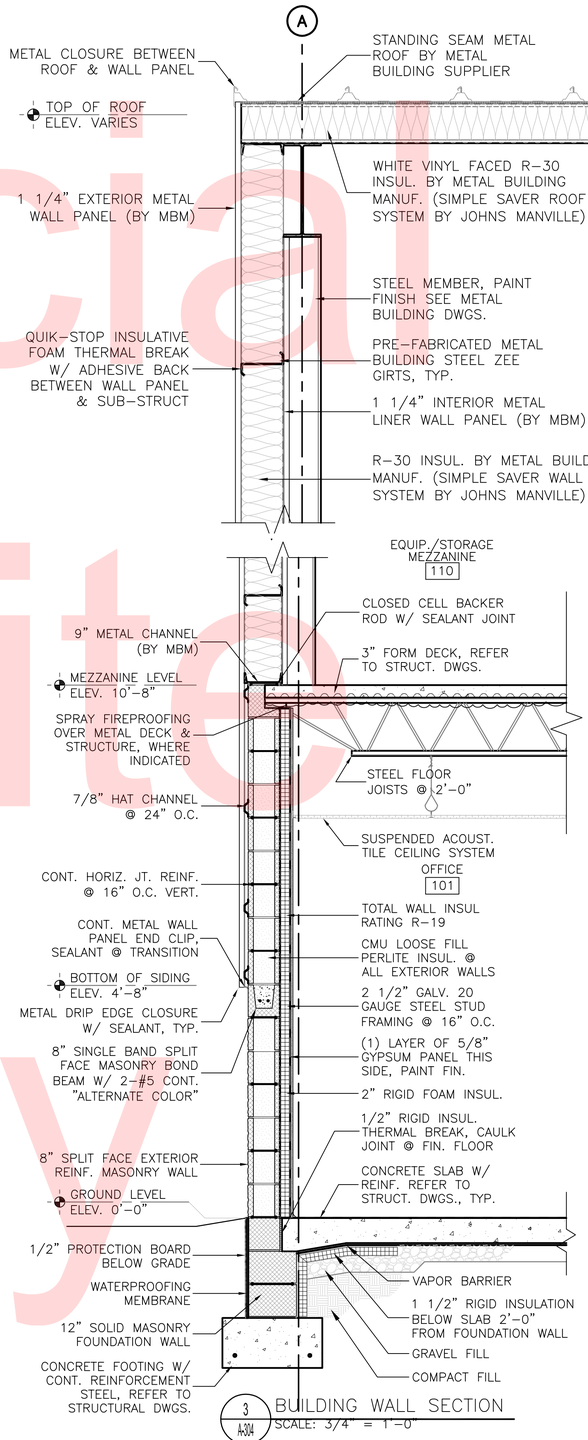
GRAPHIC SCALE
16 0 8 16 32
(IN INCHES)
3/4 inch = 1 ft.



1 A-304 BUILDING WALL SECTION
SCALE: 3/4" = 1'-0"



2 A-304 BUILDING WALL SECTION
SCALE: 3/4" = 1'-0"



3 A-304 BUILDING WALL SECTION
SCALE: 3/4" = 1'-0"

MB-A-304

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A	SHEET NO.
T201680104	DESIGNED BY: DCH		79
COUNTY			TOTAL SHTS.
NEW CASTLE	CHECKED BY: KNM		116

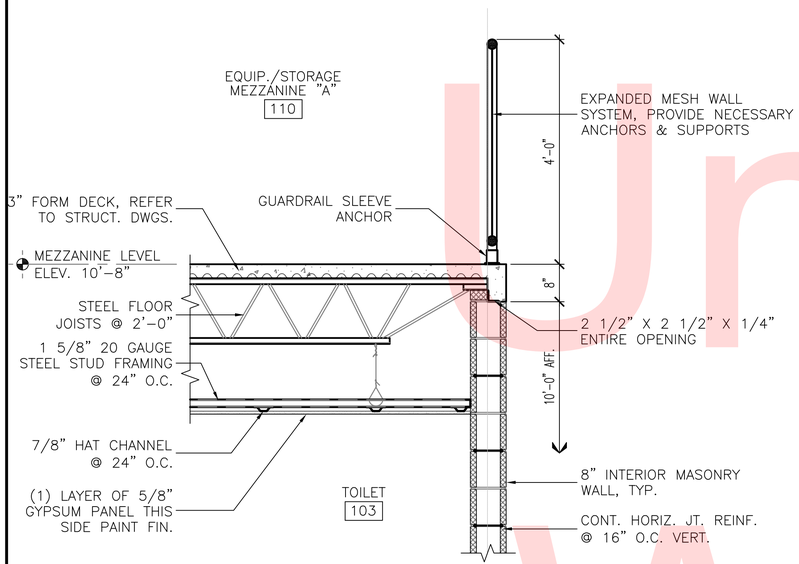
MAINTENANCE BUILDING
WALL SECTIONS

GRAPHIC SCALE

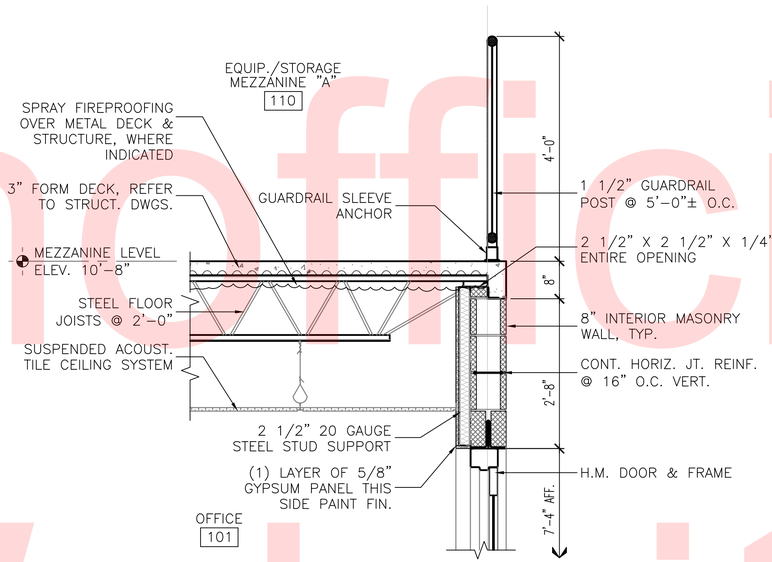
16 0 8 16 32

(IN INCHES)

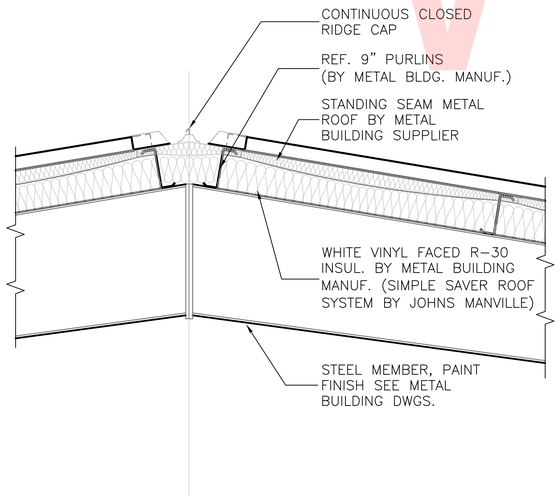
3/4 inch = 1 ft.



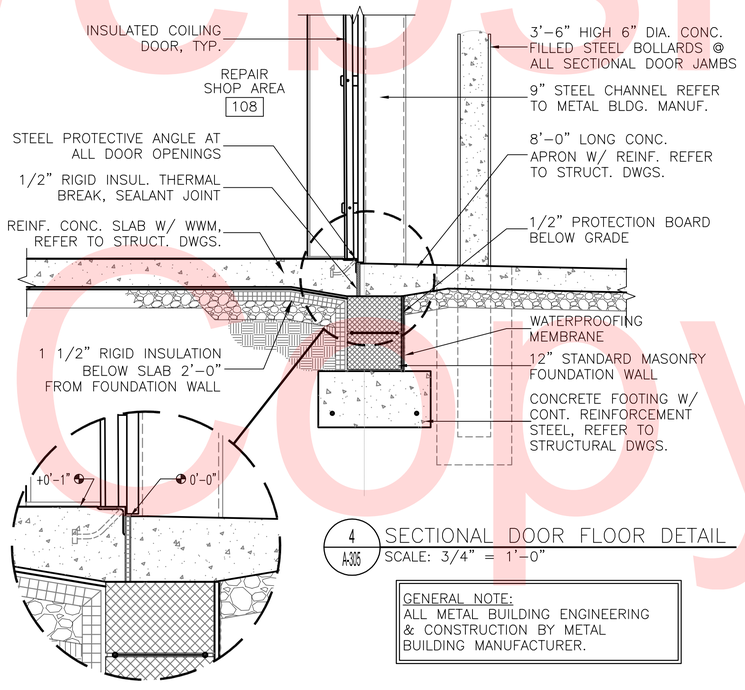
1 A-305 MEZZANINE RAIL DETAIL
SCALE: 3/4" = 1'-0"



2 A-305 SOFFIT DETAIL @ OFFICE
SCALE: 3/4" = 1'-0"

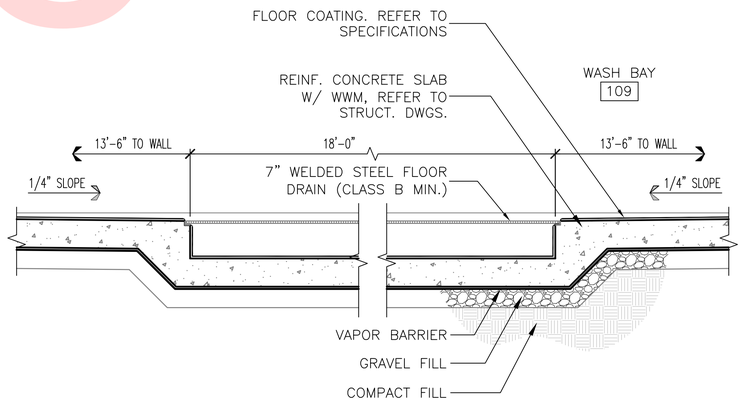


3 A-305 ROOF RIDGE DETAIL
SCALE: 3/4" = 1'-0"



4 A-305 SECTIONAL DOOR FLOOR DETAIL
SCALE: 3/4" = 1'-0"

GENERAL NOTE:
ALL METAL BUILDING ENGINEERING & CONSTRUCTION BY METAL BUILDING MANUFACTURER.



5 A-305 WASH BAY TRENCH DETAIL
SCALE: 3/4" = 1'-0"

MB-A-305

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

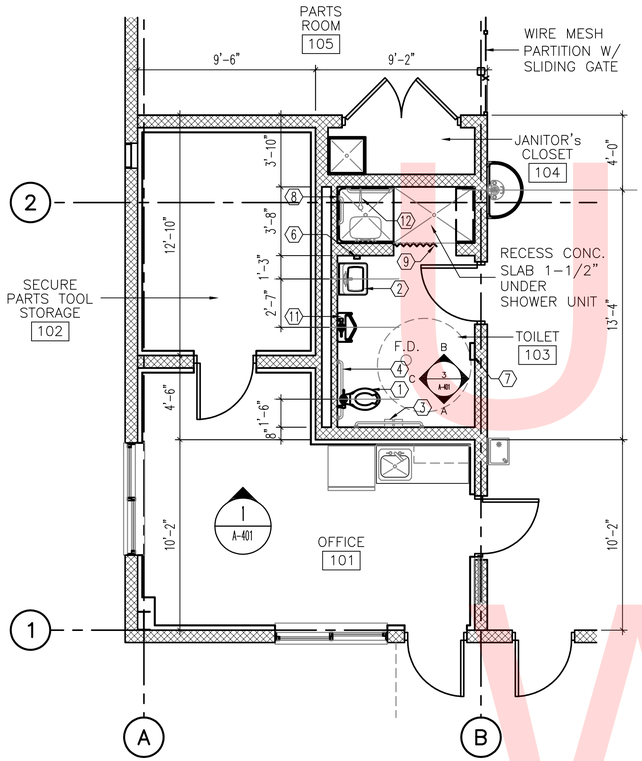
ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	DCH
COUNTY	CHECKED BY:	KNM
NEW CASTLE		

MAINTENANCE BUILDING
SECTIONS & DETAILS

SHEET NO.
80
TOTAL SHTS.
116

Q:\NDE\120995_021_St_Georges_Maintenan\CADD\Architectural\MAINTENANCE BUILDING CAD\A3.5_SECTIONS & DETAILS.dwg

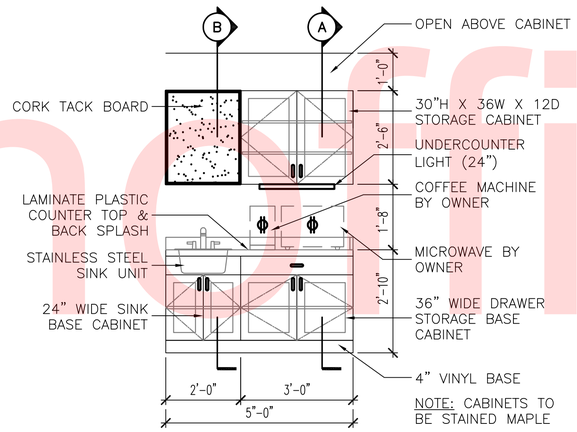


1 A-401 LARGE SCALE FLOOR PLAN
SCALE: 1/4" = 1'-0"

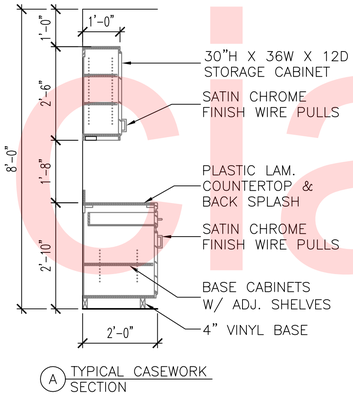
ACCESSORY SCHEDULE:

1. FLOOR MOUNTED WATER CLOSET WITH FLUSH VALVE, MOUNTED AT ADA COMPLIANT HEIGHT.
2. WALL MOUNTED HANDICAP SINK, MOUNTED AT ADA COMPLIANT HEIGHT WITH SURFACE MOUNTED STAINLESS STEEL FRAME MIRROR, 20" WIDE BY 40" HIGH.
3. SURFACE MOUNTED DOUBLE ROLL TOILET PAPER DISPENSER WITH BRUSHED METAL FINISH, MOUNTED AT STANDARD HEIGHT.
4. BRUSHED STAINLESS STEEL ACCESSIBLE GRAB BARS.
   - 3'-6" (SIDE WALL)
   - 3'-0" (REAR WALL)
   - 1'-6" (SIDE WALL, VERTICAL)
5. WRAP EXPOSED SINK DRAIN PIPES PER ADA REQUIREMENTS.
6. STAINLESS STEEL SURFACE WALL MOUNTED SOAP DISPENSER, MOUNTED AT ACCESSIBLE HANDICAP HEIGHT.
7. STAINLESS STEEL SURFACE MOUNTED PAPER TOWEL DISPENSER, MOUNTED AT ACCESSIBLE HANDICAP HEIGHT.
8. PREFABRICATED FIBERGLASS SHOWER UNIT WITH FOLD DOWN SEATING AND ADA COMPLIANT GRAB BARS. SIMILAR TO MODEL 36-34H BY FLORESTONE
9. CURTAIN ROD TO BE MOUNTED AT 7'-0" AFF.
10. NOT USED.
11. WALL MOUNTED URINAL WITH FLUSH VALVE, REFER TO ELEVATION FOR MOUNTING HEIGHT.
12. WALL MOUNTED SHOWER FIXTURE.
13. PROVIDE NEW SHOWER CONTROL VALVE TO BE INSTALLED AT STANDARD HEIGHT.
14. FIXED SHOWER BENCH.

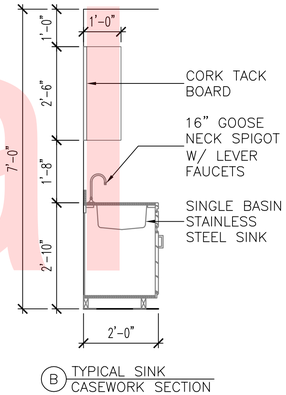
GENERAL NOTE: THE ABOVE NOTED ITEMS ARE TO BE SIMILAR OR EQUAL TO ITEM FABRICATED BY BOBRICK WASHROOM EQUIPMENT



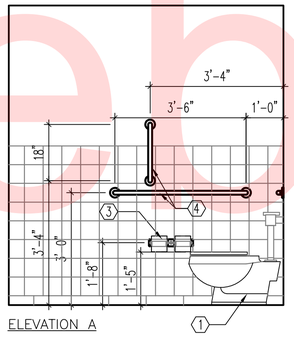
2 A-401 LARGE SCALE FLOOR PLAN
SCALE: 1/4" = 1'-0"



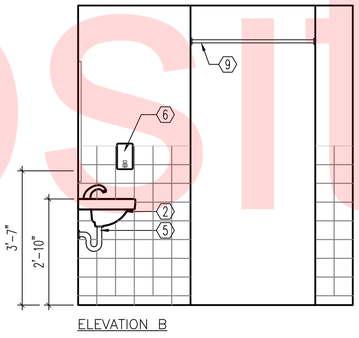
A TYPICAL CASEWORK SECTION



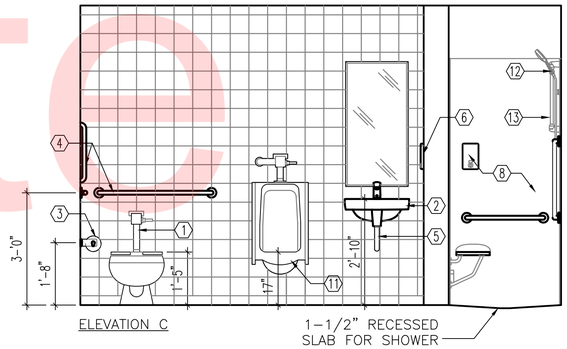
B TYPICAL SINK CASEWORK SECTION



ELEVATION A

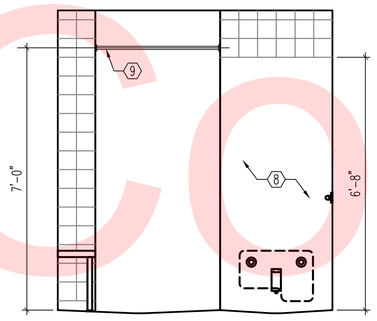


ELEVATION B



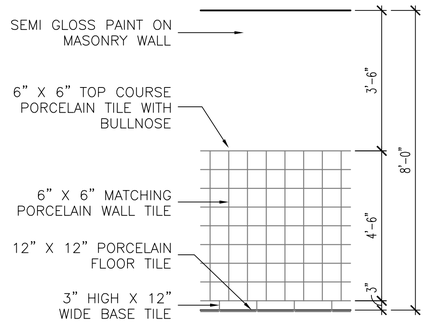
ELEVATION C

1-1/2" RECESSED SLAB FOR SHOWER UNIT AND DRAIN



3 A-401 TOILET RM. 103 ELEVATIONS
SCALE: 1/2" = 1'-0"

GENERAL NOTE: WALL, BASE & FLOOR TILE TO BE PORCELAIN BY DALTILE.



4 A-401 WAINSCOAT TILE PATTERN
SCALE: 1/2" = 1'-0"

GRAPHIC SCALE

4 0 2 4 8
(IN FEET)
1/4 inch = 1 ft.

8 0 4 8 16
(IN FEET)
1/2 inch = 1 ft.

MB-A-401

DELAWARE DEPARTMENT OF TRANSPORTATION

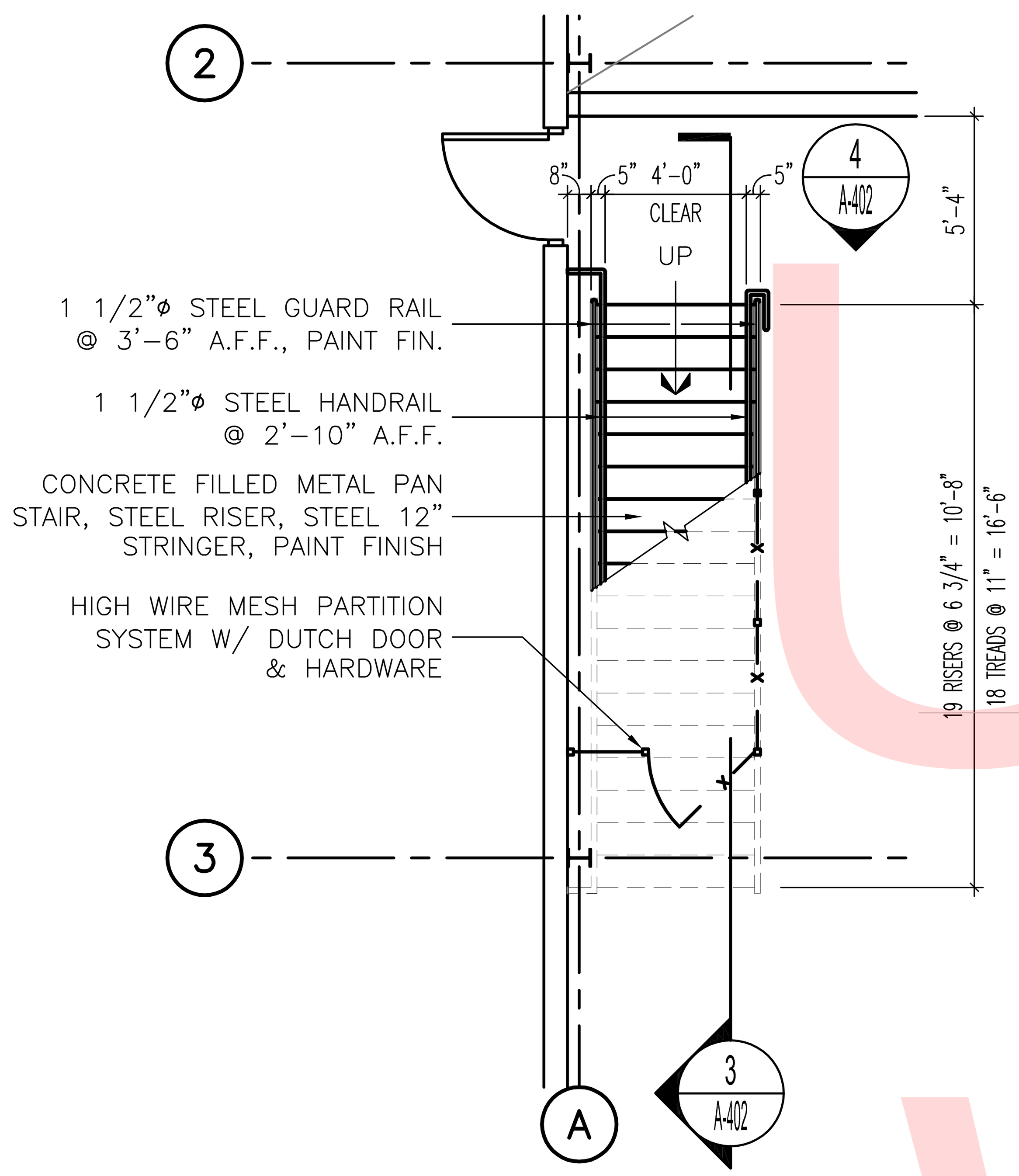
ADDENDUMS / REVISIONS	

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

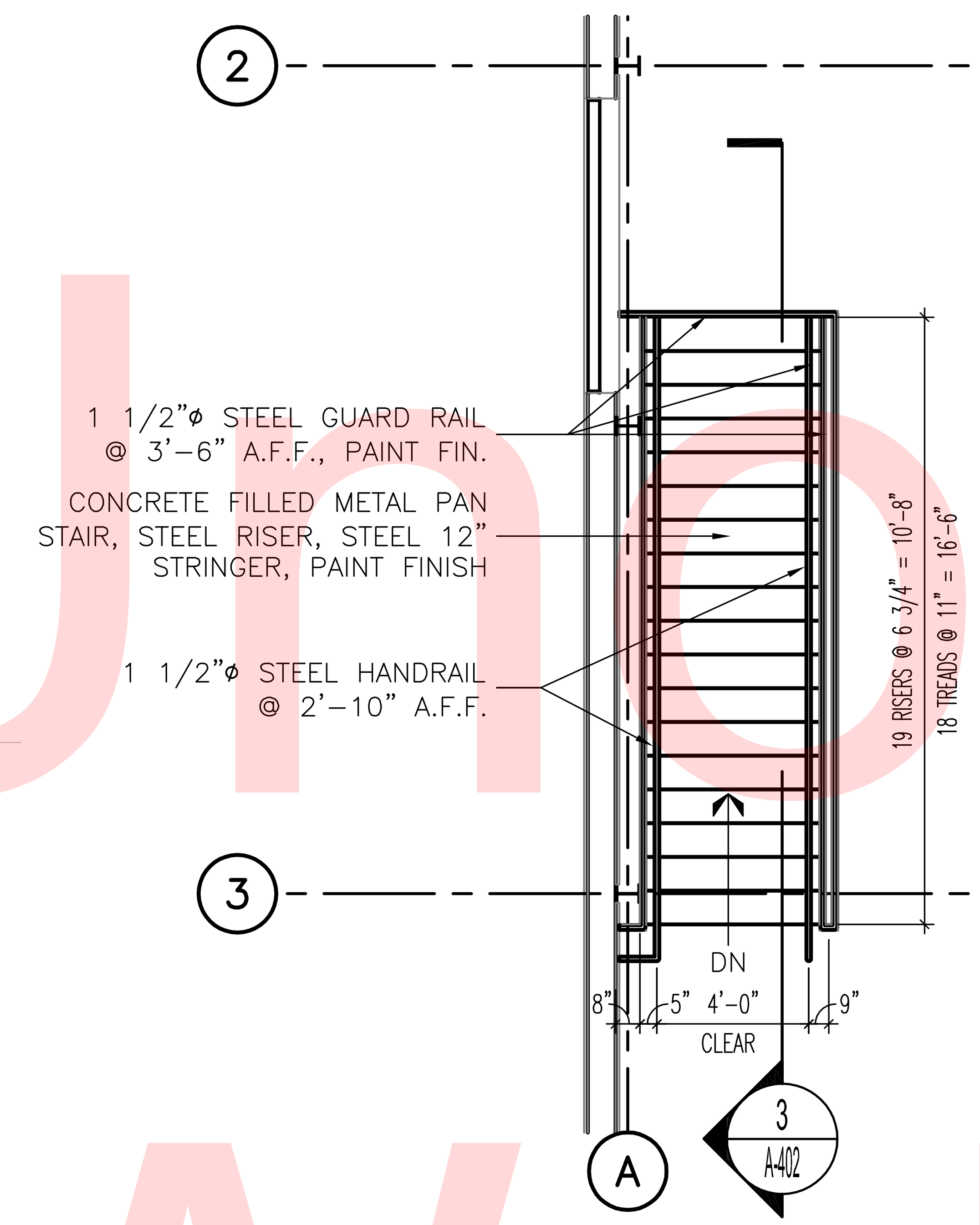
CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY: DCH	
COUNTY	CHECKED BY: KNM	
NEW CASTLE		

MAINTENANCE BUILDING LARGE SCALE PLAN & INTERIOR ELEVATIONS

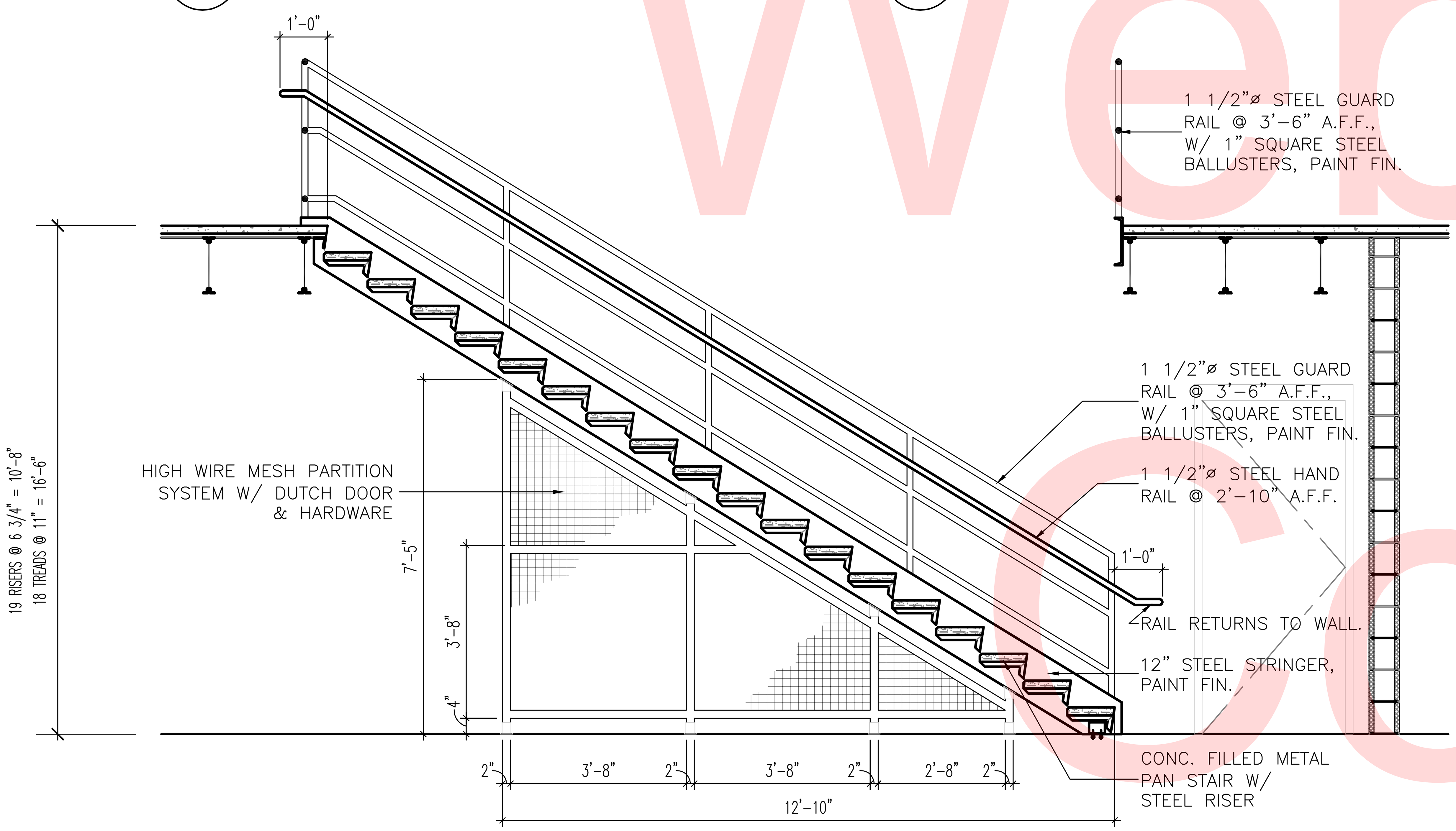
SHEET NO.	TOTAL SHTS.
81	116



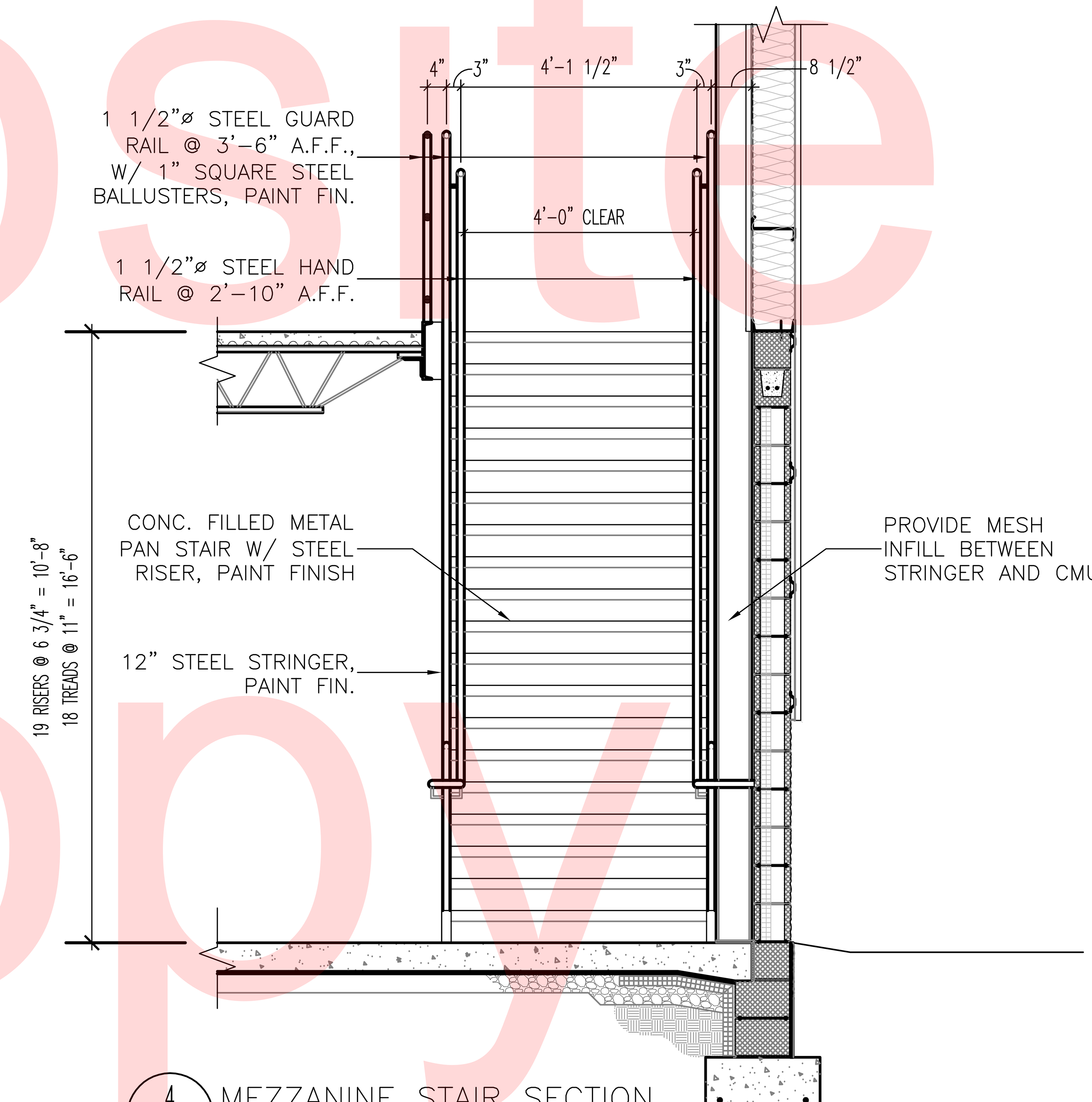
1 GROUND FLOOR STAIR PLAN
A-402 SCALE: 1/4" = 1'-0"



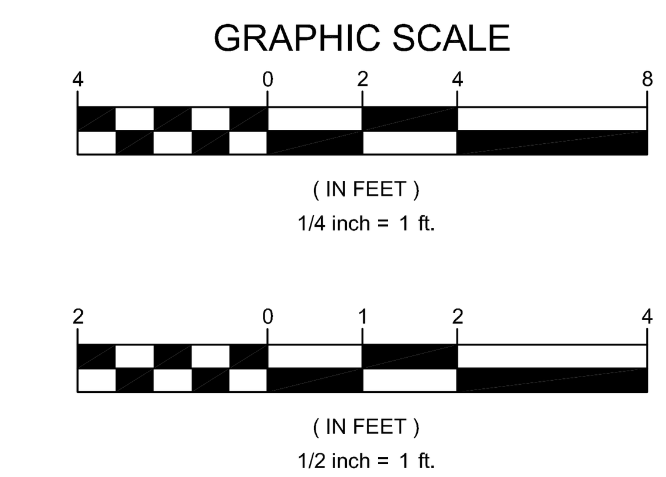
2 MEZZANINE LEVEL STAIR PLAN
A-402 SCALE: 1/4" = 1'-0"



3 MEZZANINE STAIR SECTION
A-402 SCALE: 1/2" = 1'-0"



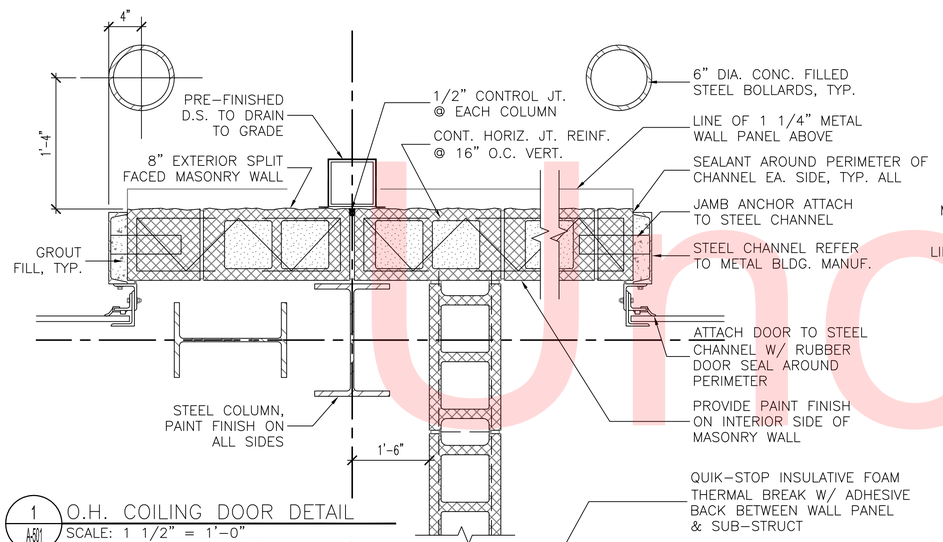
4 MEZZANINE STAIR SECTION
A-402 SCALE: 1/2" = 1'-0"



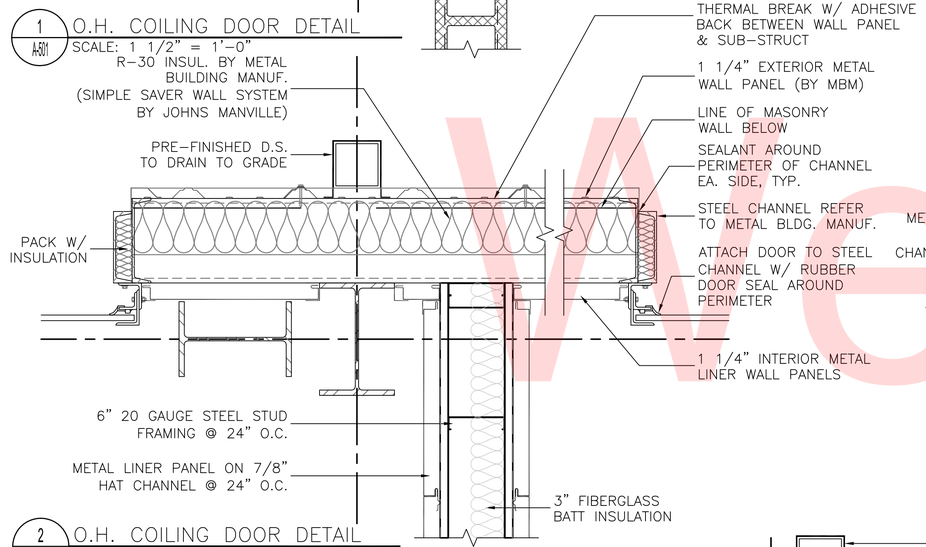
GENERAL NOTE: PLANS, DETAILS & SECTIONS SHOWN ARE FOR REFERENCE ONLY. THE DESIGN AND ENGINEERING OF THE STAIRS SHALL BE THE RESPONSIBLITY OF THE STAIR MANUFACTURER. STAIRS TO MEET ALL APPLICABLE CODES MODIFYING REFERENCE DATA IF NECESSARY.

MB-A-402

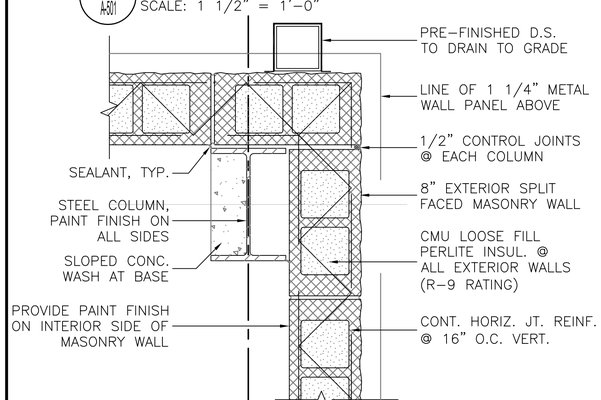
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MAINTENANCE BUILDING STAIR PLANS, SECTIONS & DETAILS
			COUNTY NEW CASTLE	DESIGNED BY: DCH	SHEET NO. 82
				CHECKED BY: KNM	TOTAL SHTS. 116



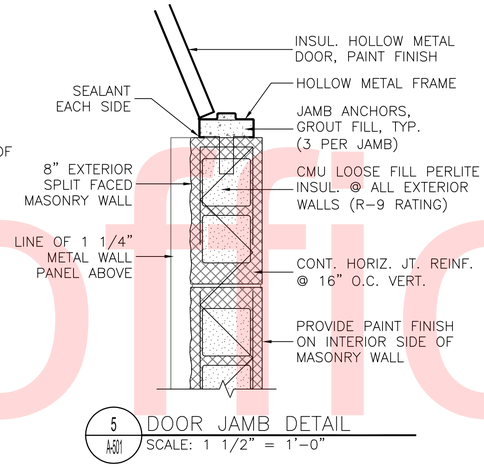
1 A-501 O.H. COILING DOOR DETAIL
SCALE: 1 1/2" = 1'-0"



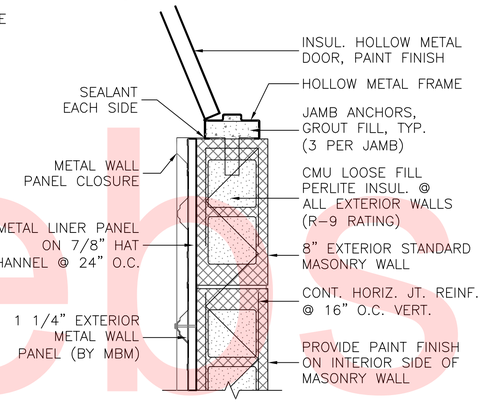
2 A-501 O.H. COILING DOOR DETAIL
SCALE: 1 1/2" = 1'-0"



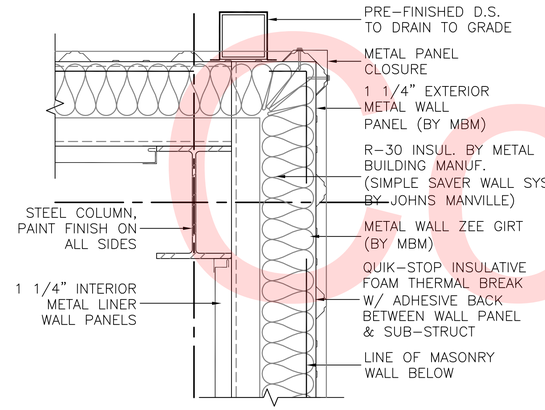
3 A-501 CORNER PLAN DETAIL
SCALE: 1 1/2" = 1'-0"



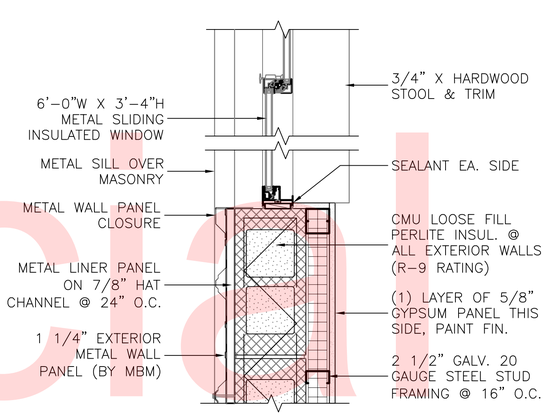
5 A-501 DOOR JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



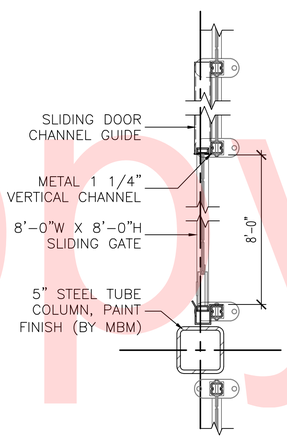
6 A-501 DOOR JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



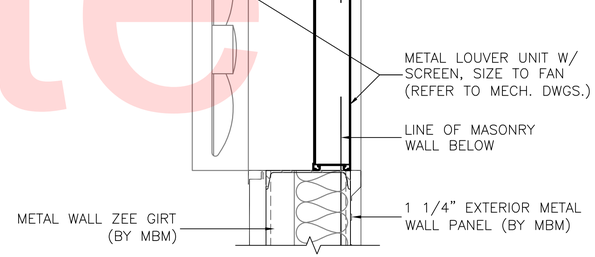
4 A-501 CORNER PLAN DETAIL
SCALE: 1 1/2" = 1'-0"



8 A-501 WINDOW PLAN DETAIL
SCALE: 1 1/2" = 1'-0"



7 A-501 PLAN DETAIL - WIRE MESH SLIDING GATE
SCALE: 1 1/2" = 1'-0"



9 A-501 LOUVER JAMB DETAIL
SCALE: 1 1/2" = 1'-0"

GRAPHIC SCALE
8 0 4 8 16
(IN INCHES)
1 1/2 inch = 1 ft.

GENERAL NOTE:
ALL METAL BUILDING ENGINEERING & CONSTRUCTION BY METAL BUILDING MANUFACTURER.

MB-A-501

DELAWARE
DEPARTMENT OF TRANSPORTATION

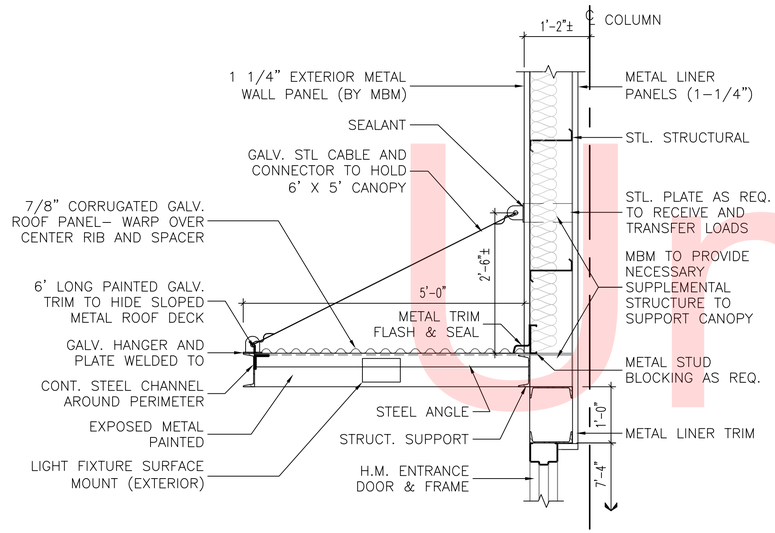
ADDENDUMS / REVISIONS

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

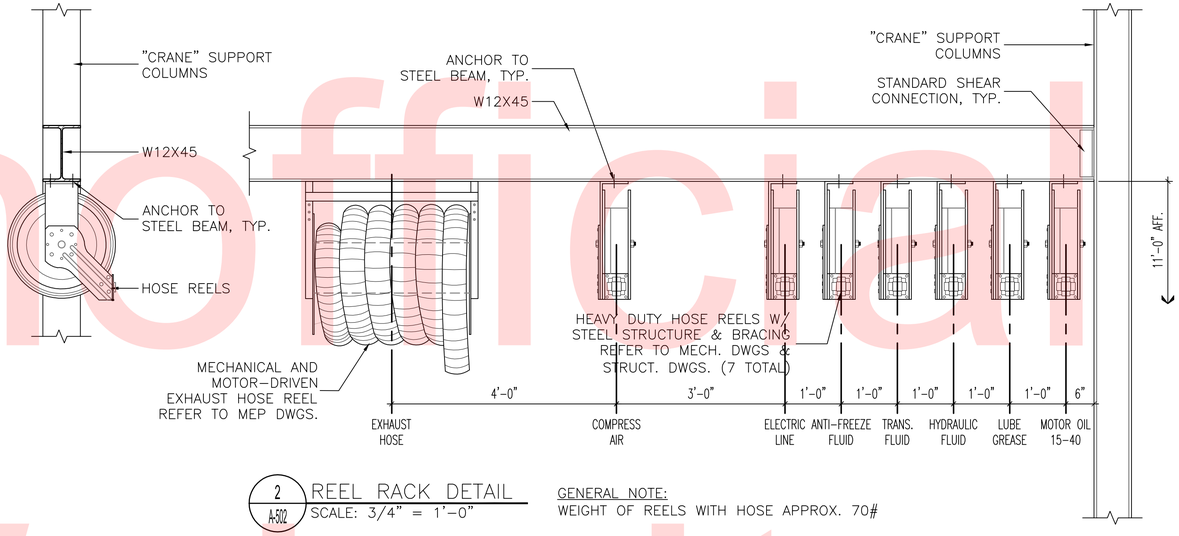
CONTRACT T201680104
COUNTY NEW CASTLE
BRIDGE NO. N/A
DESIGNED BY: DCH
CHECKED BY: KNM

MAINTENANCE BUILDING
PLAN DETAILS

SHEET NO. 83
TOTAL SHTS. 116

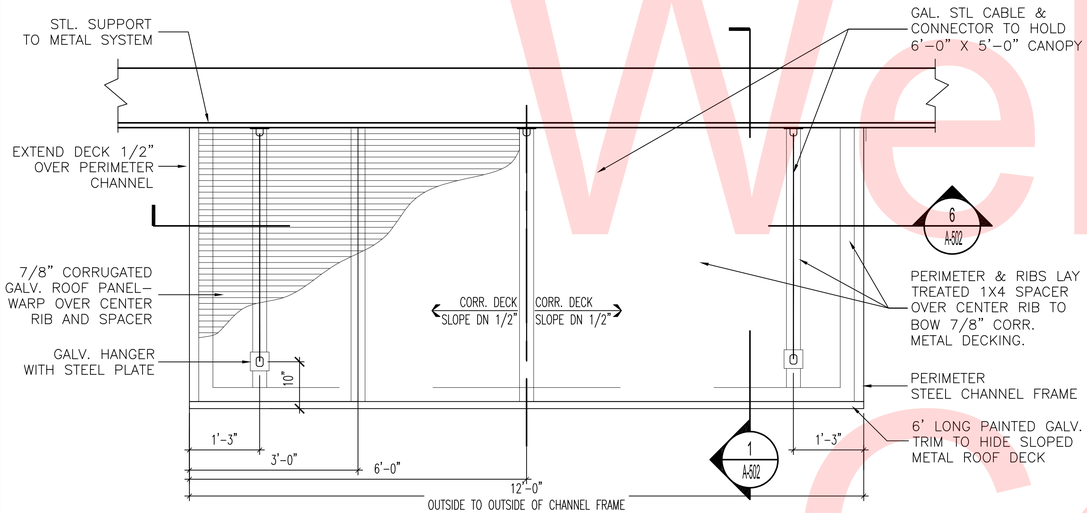


1 A-502 CANOPY SECTION
SCALE: 3/4" = 1'-0"

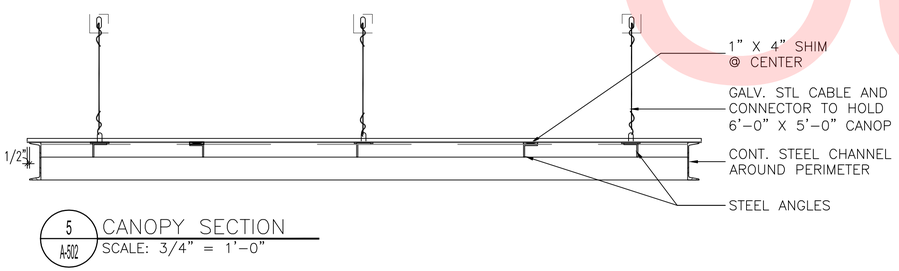


2 A-502 REEL RACK DETAIL
SCALE: 3/4" = 1'-0"

GENERAL NOTE:
WEIGHT OF REELS WITH HOSE APPROX. 70#



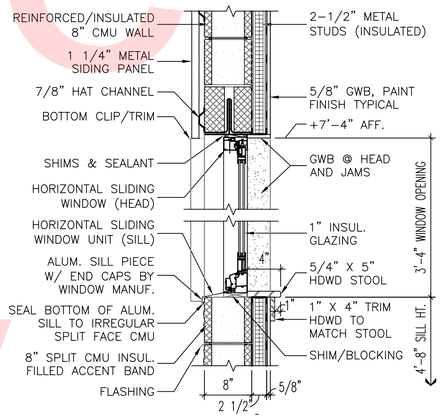
3 A-502 CANOPY ROOF PLAN
SCALE: 3/4" = 1'-0"



5 A-502 CANOPY SECTION
SCALE: 3/4" = 1'-0"

GENERAL NOTE:
ALL METAL BUILDING ENGINEERING & CONSTRUCTION BY METAL BUILDING MANUFACTURER.

ALL METAL ROOF DECKING, STRUCTURAL FRAMING, STEEL CABLES, MISCELLANEOUS BRACING FOR THE ENTRANCE CANOPY REFER TO METAL BUILDING MANUFACTURER FOR FABRICATION AND DETAILS.



4 A-502 WINDOW SECTION
SCALE: 1" = 1'-0"

GRAPHIC SCALE

16 0 8 16 32
(IN INCHES)
3/4 inch = 1 ft.

10 0 5 10 20
(IN INCHES)
1 inch = 1 ft.

MB-A-502

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT T201680104
COUNTY NEW CASTLE
BRIDGE NO. N/A
DESIGNED BY: DCH
CHECKED BY: KNM

MAINTENANCE BUILDING
MISCELLANEOUS DETAILS

SHEET NO. 84
TOTAL SHTS. 116

DOOR SCHEDULE

DOOR (##)	DOOR TYPE	DOOR MATERIAL	SIZE	FRAME TYPE	FRAME MATERIAL	FIRE RATING	HEAD	JAMB	SILL	HDW. SET	REMARKS
E1	B	H.M./GL.	3'-0" x 7'-0" x 1 3/4"	2	H.M.	N/A	1/A502	5/A501 13/A602	17/A602	ENT.	OH., EL., CARD READER
E2	A	STL.	16'-0" x 15'-0"	---	STL.	N/A	15/A602	1/A501 2/A501	4/A305	COD.	COD.
E3	A	STL.	16'-0" x 15'-0"	---	STL.	N/A	15/A602	1/A501 2/A501	4/A305	COD.	COD.
E4	C	H.M./GL.	3'-0" x 7'-0" x 1 3/4"	2	H.M.	N/A	1/A502	5/A501 13/A602	17/A602	ENT.	OH., EL., CARD READER
E5	A	STL.	16'-0" x 15'-0"	---	STL.	N/A	15/A602	1/A501 2/A501	4/A305	COD.	COD.
E6	C	H.M./GL.	3'-0" x 7'-0" x 1 3/4"	2	H.M.	N/A	6/A602	5/A501 6/A501	17/A602	ENT.	OH., CL.
E7	A	STL.	16'-0" x 15'-0"	---	STL.	N/A	15/A602	1/A501 2/A501	4/A305	COD.	COD.
E8	A	STL.	16'-0" x 15'-0"	---	STL.	N/A	15/A602	1/A501 2/A501	4/A305	COD.	COD.
E9	C	H.M./GL.	3'-0" x 7'-0" x 1 3/4"	2	H.M.	N/A	1/A502	5/A501 13/A602	17/A602	ENT.	OH., CL.
E10	A	STL.	16'-0" x 15'-0"	---	STL.	N/A	15/A602	1/A501 2/A501	4/A305	COD.	COD.
E11	C	H.M./GL.	3'-0" x 7'-0" x 1 3/4"	2	H.M.	N/A	1/A502	5/A501 13/A602	17/A602	ENT.	OH., EL., CARD READER
E12	D	H.M.	3'-6" x 7'-0" x 1 3/4"	2	H.M.	N/A	6/A602	5/A501 6/A501	17/A602	ENT.	OH., CL.
E13	E	H.M.	(2) 3'-0" x 7'-0" x 1 3/4"	2	H.M.	N/A	6/A602	5/A501 6/A501	17/A602	ENT.	OH., CL.
E14	C	H.M./GL.	3'-0" x 7'-0" x 1 3/4"	2	H.M.	N/A	6/A602	5/A501 6/A501	17/A602	ENT.	OH., CL.
E15	B	H.M./GL.	3'-0" x 7'-0" x 1 3/4"	2	H.M.	N/A	1/A502	5/A501 13/A602	17/A602	ENT.	OH., EL., CARD READER
01	B	H.M./GL.	3'-0" x 7'-0" x 1 3/4"	1	H.M.	N/A	2/A602	7/A501	3/A602	OFF.	OH. SINGLE GLAZE (T)
02	F	H.M.	3'-0" x 7'-0" x 1 3/4"	3	H.M.	N/A	11/A602	14/A602	4/A602	PR.	
03	F	H.M.	3'-0" x 7'-0" x 1 3/4"	3	H.M.	N/A	11/A602	14/A602	4/A602	CLO.	
04	F	H.M.	(2) 3'-0" x 7'-0" x 1 3/4"	3	H.M.	N/A	11/A602	14/A602	8/A602	CLO.	OH., W/ DOOR ASTRAGAL
05	G	STL.	(2) 3'-0" x 4'-0"	---	STL.	N/A	---	---	---	CLO.	WIRE MESH PARTITION REFER TO 5/A601
06	J	STL.	8'-0" x 8'-0"	---	STL.	N/A	---	7/A501	---	CLO.	WIRE MESH PARTITION REFER TO 4/601
07	F	H.M.	3'-0" x 7'-0" x 1 3/4"	3	H.M.	3/4 HR.	11/A602	14/A602	8/A602	CLO.	OH.
08	F	H.M.	3'-6" x 7'-0" x 1 3/4"	3	H.M.	3/4 HR.	11/A602	14/A602	8/A602	PA.	
09	A	STL.	16'-0" x 15'-0"	---	STL.	N/A	4/A303	---	4/A303	PA.	INTERIOR SECTIONAL DOOR UNINSULATED
10	F	H.M.	3'-0" x 7'-0" x 1 3/4"	3	H.M.	N/A	11/A602	14/A602	12/A602	PA.	
11	K	STL.	(2) 4'-0" x 4'-0"	---	STL.	N/A	---	---	---	PA.	MEZZARAIL RAIL SYSTEM REFER TO 6/601

LEGEND:

ABBREVIATIONS:

1. H.M.	HOLLOW METAL
2. STL.	STEEL
3. GL.	GLASS
4. T.	TEMPERED GLASS

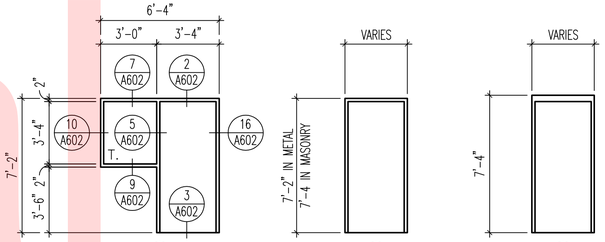
HARDWARE TYPES BY FUNCTION:

1. OFF.	OFFICE FUNCTION
2. CLO.	CLOSET FUNCTION
3. PR.	PRIVACY FUNCTION
4. ENT.	ENTRANCE FUNCTION
5. PA.	PASSAGE FUNCTION
6. COD.	COILING OVERHEAD DOOR

REMARKS:

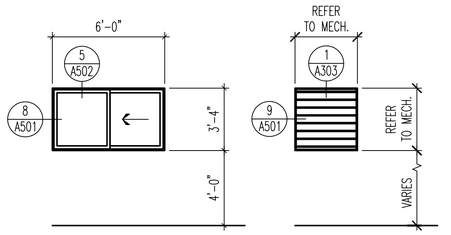
1. OH.	OVER HEAD DOOR CLOSURE.
2. PD.	PANIC DEVICE.
3. EL.	ELECTRIC LOCK.
4. DP.	DOOR PULLS.
5. CL.	CYLINDER LOCK.

GRAPHIC SCALE
4 0 2 4 8
(IN FEET)
1/4 inch = 1 ft.



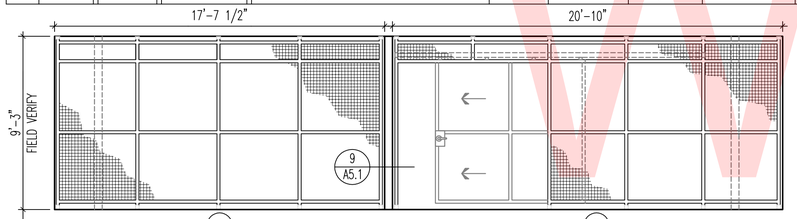
1 H.M. FRAME W/ GLASS SIDE LITE
2 EXTERIOR H.M. FRAME
3 STANDARD H.M. FRAME

1 A601 FRAME ELEVATIONS
SCALE: 1/4" = 1'-0"

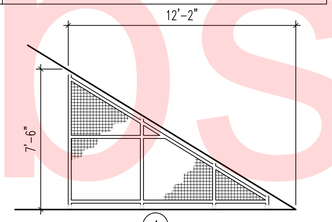


W1 INSULATED ALUM. SLIDING WINDOW WITH SCREEN
FIXED ALUM. LOUVER WITH SCREEN

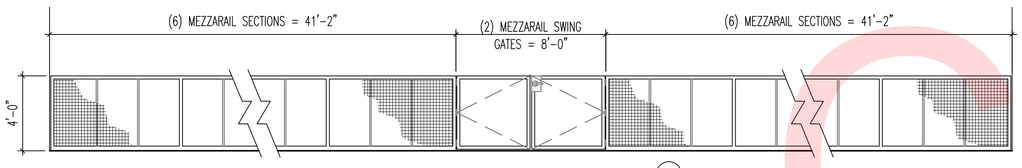
2 A601 WINDOW / LOUVER ELEVATIONS
SCALE: 1/4" = 1'-0"



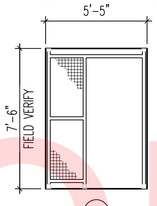
1 MESH PARTITION ELEVATION AT PARTS ROOM
2 MESH PARTITION ELEVATION AT PARTS ROOM
3 NOT USED



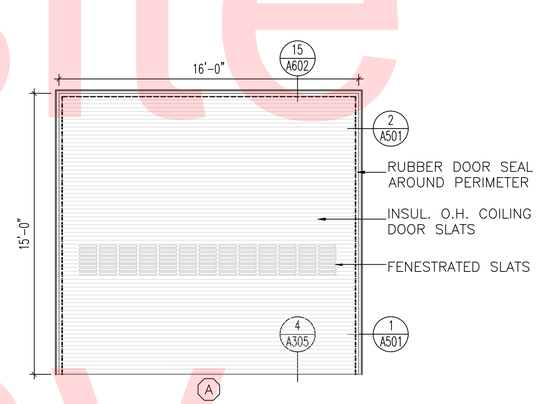
4 MESH PARTITION ELEVATION AT UNDER MEZZANINE STAIRS



4 A601 MEZZANINE MESH PARTITION ELEVATIONS
SCALE: 1/4" = 1'-0"

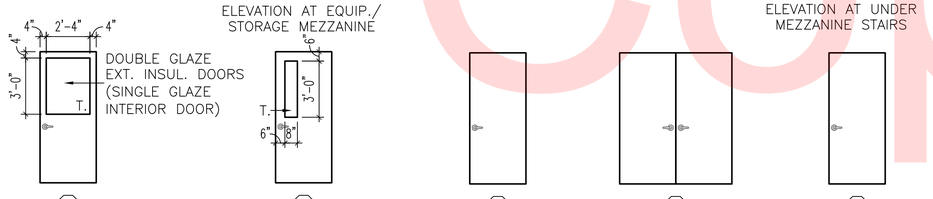


5 MESH PARTITION ELEVATION AT EQUIP./ STORAGE MEZZANINE
6 MESH PARTITION ELEVATION AT UNDER MEZZANINE STAIRS

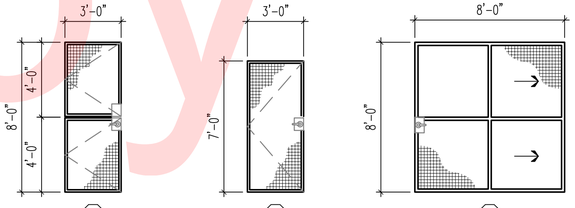


A AUTOMATIC INSULATED O.H. COILING DOOR W/ VISION PANELS

GENERAL NOTE:
1/4" TEMPERED GLASS GLAZING NOTED ON THE ELEVATION WITH "T." ON THE GLASS PANEL REQUIRED.



B SINGLE FLUSH INSULATED H.M. DOOR & HALF LITE GLASS, PAINT FINISH
C SINGLE FLUSH INSULATED H.M. DOOR W/ VISION PANEL, PAINT FINISH
D SINGLE FLUSH INSULATED H.M. DOOR, PAINT FINISH
E DOUBLE FLUSH INSULATED H.M. DOOR, PAINT FINISH
F SINGLE FLUSH UNINSULATED H.M. DOOR, PAINT FINISH



G DUTCH DOOR METAL GATES W/ CYLINDER LOCK & LEAF LOCKS
H METAL GATES W/ CYLINDER LOCK & LEAF LOCKS
J SLIDING METAL GATE W/ OVERHEAD RECEIVER & CYLINDER LOCK
K DOUBLE HINGED METAL GATES (MEZZARAIL BARRIER)

3 A601 DOOR ELEVATIONS
SCALE: 1/4" = 1'-0"

MB-A-601

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

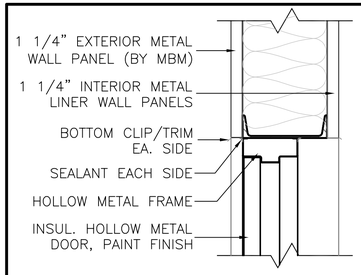
ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY: DCH	
COUNTY	CHECKED BY: KNM	
NEW CASTLE		

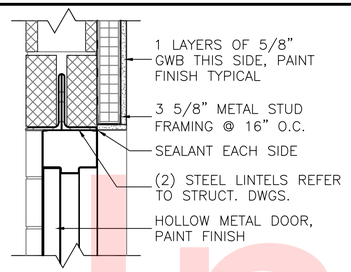
MAINTENANCE BUILDING
PLAN DETAILS

SHEET NO.
85
TOTAL SHTS.
116

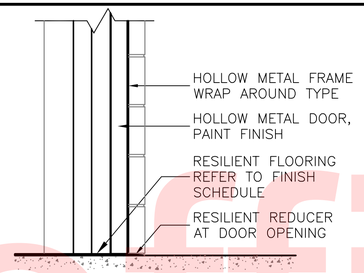
Q:\NDE\T201995_021_St_Georges_Maintenan\CADD\Architectural\MAINTENANCE BUILDING CADD\A6.1_DOOR SCHEDULE.dwg



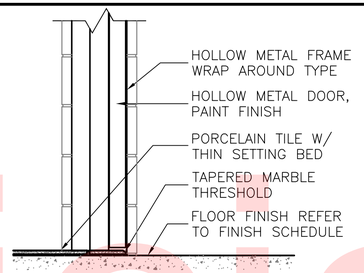
1 DOOR HEAD DETAIL
A-602 SCALE: 1 1/2" = 1'-0"



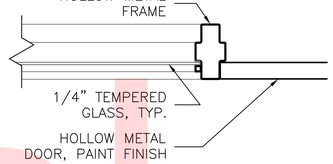
2 DOOR HEAD DETAIL
A-602 SCALE: 1 1/2" = 1'-0"



3 DOOR TRANSITION DETAIL
A-602 SCALE: 1 1/2" = 1'-0"

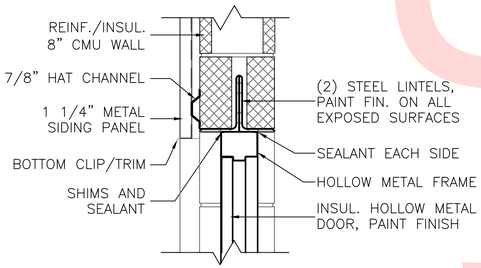


4 DOOR TRANSITION DETAIL
A-602 SCALE: 1 1/2" = 1'-0"

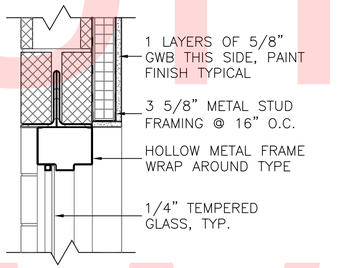


5 WINDOW JAMB DETAIL
A-602 SCALE: 1 1/2" = 1'-0"

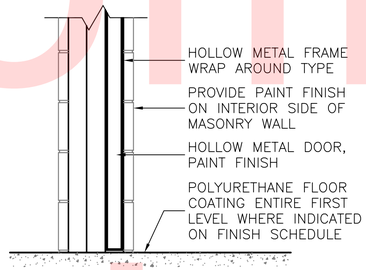
GRAPHIC SCALE
4 0 2 4 8
(IN FEET)
1 1/2 inch = 1 ft.



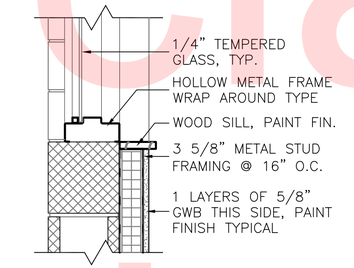
6 DOOR HEAD DETAIL
A-602 SCALE: 1 1/2" = 1'-0"



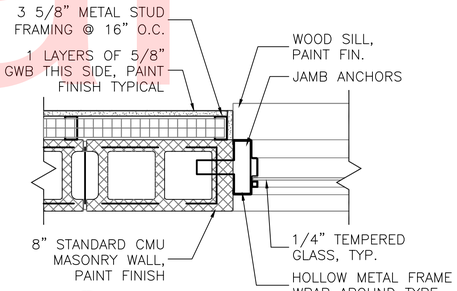
7 WINDOW HEAD DETAIL
A-602 SCALE: 1 1/2" = 1'-0"



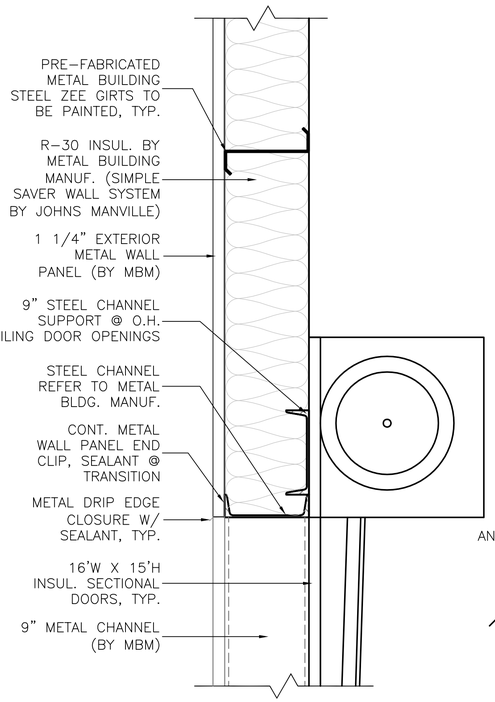
8 DOOR TRANSITION DETAIL
A-602 SCALE: 1 1/2" = 1'-0"



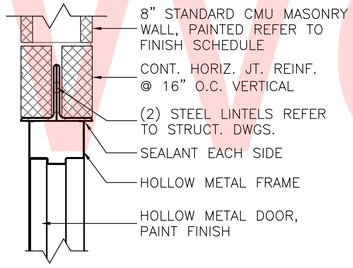
9 WINDOW SILL DETAIL
A-602 SCALE: 1 1/2" = 1'-0"



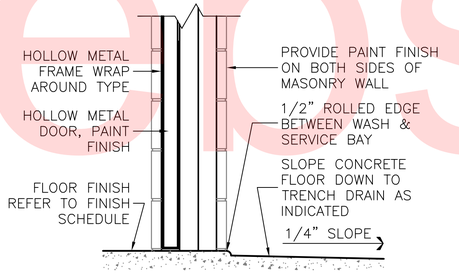
10 WINDOW JAMB DETAIL
A-602 SCALE: 1 1/2" = 1'-0"



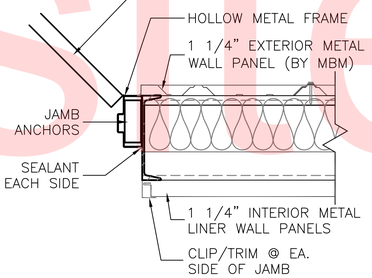
15 DOOR HEAD DETAIL @ OVERHEAD COILING DOOR
A-602 SCALE: 1 1/2" = 1'-0"



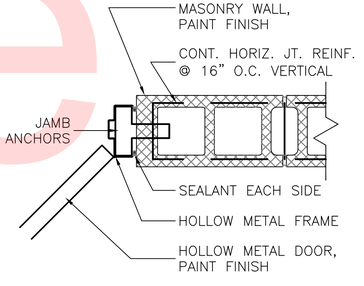
11 DOOR HEAD DETAIL
A-602 SCALE: 1 1/2" = 1'-0"



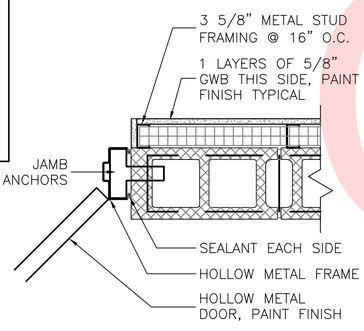
12 DOOR TRANSITION DETAIL
A-602 SCALE: 1 1/2" = 1'-0"



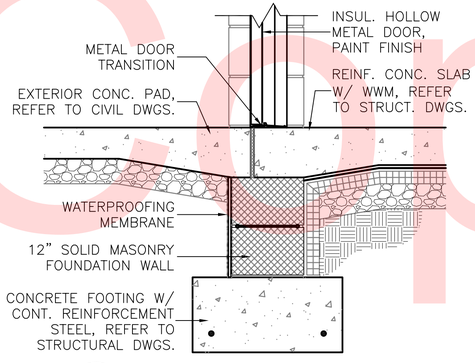
13 DOOR JAMB DETAIL
A-602 SCALE: 1 1/2" = 1'-0"



14 DOOR JAMB DETAIL
A-602 SCALE: 1 1/2" = 1'-0"



16 DOOR JAMB DETAIL
A-602 SCALE: 1 1/2" = 1'-0"



17 DOOR TRANSITION DETAIL
A-602 SCALE: 1 1/2" = 1'-0"

GENERAL NOTE:
ALL METAL BUILDING ENGINEERING & CONSTRUCTION BY METAL BUILDING MANUFACTURER.

MB-A-602

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY: DCH	
COUNTY	CHECKED BY: KNM	
NEW CASTLE		

MAINTENANCE BUILDING
DOOR DETAILS

SHEET NO.	86
TOTAL SHTS.	116

ROOM FINISH SCHEDULE

ROOM OR SPACE NO.	TITLE	FLOORING: RESILIENT TILE	FLOORING: 12" X 12" PORCELAIN TILE	FLOORING: EPOXY COATING	FLOORING: CONCRETE SEALER	BASE: VINYL BASE	BASE: PORCELAIN TILE BASE	BASE: 6" EPOXY COATING BASE	BASE: NONE	WALLS: PAINTED GWB	WALLS: 3/32" FRP PANELS	WALLS: PORCELAIN TILE	WALLS: PAINTED MASONRY	WALLS: PRE-FINISH INTERIOR PANEL	CEILING: ACT STANDARD 2 X 2	CEILING: PAINTED WATER RESISTANT GWB	CEILING: PAINTED STRUCTURE	CEILING: NONE	CEILING HEIGHT	REMARKS
101	OFFICE	●				●				●					●				8'-0"	---
102	SECURE PARTS / TOOL STORAGE			●				●		●			●				●		---	
103	TOILET ROOM		●				●					●	●			●			8'-0"	
104	JANITOR CLOSET			●				●					●				●		---	
105	PARTS ROOM			●				●					●				●		---	
106	MECHANICAL ROOM			●				●					●				●		---	
107	FLUID STORAGE			●				●					●				●		---	
108	REPAIR SHOP AREA			●				●					●	●			●		---	
109	WASH BAY			●				●			●		●	●			●		---	
110	EQUIPMENT / STORAGE MEZZANINE				●				●					●			●		---	

GENERAL NOTES:

1. THE FOLLOWING PRODUCTS LISTED BELOW ARE FOR REFERENCE ONLY. ACTUAL PRODUCTS PROVIDED SHOULD BE SIMILAR OR EQUAL TO THE ITEM SPECIFIED.
2. ALL EXPOSED STRUCTURE TO BE CLEANED & PREPPED BEFORE PAINTED FINISH IS APPLIED.
3. FOR ALL SEALANT TYPE REFER TO SPECIFICATIONS.
4. ALL EXPOSED INTERIOR & EXTERIOR METAL IS TO BE PRIMED & 2 COAT FINISH PAINTED, COLOR TO BE AS INDICATED.

INTERIOR FINISHES:

FLOORING:

1. POLYURETHANE FLOOR COATING
   GENERALLY ENTIRE FIRST LEVEL WHERE INDICATED ON FINISH SCHEDULE. SIMILAR TO SHERWIN-WILLIAMS, 3 COAT SYSTEM. ARMORSEAL HS POLYURETHANE FLOOR COATING (2 COATS) OVER ARMORSEAL 1000HS (1 COAT).
2. SEALED CONCRETE
   EQUIPMENT/STORAGE MEZZANINE AS SPECIFIED.
3. 12" X 12" PORCELAIN TILE
   TOILET ROOMS AS SPECIFIED, BY TILE MANUFACTURER DALTILE.
4. RESILIENT TILE
   OFFICE AS SPECIFIED, SIMILAR TO TILE MANUFACTURED BY "ARMSTRONG".

BASE:

1. PAINTED
   6" HIGH EPOXY BASE. GENERALLY ENTIRE FIRST LEVEL WHERE INDICATED ON FINISH SCHEDULE. SIMILAR TO SHERWIN-WILLIAMS, 3 COAT SYSTEM. ARMORSEAL HS POLYURETHANE FLOOR COATING (2 COATS) OVER ARMORSEAL 1000HS (1 COAT).
2. PORCELAIN TILE
   TOILET ROOMS AS SPECIFIED, 3" HIGH BY 12" WIDE COVED BASE TILES BY TILE MANUFACTURER DALTILE.

   4" COVE VINYL BASE
3. OFFICE AS SPECIFIED, 1/8" THICK PRODUCTS SIMILAR TO TILE MANUFACTURED BY "ARMSTRONG".

WALL:

1. PAINTED GWB
   OFFICE AS SPECIFIED, SIMILAR TO BENJAMIN MOORE "ARURA SERIES" SEMI GLOSS FINISH, COLOR AS SELECTED.
2. PAINTED MASONRY
   GENERALLY ALL EXPOSED MASONRY AS SPECIFIED, SIMILAR TO SHERWIN WILLIAMS TILE-CLAD EPOXY, 3 COAT SYSTEM, COLOR AS SELECTED.
3. FIBERGLASS REINFORCED POLYESTER PANELS (FRP)
   WASH BAY AS SPECIFIED FROM 4'-0" TO 14'-0", 10'-0" LONG PANELS. SIMILAR TO "MARLITE" FRP 48" X 120" X 3/32" ATTACHED TO WATER RESISTANT GWB BASE.
4. PORCELAIN TILE
   TOILET ROOMS AS SPECIFIED, 6" X 6" FIELD WALL TILES BY TILE MANUFACTURER DALTILE.

CEILING:

1. 2' X 2' ACOUSTICAL TILE
   OFFICE AS SPECIFIED, SIMILAR TO "ARMSTRONG FINE FISSURED #1833", 2'-0" X 2'-0" ON 15/16" GRID (WHITE) "ANGLED TEGLAR".
2. PAINTED WATER RESISTANT GWB
   TOILET ROOMS AS SPECIFIED, SIMILAR TO BENJAMIN MOORE "ARURA SERIES" SEMI GLOSS FINISH, COLOR AS SELECTED.
3. PAINTED STRUCTURE
   GENERALLY ALL EXPOSED STEEL STRUCTURE, SIMILAR TO SHERWIN WILLIAMS TILE CLAD EPOXY WALL SYSTEM FOR METAL SURFACES.

MB-A-603

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MAINTENANCE BUILDING FINISH SCHEDULE
				COUNTY NEW CASTLE	DESIGNED BY: DCH	SHEET NO. 87
					CHECKED BY: KNM	TOTAL SHTS. 116

GENERAL

1. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED.
2. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCE, AND TO ENSURE THE STABILITY OF THE BUILDING AND ITS COMPONENT PARTS, AND THE ADEQUACY OF TEMPORARY OR INCOMPLETE CONNECTIONS, DURING ERECTION. THIS INCLUDES THE ADDITION OF ANY SHORING, TEMPORARY GUYS, BRACING OR TIEDOWNS THAT MIGHT BE NECESSARY.
3. SUCH MATERIAL IS NOT SHOWN ON THE DRAWINGS. IF APPLIED, THEY SHALL BE REMOVED AS CONDITIONS PERMIT AND SHALL REMAIN THE CONTRACTOR'S PROPERTY. THE ENGINEER HAS NO EXPERTISE IN, AND TAKES NO RESPONSIBILITY FOR, CONSTRUCTION MEANS AND METHODS OR JOB SITE SAFETY DURING CONSTRUCTION.
4. PROCESSING AND/OR APPROVING SUBMITTALS MADE BY THE CONTRACTOR WHICH MAY CONTAIN INFORMATION RELATED TO CONSTRUCTION METHODS OR SAFETY ISSUES, OR PARTICIPATION IN MEETINGS WHERE SUCH ISSUES MIGHT BE DISCUSSED, SHALL NOT BE CONSTRUED AS VOLUNTARY ASSUMPTION BY THE ENGINEER OR ANY RESPONSIBILITY FOR SAFETY PROCEDURES.
5. IT IS SOLELY THE RESPONSIBILITY OF EACH CONTRACTOR TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASE OF CONSTRUCTION. THE ENGINEER IS NOT ENGAGED IN, AND DOESN'T SUPERVISE CONSTRUCTION.

OWNERSHIP OF DOCUMENTS:

THE CONTRACTOR ACKNOWLEDGES THESE PLANS AND SPECIFICATIONS PREPARED BY JMT, AS INSTRUMENTS OF PROFESSIONAL SERVICE. NEVERTHELESS, THE PLANS AND SPECIFICATIONS PREPARED UNDER THIS AGREEMENT SHALL REMAIN THE PROPERTY OF JMT. UPON COMPLETION OF THE WORK. THE CONTRACTOR AGREES TO HOLD HARMLESS AND INDEMNIFY AGAINST ALL DAMAGES, CLAIMS, AND LOSSES, INCLUDING DEFENSE COSTS, ARISING OUT OF ANY REUSE OF THE PLANS AND SPECIFICATIONS WITHOUT THE WRITTEN AUTHORIZATION OF JMT.

SHOP DRAWINGS:

SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS MUST BE SUBMITTED BY GENERAL CONTRACTOR AND REVIEWED BY THE ENGINEER. ALL CONTRACTOR MODIFICATIONS (INCLUDING PRODUCTS SUBMISSION) MUST BE IDENTIFIED IN WRITING AS A PROPOSED "AS EQUAL" CHANGES AT TIME OF SUBMISSION. IF A CONTRACTOR OR OWNER FAILS TO SUBMIT THE SHOP DRAWINGS OR FAILS TO FOLLOW THE ABOVE "AS EQUAL" PROCEDURE, JMT WILL NOT BE RESPONSIBLE FOR THE STRUCTURAL CERTIFICATION AND DESIGN OF THE PROJECT. SHOP DRAWINGS ARE REVIEWED BY THE ENGINEER AS A CONVENIENCE TO THE CONTRACTOR AND ARE NOT A CONTRACT DOCUMENT.

UTILITIES

1. CONTRACTOR IS TO VERIFY LOCATIONS OF ALL UNDERGROUND UTILITIES PRIOR TO PERFORMING ANY SUBSURFACE OR EXCAVATION WORK.
2. PROTECTION: PROTECT EXISTING UTILITIES TO REMAIN DURING EXCAVATION, AND CUTTING AND PATCHING, TO PREVENT DAMAGE.

DESIGN BASIS:
INTERNATIONAL BUILDING CODE, 2015 EDITION
ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
ACI 318-14 MANUAL FOR CONCRETE CONSTRUCTION

PROJECT LOADS:

ROOF LIVE LOAD	20 PSF
VEHICLE LOAD	HS-20
MEZZANINE LIVE LOAD	60 PSF
WIND LOAD PER ASCE 7-10	
WIND BORN DEBRIS:	APPLICABLE
BUILDING RISK CATEGORY:	II
BASIC WIND SPEED:	115MPH
DIRECTIONALITY FACTOR: Kd	0.85
EXPOSURE CATEGORY:	B
TOPOGRAPHIC FACTOR: Kzt	1.0
GUST EFFECT FACTOR: Gf	0.85
ENCLOSURE CLASSIFICATION:	ENCLOSED
INTERNAL PRESSURE COEFF:	±0.18
MWFRS DESIGN PROCEDURE:	DIRECTIONAL

MWFRS

WALL PRESSURE	MAX	/	MIN
WINDWARD:	17	/	10 PSF
LEEWARD:	-5	/	-12 PSF
SIDEWALL:	-8	/	-15 PSF
ROOF PRESSURE:	-2	/	-19 PSF

COMPONENTS AND CLADDING:

ROOF SURFACE PRESSURE (PSF)

AREA	20SF	50SF	100SF	200SF	500SF
NEG. ZONE 1	-19	-20	-20	-20	-20
NEG. ZONE 2	-35	-31	-28	-28	-28
NEG. ZONE 3	-52	-48	-44	-44	-44
POS. ALL ZONES	13	11	10	10	10

WALL SURFACE PRESSURE (PSF)

AREA	20SF	50SF	100SF	200SF	500SF
NEG. ZONE 4	-25	-23	-22	-22	-20
NEG. ZONE 5	-30	-27	-25	-24	-20
POS. ALL ZONES	23	21	20	20	18

** REFER TO ACSE 7-10, CHAPTER 30 FOR ZONE DEFINITIONS **

SEISMIC LOAD PER ASCE 7-10

RISK CATEGORY	II
IMPORTANCE FACTOR:	1.0
MAPPED SPECTRAL RESPONSE ACCELERATIONS,	Ss=0.174g, S1=0.056g
SITE CLASS =	D
SPECTRAL RESPONSE COEFFICIENTS,	Sds=0.185G, Sd1=0.09G
SEISMIC DESIGN CATEGORY :	B

SEISMIC DESIGN FACTORS

BASIC FORCE RESISTING SYSTEM:	STEEL MOMENT FRAME
RESPONSE MODIFICATION FACTOR:	3 ½
SEISMIC RESPONSE COEFFICIENT:	Cs=0.0530
BASE SHEAR:	12.06 KIPS

SNOW LOADS

GROUND SNOW LOAD:	25.0 PSF
BALANCED SNOW LOAD:	19.4 PSF

CONTROLLED FILL AND BACKFILL:

1. SAMPLES OF ALL MATERIALS THAT THE CONTRACTOR PROPOSES TO USE FOR COMPACTED FILL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER.
2. COMPACTED FILL SHALL CONSIST OF LOCAL MATERIAL FREE OF DELETERIOUS MATTER AND CLASSIFIED CL, SC, GC, GM, OR SM PER ASTM D-2487.
3. THE CONTROL OF THE MOISTURE FOR PLACING THE FILL WILL BE BASED ON THE RESULTS OF COMPACTION TESTS PER ASTM D-1557.
4. ALL COMPACTED FILL SHALL HAVE A DENSITY OF AT LEAST 95% FOR COHESIONLESS SOILS AND 90% FOR COHESIVE SOILS OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698.
5. PRIOR TO PLACEMENT OF ANY FILLS, THE SITE SHALL BE STRIPPED OF ALL TOPSOIL, VEGETATION, ROCKS, AND ORGANIC MATERIALS AND THE EXPOSED SUBGRADE SHALL BE COMPACTED IN PLACE TO A CONFIRMED DENSITY OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY.
6. FILL MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 8" IN THICKNESS AND SHALL BE MIXED, SPREAD AND PLACED IN SUCH A WAY AS TO PRODUCE A UNIFORM THICKNESS OF MATERIAL AFTER PLACING.
7. COMPACTED FILL PLACED WITHIN 4 FEET OF STRUCTURES AND PIPES SHOULD BE PLACED IN HORIZONTAL LIFTS NOT TO EXCEED 4 INCHES THICKNESS AND COMPACTED WITH HAND TAMPERS OR LIGHT COMPACTION EQUIPMENT TO THE SAME STANDARD. HEAVY COMPACTION EQUIPMENT SHOULD NOT BE ALLOWED WITHIN 4 FEET OF STRUCTURES UNLESS A MINIMUM 2 FEET DEPTH OF FILL COVERS THE STRUCTURES.
8. WHENEVER IN PLACE DENSITIES ARE FOUND BELOW ACCEPTABLE LIMITS, ADDITIONAL ROLLING TO PRODUCE THE SPECIFIED DENSITIES SHALL BE REQUIRED.
9. MAINTAIN POSITIVE SURFACE DRAINAGE TO PREVENT THE ACCUMULATION OF WATER IN EXCAVATED AREAS. SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES.
10. PLACING OF FILL CONTAINING ORGANIC MATTER; PLACING OF FILL WITH MOISTURE CONTENT TOO HIGH OR TOO LOW FOR PROPER COMPACTION; PLACING OF FILL WHEN FREE WATER IS STANDING ON THE EXISTING FILL SURFACE; PLACING OF FILL IN A FROZEN CONDITION OR ON TOP OF FROZEN MATTER WILL NOT BE PERMITTED.
11. THE SOILS ENGINEER SHALL SUPERVISE THE PLACING OF THE COMPACTED FILL AND ALL THE MATERIAL AND EQUIPMENT USED FOR THIS PURPOSE AND SHALL MAKE SUCH SOILS TESTS AS MAY BE REQUIRED FOR THE COMPLETION OF THE WORK.

CONCRETE:

1. ALL CONCRETE WORK SHALL CONFORM TO ALL THE PROVISIONS OF THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301), AND TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318).
2. ALL STRUCTURAL CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF:
   FOOTINGS: 4,000 PSI
   SLAB ON GRADE: 3,000 PSI
3. THE CONCRETE SHALL CONFORM TO ALL THE PROVISIONS OF "RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING" (ACI 305) AND "RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING" (ACI 306).
4. ALL FORMWORK SHALL BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "FORMWORK FOR CONCRETE" SPECIAL PUBLICATION NO. 4 AND ACI'S "STANDARD RECOMMENDED PRACTICE FOR CONCRETE FORMWORK" (ACI-347).
5. ALL CONCRETE EXPOSED TO THE WEATHER SHALL HAVE AN AIR ENTRAINMENT OF 6% ± 1%. NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED.
6. THE MAXIMUM SLUMP OF ALL CONCRETE SHALL BE 4", OR IN ACCORDANCE WITH APPROVED MIX DESIGN.
7. ALL CONCRETE SHALL BE CURED WITH LIQUID SEALING COMPOUND CONFORMING TO ASTM C-309, TYPE I AND FEDERAL SPECIFICATION TT-C-00800 OR OTHER APPROVED METHOD WHICH IS COMPATIBLE WITH FLOORING ADHESIVES AND OTHER SURFACE TREATMENTS.
8. ALL CONCRETE LEFT EXPOSED AT THE COMPLETION OF THE PROJECT SHALL BE TREATED WITH A CLEAR, PENETRATING ACRYLIC BASE POLYMER CAPABLE OF PREVENTING INFILTRATION OF WATER BORNE CHLORIDES SUCH AS CONSPEC #1 BY CONSPEC MARKETING & MANUFACTURING COMPANY OR APPROVED EQUAL.
9. LOADS GREATER THAN THE DESIGN LIVE LOADS SHALL NOT BE PLACED ON THE STRUCTURE.
10. A CONCRETE STRUCTURE MAY NOT SUPPORT ITS DESIGN LIVE LOAD FOR 28 DAYS. CONTRACTOR SHALL SUPPORT ADJACENT STRUCTURES, UTILITIES, AND EXCAVATIONS AS REQUIRED FOR COMPLETION OF WORK.
11. ONE SET OF COMPRESSIVE TEST CYLINDERS FOR EACH 50 CUBIC YARDS POURED, BUT NOT LESS THAN ONE SET FOR EACH DAY'S POUR AND EACH CLASS OF CONCRETE, ALONG WITH SLUMP TESTS SHALL BE PERFORMED BY A TESTING LABORATORY APPROVED BY THE STRUCTURAL ENGINEER.
12. REINFORCING STEEL SHALL BE DEFORMED BARS IN ACCORDANCE WITH ASTM A-615, GRADE 60. BENDS ARE TO BE FABRICATED AS PER DETAILS.
13. PLACE MAIN REINFORCING STEEL SO AS TO PROVIDE 3" MINIMUM COVER FOR FOUNDATIONS POURED ON EARTH, AND 2" FOR ALL REBAR IN EXPOSED CONCRETE (EXCEPT AS OTHERWISE DETAILED).
14. ALL WALL STEEL SHALL HAVE A MINIMUM EXTENSION INTO THE SUPPORTS IN ACCORDANCE WITH THE LATEST ADDITION OF THE ACI CODE, PROVIDE ACCESSORIES AND BAR SUPPORTS IN ACCORDANCE WITH THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315).

FOUNDATION:

1. CONCRETE SHALL NOT BE POURED ON FROZEN GROUND.
2. FILL ALL VOIDS AND REPLACE DISTURBED SOIL WITH LEAN CONCRETE.
3. BOTTOM OF ALL FOOTINGS SHALL BE A MINIMUM OF 2'-0" BELOW ORIGINAL GRADE OR PLACED IN APPROVED COMPACTED FILL.
4. BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE A MINIMUM OF 2'-8" BELOW FINISHED GRADE.
5. A SOIL BEARING CAPACITY OF 2000 PSF WAS USED IN THE FOUNDATION DESIGN, AND MUST BE FIELD VERIFIED BY A REGISTERED GEOTECHNICAL ENGINEER.
6. IF SOIL OF THIS BEARING CAPACITY IS NOT ENCOUNTERED AT THE ELEVATIONS INDICATED ON THE CONTRACT DRAWINGS, FOOTINGS SHALL BE LOWERED OR INCREASED IN SIZE AS DIRECTED BY THE STRUCTURAL ENGINEER.

CONCRETE MASONRY

1. ALL MASONRY WORK SHALL BE PERFORMED IN ACCORDANCE WITH ACI 530, LATEST EDITION.
2. PRISM STRENGTH= 1500 PSI MIN.
3. CMU TO COMPLY WITH ASTM C90, GRADE N, TYPE I MOISTURE CONTROLLED 8" HOLLOW UNITS.
4. MORTAR - USE ASTM C 270, TYPE S OR M, CEMENT/LIME OR MASONRY CEMENT.
5. GROUT - ASTMC476, COARSE GROUT.
6. REINFORCING BARS - ASTM A615, GRADE 60
7. PROVIDE FULLY GROUTED BOND BEAMS W/(1) #5 BARS. SEE PLAN FOR SIZES
8. HORIZONTAL BARS ARE TO BE ATTACHED TO VERTICAL REINFORCEMENT AT END OF WALLS WITH A STANDARD 180° HOOK.
9. PROVIDE 3/16" LADDER TYPE, HORIZONTAL REINFORCEMENT SPACED @ 16" O.C. IN ALL MASONRY WALLS.
10. ALL DOWELS AT STEM WALL TO BE ATTACHED DIRECTLY TO THE HORIZONTAL STEEL IN THE FOOTING.
11. AT VERTICAL CONTROL JOINTS, PROVIDE ROUND SMOOTH BARS WITH ONE END GREASED TO ALLOW FOR LATERAL MOVEMENT.

STRUCTURAL STEEL:

1. ALL DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION (13TH EDITION).
2. MATERIAL:

A.	W-SHAPE	ASTM A992, FY=50ks
B.	CHANNELS, ANGLES, & PLATE	ASTM A36, FY=36ksi
C.	RECTANGULAR HSS	ASTM A500 GRADE B, ASTM 1085
D.	ROUND HSS	ASTM A500 GRADE B, ASTM 1085
E.	STEEL PIPE	ASTM A53 GRADE B, FY=35ksi
F.	HIGH-STRENGTH BOLT	ASTM A325 N
G.	ANCHOR ROD	ASTM F1554
H.	THREADED ROD	ASTM A36

-NO SECOND HAND MATERIAL PERMITTED
-MAKE ALL FIELD MEASUREMENTS REQUIRED TO VERIFY DIMENSIONS.

3. CONNECTIONS:
   A. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY STANDARD D1.1, LATEST EDITION.
   B. UNLESS SHOWN OTHERWISE, PROVIDE STANDARD FRAMED OR SEATED BEAM CONNECTIONS AS SHOWN IN PART 4 OF THE AISC"MANUAL OF STEEL CONSTRUCTION".
   C. UNLESS GREATER REACTIONS ARE INDICATED ON THE PLANS, PROVIDE CONNECTIONS DEVELOPING AT LEAST ONE HALF OF THE TOTAL UNIFORM LOAD CAPACITY TABULATED IN THE TABLES OF THE AISC MANUAL FOR THE GIVEN SECTION AND SPAN OF THE BEAM. IN NO CASE SHALL THE LENGTH OF THE FRAMED CONNECTIONS BE LESS THAN ONE HALF THE "I" DIMENSION OF THE BEAM.
4. ERECTION: PROVIDE ADEQUATE EQUIPMENT TO PERFORM THE WORK WITHOUT DAMAGE TO PROPERTY AND PROVIDE COMPLETE SAFETY TO PUBLIC, WORKMEN AND PROPERTY.
5. SHOP PAINT: STRUCTURAL STEEL SHALL RECEIVE ONE SHOP COAT OF RUST INHIBITIVE PRIMER (SSPC PAINT 15, RED OXIDE).
6. FIELD PAINT: TOUCH UP ALL BOLTS AND WELDS WITH SHOP PAINT.
7. CONTRACTOR SHALL SUBMIT ERECTION PLANS AND DETAIL SHOP DRAWINGS FOR REVIEW BY ENGINEER BEFORE FABRICATION.
8. THE CONTRACTOR SHALL NOT CUT OR ALTER IN ANY WAY THE STRUCTURAL MEMBERS WITHOUT THE APPROVAL OF THE ENGINEER.
9. GROUT UNDER ALL BASE PLATES AND BEARING PLATES WITH NON-SHRINK TYPE GROUT, MINIMUM COMPRESSIVE STRENGTH OF 7000 PSI AT 28 DAYS.
10. UNLESS NOTED OTHERWISE, BEAMS ON MASONRY WALLS SHALL BEAR A LENGTH EQUAL TO THE BEAM DEPTH, 8 INCHES MINIMUM.

STEEL JOISTS

1. JOISTS TO BE FABRICATED AND ERECTED IN COMPLIANCE WITH THE STEEL JOIST INSTITUTE STANDARD SPECIFICATIONS, LOAD TABLES AND WEIGHT TABLES FOR "K" SERIES JOISTS.
2. PROVIDE EXTENDED ENDS WHERE INDICATED, COMPLYING WITH MANUFACTURERS STANDARDS.
3. PROVIDE CEILING EXTENSIONS IN AREA HAVING CEILINGS ATTACHED DIRECTLY TO JOIST BOTTOM CHORDS.
4. PROVIDE MANUFACTURERS STANDARD STEEL PRIME PAINT.
5. K-SERIES STEEL JOIST SHALL BE CONNECTED TO STEEL BY 1/8" FILLET WELD, 1" LONG, EACH SIDE (MIN).
6. UNLESS NOTED, K-SERIES STEEL JOIST SHAL BAVE A 2-1/2" DEEP BEARING. WHERE STEEL JOIST OR GIRDER SLOPE EXCEEDS 1/4" PER FT. PROVIDE SLOPED BEARINGS.
7. CROSS BRIDGING SHALL BE AN ANGLE DESIGNED FOR L/R=200 OR LESS, HORIZONTAL BRIDGING SHALL BE AND ANGLE AT THE TOP AND BOTTOM CORDS OF THE JOIST DESIGNED FOR L/R=300 OR LESS. THE ENDS OF ALL BRIDGING LINES TERMINATING AR WALLS OR BEAMS SHALL BE ANCHORED TO THE WALLS OR BEAMS.
8. CONTRACTOR SHALL SUBMIT ERECTION PLANS AND DETAIL SHOP DRAWINGS FOR REVIEW BY ENGINEER BEFORE FABRICATION.

METAL DECK

1. ALL FLOOR FORM DECK SHALL CONFORM TO STEEL DECK INSTITUTE DESIGN MANUAL, LATEST EDITION. DECKING TO BE MANUFACTURED BY VULCRAFT, INC. OR EQUAL.
2. DECKING SPECIFICATIONS:
   A. TYPICAL FLOOR DECK: VULCRAFT DECK, 1.0" DEEP, 4.0" PITCH, 22 GAUGE, GALVANIZED
   B. NO STUDS REQUIRED WITH THE USE OF NORMAL WEIGHT CONCRETE.
   C. SPANS OVER 5 FEET REQUIRE SIDELAP FASTENERS
3. MATERIAL - STEEL CONFORMING TO ASTM A653, GRADE 80, MINIMUM FY = 33,000 PSI.
4. FINISH - GALVANIZED PER ASTM A653, G60 AND/OR ASTM A924.
5. FLOOR FORM SHALL BE FASTENED AS FOLLOWS:
   A. INTERIOR SUPPORTS: 5/8"ø PUDDLE WELDS @ 12" O.C.
   B. PERIMETER SUPPORTS. 5/8"ø PUDDLE WELDS @ 6" O.C.
   C. SIDE LAPS: #10 TEKS @ 36" O.C. MAX.
6. TOUCH UP GALVANIZED SURFACES WITH GALVANIZING REPAIR PAINT APPLIED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
7. FOR DECK LESS THAN 0.028" THICKNESS USE MANUFACTURERS WELD WASHERS.
8. CONTRACTOR SHALL SUBMIT ERECTION PLANS AND SPECIFICATIONS ON DECK TO BE USED FOR REVIEW BY ENGINEER BEFORE FABRICATION.

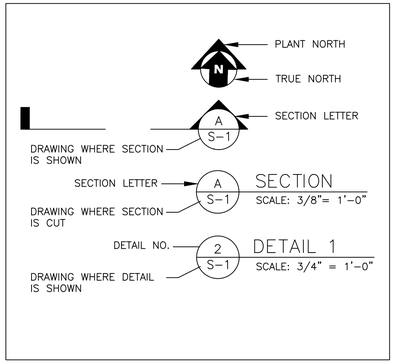
CONCRETE SLAB ON DECKING

1. TYPICAL CONCRETE SLAB ON DECKING TO HAVE f'c = 3000 PSI W/ A UNIT WEIGHT OF 145 PCF W/6x6-W2.1xW2.1 WWF REINFORCEMENT.

METAL BUILDING SYSTEM

1. THE BUILDING SHALL BE A MANUFACTURE'S STANDARD PRE-FABRICATED METAL STRUCTURE OF THE APPROXIMATE INSIDE AREA SHOWN. RIGID FRAMES SHALL BE SPACED AS SHOWN IN THE PLANS, BUT OVERALL DIMENSIONS AND CONSTRUCTION DETAILS MAY VARY TO SUIT THE MANUFACTURE'S STANDARD DESIGN.
2. METAL BUILDING SHALL CONFORM TO ALL APPLICABLE BUILDING CODES AND PROVISIONS OF THE MBMA METAL BUILDING SYSTEMS MANUAL. STANDARD DRAWINGS AND DESIGN ANALYSIS SHALL BEAR THE SEAL OF A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF DELAWARE.
3. A COMPLETE DESIGN ANALYSIS SHOWING ALL CALCULATIONS FOR RIGID FRAME, GIRTS, AND PURLINS AND A LAYOUT OF THE ANCHOR BOLTS AND OTHER EMBEDDED ITEMS SHALL BE SUBMITTED WITH THE SHOP DRAWINGS. SHOP DRAWINGS SHALL INCLUDE DETAILS OF ALL MAIN MEMBERS, TYPICAL CONNECTIONS SHOWING BOLT HOLES AND WELDS, AND ERECTION DRAWINGS.
4. THE BUILDING SHALL BE DESIGNED TO SUPPORT ALL MECHANICAL EQUIPMENT INCLUDING HEATERS, SPRINKLERS, EXHAUST SYSTEMS AND OTHER SUCH DEVICES. ADDITIONAL GIRTS OR PURLINS SHALL BE PLACED IN CONVENIENT LOCATIONS FOR ATTACHMENT OF ALL MECHANICAL EQUIPMENT.
5. ANCHOR BOLT SIZES SHALL BE AS SHOWN ON THE SHOP DRAWINGS
6. BOLTS SHALL BE PROPERLY PLACED, ALIGNED, AND SECURELY TIED TO REMAIN IN PLACE DURING PLACEMENT OF THE CONCRETE.

LEGEND



LEGEND

8" THICK CONCRETE SLAB W/ 6x6-W1.4xW1.4 WWF 10MIL POLY VAPOR BARRIER	
SPREAD/CONTINUOUS FOOTING SEE FOOTING SCHEDULE FOR REINFORCEMENT	
MONOLITHIC FOOTING SEE FOOTING SCHEDULE FOR REINFORCEMENT	
COLUMN ABOVE	□
COLUMN BELOW	⊠
MASONRY WALL	
FRAMING BELOW	
FRAMING ABOVE	
CONTROL JOINT	CJ CJ

ABBREVIATIONS

@ At
AB: Anchor Bolt
ABV: Above
ACI: American Concrete Institute
ADDL: Additional
AFF: Above Finished Floor
AISC: American Institute of Steel Construction
APPROX: Approximate
APRVD: Approved
ARCH: Architect, Architectural
ASTM: American Society for Testing Materials
AVG: Average
AWS: American Welding Society

BLDG: Building
BOTT: Bottom
BP: Base Plate
BRG: Bearing

C/C: Center to Center
CIR: Circle, Circular,
CJ: Control Joint
CL: Centerline,
CLR: Clear
CLR OPG: Clear Opening
CMU: Concrete Masonry Unit
COEF: Coefficient
COL: Column
CONC: Concrete
CONST: Construction
CONT: Continuous,
CTR: Center

DEMO: Demolition
DET: Detail
DIA: Diameter
DIM: Dimension
DL: Dead Load
DWG: Drawing

EA: Each
EF: Each Face
EJ: Expansion Joint
EL: Elevation
ELEC: Electrical
ELEV: Elevation
ENGR: Engineer
EQ: Equal
EQUIP: Equipment
EW: Each Way
EXP: Expansion
EXT: Exterior

FNDN: Foundation
FF: Far Face
FFE: Finished Floor Elevation
FT: Foot, Feet, Fully Tempered
FTG: Footing

ID: Inside Diameter
INT: Interior, Internal

JT: Joint

L: Angle, Left, Length
LB: Pound (weight)
LL: Live Load

MAINT: Maintenance
MATL: Material
MAX: Maximum
MECH: Mechanical
MEZZ: Mezzanine
MFR: Manufacture, Manufacturer
MIN: Minimum
MISC: Miscellaneous
MRD: Metal Roof Deck
MTD: Mounted
MTL: Metal

N: North,
NTS: Not To Scale

O.C.: On Center
OD: Outside Diameter
OPP: Opposite

GA: Gauge, Gage
GALV: Galvanized
GC: General Contractor
GRND: Ground

HOR: Horizontal
HT: Height
HVAC: Heating, Ventilating & Air Conditioning

THK: Thick, Thickness
THRU: Through
T.O. SLAB: Top of Slab
T.O.S: Top of Steel

UNO: Unless Noted Otherwise

VERT: Vertical

W/: With
WWM: Wire Mesh
WP: Working Point
WT: Weight
WWF: Welded Wire Fabric

XS: Extra Strong
XXS: Double Extra Strong
PAF: Powder Actuated Fasteners
PCF: Pounds per cubic foot
PERIM: Perimeter
PERP: Perpendicular
PL: Plate, Plan,
PLF: Pounds Per Lineal Foot

PSF: Pounds per square foot
PSI: Pounds per square inch
PT: Pressure Treated

QTY: Quantity

RCP: Reinforced Concrete Pipe
REBAR: Reinforcing Bar
REINF: Reinforcement, or Reinforce
REQD: Required
REV: Revise, Revision
RFG: Roofing
RGH OPNG:Rough Opening

SIM: Similar
SLOT: Slotted
SPECS: Specifications
SQ: Square
SS: Stainless Steel
STA: Station
STD: Standard
STL: Steel

MB-S-001

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	T201680104	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY: DJO	
		CHECKED BY: SLB	

MAINTENANCE BUILDING
GENERAL NOTES

SHEET NO.	88
TOTAL SHTS.	116

SPECIAL INSPECTIONS

MATERIAL	VERIFICATION AND INSPECTION	FREQUENCY		REFERENCED STANDARD	IBC REFERENCE	COMMENTS
		CONTINUOUS	PERIODIC			
SOILS	1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	-	x	ASTM D7380	-	
	2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	-	x	-	-	
	3. PERFORM TESTING AND CLASSIFICATION OF FILL MATERIALS	-	x	ASTM D2487	-	
	4. VERIFY PROPER USE OF MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF FILL.	x	-	ASTM 1557	-	
	5. PRIOR TO PLACEMENT OF PREPARED FILL, ENSURE SITE PREPARATION I.A.W SOILS REPORT.	-	x	-	-	
CONCRETE	1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS AND PLACEMENT.	-	x	ACI 318: 3.5, 7.1-7.7	1910.4	
	2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH STEEL INSPECTIONS TABLE 1702.2.2, ITEM 2B.	-	-	AWS D1.4; ACI 318: 3.5.2	1705.5.2	
	3. INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED.	-	x	ACI 318: 8.1.3,21.2.8	1908.5, 1909.1	
	4. INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE.	-	x	ACI 318: 3.8.6, 8.1.3, 21.2.8	1909.1	
	5. VERIFY USE OF REQUIRED DESIGN MIX.	-	x	ACI 318: CH. 4, 5.2-5.4	1904.2, 1910.2, 1910.3	
	6. AT THE TIME OF PLACEMENT SAMPLE FRESH CONCRETE AND FABRICATE TEST SPECIMENS FOR STRENGTH TESTS. PERFORM SLUMP AND AIR TEST, AND DETERMINE TEMPERATURE OF CONCRETE.	x	-	ASTM C172, ASTM C31 ACI 318: 5.6, 5.8	1910.10	
	7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUE.	x	-	ACI 318: 5.9-5.10	1910.6-.8	
	8. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	x	ACI 318: 5.11-5.13	1910.9	
	9. INSPECTION OF FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	x	ACI 318: 6.1.1	-	
STEEL OTHER THAN STRUCTURAL	1. MATERIAL VERIFICATION OF COLD FORMED STEEL DECK:					
	a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	x	APPLICABLE ASTM MATERIAL SPEC.	-	
	b. MANUFACTURER'S CERTIFIED TEST REPORTS.	-	x	-	-	
	2. INSPECTION OF WELDING:					
	a. COLD FORMED DECK				-	
	1) FLOOR AND ROOF DECK WELDS.	-	x	AWS D1.3	1705.2.2.1.1	
MASONRY	PRIOR TO CONSTRUCTION-VERIFICATION OF SLUMP FLOW AND VSI AS DELIVERED TO THE SITE			ACI 530.1 ART. 1.5B.1.b.3		
	PRIOR TO CONSTRUCTION-VERIFICATION OF *f'm* AND *f'aac*			ACI 530.1 ART. 1.4B		
	1. VERIFY COMPLIANCE WITH APPROVED SUBMITTALS	-	x	ACI 530.1 ART. 1.5		
	2. AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:					
	a. PROPORTIONS OF SITE-PREPARED MORTAR, GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS.	-	x	ACI 530.1 ART. 2.1, 2.6A	-	
	b. PLACEMENT OF MASONRY UNITS AND CONSTRUCTION OF MORTAR JOINTS.	-	x	ACI 530.1 ART 3.3B	-	
	c. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES.	-	x	ACI 530.1 ART. 2.4B, 2.4H	-	
	d. LOCATION OF REINFORCEMENT, CONNECTORS AND PRESTRESSING TENDONS AND ANCHORAGES.	-	X	ACI 530.1 ART 3.4, 3.6A	-	
	e. PRESTRESSING TECHNIQUE	-	X	ACI 530.1 ART 3.6B	-	
	f. PROPERTIES OF THIN BED MORTAR FOR AAC CONCRETE	x	-	ACI 530.1 ART2.1C	-	
	3. PRIOR TO GROUTING THE INSPECTION PROGRAM SHALL VERIFY:					
	a. GROUT SPACE PRIOR TO GROUTING.	-	x	ACI 530.1 ART 3..2D, 3.2F	-	
	b. GRADE, TYPE, SIZE, AND LOCATION OF REINFORCEMENT, CONNECTORS, ANCHOR BOLTS, AND ANCHORAGES.	-	X	ACI 530.1 ART 2.4, 3.4	-	
	c. PLACEMENT OF REINFORCEMENT CONNECTORS, PRESTRESSING TENDONS AND ANCHORAGES.	-	x	ACI 530.1 ART. 3.2E, 3.4, 3.6A	-	
	d. PROPORTIONS OF SITE MIXED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	-	X	ACI 530.1 ART. 2.6B, 2.4 G.1b	-	
	e. CONSTRUCTION MORTAR JOINTS	-	x	ACI 530.1 ART. 3.3B	-	
	4. VERIFY DURING CONSTRUCTION					
	a. SIZE AND LOCATION OF STRUCTURAL ELEMENTS.	-	x	ACI 530.1 ART. 3.3F	-	
	b. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBER, FRAMES OR OTHER CONSTRUCTION.	-	x	ACI 530 1.16.4.3, 1.17.1	-	
	c. WELDING OF REINFORCEMENT.	x	-	ACI 530 2.1.7.7.2, 3.3.3.4(c)	-	
	d. PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F).	-	X	ACI 530.1 ART. 1.8C, 1.8D	-	
	e. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE.	X	-	ACI 530.1 ART. 3.6B	-	
	f. PLACEMENT OF GROUT AND PRESTRESSING GROUT.	X	-	ACI 530.1 ART. 3.5, 3.6C	-	
	g. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN BED MORTAR JOINTS	X	-	ACI 530.1 ART. 3.3 B.8	-	
	5. PREPARATION OF ANY REQUIRED GROUT SPECIMENS, MORTAR SPECIMENS AND/OR PRISMS SHALL BE OBSERVED:	-	X	ACI 530.1 ART. 1.4 B.2.a.3, 1.4B.2.b.3, 1.4B.2.c.3, 1.4B.3, 1.4B.4		
STEEL	INSPECTION OF HIGH-STRENGTH BOLTING:					
	a. INSPECTION PRIOR TO BOLTING:			AISC 360-10	1705	
	1) MANUFACTURERS CERTIFICATIONS FOR FASTENER MATERIALS	-	O	TABLE N5.6-1		
	2) FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	-	O			
	3) PROPER FASTENER SELECTED FOR JOINT DETAIL	-	O			
	4) CONNECTING ELEMENTS INCLUDING FAYING SURFACE AND HOLE PREPARATION	-	O			
	5) PRE-INSTALLATION VERIFICATION TESTING BY PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES	P	-			
	6) PROPER STORAGE OF BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS.	-	O			
	b. INSPECTION DURING BOLTING:					
	1) FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHER ARE POSITIONED AS REQ'D.	-	O	TABLE N5.6-2		
	2) JOINT BROUGHT TO THE SNUG TIGHT CONDITION PRIOR TO THE PRE-TENSIONING OPERATION	-	O			
	3) FASTENER COMPONENT NOT TURNED BY WRENCH PREVENTED FROM ROTATING	-	O			
	4) FASTENERS ARE PRE-TENSIONED I.A.W. WITH RCSC *SPECIFICATION*	-	O			
	c. INSPECTION AFTER BOLTING:					
	1) DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED MATERIALS	P	-	TABLE N5.6-3		
	INSPECTION OF WELDING:			AISC 360-10	1705	
	a. INSPECTION PRIOR TO WELDING:					
	1) WELDING PROCEDURE SPECIFICATIONS (WPS) AVAILABLE	P	-	TABLE N5.4-1 AWS D1.1		
	2) MANUFACTURER'S CERTIFICATE FOR WELDING CONSUMABLES	P	-			
	3) MATERIAL IDENTIFICATION	-	O			
	4) WELDER IDENTIFICATION SYSTEM	-	O			
	5) FIT UP GROOVE WELDS	-	O			
	6) CONFIGURATION AND FINISH OF ACCESS HOLES	-	O			
	7) FIT UP FILLET WELDS	-	O			
	8) CHECK WELDING EQUIPMENT	-	O			
	INSPECTION DURING WELDING:					
	b. 1) USE OF QUALIFIED WELDERS	-	O	TABLE N5.4-2 AWS D1.1		
	2) HANDLING & CONTROL OF WELDING CONSUMABLES	-	O			
	3) NO WELDING OVER CRACKED TACK WELDS	-	O			
	4) ENVIRONMENTAL CONDITIONS	-	O			
	5) FOLLOW THE APPROVED WPS	-	O			
	6) WELDING TECHNIQUES	-	O			
	INSPECTION AFTER TO WELDING:					
	c. 1) WELDS CLEANED	-	O	TABLE N5.4-3 AWS D1.1		
	2) SIZE LENGTH AND LOCATION OF WELDS	P	-			
	3) WELDS MEET VISUAL ACCEPTANCE CRITERIA	P	-			
	4) ARC STRIKES	P	-			
	5) *K* - AREA	P	-			
	6) BACKING REMOVED AND WELD TABS REMOVED (WHEN REQUIRED)	P	-			
	7) REPAIR ACTIVITIES	P	-			
	8) DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	-			

STATEMENT OF SPECIAL INSPECTIONS PLAN

GENERAL NOTES

1. THE STATEMENT OF SPECIAL INSPECTIONS PLAN DRAWINGS PROVIDES PROJECT COMPLIANCE WITH THE PROVISIONS OF 2015 INTERNATIONAL BUILDING CODE (IBC) CHAPTER 17 FOR SPECIAL INSPECTION, STRUCTURAL OBSERVATION AND TESTING FOR WIND AND SEISMIC RESISTANCE EXCEPT WHERE OTHERWISE NOTED. THIS INSPECTION IS OWNER FURNISHED.

2. ITEMS IDENTIFIED IN THESE TABLES ARE REQUIRED TO MEET BUILDING CODE COMPLIANCE. THESE ARE NOT THE ENTIRE INSPECTIONS REQUIRED. EACH SPECIFICATION SECTION MAY REQUIRE ADDITIONAL INSPECTIONS AND QUALITY CONTROL MEASURES THAT ARE REQUIRED TO MEET THE STANDARDS ESTABLISHED FOR THE PROJECT CONTRACT. CONTRACTOR SHALL FURNISH ALL ELEMENTS, TESTS AND INSPECTIONS NOT INDICATED TO BE BY THE OWNER.

SPECIAL INSPECTION

1. SPECIAL INSPECTION WILL BE IN ACCORDANCE WITH IBC CHAPTER 17 TOGETHER WITH LOCAL AND STATE AMENDMENTS. REFER TO THE TABLES CONTAINED ON THESE GENERAL SHEETS FOR PROJECT SPECIFIC INSPECTION TYPES AND REFERENCES.

2. SPECIAL INSPECTIONS WILL BE PERFORMED BY A CERTIFIED OR QUALIFIED INSPECTOR AND ASSOCIATED TESTING WILL BE PERFORMED BY AN APPROVED ACCREDITED INDEPENDENT AGENCY. THE OWNER WILL SECURE AND PAY FOR THE SERVICES OF THE AGENCY TO PERFORM ALL SPECIAL INSPECTION AND ASSOCIATED TESTS. INSPECTORS FOR EACH SYSTEM AND MATERIAL WILL BE THE INTERNATIONAL CODE COUNCIL (ICC) CERTIFIED OR OTHERWISE APPROVED BY THE BUILDING OFFICIAL.

3. THE SPECIAL INSPECTOR WILL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONTRACT DOCUMENTS AND SUBMIT RECORDS OF INSPECTION. ALL DISCREPANCIES WILL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.

4. SPECIAL INSPECTION AND ASSOCIATED TESTING REPORTS WILL BE SUBMITTED BY THE ENGINEER, CONTRACTOR, BUILDING OFFICIAL, AND OWNER WITHIN ONE WEEK OF INSPECTION OR WITHIN ONE WEEK OF TEST COMPLETION. INSPECTIONS FOR WHICH REPORTING WILL BE REQUIRED ARE NOTED IN THE TABLES CONTAINED ON THIS PLAN.

5. AT THE CONCLUSION OF CONSTRUCTION, A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF PREVIOUSLY NOTED DISCREPANCIES WILL BE SUBMITTED.

GEOTECHNICAL OBSERVATION

1. GEOTECHNICAL OBSERVATION SHALL BE IN ACCORDANCE WITH IBC SECTION 1704.7, 1803.5 AND 1803.6 TOGETHER WITH LOCAL AND STATE AMENDMENTS.

2. GEOTECHNICAL OBSERVATION SHALL BE PERFORMED BY A REGISTERED DESIGN PROFESSIONAL FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS. GEOTECHNICAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR ANY REQUIRED SPECIAL INSPECTION OR INSPECTIONS BY THE BUILDING OFFICIAL.

3. THE CONTRACTOR SHALL SCHEDULE AND FACILITATE GEOTECHNICAL OBSERVATION.

STRUCTURAL OBSERVATION

1. STRUCTURAL OBSERVATION IN ACCORDANCE WITH IBC SECTION 1709 TOGETHER WITH LOCAL AND STATE AMENDMENTS ARE NOT APPLICABLE TO PROJECT.

2. STRUCTURAL OBSERVATION IF PERFORMED WILL BE BY A REGISTERED PROJECT DESIGN PROFESSIONAL FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS. ANY STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR ANY REQUIRED SPECIAL INSPECTIONS. INSPECTIONS BY THE BUILDING OFFICIAL OR SPECIFICATION REQUIRED QUALITY CONTROL.

3. STRUCTURAL OBSERVATION REPORTS, NOTING ANY DEFICIENCIES IN OBSERVED CONSTRUCTION, WILL BE DELIVERED TO THE CONTRACTOR, BUILDING OFFICIAL, AND OWNER FOLLOWING EACH OBSERVATION IF A VISIT IS PERFORMED. THE CONTRACTOR WILL BE NOTIFIED ON-SITE OR BY PHONE OR EMAIL WITHIN 24 HOURS UPON FINDING ANY DEFICIENCIES.

SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE

SPECIAL INSPECTION FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE REQUIREMENTS OF AISC 341. THE SPECIAL INSPECTOR SHALL EXAMINE DESIGNATED SEISMIC SYSTEMS REQUIRING SEISMIC QUALIFICATION IN ACCORDANCE WITH IBC 2012 SECTION 1705.12.3 AND VERIFY THAT THE LABEL, ANCHORAGE, OR MOUNTING CONFORMS TO THE CERTIFICATE OF COMPLIANCE.

TESTING FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE REQUIREMENTS OF AISC 341.

MB-S-002

DELAWARE DEPARTMENT OF TRANSPORTATION

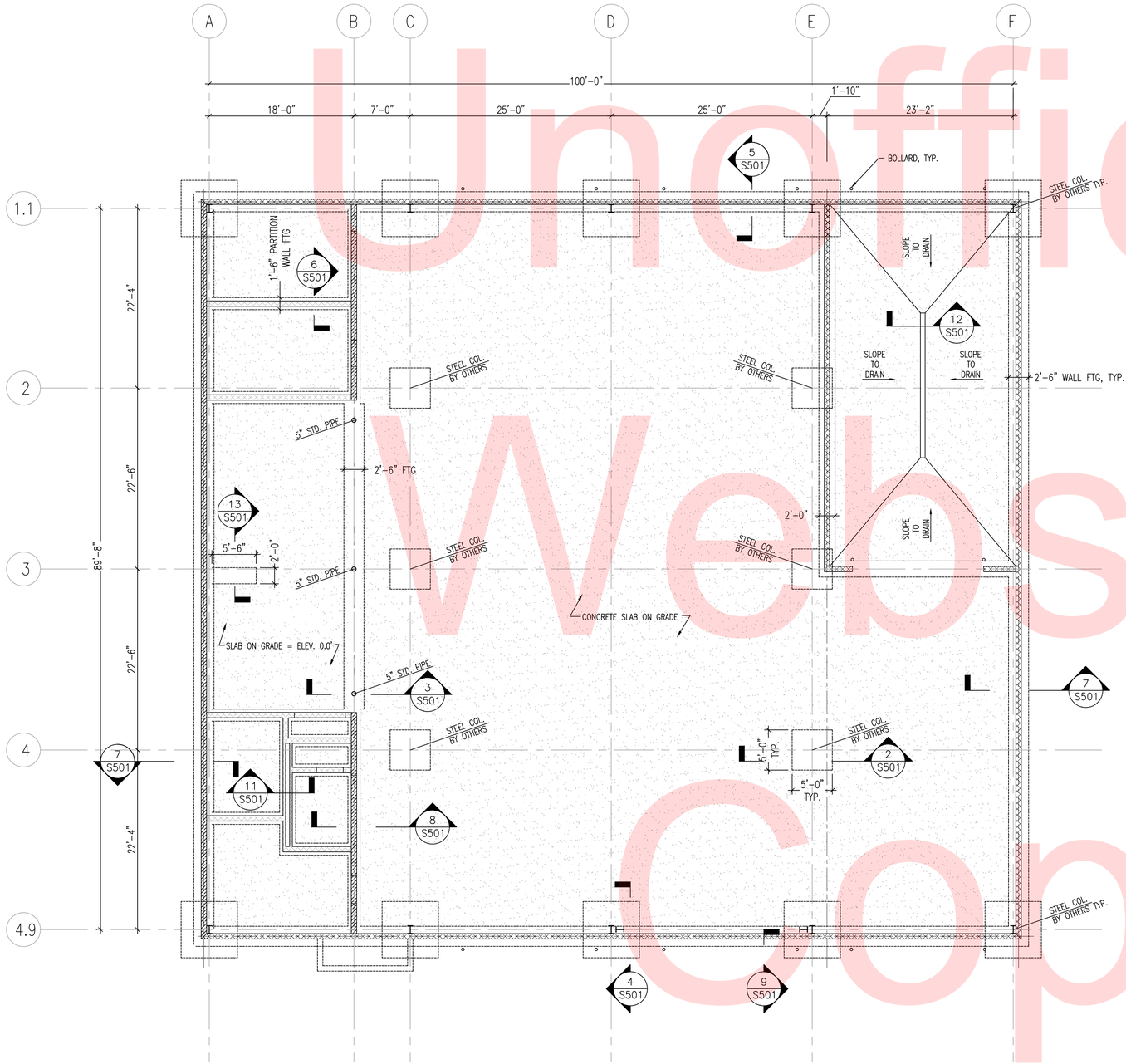
ADDENDUMS / REVISIONS

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

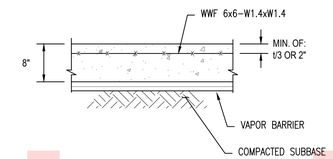
CONTRACT T201680104 | COUNTY NEW CASTLE | BRIDGE NO. N/A | DESIGNED BY: DJO | CHECKED BY: SLB

MAINTENANCE BUILDING SPECIAL INSPECTIONS

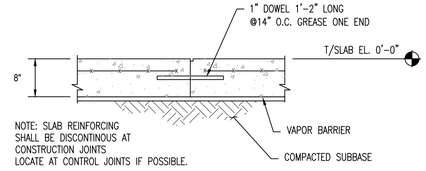
SHEET NO. 89 | TOTAL SHTS. 116



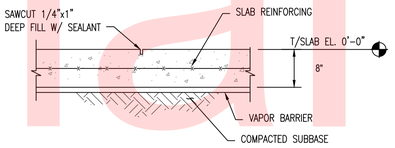
1 FOUNDATION PLAN
SCALE : 1/4"= 1'-0"



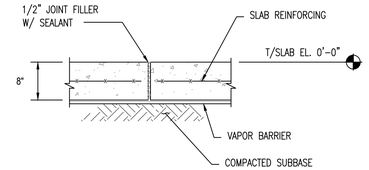
1 TYPICAL SLAB ON GRADE
SCALE : NTS



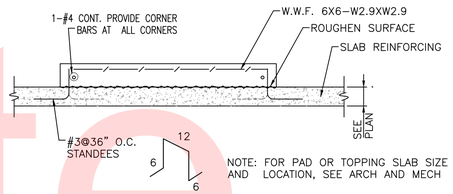
2 SLAB ON GRADE CONSTRUCTION JOINT
SCALE : NTS



3 SLAB ON GRADE CONTROL JOINT
SCALE : NTS



4 TYPICAL EXPANSION JOINT
SCALE : NTS



NOTE: FOR PAD OR TOPPING SLAB SIZE AND LOCATION, SEE ARCH AND MECH

5 TYPICAL HOUSEKEEPING PAD
SCALE : NTS

DRAWING NOTES:

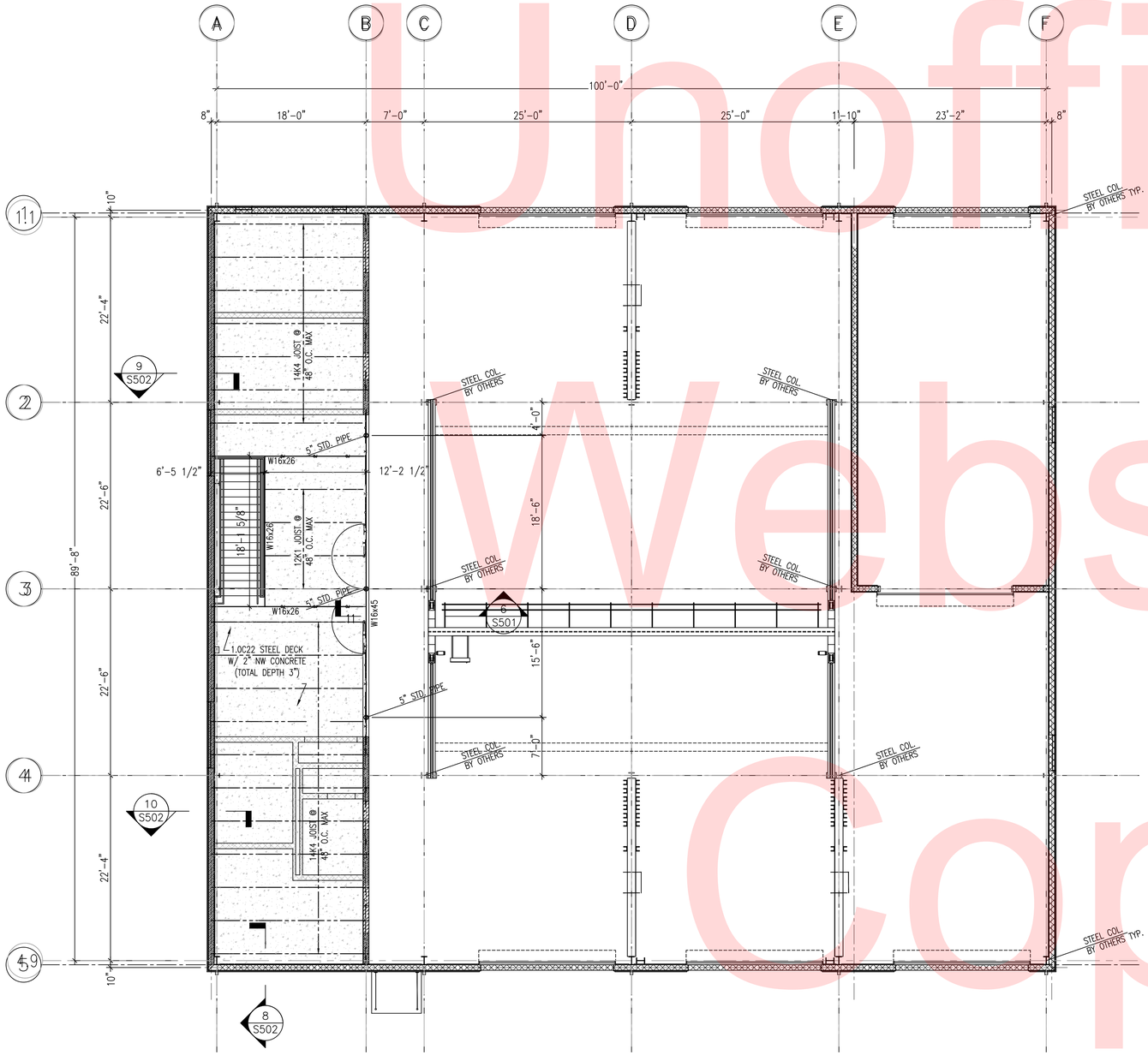
1. COORDINATE DIMENSIONS WITH ARCHITECTURAL AND METAL BUILDING MANUFACTURER
2. COORDINATE FLOOR SLOPE WITH ARCH AND MECHANICAL PLANS

MB-S-101

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MAINTENANCE BUILDING FOUNDATION PLAN	SHEET NO. 90
				COUNTY NEW CASTLE	DESIGNED BY: DJO		TOTAL SHTS. 116
					CHECKED BY: SLB		

DRAWING NOTES

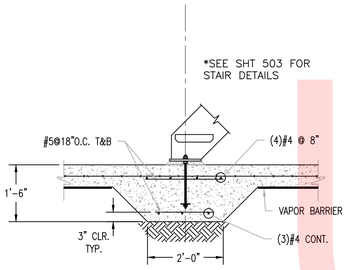
1. COORDINATE LOCATION OF INTERIOR WALLS WITH ARCH PLANS.
2. CONTRACTOR TO COORDINATE CONCRETE JOINTS WITH ARCH PLANS.



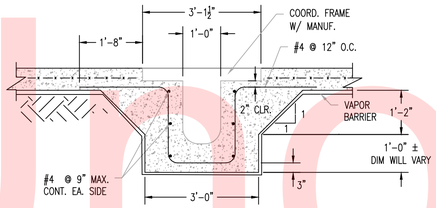
1 MEZZANINE PLAN
SCALE : 1/4"= 1'-0"

MB-S-102

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MAINTENANCE BUILDING MEZZANINE PLAN	SHEET NO. 91
				COUNTY NEW CASTLE	DESIGNED BY: DJO		TOTAL SHTS. 116
					CHECKED BY: SLB		



13 STAIR FOOTING
SCALE : 1/2"= 1'-0"



12 TRENCH DRAIN SECTION
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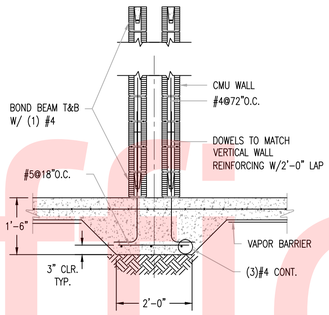

11 FNDN - CMU CHASE
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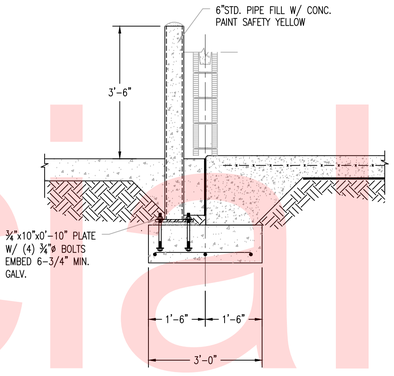
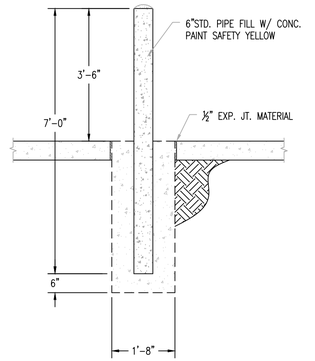
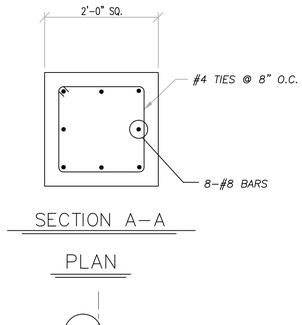


10 BOLLARD DETAIL
SCALE : 1/2"= 1'-0"

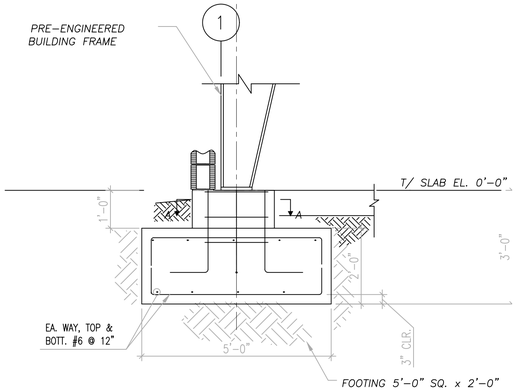


9 ALTERNATE BOLLARD DETAIL
SCALE : 1/2"= 1'-0"



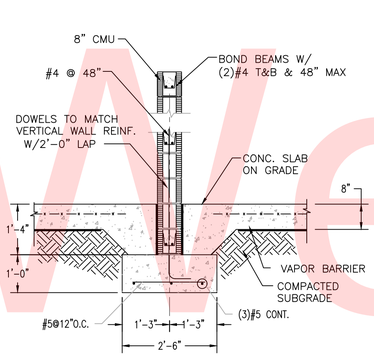
SECTION A-A

PLAN

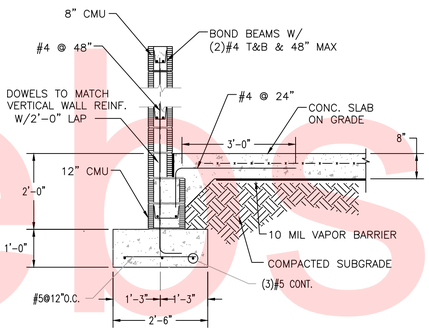


ELEVATION

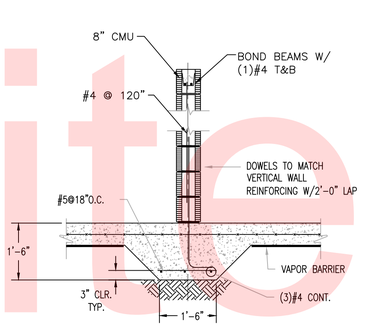
4 RIGID FRAME FOOTING
SCALE : 1/8"= 1'-0"



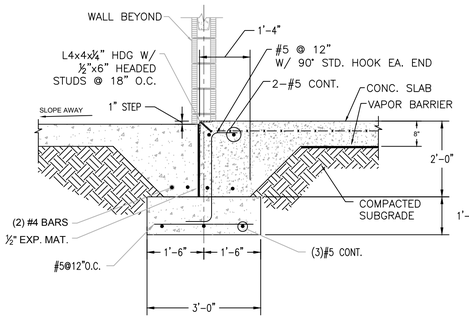
8 INTERIOR LOAD BEARING FOOTING
SCALE : 1/2"= 1'-0"



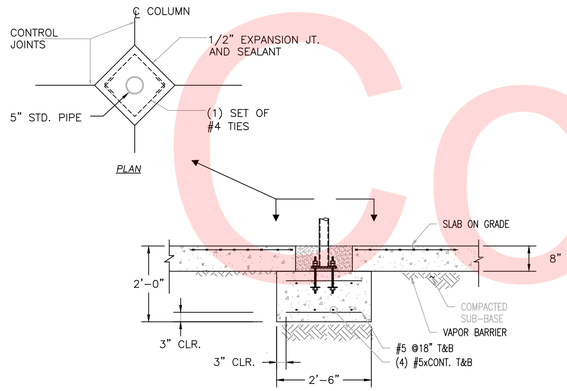
7 FOOTING @ EXTERIOR WALL
SCALE : 1/2"= 1'-0"



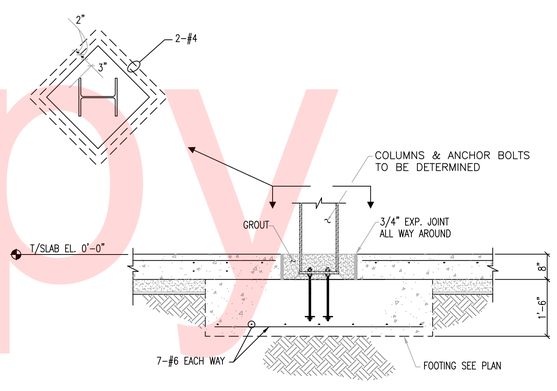
6 FOOTING @ PARTITION WALL
SCALE : 1/2"= 1'-0"



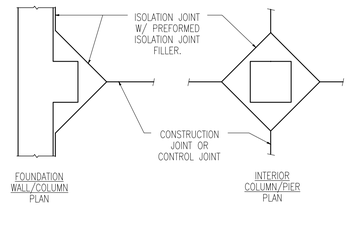
5 FOOTING @ GARAGE ENTRY
SCALE : 1/2"= 1'-0"



3 PIPE COLUMN FOOTING
SCALE : 1/2"= 1'-0"



2 STEEL COLUMN FOOTING
SCALE : 1/2"= 1'-0"



1 TYPICAL ISOLATION JOINTS
SCALE : NTS

MB-S-501

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MAINTENANCE BUILDING FOUNDATION DETAILS	SHEET NO. 92
				COUNTY NEW CASTLE	DESIGNED BY: DJO		TOTAL SHTS. 116
					CHECKED BY: SLB		

BLOCK LINTEL SCHEDULE

SPAN	8" WYTHE	STEEL ALT.
0' TO 4'	2-#4 (8x8)	(2) L5x3.5x1/4" LLV
4' TO 6'	2-#4 (8x8)	W8x10
6' TO 8'	2-#4 (8x16)	W8x15
8' TO 10'	2-#6 (8x16)	W8x24

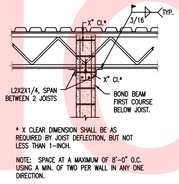
NOTES:

1. PROVIDE LINTELS, AS LISTED ABOVE, OVER ALL OPENINGS IN MASONRY WALLS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
2. MINIMUM 8" END BEARING TO 8' SPAN. 16" MIN. END BEARING FROM 8' TO 15' SPAN. CELLS BEARED ON ARE TO BE REINFORCED WITH SIMILAR VERTICAL WALL REBAR AND TO BE GROUTED SOLID.
3. BEAMS, LINTELS, SHELF ANGLES, ETC. SUPPORTING MASONRY SHALL BE TEMPORARILY BRACED AND/OR SHORED UNTIL MASONRY FOR ONE STORY (OR MORE, AS REQ'D. TO MAKE IT LATERALLY STABLE) HAS HARDENED.
4. REINFORCING STEEL TO HAVE 3" MIN. BOTTOM COVER.

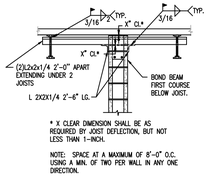
Fy=60KSI
F'm=1900PSI

CMU LAP SPLICE SCHEDULE

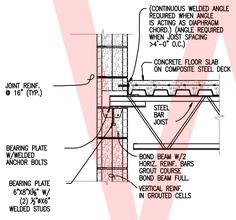
BAR SIZE	MIN. LENGTH 8" BLOCK (IN)	MIN. LENGTH 12" BLOCK (IN)
3	12	12
4	12	12
5	19	12.5
6	36	23.5
7	50	32
8	77	48
9	NP	63



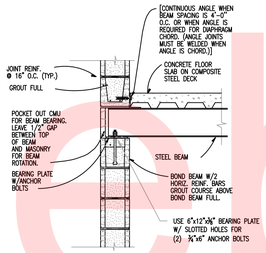
12 CMU PARTITION PERPENDICULAR TO JOISTS
SCALE : 1/4"= 1'-0"



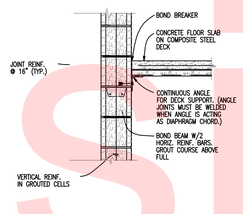
11 CMU PARTITION PARALLEL TO JOIST
SCALE : 1/4"= 1'-0"



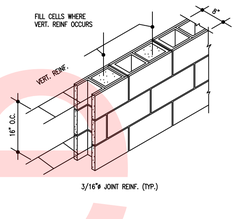
10 BAR JOIST-FLOOR CONNECTION
SCALE : 1/4"= 1'-0"



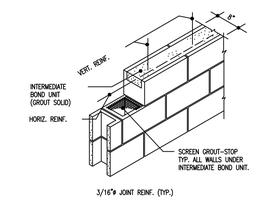
9 STEEL BEAM FLOOR CONNECTION
SCALE : 1/4"= 1'-0"



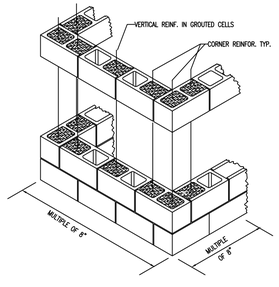
8 STEEL DECK TO WALL CONNECTION
SCALE : 1/4"= 1'-0"



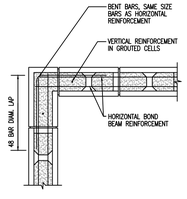
7 TYPICAL JOINT DETAIL
SCALE : 1/4"= 1'-0"



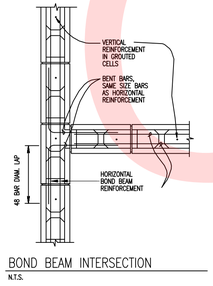
6 TYP. REINF. WALL
SCALE : 1/4"= 1'-0"



5 TYPICAL WALL REINF.
SCALE : 1/4"= 1'-0"

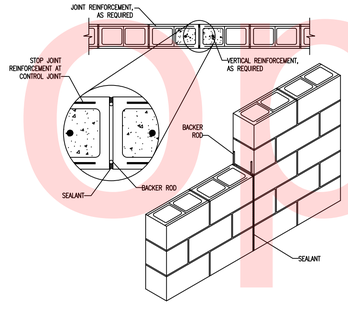


4 BOND BEAM CORNER
SCALE : 1/4"= 1'-0"

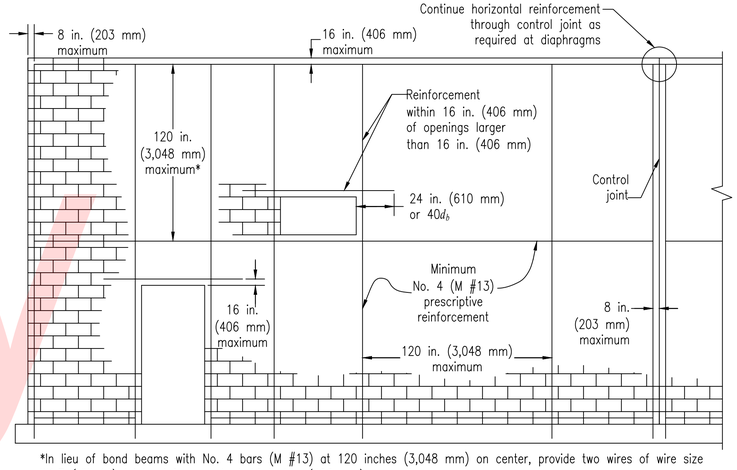


BOND BEAM INTERSECTION
N.T.S.

3 BOND BEAM INTERSECTION
SCALE : 1/4"= 1'-0"



2 TYPICAL JOINT DETAIL
SCALE : 1/4"= 1'-0"



*In lieu of bond beams with No. 4 bars (M #13) at 120 inches (3,048 mm) on center, provide two wires of wire size W1.7 (MW 11) joint reinforcement at 16 inches (406 mm) on center.

1 TYPICAL WALL REINF.
SCALE : 1/4"= 1'-0"

MB-S-502

DELAWARE
DEPARTMENT OF TRANSPORTATION

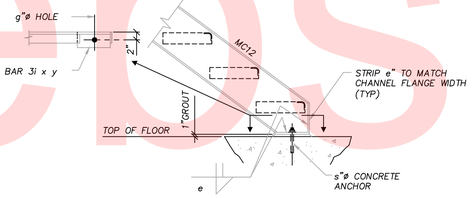
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

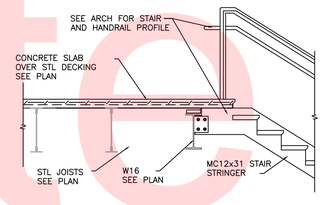
CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	DJO
COUNTY	CHECKED BY:	SLB
NEW CASTLE		

MAINTENANCE BUILDING
MASONRY DETAILS

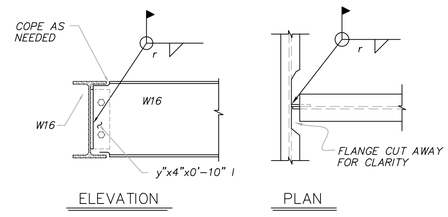
SHEET NO.
93
TOTAL SHTS.
116



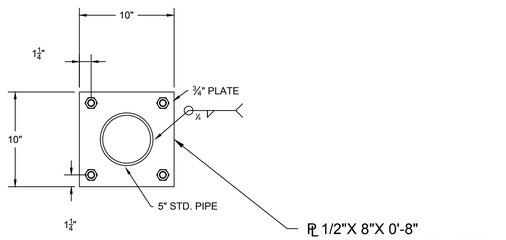
7 STAIR TO SLAB CONNECTION
SCALE : 1/4"= 1'-0"



6 STAIR STRINGER CONNECTION
SCALE : NO SCALE

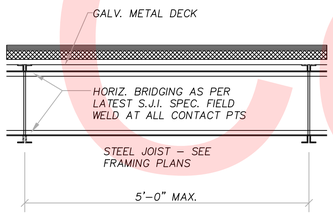


5 BEAM TO BEAM CONNECTION
SCALE : NO SCALE

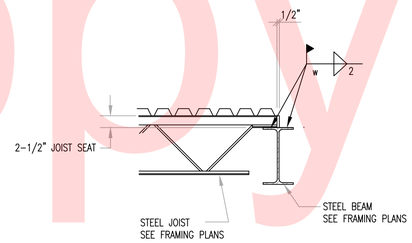


PL 1/2"X 8"X 0'-8"
W/ (4) - 1/2"Ø X 12" LONG
ANCHOR BOLTS
W/ 9/16"Ø DRILLED HOLES

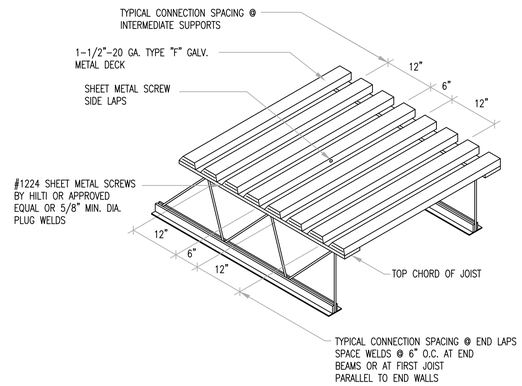
4 PIPE COL. BASE PLATE
SCALE : 1/2"= 1'-0"



3 JOIST WELDING DETAIL
SCALE : NTS



2 JOIST WELDING DETAIL
SCALE : NTS



1 DECK WELDING DETAIL
SCALE : NTS

MB-S-503

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY: DJO	
COUNTY		
NEW CASTLE	CHECKED BY: SLB	

MAINTENANCE BUILDING
STEEL DETAILS

SHEET NO.
94
TOTAL SHTS.
116

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
CD	CONDENSATE DRAIN PIPE
	VENT PIPE
	DOMESTIC COLD WATER PIPE
	DOMESTIC HOT WATER PIPE
	DOMESTIC HOT WATER RETURN PIPE
GLS	GROUND LOOP SUPPLY PIPE
GLR	GROUND LOOP RETURN PIPE
T	THERMOSTAT OR TEMPERATURE SENSOR
	PIPE CAP
	BRANCH TAKE OFF
	PIPE DROP TEE
	PIPE RISE TEE
	AUTOMATIC CONTROL VALVE (2 WAY)
	AUTOMATIC CONTROL VALVE (3 WAY)
	SHUT-OFF VALVE
	GLOBE VALVE
	UNION
	STRAINER W/BLOWDOWN VALVE
	PIPE GUIDE
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER
	PRESSURE RELIEF VALVE
	BALANCING VALVE (W/MEMORY STOP)
	BACKWATER VALVE
	BUTTERFLY VALVE
	AUTOMATIC AIR VENT
	HOSE END DRAIN VALVE
	BACKFLOW PREVENTER
	CHECK VALVE; (ARROW INDICATES DIRECTION OF FLOW)
	FLOOR DRAIN

SYMBOL	DESCRIPTION
	GAUGE COCK
	FLANGED PIPE CONNECTION
	FLOW DIRECTION ARROW
	WATER HAMMER ARRESTER
	AIR FLOW
DL	DOOR LOUVER
	AUTOMATIC AIR VENT
	MANUAL AIR VENT
	PRESSURE GAUGE w/GAUGE COCK
	THERMOMETER
18"x12"	DUCT (FIRST FIGURE SIDE SHOWN)
D	DROP IN DIRECTION OF ARROW
R	RISE IN DIRECTION OF ARROW
SD	SMOKE DETECTOR
	SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE
	EXHAUST AIR GRILLE
F	FIRE DAMPER
	MANUAL VOLUME DAMPER
	SQUARE TO ROUND DUCT TRANSITION
	FLEXIBLE CONNECTION
	MOTOR OPERATED DAMPER
	DUCT TRANSITION
	RECTANGULAR BRANCH TAKE-OFF
12"x12"	SUPPLY AIR DEVICE WITH 2'x2' LAY-IN PANEL
12"x12"	RETURN AIR DEVICE WITH 2'x2' LAY-IN PANEL
	SUPPLY/OUTSIDE AIR DUCT RISER
	RETURN AIR DUCT RISER
	EXHAUST/RELIEF AIR DUCT RISER
	ELBOW WITH DOUBLE THICKNESS TURNING VANES
ø	DIAMETER
	POINT OF CONNECTION, NEW TO EXISTING
	POINT OF DISCONNECTION FROM EXISTING
1	SYMBOL FOR SPECIFIC NOTE. NOTE APPLIES TO DRAWING ON WHICH IT OCCURS.

ABBREVIATIONS

@	AT
ABV	ABOVE
ACV	AUTOMATIC CONTROL VALVE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
APD	AIR PRESSURE DROP
APPROX	APPROXIMATELY
ATC	AUTOMATIC TEMPERATURE CONTROL
AWT	AVERAGE WATER TEMPERATURE
BDD	BACKDRAFT DAMPER
BFP	BACKFLOW PREVENTOR
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BLW	BELOW
BP	BYPASS
BTM	BOTTOM
BTU/HR	BRITISH THERMAL UNITS PER HOUR
BV	BALANCING VALVE
C	COMMON
CC	COOLING COIL
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
CO	CLEANOUT
CONC	CONCRETE
CONN	CONNECT, CONNECTION
CONT'N	CONTINUATION
CV	CHECK VALVE
CW	DOMESTIC COLD WATER
D	SUPPLY AIR DIFFUSER OR DEEP, DEPTH
DB	DECIBEL OR DRY BULB
DDC	DIRECT DIGITAL CONTROL
DIA, ø	DIAMETER
DIFF	DIFFERENTIAL
DN	DOWN
DPR	DAMPER
DPS	DIFFERENTIAL PRESSURE SENSOR
DWG	DRAWING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB
EFF	EFFICIENCY
EF	EXHAUST FAN
ELEC	ELECTRIC
ELEV	ELEVATION OR ELEVATOR
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXP	EXPANSION
F	FILTER
°F	DEGREES FAHRENHEIT
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER OR FOUNDATION DRAINAGE
FDC	FIRE DEPARTMENT CONNECTION
FDR	FLOOR DRAIN
FDV	FIRE DEPARTMENT VALVE
FL	FLOOR
FLA	FULL LOAD AMPERES
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT, '	FOOT, FEET OR FLASH TANK
FT HD	FEET OF HEAD
FZ	FREEZE STAT
G	NATURAL GAS PIPE OR RETURN/EXHAUST GRILLE
GAL	GALLON, GALLONS
GALV	GALVANIZED
GEN	GENERATOR
GLS	GROUND LOOP SUPPLY
GLR	GROUND LOOP RETURN
GPM	GALLONS PER MINUTE
H	HIGH, HEIGHT
H2O	WATER
HED	HOSE END DRAIN VALVE
HP	HORSEPOWER
HW	DOMESTIC HOT WATER
HWC	DOMESTIC HOT WATER CIRCULATING
IN, "	INCH, INCHES
INV	INVERT
ISOL	ISOLATION
KW	KILOWATTS
L	LONG, LENGTH
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LDB	LEAVING DRY BULB
LF	LINEAR FEET
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE

MA	MIXED AIR
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MECH	MECHANICAL
MFD	MOTORIZED FIRE DAMPER
MFR	MANUFACTURER
MIN	MINIMUM
MOD	MOTOR OPERATED DAMPER
MTD	MOUNTED
MVD	MANUAL VOLUME DAMPER
NC	NOISE CRITERIA OR NORMALLY CLOSED
NIC	NOT IN CONTRACT
NOM	NOMINAL
NO	NORMALLY OPEN
No	NUMBER
OA	OUTDOOR AIR
OAI	OUTDOOR AIR INTAKE
OAT	OUTDOOR AIR TEMPERATURE
OC	ON CENTER
OED	OPEN END DUCT WITH 1/2" FRAMED WIRE MESH SCREEN
%	PERCENT
PD	PRESSURE DROP OR PUMP DISCHARGE
PH.	PHASE
POD	POINT OF DISCONNECTION
PR	PRESSURE RELIEF
PRESS, P	PRESSURE
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SENSOR
PSI	POUNDS PER SQUARE INCH POUNDS
PSIG	PER SQUARE INCH GAUGE
R	RETURN/EXHAUST/SUPPLY AIR REGISTER
REQ'D	REQUIRED
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RLA	RUNNING LOAD AMPERES
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
RV	RELIEF VENT
S	SPRINKLER SUPPLY PIPE
SA	SUPPLY AIR
SAN	SANITARY, SOIL, WASTE
SD	SMOKE DAMPER
SF	SUPPLY FAN OR SQUARE FEET
SL	SOUND LINING, SOUND LINED
S/M	SHEET METAL
SP	STATIC PRESSURE
SPD	STATIC PRESSURE DROP
SPEC	SPECIFICATION
SQ	SQUARE
SQ FT	DROP SQUARE FOOT
SPR	SPRINKLER LINE
SS	START/STOP
S/S	STAINLESS STEEL
STL	STEEL
SW	STORM WATER
T	TEMPERATURE DROP
TEMP, T	TEMPERATURE
TG	TRANSFER GRILLE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VOLTS, VACUUM PIPE
VD	VOLUME DAMPER
VEL	VELOCITY
VENT	VENTILATION
VF	VENTILATION FAN
VFD	VARIABLE FREQUENCY DRIVE
VIB	VIBRATION
ISOL VLV	ISOLATION VALVE
VP	SANITARY VENT PIPE
VTR	VENT THROUGH ROOF
W	WIDTH
W/	WITH
WB	WET BULB
WC	WATER COLUMN
WH	WALL HYDRANT
W/O	WITHOUT
ZN	ZONE

GENERAL NOTES

1. WORK SHALL CONFORM TO THE CONTRACT DRAWINGS, SPECIFICATIONS AND THE LATEST APPLICABLE INTERNATIONAL MECHANICAL AND PLUMBING CODE AND THE NATIONAL ELECTRIC CODE. WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 70, THE NATIONAL ELECTRICAL CODE, THE NATIONAL ELECTRICAL SAFETY CODE, OSHA AND NATIONAL SAFETY CODE REQUIREMENTS.

2. THE SCOPE OF WORK INDICATED IN THESE DOCUMENTS SHALL INCLUDE MECHANICAL AND ELECTRICAL SYSTEMS, FULLY ADJUSTED, TESTED AND READY TO USE. PROVIDE ITEMS NECESSARY TO COMPLETE THE SYSTEMS. EXAMINE WORK INDICATED FOR TRADES IN ORDER TO DETERMINE THE EXTENT OF THE WORK REQUIRED TO BE COMPLETED.

3. IT IS THE INTENTION OF THESE DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN "FURNISH AND INSTALL COMPLETE, TESTED AND READY FOR USE."

4. THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW EVERY COMPONENT AND/OR ACCESSORY REQUIRED FOR A COMPLETE INSTALLATION. THE CONTRACTOR SHALL PROVIDE ITEMS NECESSARY FOR A PROPERLY WORKING SYSTEM IN COMPLIANCE WITH ACCEPTED INDUSTRY STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.

5. PRIOR TO BID, THE CONTRACTOR SHALL VISIT THE SITE AND IDENTIFY ITEMS THAT MAY AFFECT THEIR BID. PRIOR TO THE INSTALLATION, FABRICATION, REMOVAL, OR RELOCATION OF ANY WORK, THE CONTRACTORS SHALL REVIEW THE ACTUAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND SHALL COORDINATE WORK WITH THE PLANS, EXISTING EQUIPMENT AND SYSTEMS, BUILDING STRUCTURE AND WORK OF OTHER TRADES. WHERE CONFLICTS OCCUR, OR IF CONNECTIONS THERETO CAN NOT BE MADE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER PRIOR TO MATERIAL FABRICATION OR INSTALLATION.

6. WHERE THE WORK OF VARIOUS TRADES WILL BE INSTALLED IN CLOSE PROXIMITY TO ONE ANOTHER OR WHERE THERE IS EVIDENCE THAT THE WORK OF ONE TRADE WILL INTERFERE WITH WORK OF ANOTHER, THE CONTRACTOR SHALL WORK OUT SPACE CONDITIONS TO MAKE A SATISFACTORY ADJUSTMENT. IF THE CONTRACTOR ALLOWS ONE TRADE TO INSTALL HIS WORK BEFORE COORDINATING WITH WORK OF OTHER TRADES THE CONTRACTOR SHALL MAKE NECESSARY CHANGES TO CORRECT THE CONDITIONS IN A MANNER ACCEPTABLE TO THE OWNER AND THE CONTRACTOR SHALL BEAR THE COST OF SUCH CORRECTIONS.

7. THE CONTRACTOR SHALL LOCATE EQUIPMENT WHICH MUST BE SERVICED, OPERATED, OR MAINTAINED IN FULLY ACCESSIBLE POSITION. EQUIPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO, VALVES, MOTORS, CONTROLLERS, DRAIN PANS, ETC. IF REQUIRED FOR ACCESSIBILITY, FURNISH ACCESS DOORS FOR THE PURPOSE. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ALLOW FOR BETTER ACCESSIBILITY.

8. WORK IN OCCUPIED SPACE SHALL BE COORDINATED WITH THE OWNER. SHOULD ANY OUTAGES BE REQUIRED IN THE COURSE OF THIS PROJECT, THE CONTRACTOR SHALL COORDINATE SUCH OUTAGES WITH THE OWNER'S DESIGNATED REPRESENTATIVE, SCHEDULING ANY OUTAGES DURING THE NON WORKING HOURS, SO AS NOT TO EFFECT FACILITY OPERATIONS, 72 HOURS NOTICE WILL BE REQUIRED PRIOR TO ANY OUTAGE. NO OUTAGE MAY BE EXECUTED PRIOR TO APPROVAL OF THE OWNER'S DESIGNATED REPRESENTATIVE AND THE FACILITY MANAGER.

9. THE CONTRACTOR SHALL LEAVE THE ENTIRE MECHANICAL SYSTEM INSTALLED UNDER THIS CONTRACT IN PROPER WORKING ORDER AND SHALL, WITHOUT CHARGE, REPLACE ANY WORK OR MATERIALS WHICH DEVELOP DEFECTS, EXCEPT FROM ORDINARY WEAR AND TEAR, WITHIN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.

10. THE CONTRACTOR SHALL, DURING THE ONE YEAR WARRANTEE PERIOD, BE RESPONSIBLE FOR PROPER REPAIR AND ADJUSTMENTS OF MECHANICAL SYSTEMS AND EQUIPMENT, APPARATUS, DEVICES ETC. INSTALLED BY HIM, AND DO WORK NECESSARY TO ENSURE EFFICIENT AND PROPER FUNCTIONING.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR, AND SHALL INCUR FINANCIAL RESPONSIBILITIES FOR, ANY DAMAGES CAUSED BY OR RESULTING FROM DEFECTS IN HIS WORK.

12. WHEREVER PIPES, CONDUITS, OR OTHER ITEMS PASS THROUGH FIRE RATED WALLS AND FLOORS, THE SPACE BETWEEN THE ITEM AND THE MASONRY OR THE SPACE BETWEEN THE ITEM AND THE SLEEVE SHALL BE ADEQUATELY FIRE STOPPED WITH A NON COMBUSTIBLE, NON MELTING MATERIAL IN ACCORDANCE WITH NFPA STANDARDS.

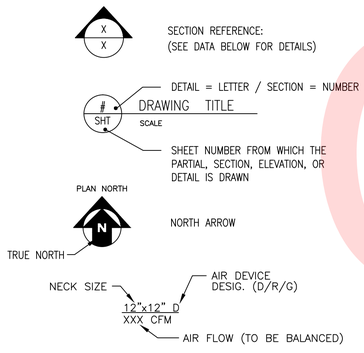
13. WALL OPENINGS RESULTING FROM DEMOLITION SHALL BE CLOSED AND FINISHED TO MATCH EXISTING.

14. FINISHES DAMAGED DURING THE PROJECTS SHALL BE REPAIRED TO MATCH EXISTING.

DESIGNATIONS

EQUIPMENT DESIGNATIONS

EF-	EXHAUST FAN
HR-	EXHAUST HOSE REEL
IRH-	INFRARED HEATER
PTAC-	PACKAGED TERMINAL AIR CONDITIONER
UH-	UNIT HEATER



MB-M-001

DELAWARE
DEPARTMENT OF TRANSPORTATION

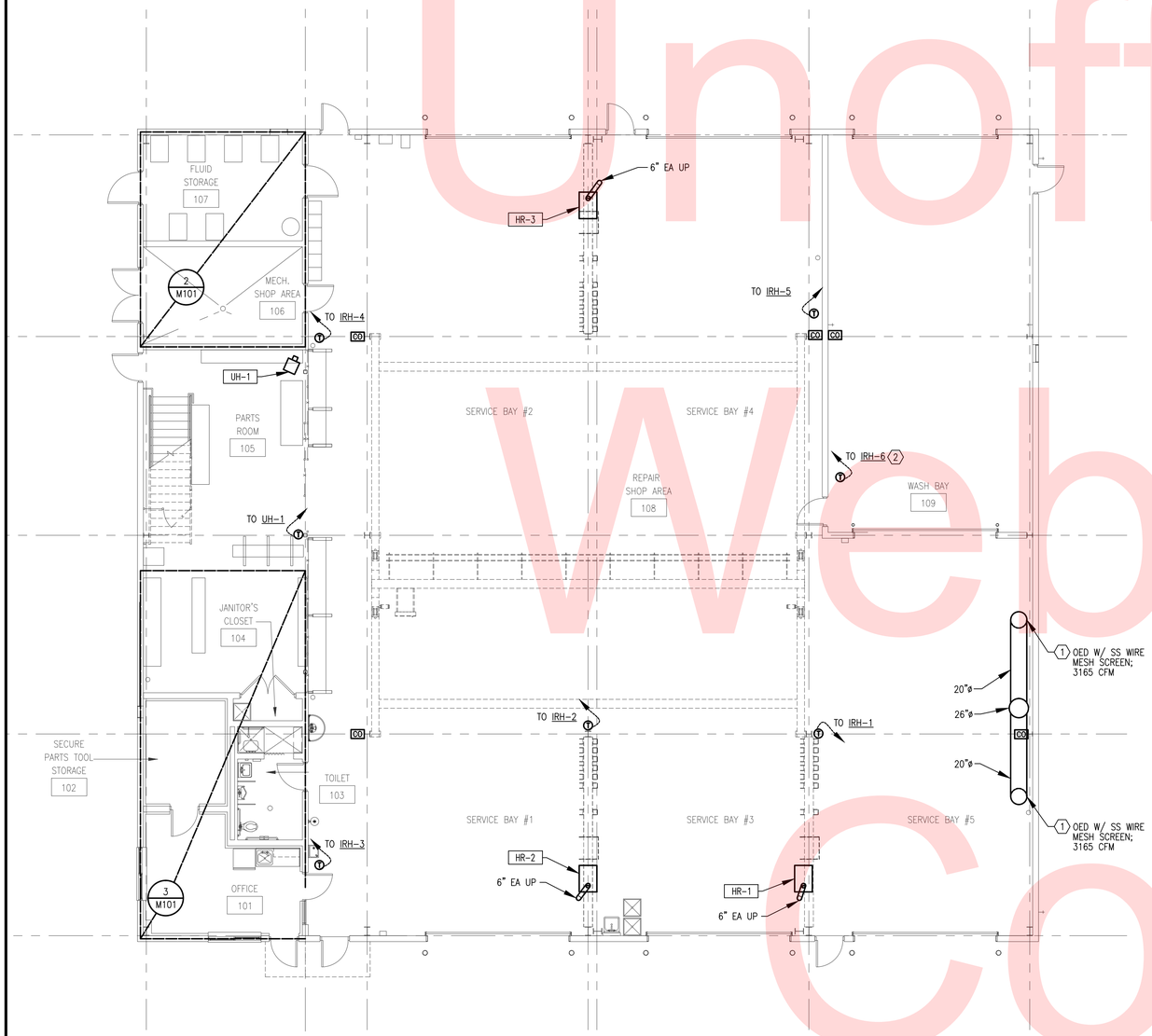
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

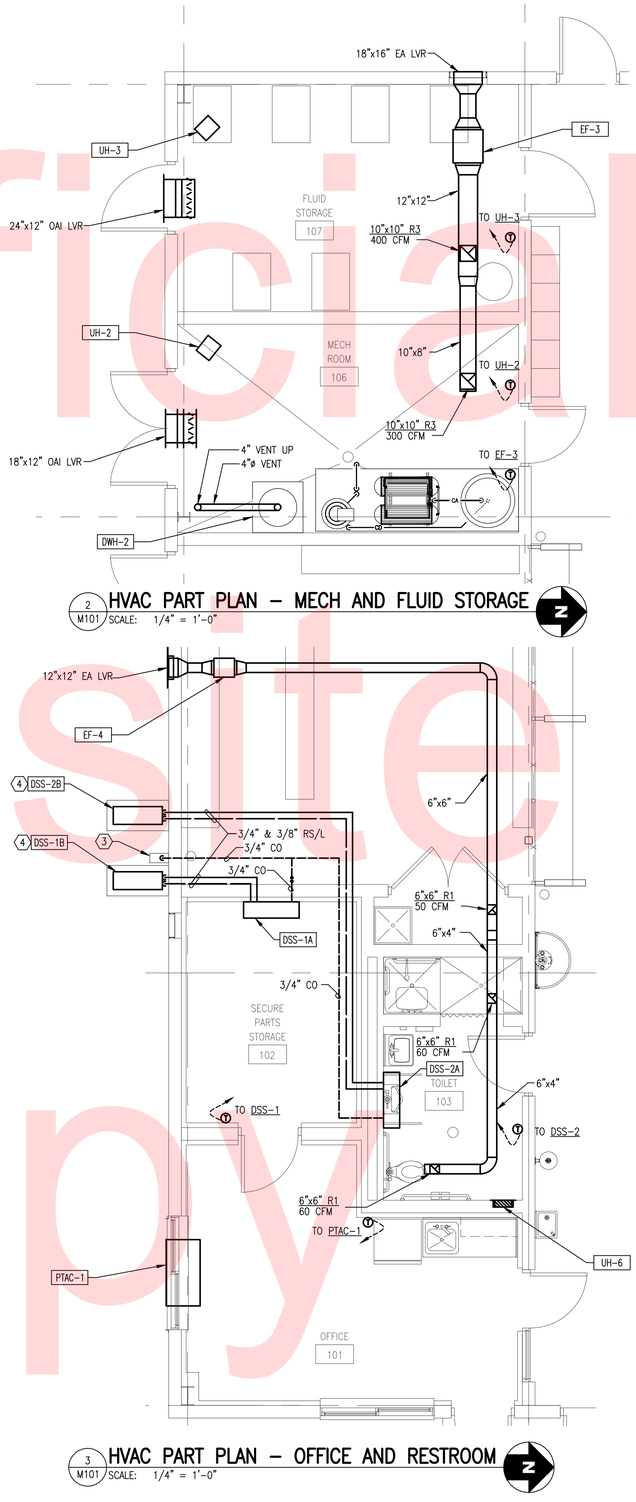
CONTRACT	T201680104	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY:	TGK
		CHECKED BY:	DMC

MECHANICAL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES

SHEET NO.	TOTAL SHTS.
95	116



1 M101 HVAC – GROUND FLOOR PLAN
SCALE: 1/8" = 1'-0"



2 M101 HVAC PART PLAN – MECH AND FLUID STORAGE
SCALE: 1/4" = 1'-0"

3 M101 HVAC PART PLAN – OFFICE AND RESTROOM
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (————) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (————) SHALL BE EXISTING.
3. DO NOT LOCATE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT.

SHEET KEYNOTES:

1. PROVIDE SHOP EXHAUST INTAKES TO TERMINATE 12" ABOVE FINISHED FLOOR.
2. PROVIDE CORROSION RESISTANT, WATERTIGHT ENCLOSURE IN ASSOCIATION WITH THERMOSTAT.
3. PROVIDE SPLASH BLOCK FOR DUCTLESS SPLIT SYSTEM CONDENSATE DRAIN.
4. PROVIDE EQUIPMENT PAD FOR NEW CONDENSING UNIT.

MB-M-101

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

CONTRACT	T201680104	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY:	TGK
		CHECKED BY:	DMC

MECHANICAL - FIRST FLOOR

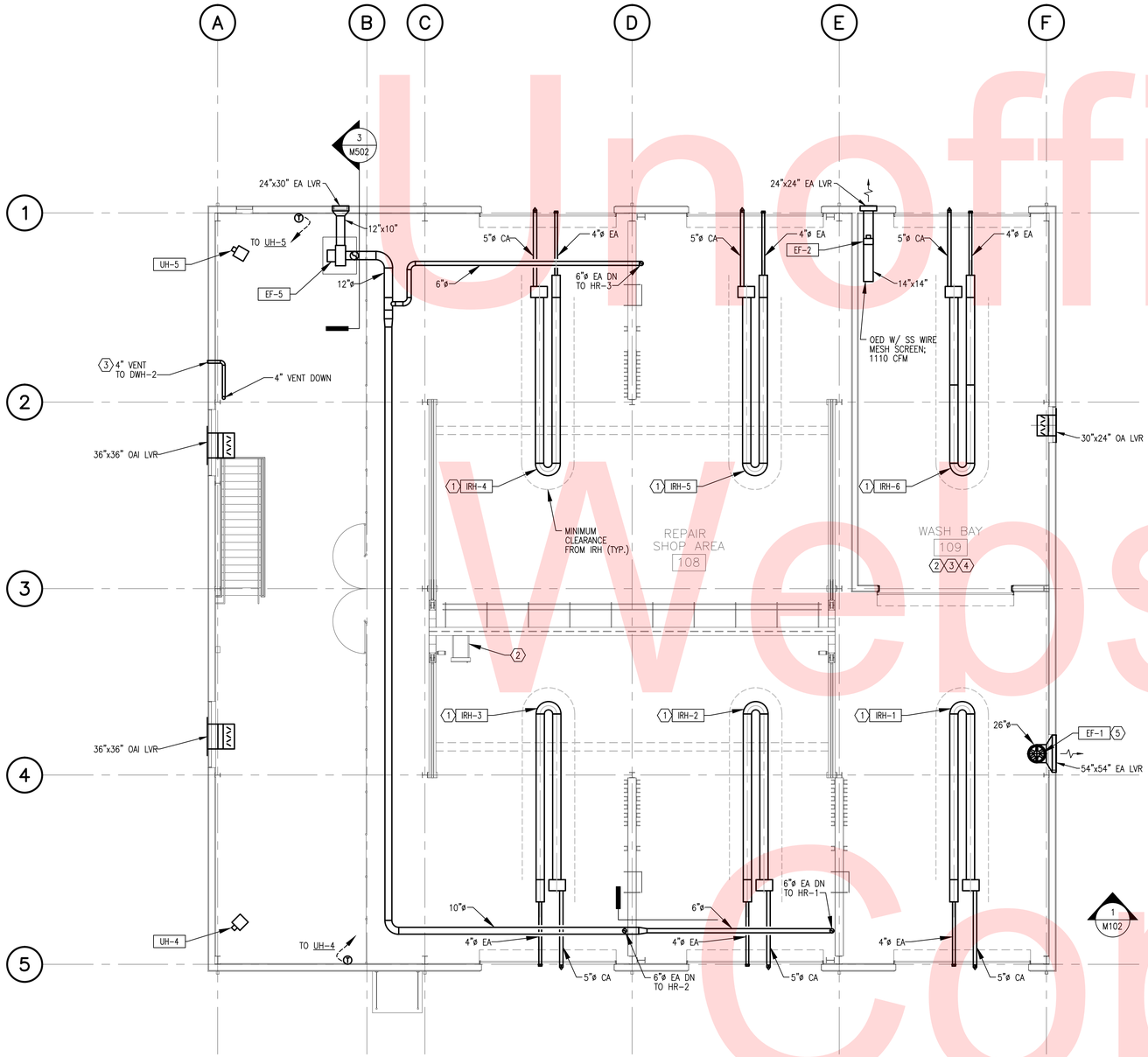
SHEET NO.
96
TOTAL SHTS.
116

GENERAL SHEET NOTES:

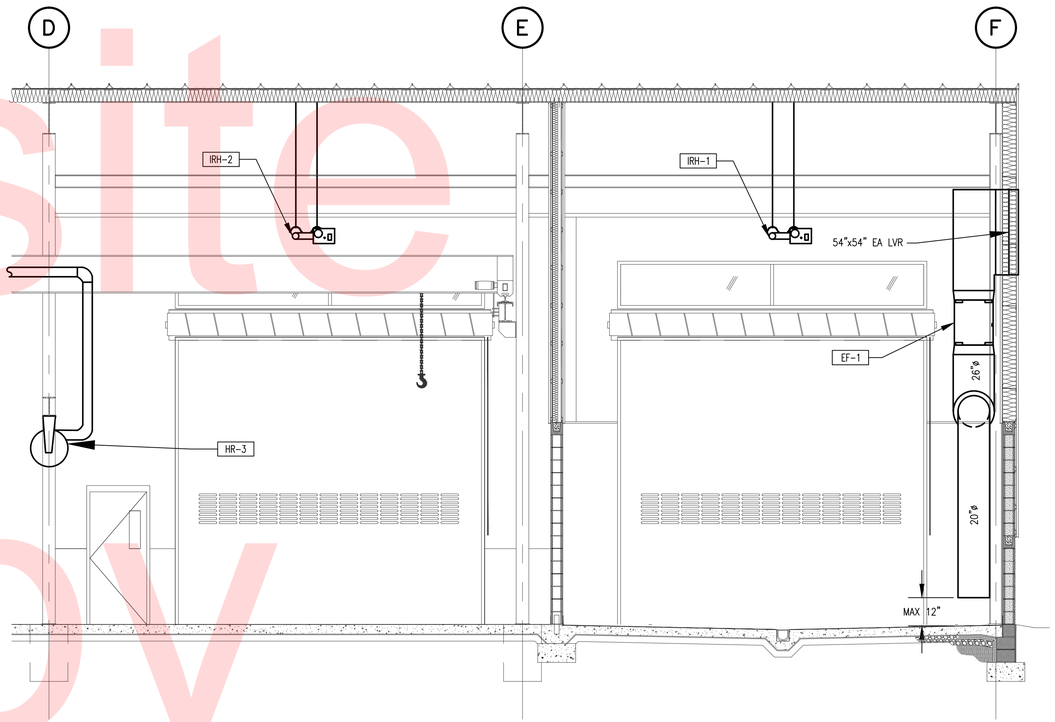
1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (————) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (————) SHALL BE EXISTING.
3. DO NOT LOCATE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT.

SHEET KEYNOTES:

1. PROVIDE CEILING–SUSPENDED INFRARED RADIANT HEATER; ASSOCIATED DUCTWORK, PIPING, SUPPORTS AND CONTROLS. ANGLE HEATER DEFLECTORS TOWARD WORK SPACES. HEATERS SHALL NOT BE LOCATED DIRECTLY ABOVE THE OVERHEAD COILING DOOR. COORDINATE MOUNTING HEIGHT WITH SHOP OPERATIONS.
2. INCLUDE REFLECTOR SHIELD OVER CRANE MOTOR AS PART OF INFRARED HEATING SYSTEM INSTALLATION. SHIELD SHALL BE CONSTRUCTED OF A MINIMUM 0.024" THICK COMMERCIALLY PURE, HARDENED ALUMINUM. SHIELD SHALL BE MOUNTED ON, OVER, OR ABOVE THE CRANE MOTOR IN SUCH A MANNER AS TO PREVENT DIRECT INFRARED HEAT RAYS FROM STRIKING THE MOTOR AND WIRING DIRECTLY REGARDLESS OF THE TRAVELING POSITION OF THE MOTOR.
3. ALL EXHAUST, VENT, AND COMBUSTION AIR DUCTWORK INSTALLED IN THE WASH BAY SHALL BE ALUMINUM OR STAINLESS STEEL; REFER TO SPECIFICATIONS.
4. ALL CONTROL DAMPERS IN THE WASH BAY TO BE RATED FOR SALT WATER RESISTANCE. ACTUATORS TO BE PROVIDED WITH NEMA 4X ENCLOSURES.
5. EXHAUST FAN WILL BE ENERGIZED DURING OCCUPIED PERIODS WITH A MANUAL OVERRIDE SWITCH FOR OPERATION DURING UNOCCUPIED PERIODS.



1 M102 HVAC – MEZZANINE PLAN
SCALE: 1/8" = 1'-0"



2 M102 HVAC – NORTH ELEVATION
SCALE: 1/4" = 1'-0"

MB-M-102

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MECHANICAL-MEZZANINE	SHEET NO. 97
				COUNTY NEW CASTLE	DESIGNED BY: TGK		TOTAL SHTS. 116
					CHECKED BY: DMC		

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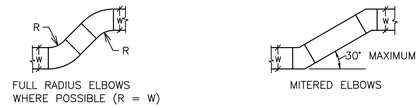
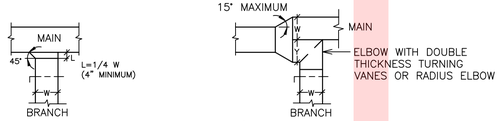


FULL RADIUS ELBOWS
WHERE POSSIBLE (R = W)

MITERED ELBOWS

DUCT OFFSETS

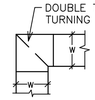


(BRANCH FLOW LESS
THAN 25% OF MAIN FLOW)

(BRANCH FLOW GREATER
THAN 25% OF MAIN FLOW)

BRANCH TAKE-OFFS

RADIUS ELBOW



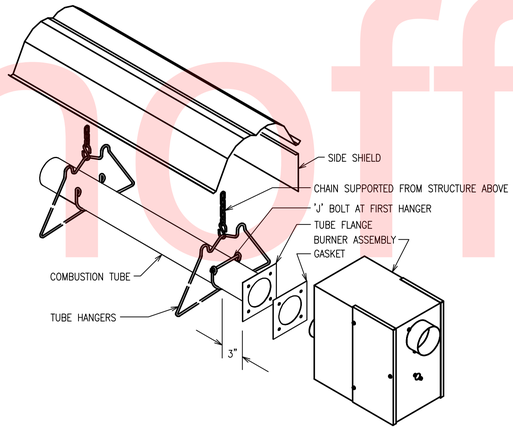
RECTANGULAR ELBOW

LOW VELOCITY ELBOWS

DIVERGING FLOW

CONVERGING FLOW

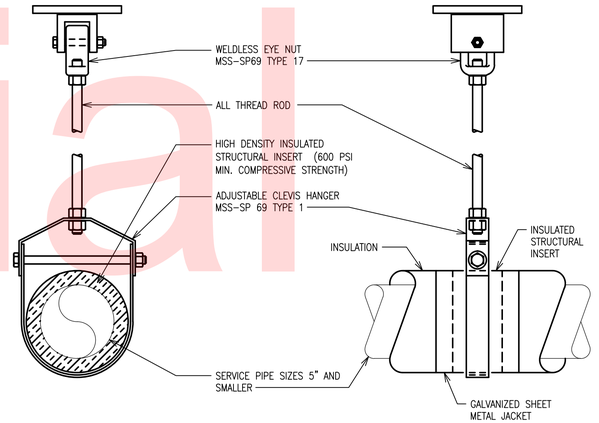
1 M501 DUCT FITTINGS
SCALE: NOT TO SCALE



2 M501 INFRARED RADIANT HEATER MOUNTING
SCALE: NOT TO SCALE

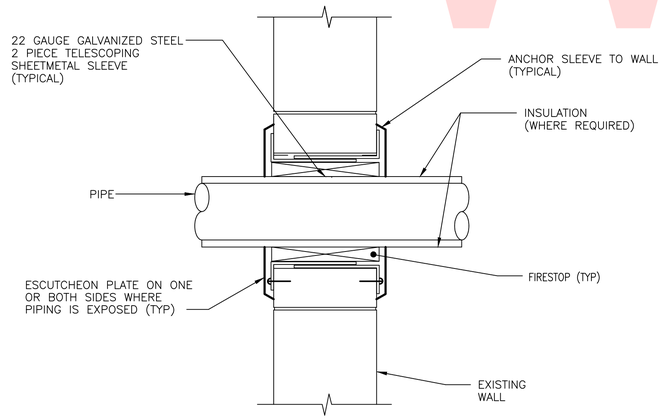
MAX. HANGER LOADING

PIPE SIZE	ROD DIA.	MAX. SPACING
1/2" THRU 2"	1/2"	8'
2 1/2" & 3"	5/8"	10'
4" & 5"	5/8"	14'



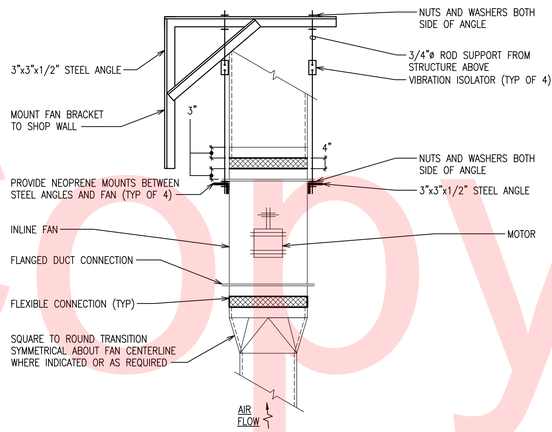
NOTE:
1. THIS DETAIL SHALL BE USED AS A GUIDE. ALL HANGERS SHALL MEET THE REQUIREMENTS OF SPECIFICATION SECTION 230529 – 'HANGERS AND SUPPORTS'.

3 M501 HANGER SUPPORT
SCALE: NONE



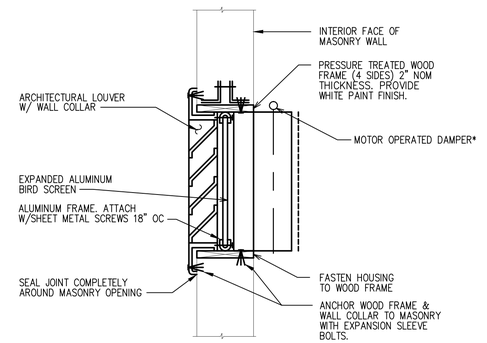
NOTE:
MECHANICAL CONTRACTOR SHALL INSURE BUILDING FIRE RATINGS ARE MAINTAINED BY PROVIDING INTUMESCENT CAULK AT ALL LOCATIONS WHERE PIPING PENETRATES FIRE-RATED WALLS AND FLOORS.

4 501 PIPE PENETRATION DETAIL
SCALE: NONE



NOTE:
1. METAL BUILDING MANUFACTURER SHALL PROVIDE ELEMENTS TO SUPPORT VERTICAL EXHAUST FAN (APPROX. WEIGHT 154 LBS.)

5 M501 INLINE FAN INSTALLATION – VERTICAL
SCALE: NTS



*NOTE: WASH BAY MOTOR OPERATED DAMPER SHALL BE PROVIDED WITH A NEMA 4X ENCLOSURE

6 M501 LOUVERED INTAKE WITH MOD
SCALE: NTS

MB-M-501

DELAWARE
DEPARTMENT OF TRANSPORTATION

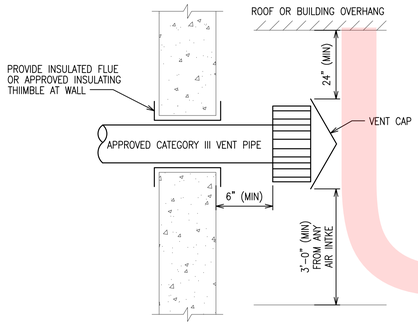
ADDENDUMS / REVISIONS

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

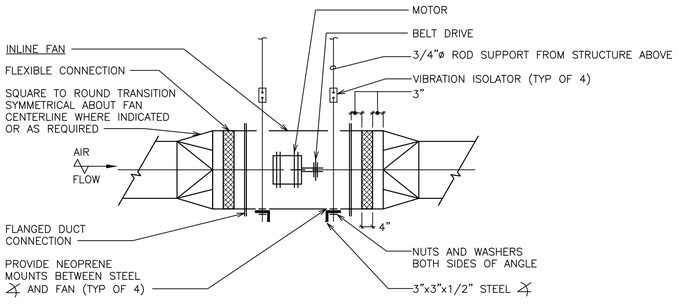
CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	TGK
COUNTY	CHECKED BY:	DMC
NEW CASTLE		

MAINTENANCE BUILDING
MECHANICAL DETAILS

SHEET NO.
98
TOTAL SHTS.
116

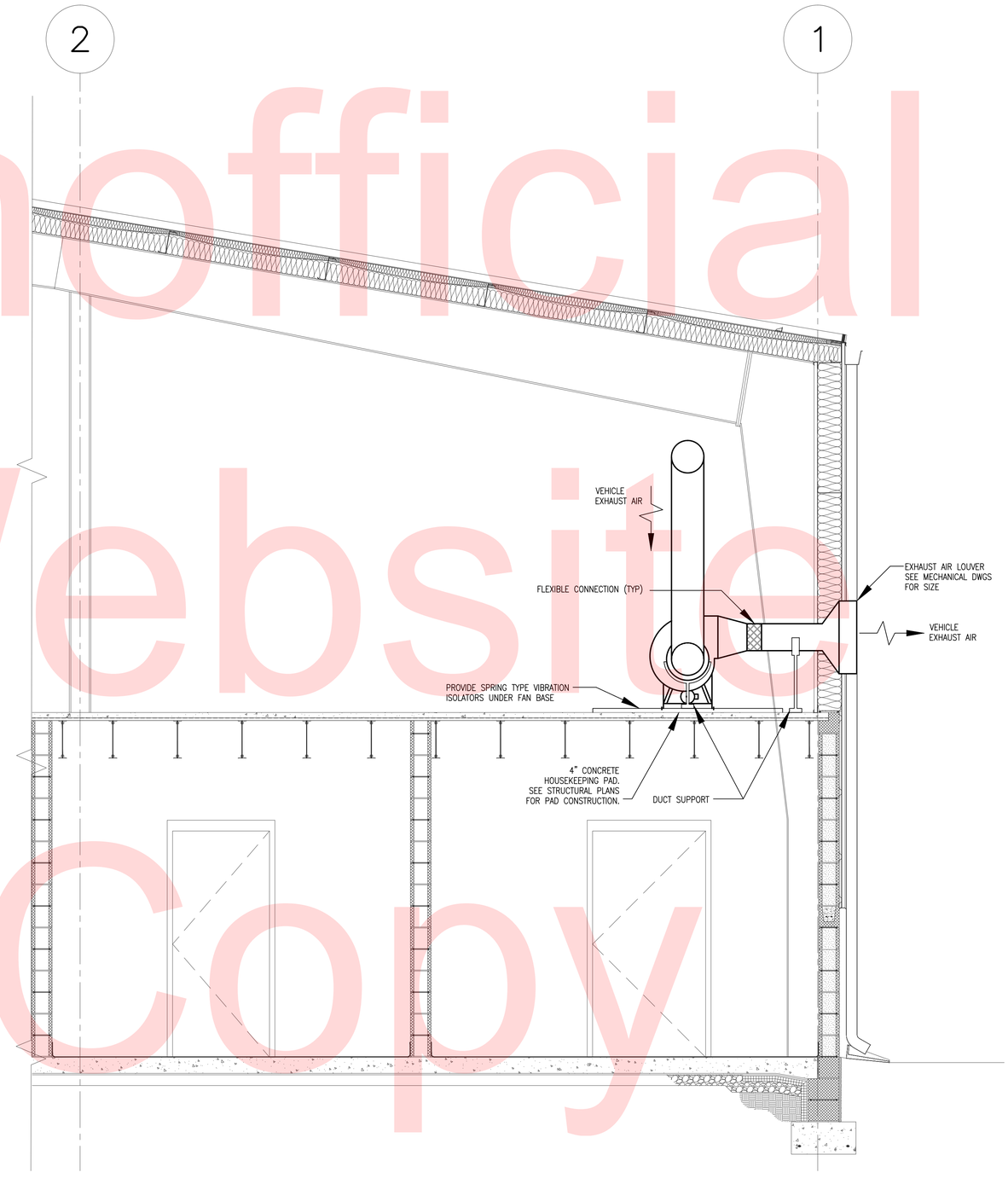


1 / M502 **FLUE THRU WALL INSTALLATION**
SCALE: NOT TO SCALE



NOTE:
1. PROVIDE FLEXIBLE CONNECTIONS BEFORE OR AFTER TRANSITIONS AS INDICATED ON THE PLANS.

2 / M502 **INLINE FAN INSTALLATION – HORIZONTAL**
SCALE: NONE



3 / M601 **VEHICLE EXHAUST FAN**
SCALE: 1/2"=1'

MB-M-502

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MAINTENANCE BUILDING MECHANICAL DETAILS	SHEET NO. 99
				COUNTY NEW CASTLE	DESIGNED BY: TGK		TOTAL SHTS. 116
					CHECKED BY: DMC		

PACKAGED TERMINAL AIR CONDITIONER SCHEDULE

DESIG.	HEATING CAPACITY (MBH)	COOLING CAPACITY (MBH)	AUXILIARY ELECTRIC HEAT (KW)	COMPRESSOR		ELECTRICAL				DIMENSIONS (IN)			WEIGHT (LBS)	BASIS	NOTES
				QTY.	REFR.	VOLT	MCA	MOP	EER	LENGTH	WIDTH	HEIGHT			
PTAC-1	11.3	12	4.1	1	R-410A	208	27.6	30	11	42	21.5	16 1/16	115	AMANA PTH-12-3-G-25-AXXX	

NOTES:

EXHAUST FAN SCHEDULE

DESIG.	SERVICE	LOCATION	TYPE	CFM	ESP (IN. W.G.)	MOTOR RPM	MOTOR HP	DRIVE	VOLTS/ PHASE	APPROX WEIGHT (LBS)	BASIS	NOTES
EF-1	SHOP EXHAUST	SHOP	INLINE	6325	0.50	1,770	1 1/2	DIRECT	208/3	150	GREENHECK AX-54-160-0622-A15	1
EF-2	WASH BAY EXHAUST	WASH BAY	INLINE	1110	0.30	1,770	1/3	DIRECT	208/3	48	GREENHECK AX-36-160-0417-A3	1
EF-3	MECHANICAL AND FLUID STORAGE EXHAUST	FLUIDS STORAGE	INLINE	700	0.30	1,590	1/6	DIRECT	115/1	49	GREENHECK SQ-95-VG	1
EF-4	TOILET ROOM	PARTS STORAGE	INLINE	170	0.30	1,725	1/10	DIRECT	115/1	34	GREENHECK SQ-60-VG	1
EF-5	VEHICLE EXHAUST	MEZZANINE	CENTRIFUGAL	1800	4.50	3,122	3	BELT	208/3	221	MONOXIVENT BI-120	1

NOTES:
1). PROVIDE FACTORY INSTALLED DISCONNECT AND THERMAL OVERLOAD PROTECTOR.

UNIT HEATER SCHEDULE

DESIG.	SERVICE	MOUNTING	CFM	HEATING CAPACITY	ELECTRICAL	DIMENSIONS			MAX OPERATING WEIGHT (LBS)	BASIS	NOTES
				KW	VOLTS/ PHASE	LENGTH (INCHES)	WIDTH (INCHES)	HEIGHT (INCHES)			
UH-1	PARTS ROOM	SUSPENDED	600	7	208/3	10 7/8	22	24 1/2	67	REZNOR EGEB - 7	
UH-2	MECHANICAL ROOM	SUSPENDED	300	1.5	208/1	12 1/16	10 7/16	12 3/8	20	REZNOR EGW - 2	
UH-3	FLUID STORAGE	SUSPENDED	300	1.5	208/1	12 1/16	10 7/16	12 3/8	20	REZNOR EGW - 2	
UH-4	MEZZANINE	SUSPENDED	310	5	208/3	9 1/8	15 9/16	16 3/8	40	REZNOR EGEB - 5	
UH-5	MEZZANINE	SUSPENDED	310	5	208/3	9 1/8	15 9/16	16 3/8	40	REZNOR EGEB - 5	
UH-6	TOILET	WALL	160	1.5	120/1	16 1/8	4 1/8	22 1/16	10.9	REZNOR EHC - 1	

NOTES:
1). PROVIDE SURFACE MOUNTED HEATER WITH FACTORY INSTALLED DISCONNECT.

DUCTLESS SPLIT SYSTEM SCHEDULE

DESIG.	HEATING CAPACITY (MBH)	COOLING CAPACITY (MBH)	COMPRESSOR		ELECTRICAL					INDOOR UNIT DIMENSIONS (IN)			OUTDOOR UNIT DIMENSIONS (IN)			INDOOR UNIT WEIGHT (LBS)	OUTDOOR UNIT WEIGHT (LBS)	BASIS			NOTES
			NO.	REFR.	VOLT	MCA	MOP	COOLING FLA	HEATING FLA	LENGTH	WIDTH	HEIGHT	LENGTH	WIDTH	HEIGHT			SYSTEM	INDOOR UNIT	OUTDOOR UNIT	
DSS-1	12	9	1	R410A	208	10.3	15	3.2	6.5	35 1/4	10 1/4	10 1/4	31 1/8	11 1/4	21 9/16	24.25	81.6	SAMSUNG AR09KSWSJWKCV	SAMSUNG AR09KSWSJWKNCV	SAMSUNG AR09KSWSJWKXCV	1, 2
DSS-2	12	9	1	R410A	208	10.3	15	3.2	6.5	35 1/4	10 1/4	10 1/4	31 1/8	11 1/4	21 9/16	24.25	81.6	SAMSUNG AR09KSWSJWKCV	SAMSUNG AR09KSWSJWKNCV	SAMSUNG AR09KSWSJWKXCV	1, 2

NOTES:
1.) PROVIDE UNIT WITH FACTORY INSTALLED INVERTER CONTROLLED, ROTARY COMPRESSORS.
2.) PROVIDE UNIT WITH INTEGRATED CONDENSATE PUMP.

EXHAUST HOSE REEL SCHEDULE

DESIG.	TYPE	DRIVE	VOLT	TOTAL MCA	HOSE DIAMETER	LENGTH OF HOSE	BASIS	NOTES
HR-1	TRUCK	DIRECT	120	2.7	6"	24'	MONOXIVENT	1,2,3
HR-2	TRUCK	DIRECT	120	2.7	6"	24'	MONOXIVENT	1,2,3
HR-3	TRUCK	DIRECT	120	2.7	6"	24'	MONOXIVENT	1,2,3

NOTES:
1.) PROVIDE 4-BUTTON WALL MOUNTED CONTROL SWITCH.
2.) PROVIDE TRUCK EXHAUST AND DUAL EXHAUST ADAPTERS.
3.) PROVIDE EXHAUST HOSE MANUAL PULL BAR.

INFRARED HEATER SCHEDULE

DESIG.	FUEL	BURNER		ELECTRIC		MOUNTING HEIGHT MIN (FT.)	DIMENSIONS			WEIGHT LBS	BASIS	NOTES
		INPUT MBH	OUTPUT MBH	AMPS (RUN/START)	VOLTS		LENGTH	WIDTH	HEIGHT			
IRH-1	NG	150	120	1.3/4.8	120	21' 6"	23' 1/2"	30"	9.5"	161	ROBERTS GORDON VANTAGE CTH3-150	1, 4, 5
IRH-2	NG	150	120	1.3/4.8	120	21' 6"	23' 1/2"	30"	9.5"	161	ROBERTS GORDON VANTAGE CTH3-150	1, 4, 5
IRH-3	NG	150	120	1.3/4.8	120	21' 6"	23' 1/2"	30"	9.5"	161	ROBERTS GORDON VANTAGE CTH3-150	1, 4, 5
IRH-4	NG	150	120	1.3/4.8	120	21' 6"	23' 1/2"	30"	9.5"	161	ROBERTS GORDON VANTAGE CTH3-150	1, 4, 5
IRH-5	NG	150	120	1.3/4.8	120	21' 6"	23' 1/2"	30"	9.5"	161	ROBERTS GORDON VANTAGE CTH3-150	1, 4, 5
IRH-6	NG	125	100	1.0/5.0	120	21' 6"	23' 1/2"	30"	9.5"	161	ROBERTS GORDON VANTAGE HE-125	2, 3, 4, 5

NOTES:
1) PROVIDE FULL RANGE CONTINUOUS MODULATION CONTROL BURNERS AND THERMOSTAT.
2) PROVIDE ALUMINIZED STEEL COMBUSTION CHAMBER, HEAT EXCHANGER TUBING, AND ALUMINUM REFLECTOR.
3) PROVIDE MOISTURE RESISTANT LINE VOLTAGE THERMOSTAT.
4) PROVIDE 4 INCH VENT TERMINAL FOR VENT PIPE THROUGH WALL (PART NUMBER 90502100).
5) PROVIDE 5 INCH VENT CAP FOR OA PIPE THROUGH WALL (PART NUMBER 90502301).

AIR DEVICE SCHEDULE

DESIG.	DUTY	FACE/NECK SIZE	MAX. CFM	BLOW	BASIS	NOTES
R1	EXHAUST	6"x6"	50	1-WAY	TITUS 350ZFL	1
R2	EXHAUST	12"x8"	300	1-WAY	TITUS 350ZFL	1
R3	EXHAUST	10"x10"	400	1-WAY	TITUS 350ZFL	1

NOTES:
1). PROVIDE WITH OPPOSED BLADE DAMPER.

MB-M-601

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	T201680104
COUNTY	NEW CASTLE

BRIDGE NO.	N/A
DESIGNED BY:	TGK
CHECKED BY:	DMC

MAINTENANCE BUILDING
MECHANICAL SCHEDULES

SHEET NO.	100
TOTAL SHTS.	116

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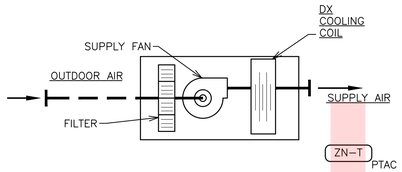


1 M701 PACKAGED TERMINAL AIR CONDITIONER

SCALE: NONE

A. GENERAL

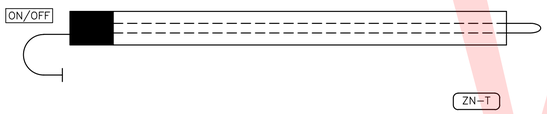
THE PACKAGED TERMINAL AIR CONDITIONER CONSISTS OF A THROUGH WALL HEAT PUMP TYPE EVAPORATOR AND CONDENSING UNIT AND A DEDICATED PROGRAMMABLE THERMOSTAT.

PACKAGED TERMINAL AIR CONDITIONER (PTAC-1) INTERNAL CONTROLS SHALL CYCLE THE COMPRESSOR AS NEEDED TO MEET THE ZONE TEMPERATURE SETPOINT (OCCUPIED: 75'F COOLING, 70'F HEATING (ADJ.) UNOCCUPIED: 80'F COOLING, 65'F HEATING (ADJ.)) AS SELECTED ON THE THERMOSTAT PROVIDED WITH THE UNIT.

THE PACKAGED TERMINAL AIR CONDITIONING UNIT SHALL MODULATE AS NEEDED TO SATISFY LOAD. THE SUPPLY FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED MODE AND WILL CYCLE AS REQUIRED DURING UNOCCUPIED MODE.

B. PROVIDED CONTROLS

ALL CONTROLS SHALL BE SUPPLIED AND INSTALLED BY FACTORY EQUIPMENT MANUFACTURER.



4 M701 GAS-FIRED INFRARED HEATER (IRH-1 THRU 10)

SCALE: NONE

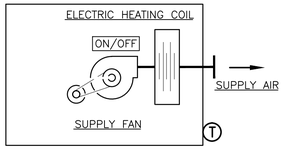
A. GENERAL

THE INFRARED HEATERS (IRH) SHALL BE EQUIPPED WITH A GAS FIRED BURNER AND ALUMINIZED RADIANT HEAT TUBING. IRH-1 THRU IRH-5 SHALL BE PROVIDED WITH FULLY MODULATING BURNERS. IRH-6 SHALL BE RATED FOR A HARSH, WET ENVIRONMENT AND BE PROVIDED WITH A SINGLE STAGE BURNER. A MANUFACTURER PROVIDED WALL MOUNTED ZONE TEMPERATURE SENSOR SHALL INITIATE UNIT OPERATION.

B. IRH OPERATION

THE IRH SHALL RECEIVE AN OCCUPIED/UNOCCUPIED STATUS FROM THE THERMOSTAT CONTROLLER AS SCHEDULED (OCCUPIED 6:00 AM TO 6:00 PM, MONDAY THROUGH FRIDAY).

THE IRH SHALL MODULATE (IRH-1 THRU IRH-5) OR STAGE ON AS REQUIRED (IRH-6) THROUGH INTERNAL CONTROLS TO MAINTAIN AN OCCUPIED ZONE TEMPERATURE SETPOINT (ZN-T) OF 65'F (ADJ.) AND AN UNOCCUPIED ZONE TEMPERATURE SETPOINT OF 55'F AT THE LOCAL SENSOR. SEE FLOOR PLANS FOR LOCATIONS.



8 M701 ELECTRIC UNIT HEATER (UH-1 THRU 5)

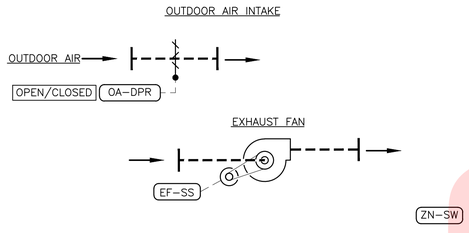
SCALE: NONE

A. GENERAL

THE ELECTRIC UNIT HEATER (UH) IS A SUSPENDED UNIT EQUIPPED WITH A CONSTANT VOLUME FAN AND AN ELECTRIC HEATING COIL.

B. UNIT HEATER OPERATION

THE UH SHALL BE ENABELED THROUGH A FACTORY MOUNTED ON/OFF SWITCH. THE UH SHALL OPERATE THROUGH AN EXTERNAL THERMOSTAT. THE UH SHALL CYCLE THROUGH INTERNAL CONTROLS TO MAINTAIN A ZONE TEMPERATURE SETPOINT OF 65'F (ADJ, +/- 2'F DEADBAND).



2 M701 SHOP EXHAUST FAN (EF-1)

SCALE: NONE

A. GENERAL INFORMATION

THE CONSTANT VOLUME EXHAUST FAN SERVES THE VEHICLE MAINTENANCE SHOP AND SHALL BE CALLED TO ENERGIZE THROUGH ANY OF THE FOLLOWING CONDITIONS:

1. THE BUILDING IS IN OCCUPIED MODE.
2. MANUAL OVERRIDE THROUGH A WALL MOUNTED SWITCH IN THE SPACE.

B. EXHAUST FAN OPERATION

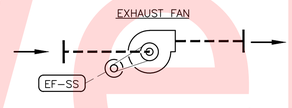
THE EF SHALL RECEIVE AN OCCUPIED/UNOCCUPIED STATUS FROM THE BUILDING CONTROLLER AS SCHEDULED (OCCUPIED 6:00 AM TO 6:00 PM, MONDAY THROUGH FRIDAY).

ON A CALL FOR THE EXHAUST FAN TO ENERGIZE, THE FOLLOWING START-UP SEQUENCE SHALL OCCUR:

- COMMAND OUTSIDE AIR DAMPERS TO OPEN AND PROVE THE DAMPERS ARE OPEN THROUGH AN END SWITCH.
- ENERGIZE ASSOCIATED EXHAUST FAN.

THE EXHAUST FAN SHALL BE ENERGIZED CONTINUOUSLY DURING THE OCCUPIED MODE AND BE DE-ENERGIZED DURING UNOCCUPIED MODE AND THE MOD SHALL CLOSE. THE MANUAL OVERRIDE SWITCH SHALL ALLOW THE FAN TO BE ENERGIZED DURING UNOCCUPIED PERIODS FOR 2 HOURS (ADJ.).

COORDINATE WITH FLOOR PLANS FOR DAMPERS, SENSOR, AND ASSOCIATED EXHAUST FAN LOCATIONS. WHEN EXHAUST FAN IS DE-ENERGIZED, THE OA DAMPERS SHALL BE CLOSED.



5 M701 TOILET ROOM EXHAUST FAN (EF-4)

SCALE: NONE

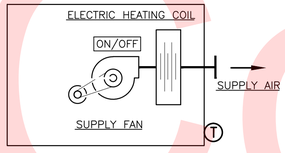
A. GENERAL INFORMATION

THE CONSTANT VOLUME EXHAUST FAN SERVES THE SHOP TOILET ROOM AND JANITOR'S CLOSET.

B. EXHAUST FAN OPERATION

THE EF SHALL RECEIVE AN OCCUPIED/UNOCCUPIED STATUS FROM THE BUILDING CONTROLLER AS SCHEDULED (OCCUPIED 6:00 AM TO 6:00 PM, MONDAY THROUGH FRIDAY).

THE EXHAUST FAN SHALL BE ENERGIZED CONTINUOUSLY DURING THE OCCUPIED MODE AND BE DE-ENERGIZED DURING UNOCCUPIED MODE.



9 M701 WALL MOUNTED UNIT HEATER (UH-6)

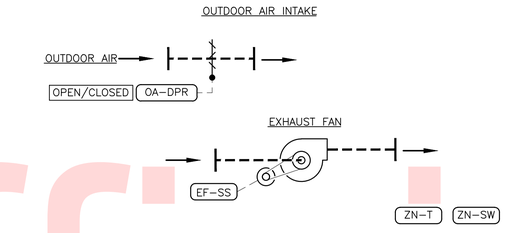
SCALE: NONE

A. GENERAL

THE ELECTRIC UNIT HEATER (UH) IS A WALL MOUNTED UNIT EQUIPPED WITH A CONSTANT VOLUME FAN AND AN ELECTRIC HEATING COIL.

B. UNIT HEATER OPERATION

THE UH SHALL BE ENABLED THROUGH A FACTORY MOUNTED ON/OFF SWITCH. THE UH SHALL OPERATE THROUGH AN EXTERNAL THERMOSTAT. THE UH SHALL CYCLE THROUGH INTERNAL CONTROLS TO MAINTAIN A ZONE TEMPERATURE SETPOINT OF 75'F (ADJ, +/- 2'F DEADBAND).



3 M701 WASH BAY EXHAUST FAN (EF-2)

SCALE: NONE

A. GENERAL INFORMATION

THE CONSTANT VOLUME EXHAUST FAN SERVES THE WASH BAY WITHIN THE BUILDING AND SHALL BE CALLED TO ENERGIZE THROUGH ANY OF THE FOLLOWING CONDITIONS:

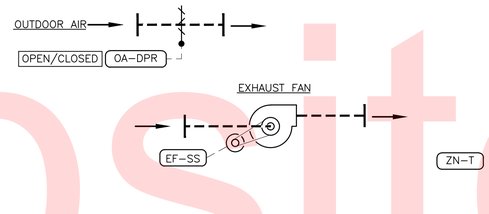
1. WHEN THE SPACE TEMPERATURE EXCEEDS SETPOINT (85'F, ADJ.).
2. MANUAL OVERRIDE THROUGH A WALL MOUNTED SWITCH IN THE SPACE.

ON A CALL FOR THE EXHAUST FAN TO ENERGIZE, THE FOLLOWING START-UP SEQUENCE SHALL OCCUR:

- COMMAND OUTSIDE AIR DAMPERS TO OPEN AND PROVE THE DAMPERS ARE OPEN THROUGH AN END SWITCH.
- ENERGIZE ASSOCIATED EXHAUST FAN.

THE EXHAUST FAN SHALL MAINTAIN A ZONE TEMPERATURE SETPOINT OF 85'F (ADJ, +/- 2'F DEADBAND). ON A DROP IN SPACE TEMPERATURE BELOW THE ZONE TEMPERATURE DEADBAND, THE EXHAUST MOTOR SHALL STOP AND THE MOD SHALL CLOSE.

COORDINATE WITH FLOOR PLANS FOR DAMPERS, SENSOR, AND ASSOCIATED EXHAUST FAN LOCATIONS. WHEN EXHAUST FAN IS DE-ENERGIZED, THE OA DAMPERS SHALL BE CLOSED.



6 M701 MECHANICAL AND FLUID STORAGE ROOM EXHAUST FAN (EF-3)

SCALE: NONE

A. GENERAL INFORMATION

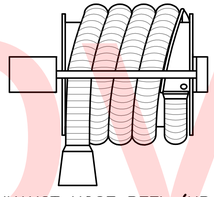
THE CONSTANT VOLUME EXHAUST FAN SERVES THE MECHANICAL ROOM AND FLUID STORAGE ROOM WITHIN THE BUILDING AND SHALL BE CONTROLLED TO RUN WHEN THE SPACE TEMPERATURE EXCEEDS SETPOINT (85'F, ADJ.).

ON A CALL FOR THE EXHAUST FAN TO ENERGIZE, THE FOLLOWING START-UP SEQUENCE SHALL OCCUR:

- COMMAND OUTSIDE AIR DAMPER TO OPEN AND PROVE THE DAMPER IS OPEN THROUGH AN END SWITCH.
- ENERGIZE ASSOCIATED EXHAUST FAN.

THE EXHAUST FAN SHALL MAINTAIN A ZONE TEMPERATURE SETPOINT OF 85'F (ADJ, +/- 2'F DEADBAND). ON A DROP IN SPACE TEMPERATURE BELOW THE ZONE TEMPERATURE DEADBAND, THE EXHAUST MOTOR SHALL STOP AND THE MOD SHALL CLOSE.

COORDINATE WITH FLOOR PLANS FOR DAMPERS AND ASSOCIATED EXHAUST FAN LOCATIONS. WHEN EXHAUST FAN IS DE-ENERGIZED, THE OA DAMPER SHALL BE CLOSED.



10 M701 EXHAUST HOSE REEL (HR-1 THRU 3)

SCALE: NONE

A. GENERAL

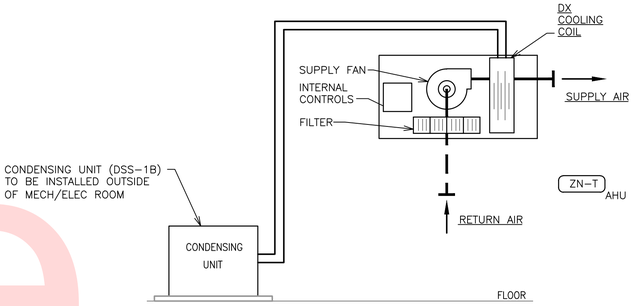
THE EXHAUST HOSE REEL CONSISTS OF A HIGH TEMPERATURE HOSE WITH AN ELECTRIC REEL AND A FOUR BUTTON CONTROLLER.

B. EXHAUST HOSE REEL OPERATION

A FACTORY PROVIDED FOUR BUTTON CONTROLLER SHALL RAISE AND LOWER THE HOSE REEL AND START AND STOP THE EXHAUST FAN. REFER TO DRAWINGS FOR LOCATION OF FOUR BUTTON CONTROLLER.

GENERAL CONTROL NOTES

1. THESE CONTROL DRAWINGS INDICATE THE INTENDED SEQUENCES OF OPERATION FOR SYSTEMS TO BE CONTROLLED BY STANDALONE MEANS.
2. SENSORS AND MEASURING INSTRUMENTS SHOWN ON SEQUENCES THAT ARE NOT UTILIZED FOR THE SEQUENCE OF OPERATION ARE INTENDED TO PROVIDE OPERATOR INFORMATION AND ARE REQUIRED.
3. ALL SETPOINTS, RESET SCHEDULES, AND DEADBANDS IDENTIFIED HEREIN SHALL BE ADJUSTABLE BY THE BUILDING OPERATOR THROUGH THE MANUFACTURER'S CONTROLLER.
4. SETPOINT SHALL BE DEFINED AS A PERFORMANCE STANDARD FOR A COMPONENT OR SYSTEM UNDER CONTROL, WHICH IS ESTABLISHED BY THE CONTROL SYSTEM USER. TYPICALLY, A SETPOINT IS DEFINED WITH AN ACCEPTABLE DEADBAND, TO ALLOW THE MECHANICAL OR ELECTRICAL SYSTEM THE OPPORTUNITY TO DAMPEN OR ELIMINATE EXCESSIVE START/STOP OR OSCILLATION OF THE EQUIPMENT.
5. DEADBAND IS THE ACCEPTABLE RANGE ASSOCIATED WITH THE SETPOINT, IN WHICH THE CONTROL SYSTEM IS SATISFIED WITH NO MECHANICAL OR ELECTRICAL SYSTEM MODULATION NECESSARY FROM THE CONTROL SYSTEM. TYPICALLY, A DEADBAND IS EXPRESSED AS A + AND – RANGE AROUND THE NUMERICAL VALUE OF THE SETPOINT.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DEMONSTRATING THE LISTED SEQUENCES OF OPERATION FOR ALL MECHANICAL SYSTEMSTO THE OWNER OR OWNER'S REPRESENTATIVE. CONTRACTOR SHALL PROVIDE A MINIMUM OF 5 DAYS ADVANCED NOTICE OF DEMONSTRATIONS.



7 M701 SPLIT SYSTEM AIR HANDLING UNIT (DSS-1 & 2)

SCALE: NONE

A. GENERAL INFORMATION

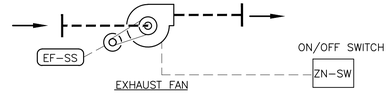
THE SPLIT SYSTEM CONSISTS OF AN OUTDOOR HEAT PUMP TYPE CONDENSING UNIT AND AN INDOOR AIR HANDLING UNIT AND A DEDICATED THERMOSTAT. A PROGRAMMABLE THERMOSTAT SHALL BE INSTALLED IN THE SPACE. ALL SYSTEM ADJUSTMENTS, ETC. SHALL BE MADE AT THE THERMOSTAT. THIS UNIT SERVES THE SECURE PARTS STORAGE AND TOILET ROOM.

INTERIOR AIR HANDLER (DSS-1) INTERNAL CONTROLS SHALL CYCLE THE SUPPLY FAN AS NEEDED TO MEET THE ZONE TEMPERATURE SETPOINT AS SELECTED ON THE THERMOSTAT PROVIDED WITH THE UNIT. THE AHU SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT (72'F COOLING, 70'F HEATING (ADJ.)).

THE AIR COOLED CONDENSING UNIT SHALL BE ENERGIZED WHEN THE INDOOR UNIT CALLS FOR HEATING OR COOLING. THE AIR COOLED CONDENSING UNIT SHALL MODULATE AS NEEDED TO SATISFY LOAD.

B. PROVIDED CONTROLS

ALL CONTROLS SHALL BE SUPPLIED AND INSTALLED BY FACTORY EQUIPMENT MANUFACTURER. CONTROLS SHALL HAVE BACNET INTERFACE.



11 M701 VEHICLE EXHAUST FAN (EF-5)

SCALE: NONE

A. GENERAL

THE CONSTANT VOLUME EXHAUST FAN SHALL BE CONTROLLED BY THE 4-BUTTON CONTROL SWITCH (ZN-SW) LOCATED ADJACENT TO EACH HOSE REEL. 4-BUTTON SWITCH SHALL BE PROVIDED WITH HOSE REEL SYSTEM TO PROVIDE START/STOP BUTTONS FOR VEHICLE EXHAUST FAN.

MB-M-701

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MAINTENANCE BUILDING CONTROL SEQUENCES
			COUNTY NEW CASTLE	DESIGNED BY: TGK	SHEET NO. 101
				CHECKED BY: DMC	TOTAL SHTS. 116

PLUMBING LEGEND

SYMBOL	DESCRIPTION
	SOIL, WASTE, OR SANITARY PIPE
GI	GREASE INTERCEPTOR SANITARY PIPE
	STORM WATER PIPE
OI	OIL INTERCEPTOR STORM WATER PIPE
	FOUNDATION DRAIN TILE
CD	CONDENSATE DRAIN PIPE
	VENT PIPE
	DOMESTIC COLD WATER PIPE
	DOMESTIC HOT WATER PIPE
	DOMESTIC HOT WATER RETURN PIPE
ATF	AUTOMATIC TRANSMISSION FLUID PIPE
CA	COMPRESSED AIR PIPE
COOL	ANTI-FREEZE PIPE
HO	HYDRAULIC OIL PIPE
LO	LUBRICATION OIL PIPE
MO	MOTOR OIL PIPE
S	SPRINKLER SUPPLY PIPE
F	FIRE LINE PIPE
G	NATURAL GAS PIPE
CO CO	CLEANOUT (WALL/FLOOR)
	PIPE CAP
	BRANCH TAKE OFF
	PIPE DROP TEE
	PIPE RISE TEE
	SHUT-OFF VALVE
	GLOBE VALVE
	UNION
	STRAINER W/BLOWDOWN VALVE
	PIPE GUIDE
	PIPE ANCHORS
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	BALANCING VALVE (W/MEMORY STOP)
	BACKWATER VALVE
	BUTTERFLY VALVE
	AUTOMATIC AIR VENT
	HOSE END DRAIN VALVE
	BACKFLOW PREVENTER
	CHECK VALVE; (ARROW INDICATES DIRECTION OF FLOW)
	FLOOR DRAIN
	WALL HYDRANT
	HOSE BIBB
	FIRE DEPARTMENT CONNECTION (SIAMESE)

SYMBOL	DESCRIPTION
	FLANGED PIPE CONNECTION
	FLOW DIRECTION ARROW
	VALVE IN VERTICAL PIPE
	WATER HAMMER ARRESTER
UC	UNDERCUT DOOR
	AIR FLOW
DL	DOOR LOUVER
	THERMOMETER
ø	DIAMETER
	POINT OF CONNECTION, NEW TO EXISTING
	POINT OF DISCONNECTION FROM EXISTING
1	SYMBOL FOR SPECIFIC NOTE. NOTE APPLIES TO DRAWING ON WHICH IT OCCURS.

DESIGNATIONS

EQUIPMENT DESIGNATIONS

DWH-	DOMESTIC WATER HEATER
PET-	POTABLE EXPANSION TANK
RP-	RECIRCULATION PUMP
TMV-	THERMOSTATIC MIXING VALVE
V-	VALVE
P-_	PLUMBING FIXTURE

X / X — SECTION REFERENCE: (SEE DATA BELOW FOR DETAILS)

/ SHT — DETAIL = LETTER / SECTION = NUMBER; DRAWING TITLE; SCALE; SHEET NUMBER FROM WHICH THE PARTIAL, SECTION, ELEVATION, OR DETAIL IS DRAWN

PLAN NORTH / TRUE NORTH — NORTH ARROW

NECK SIZE — 12"x12" D / XXX CFM — AIR DEVICE DESIG. (D/R/G); AIR FLOW (TO BE BALANCED)

ABBREVIATIONS

@	AT
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
ATC	AUTOMATIC TEMPERATURE CONTROL
CD	CONDENSATE DRAIN
CO	CLEANOUT
CV	CHECK VALVE
CW	DOMESTIC COLD WATER
CX	CONNECT TO EXISTING
D	DEPTH
DIA, ø	DIAMETER
DN	DOWN
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
EXP	EXPANSION
°F	DEGREES FAHRENHEIT
FDC	FIRE DEPARTMENT CONNECTION
FDR	FLOOR DRAIN
FDV	FIRE DEPARTMENT VALVE
FT, '	FOOT, FEET OR FLASH TANK
FT HD	FEET OF HEAD
FU	FIXTURE UNITS
G	NATURAL GAS PIPE
GAL	GALLON, GALLONS
GPM	GALLONS PER MINUTE
H	HIGH, HEIGHT
H2O	WATER
HB	HOSE BIBB
HED	HOSE END DRAIN VALVE
HK	HOUSEKEEPING
HP	HORSEPOWER
HW	DOMESTIC HOT WATER
HWC	DOMESTIC HOT WATER CIRCULATING
IN, "	INCH, INCHES
INV	INVERT
KW	KILOWATTS
L	LONG, LENGTH
LBS	POUNDS
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MTD	MOUNTED
NIC	NOT IN CONTRACT
NOM	NOMINAL
NO	NORMALLY OPEN
OFD	OVERFLOW DRAIN
OI	OIL INTERCEPTOR
OS&Y	OUTSIDE STEM & YOKE VALVE
PH	PHASE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH POUNDS
RX	REMOVE EXISTING
SAN	SANITARY, SOIL, WASTE
SW	STORM WATER
△T	TEMPERATURE DROP
TEMP, T	TEMPERATURE
TYP	TYPICAL
V	VOLTS, VACUUM PIPE
VP	SANITARY VENT PIPE
VTR	VENT THROUGH ROOF
WC	WATER COLUMN
WH	WALL HYDRANT

GENERAL NOTES

1. WORK SHALL CONFORM TO THE CONTRACT DRAWINGS, SPECIFICATIONS AND THE LATEST APPLICABLE INTERNATIONAL MECHANICAL AND PLUMBING CODE AND THE NATIONAL ELECTRIC CODE. WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 70, THE NATIONAL ELECTRICAL CODE, THE NATIONAL ELECTRICAL SAFETY CODE, OSHA AND NATIONAL SAFETY CODE REQUIREMENTS.
2. THE SCOPE OF WORK INDICATED IN THESE DOCUMENTS SHALL INCLUDE MECHANICAL AND ELECTRICAL SYSTEMS, FULLY ADJUSTED, TESTED AND READY TO USE. PROVIDE ITEMS NECESSARY TO COMPLETE THE SYSTEMS. EXAMINE WORK INDICATED FOR TRADES IN ORDER TO DETERMINE THE EXTENT OF THE WORK REQUIRED TO BE COMPLETED.
3. IT IS THE INTENTION OF THESE DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN "FURNISH AND INSTALL COMPLETE, TESTED AND READY FOR USE."
4. THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW EVERY COMPONENT AND/OR ACCESSORY REQUIRED FOR A COMPLETE INSTALLATION. THE CONTRACTOR SHALL PROVIDE ITEMS NECESSARY FOR A PROPERLY WORKING SYSTEM IN COMPLIANCE WITH ACCEPTED INDUSTRY STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
5. PRIOR TO BID, THE CONTRACTOR SHALL VISIT THE SITE AND IDENTIFY ITEMS THAT MAY AFFECT THEIR BID. PRIOR TO THE INSTALLATION, FABRICATION, REMOVAL, OR RELOCATION OF ANY WORK, THE CONTRACTORS SHALL REVIEW THE ACTUAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND SHALL COORDINATE WORK WITH THE PLANS, EXISTING EQUIPMENT AND SYSTEMS, BUILDING STRUCTURE AND WORK OF OTHER TRADES. WHERE CONFLICTS OCCUR, OR IF CONNECTIONS THERETO CAN NOT BE MADE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER PRIOR TO MATERIAL FABRICATION OR INSTALLATION.
6. WHERE THE WORK OF VARIOUS TRADES WILL BE INSTALLED IN CLOSE PROXIMITY TO ONE ANOTHER OR WHERE THERE IS EVIDENCE THAT THE WORK OF ONE TRADE WILL INTERFERE WITH WORK OF ANOTHER, THE CONTRACTOR SHALL WORK OUT SPACE CONDITIONS TO MAKE A SATISFACTORY ADJUSTMENT. IF THE CONTRACTOR ALLOWS ONE TRADE TO INSTALL HIS WORK BEFORE COORDINATING WITH WORK OF OTHER TRADES THE CONTRACTOR SHALL MAKE NECESSARY CHANGES TO CORRECT THE CONDITIONS IN A MANNER ACCEPTABLE TO THE OWNER AND THE CONTRACTOR SHALL BEAR THE COST OF SUCH CORRECTIONS.
7. THE CONTRACTOR SHALL LOCATE EQUIPMENT WHICH MUST BE SERVICED, OPERATED, OR MAINTAINED IN FULLY ACCESSIBLE POSITION. EQUIPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO, VALVES, MOTORS, CONTROLLERS, DRAIN PANS, ETC. IF REQUIRED FOR ACCESSIBILITY, FURNISH ACCESS DOORS FOR THE PURPOSE. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ALLOW FOR BETTER ACCESSIBILITY.
8. WORK IN OCCUPIED SPACE SHALL BE COORDINATED WITH THE OWNER. SHOULD ANY OUTAGES BE REQUIRED IN THE COURSE OF THIS PROJECT, THE CONTRACTOR SHALL COORDINATE SUCH OUTAGES WITH THE OWNER'S DESIGNATED REPRESENTATIVE, SCHEDULING ANY OUTAGES DURING THE NON WORKING HOURS, SO AS NOT TO EFFECT FACILITY OPERATIONS, 72 HOURS NOTICE WILL BE REQUIRED PRIOR TO ANY OUTAGE. NO OUTAGE MAY BE EXECUTED PRIOR TO APPROVAL OF THE OWNER'S DESIGNATED REPRESENTATIVE AND THE FACILITY MANAGER.
9. THE CONTRACTOR SHALL LEAVE THE ENTIRE MECHANICAL SYSTEM INSTALLED UNDER THIS CONTRACT IN PROPER WORKING ORDER AND SHALL, WITHOUT CHARGE, REPLACE ANY WORK OR MATERIALS WHICH DEVELOP DEFECTS, EXCEPT FROM ORDINARY WEAR AND TEAR, WITHIN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
10. THE CONTRACTOR SHALL, DURING THE ONE YEAR WARRANTEE PERIOD, BE RESPONSIBLE FOR PROPER REPAIR AND ADJUSTMENTS OF MECHANICAL SYSTEMS AND EQUIPMENT, APPARATUS, DEVICES ETC. INSTALLED BY HIM, AND DO WORK NECESSARY TO ENSURE EFFICIENT AND PROPER FUNCTIONING.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR, AND SHALL INCUR FINANCIAL RESPONSIBILITIES FOR, ANY DAMAGES CAUSED BY OR RESULTING FROM DEFECTS IN HIS WORK.
12. WHEREVER PIPES, CONDUITS, OR OTHER ITEMS PASS THROUGH FIRE RATED WALLS AND FLOORS, THE SPACE BETWEEN THE ITEM AND THE MASONRY OR THE SPACE BETWEEN THE ITEM AND THE SLEEVE SHALL BE ADEQUATELY FIRE STOPPED WITH A NON COMBUSTIBLE, NON MELTING MATERIAL IN ACCORDANCE WITH NFPA STANDARDS.
13. WALL OPENINGS RESULTING FROM DEMOLITION SHALL BE CLOSED AND FINISHED TO MATCH EXISTING.
14. FINISHES DAMAGED DURING THE PROJECTS SHALL BE REPAIRED TO MATCH EXISTING.

MB-P-001

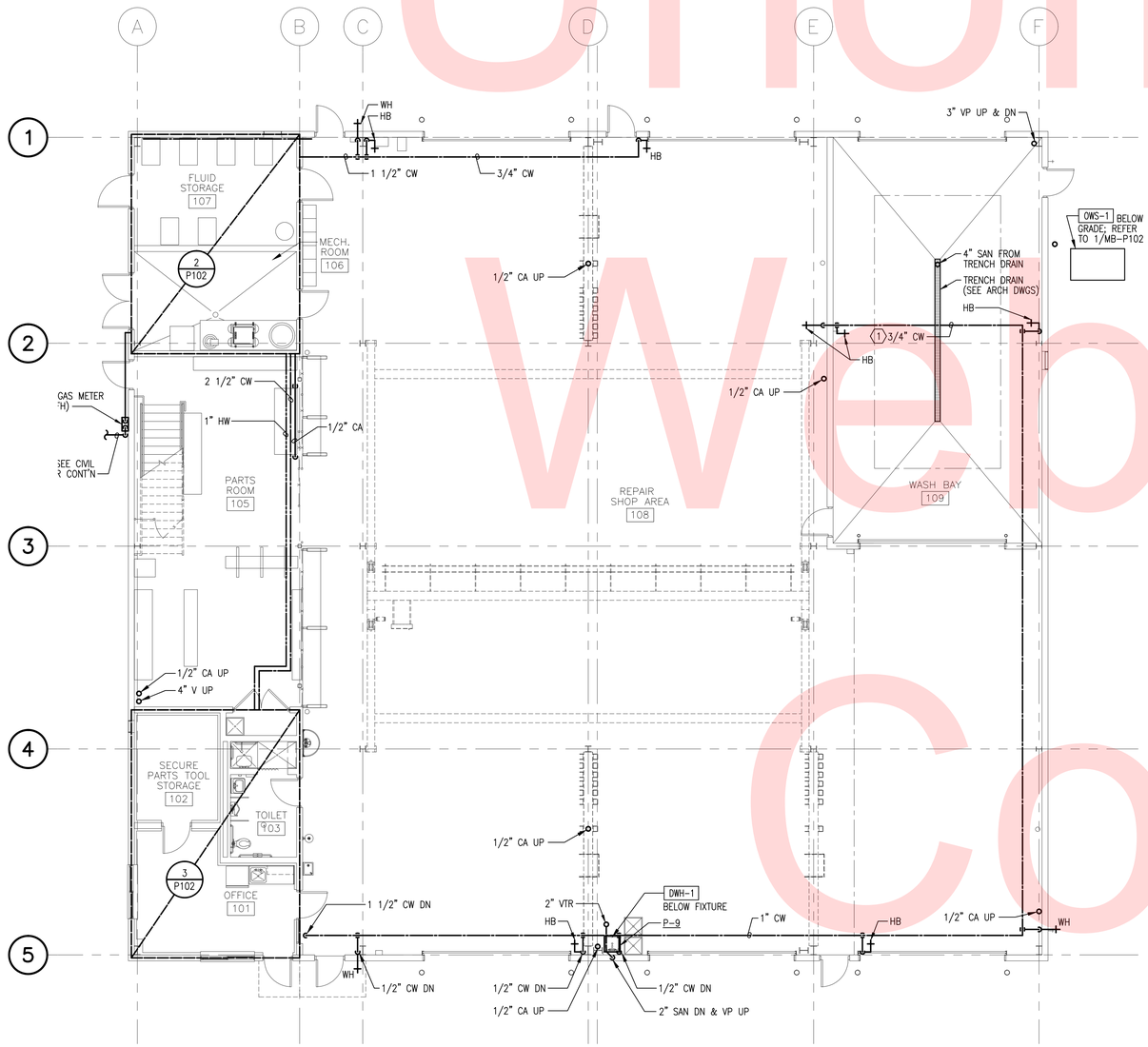
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT	T201680104	BRIDGE NO. N/A	PLUMBING SYMBOLS, ABBREVIATIONS AND GENERAL NOTES	SHEET NO. 102
				COUNTY	NEW CASTLE	DESIGNED BY: BWC		TOTAL SHTS. 116
						CHECKED BY: WWR		

GENERAL SHEET NOTES:

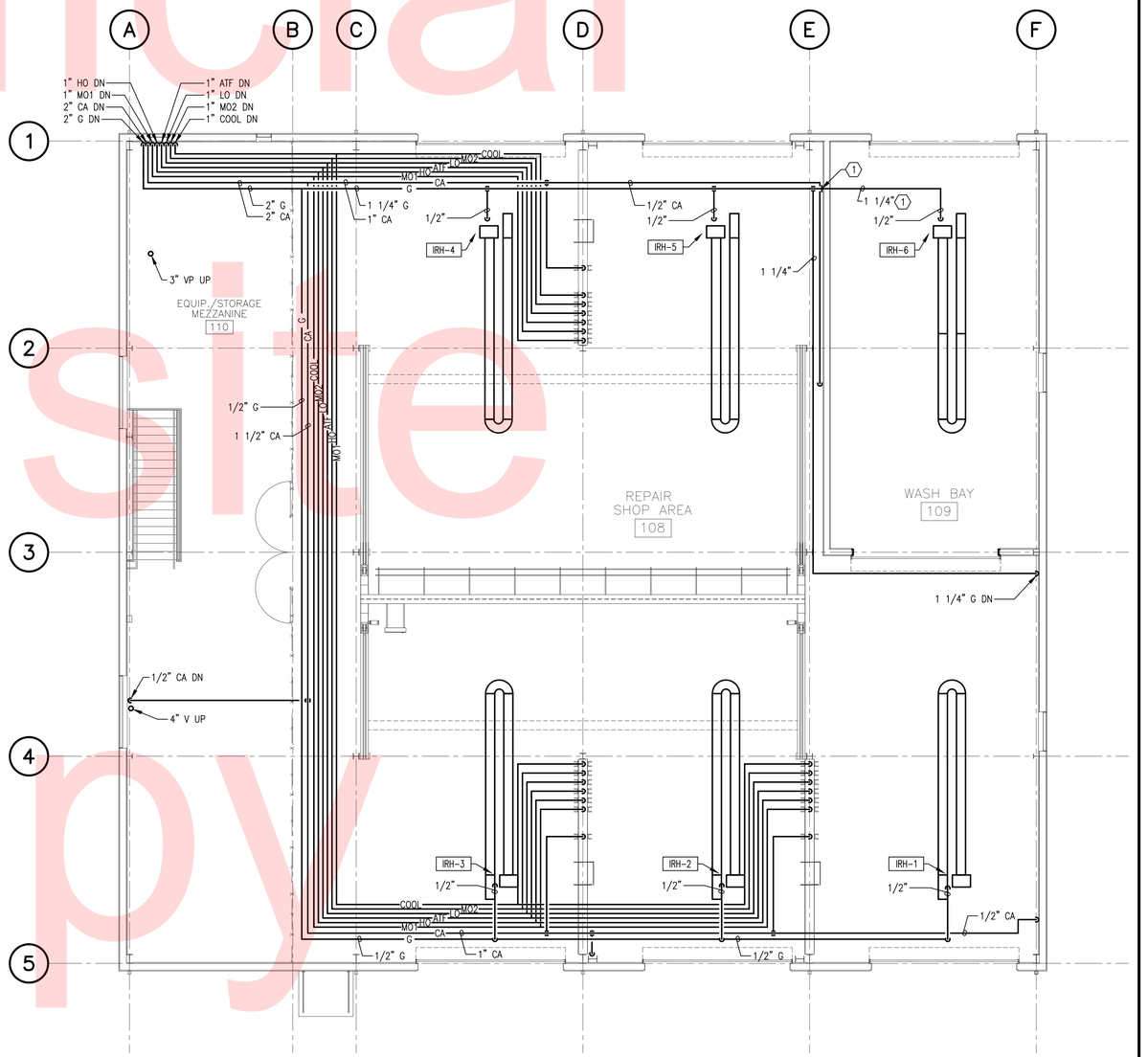
1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (———) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (———) SHALL BE EXISTING.
3. DO NOT LOCATE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT.

SHEET KEYNOTES:

(1) PIPING IN WASHBAY SHALL BE STAINLESS STEEL.



1 P101 DOMESTIC PLUMBING – GROUND FLOOR PLAN
SCALE: 1/8" = 1'-0"



2 P101 DOMESTIC PLUMBING – MEZZANINE PLAN
SCALE: 1/8" = 1'-0"

MB-P-101

DELAWARE
DEPARTMENT OF TRANSPORTATION

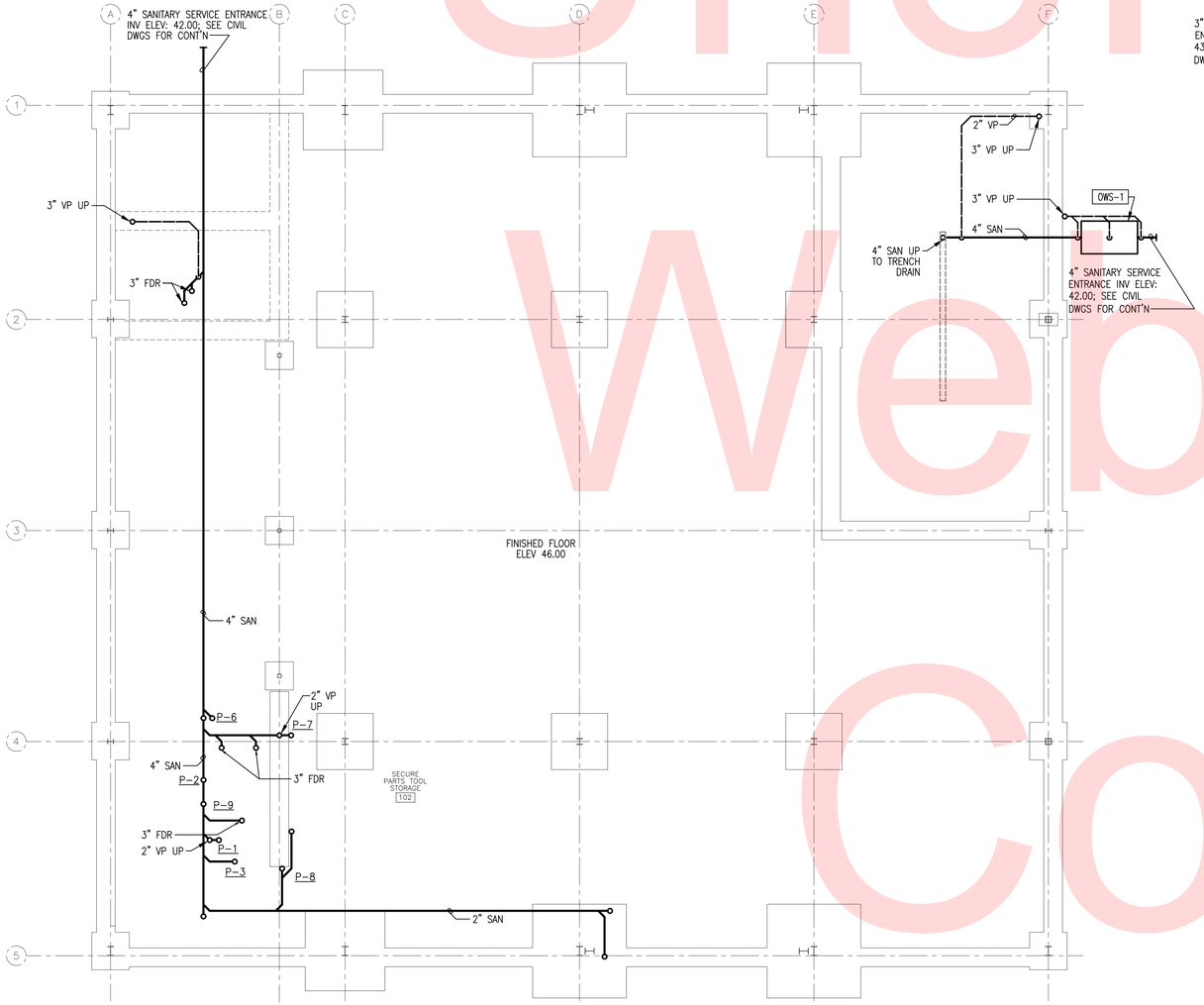
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

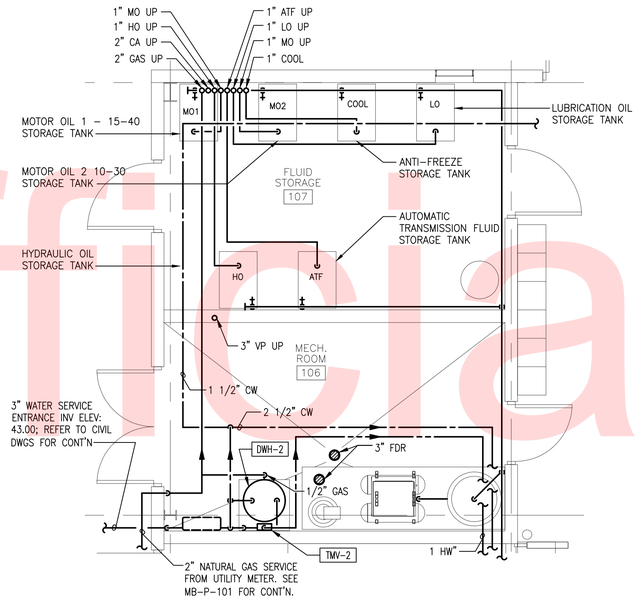
CONTRACT	T201680104	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY: CHB	TGK
		CHECKED BY: MAS	N/A

DOMESTIC PLUMBING
NEW WORK FLOOR PLANS

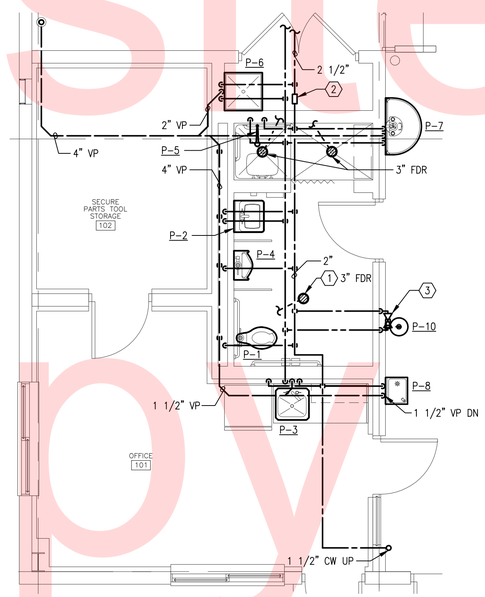
SHEET NO.	103
TOTAL SHTS.	116



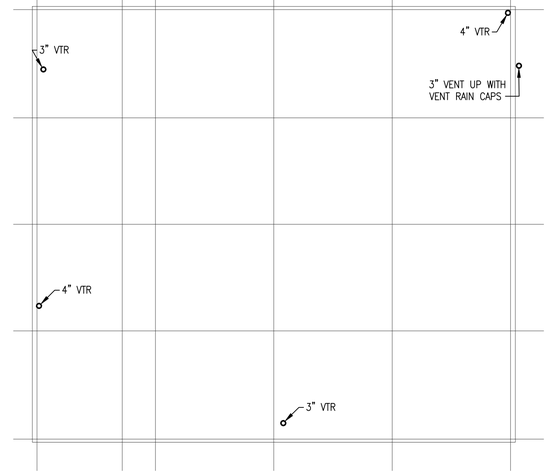
1 P102 SANITARY PLUMBING – FOUNDATION PLAN
SCALE: 1/8" = 1'-0"



2 P102 DOMESTIC PLUMBING – PARTIAL PLAN – MECH AND FLUID STORAGE
SCALE: 1/4" = 1'-0"



3 P102 DOMESTIC PLUMBING – PARTIAL PLAN – OFFICE
SCALE: 1/4" = 1'-0"



4 P102 PLUMBING NEW WORK – ROOF PLAN
SCALE: 1/16" = 1'-0"

8' 4' 0 8' 16'
SCALE: 1/16"= 1'-0"

4' 0 4' 8'
SCALE: 1/8"= 1'-0"

2' 0 2' 4'
SCALE: 1/4"= 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (———) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (———) SHALL BE EXISTING.
3. DO NOT LOCATE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT.

SHEET KEYNOTES:

1. TRAP PRIMING LINE FROM TOILET FLUSH VALVE.
2. TRAP PRIMING VALVE SERVING TWO FLOOR DRAINS.
3. THERMOSTATIC MIXING VALVE SET TO 85°F.

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

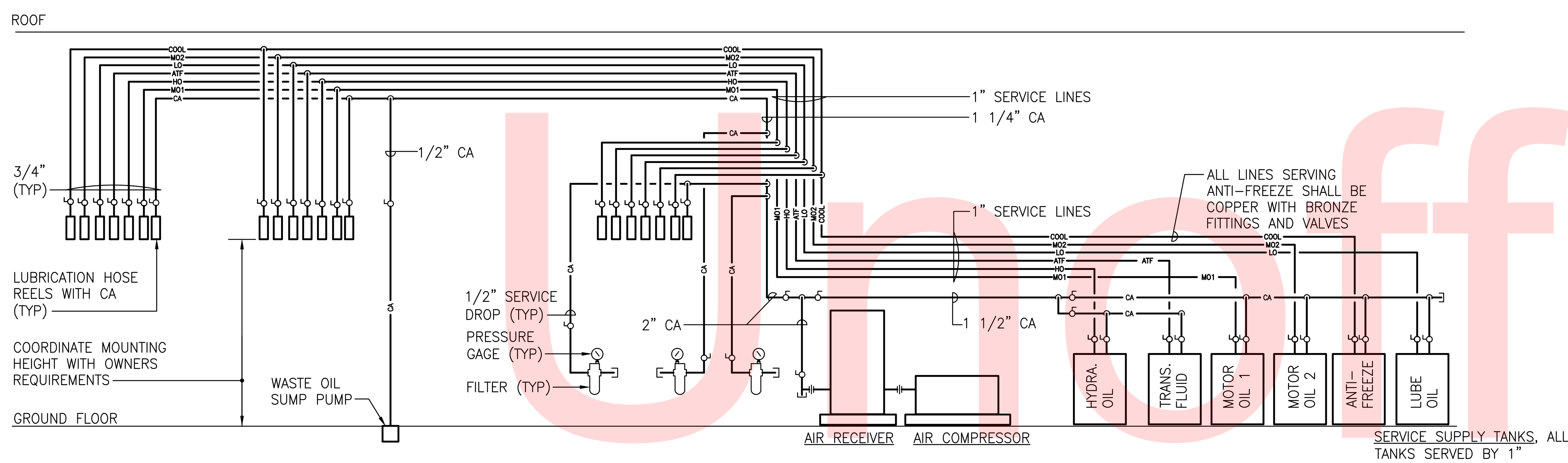
ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

CONTRACT	T201680104	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY: CHB	TGK
		CHECKED BY: MAS	N/A

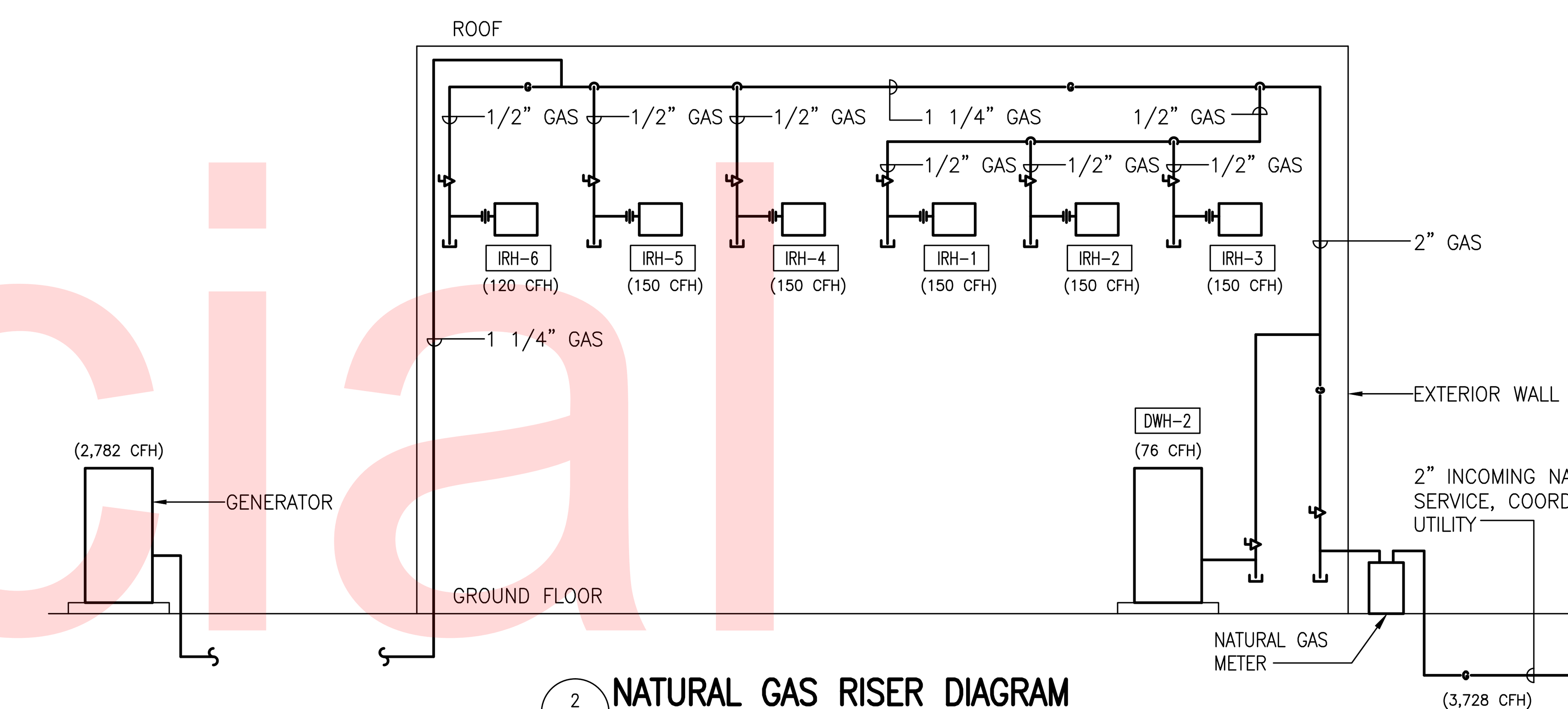
SANITARY PLUMBING NEW WORK FLOOR PLANS

SHEET NO.
104
TOTAL SHTS.
116

MB-P-102

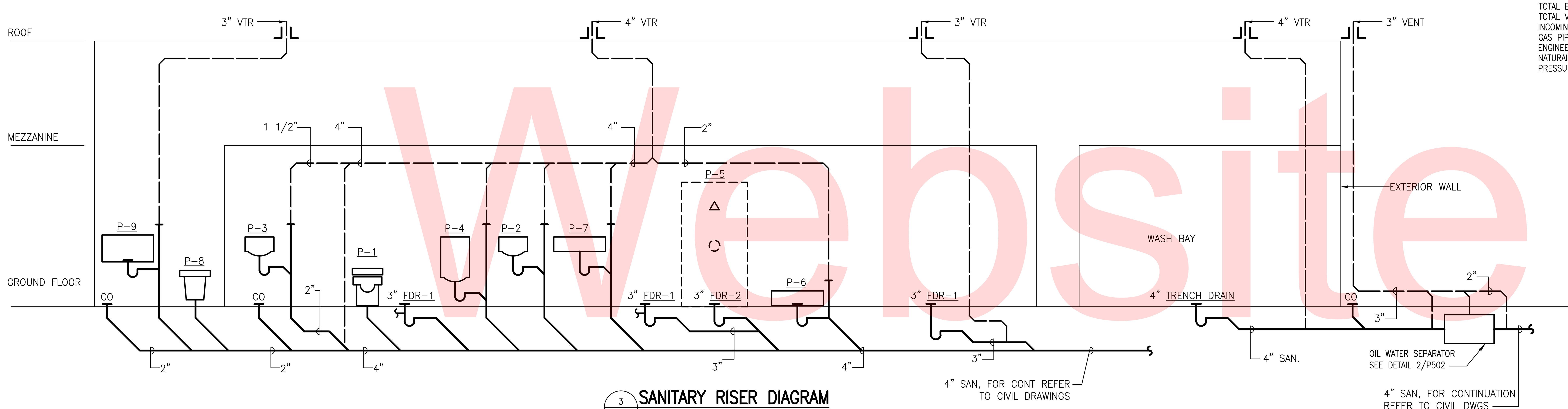


1 P201 **LUBRICANT AND COMPRESSED AIR PIPING RISER DIAGRAM**
SCALE: NOT TO SCALE

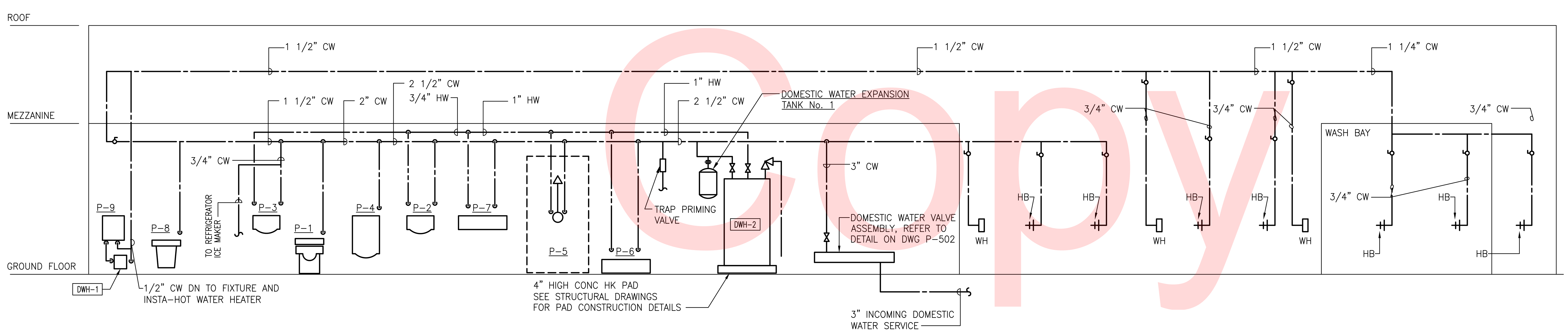


2 P201 **NATURAL GAS RISER DIAGRAM**
SCALE: NOT TO SCALE

NOTE:
TOTAL EQUIVALENT LENGTH FROM SOURCE (INCLUDES VERTICALS) = 300 FEET.
TOTAL VOLUME = 3,728 CFH.
INCOMING GAS PRESSURE = 2 PSI.
GAS PIPING HAS BEEN SIZED IN ACCORDANCE WITH ASPE PLUMBING ENGINEERING & DESIGN HANDBOOK OF TABLES – NATURAL GAS TABLES FOR NATURAL GAS UNDER GREATER THAN 1.5 PSI INLET PRESSURE AND A 1.5 PSI PRESSURE DROP BASED ON A 0.6 SPECIFIC GRAVITY GAS.



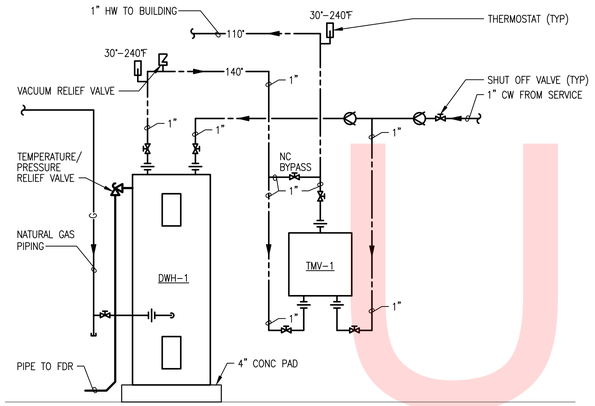
3 P201 **SANITARY RISER DIAGRAM**
SCALE: NOT TO SCALE



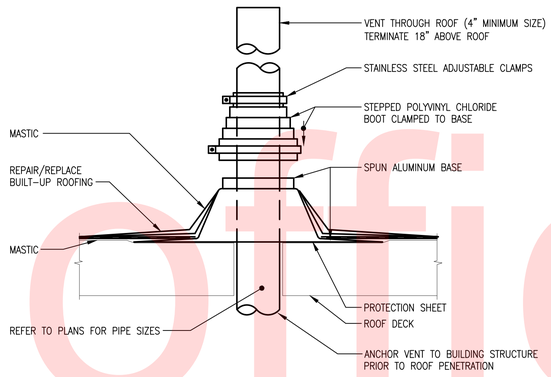
4 P201 **DOMESTIC WATER RISER DIAGRAM**
SCALE: NOT TO SCALE

MB-P-201

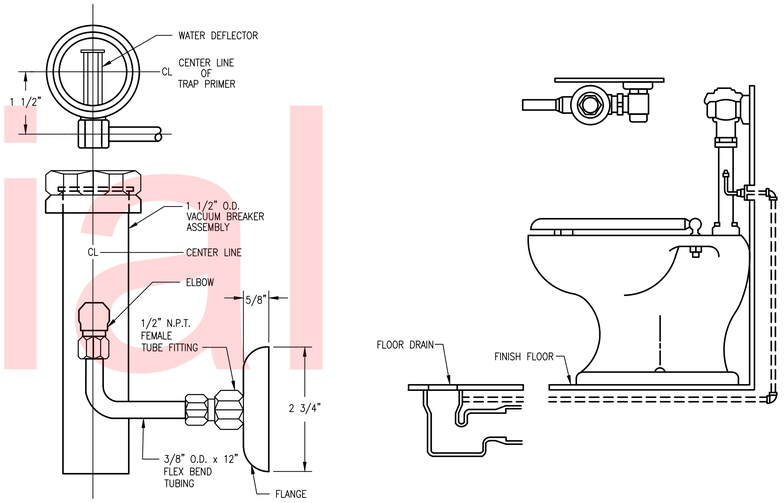
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT	BRIDGE NO.	N/A	PLUMBING RISER DIAGRAMS	SHEET NO.
			T201680104	DESIGNED BY:	BWC		105
			COUNTY				TOTAL SHTS.
			NEW CASTLE	CHECKED BY:	WWR		116



1 P501 **GAS-FIRED DOMESTIC WATER HEATER**
SCALE: NONE



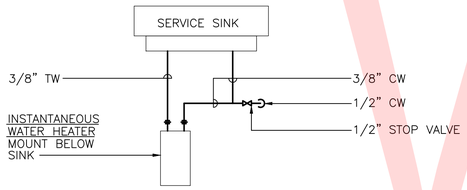
2 P501 **SANITARY VENT THRU ROOF**
SCALE: NONE



NOTES:

TRAP PRIMER SHALL CONNECT TO NEAREST WATER CLOSET OR URINAL FLUSH VALVE.

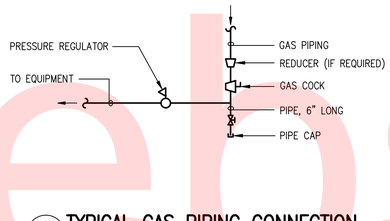
3 P501 **TRAP PRIMER**
SCALE: NOT TO SCALE



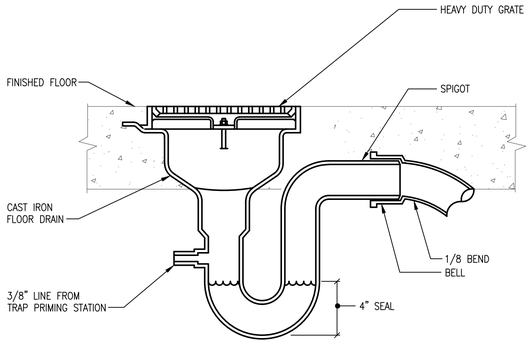
NOTES :

1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS.

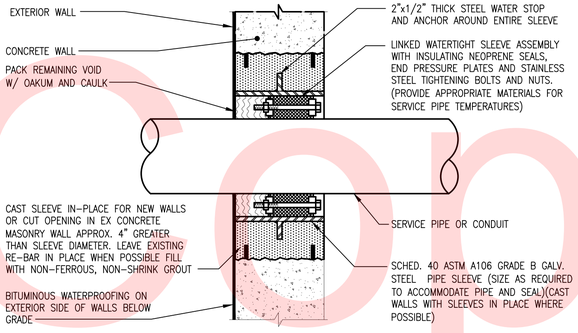
4 P501 **INSTANTANEOUS WATER HEATER**
SCALE: NONE



5 P501 **TYPICAL GAS PIPING CONNECTION**
SCALE: NONE

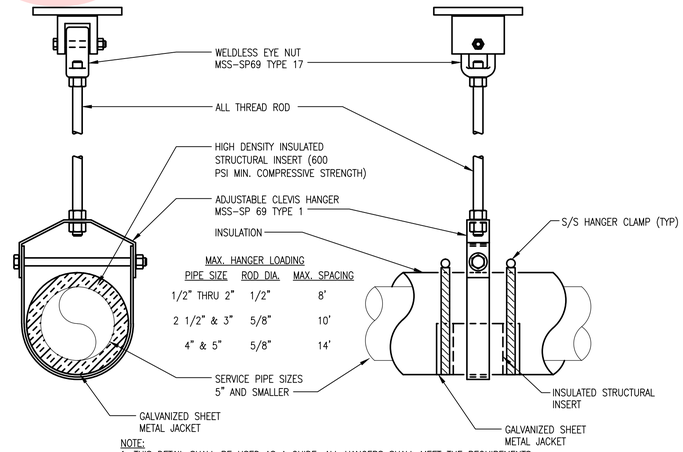


6 P501 **FLOOR DRAIN**
SCALE: NONE



NOTE:
1. WHERE DRAWINGS INDICATE A WATERTIGHT SLEEVE, WATERTIGHT ASSEMBLY SHALL BE INSTALLED ON ACCESSIBLE SIDE OF SLEEVE INSTALLATION.
2. MASONARY WALLS TO BE DONE IN A SIMILAR MANNER.

7 P501 **WATERTIGHT SLEEVE ASSEMBLY**
SCALE: NONE



NOTE:
1. THIS DETAIL SHALL BE USED AS A GUIDE. ALL HANGERS SHALL MEET THE REQUIREMENTS OF SPECIFICATION.

8 P501 **HANGER SUPPORT**
SCALE: NONE

MB-P-501

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

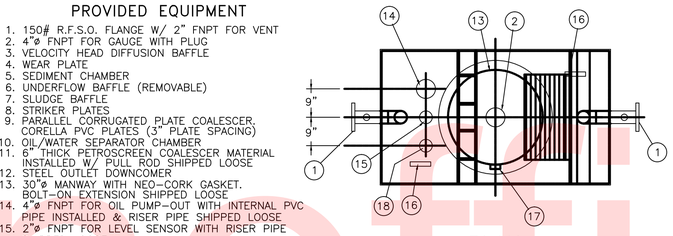
CONTRACT	T201680104	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY:	BWC
		CHECKED BY:	WWR

PLUMBING DETAILS

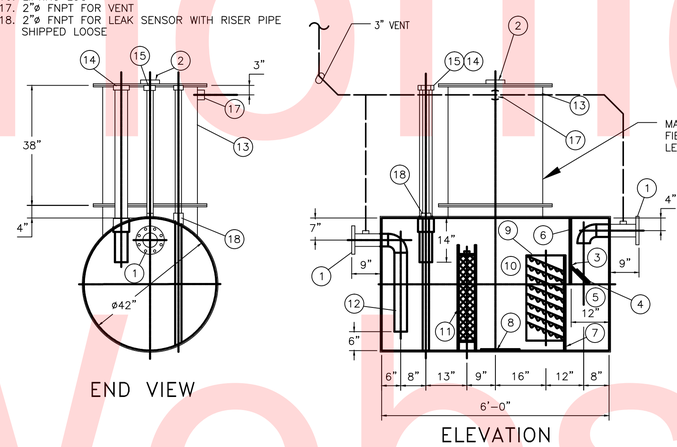
SHEET NO. 106
TOTAL SHTS. 116

PROVIDED EQUIPMENT

1. 150# R.F.S.O. FLANGE W/ 2" FNPT FOR VENT
2. 4"ø FNPT FOR GAUGE WITH PLUG
3. VELOCITY HEAD DIFFUSION BAFFLE
4. WEAR PLATE
5. SEDIMENT CHAMBER
6. UNDERFLOW BAFFLE (REMOVABLE)
7. SLUDGE BAFFLE
8. STRIKER PLATES
9. PARALLEL CORRUGATED PLATE COALESCER, CORELLA PVC PLATES (3" PLATE SPACING)
10. OIL/WATER SEPARATOR CHAMBER
11. 6" THICK PETROSCREEN COALESCER MATERIAL INSTALLED W/ PULL ROD SHIPPED LOOSE
12. STEEL OUTLET DOWNCOMER
13. 30"ø MANWAY WITH NEO-CORK GASKET. BOLT-ON EXTENSION SHIPPED LOOSE
14. 4"ø FNPT FOR OIL PUMP-OUT WITH INTERNAL PVC PIPE INSTALLED & RISER PIPE SHIPPED LOOSE
15. 2"ø FNPT FOR LEVEL SENSOR WITH RISER PIPE SHIPPED LOOSE
16. LIFTING LUG
17. 2"ø FNPT FOR VENT
18. 2"ø FNPT FOR LEAK SENSOR WITH RISER PIPE SHIPPED LOOSE



PLAN



ELEVATION

END VIEW

1 P502 350 GALLON OIL WATER SEPARATOR

SCALE: NOT TO SCALE

WATER HEATER SCHEDULE

DESIG.	LOCATION	GAS	ELECTRIC		WATER			SHIPPING WEIGHT (LBS)	BASIS	NOTES
		INPUT (MBH)	INPUT (KW)	VOLT/PH	TEMP RISE (°F)	GPH	CAPACITY (GAL)			
DWH-1	SERVICE BAY	--	6.5	208/1ø	89	--	--	85.0	EEMAX MODEL EX65	1
DWH-2	MECH ROOM	76	--	208/1ø	100	74	75.0	277.0	AO SMITH MODEL BTF-80	1

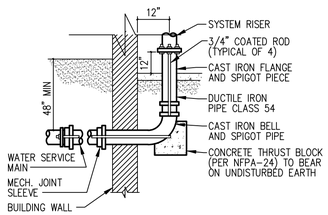
NOTES:
1.) DISCONNECT SHALL BE PROVIDED UNDER DIVISION 26

MISCELLANEOUS EQUIPMENT SCHEDULE

DESIG.	DESCRIPTION	BASIS
THERMOSTATIC MIXING VALVE TMV-1	THERMOSTATIC MIXING VALVE, DUAL VALVE ASSEMBLY COMPLETE WITH TEMPERATURE AND PRESSURE GAUGES AND BALL VALVES, DISCHARGE TEMPERATURE ADJUSTMENT RANGE: 65°F-95°F, 12 GPM CAPACITY, 3/4" INLETS, 3/4" OUTLET.	LAWLER MODEL 570
THERMOSTATIC MIXING VALVE TMV-2	THERMOSTATIC MIXING VALVE, DUAL VALVE ASSEMBLY COMPLETE WITH TEMPERATURE AND PRESSURE GAUGES AND BALL VALVES, DISCHARGE TEMPERATURE ADJUSTMENT RANGE: 70°F-90°F, 2 GPM CAPACITY, 1 GPM CW BYPASS ON FAILURE, 1/2" INLETS, 1/2" OUTLET; DESIGNED FOR EMERGENCY FIXTURE APPLICATIONS.	LAWLER MODEL 911
EXPANSION TANK ET-1	VERTICAL BLADDER (MOUNT VERTICALLY) EXPANSION TANK, DOMESTIC WATER SYSTEM, 150 PSI MAXIMUM DESIGN PRESSURE, 4.4 GALLON CAPACITY; 3.2 GALLON ACCEPTANCE VOLUME	BELL & GOSSETT SERIES PT

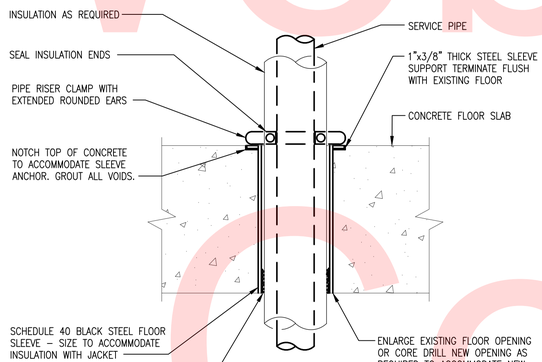
PLUMBING FIXTURE ROUGH-IN SCHEDULE

DESIG.	FIXTURE	ROUGH-IN CONNECTION				REMARKS
		TW	CW	HW	SAN	
P-1	WATER CLOSET (ADA)	--	1 1/4"	--	4"	ADA FLOOR MOUNTED
P-2	LAVATORY SINK	--	1/2"	1/2"	1 1/4"	WALL MOUNTED
P-3	KITCHEN SINK	--	1/2"	1/2"	1 1/2"	COUNTERTOP
P-4	URINAL (ADA)	--	1"	--	2"	ADA WALL MOUNTED
P-5	SHOWER	--	1/2"	1/2"	--	ADA COMPLIANT, 3" FDR
P-6	MOP SINK	--	1/2"	1/2"	1 1/2"	FLOOR MOUNTED
P-7	WASH FOUNTAIN	--	1/2"	1/2"	1 1/2"	SEMI-CIRCULAR FLOOR MTD
P-8	DRINKING FOUNTAIN	--	1/2"	--	--	ADA WALL MOUNTED
P-9	SERVICE SINK	--	1/2"	1/2"	3"	WALL MOUNTED
P-10	EYE WASH	1/2"	--	--	1 1/2"	WALL MOUNTED
HB	HOSE BIBB	--	1/2"	--	--	
WH	WALL HYDRANT	--	1/2"	--	--	EXTERIOR
FDR	FLOOR DRAIN	--	--	--	3"	



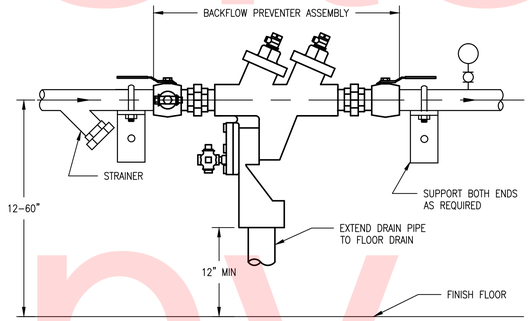
2 P502 FIRE SERVICE DETAIL

SCALE: NOT TO SCALE



3 P502 PIPE FLOOR PENETRATIONS

SCALE: NONE

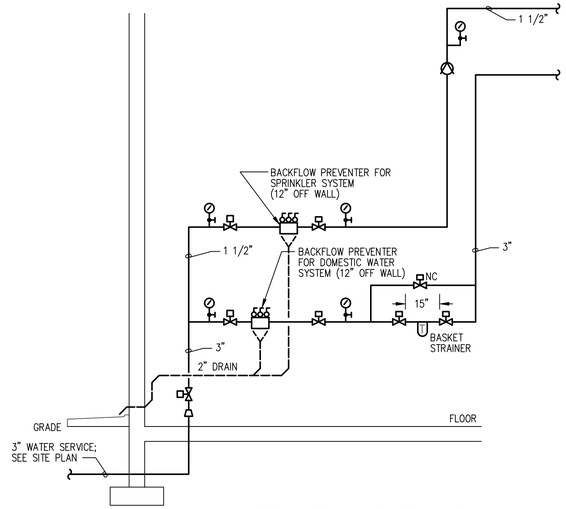


NOTES:

BACKFLOW PREVENTER SHALL BE 48" ABOVE FINISH FLOOR AND 12" CLEAR ON ALL SIDES.

4 P502 BACKFLOW PREVENTER

SCALE: NOT TO SCALE



5 P502 WATER SERVICE ENTRANCE

SCALE: NOT TO SCALE

MB-P-502

DELAWARE DEPARTMENT OF TRANSPORTATION

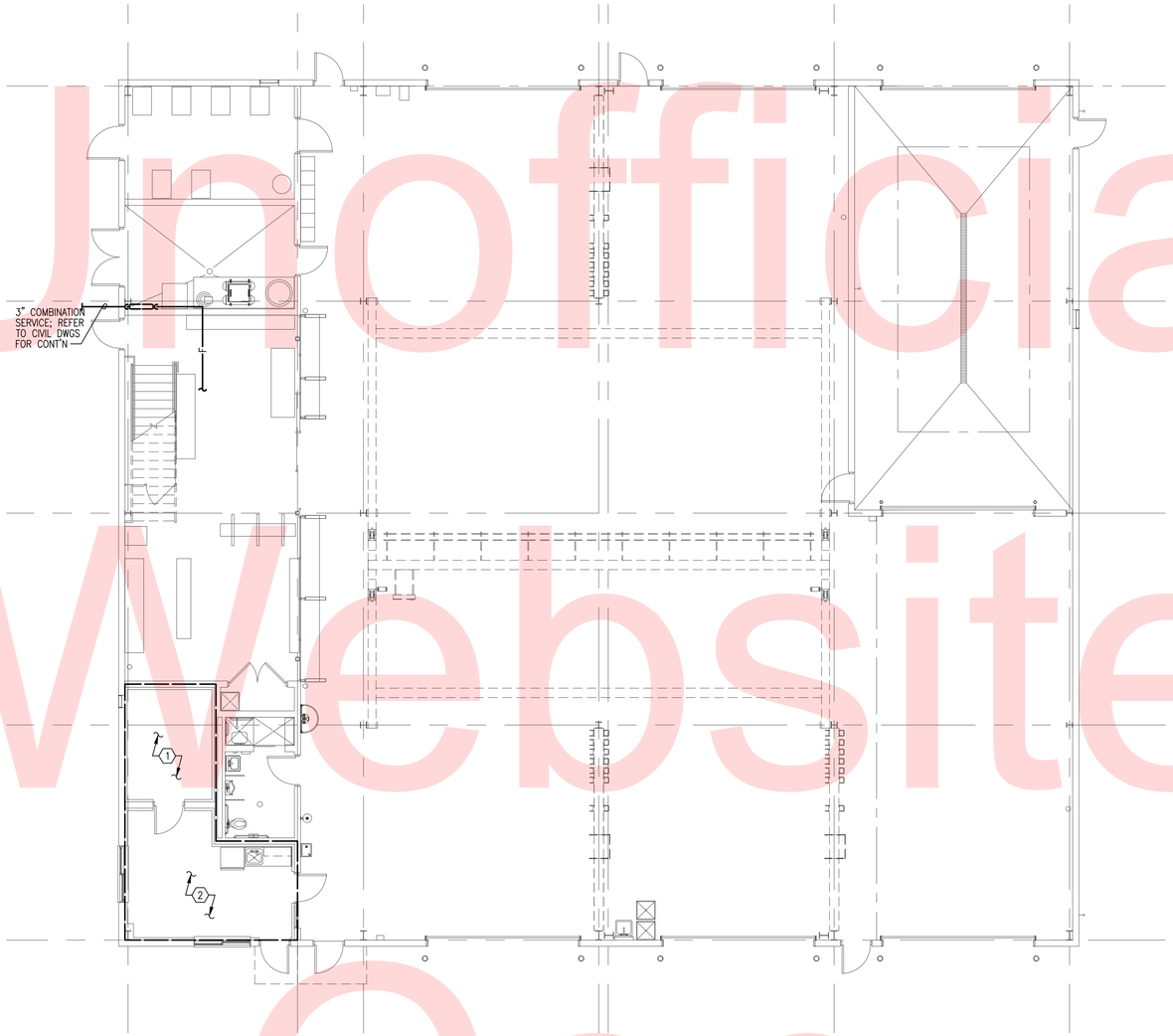
ADDENDUMS / REVISIONS

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	BWC
COUNTY	CHECKED BY:	WWR
NEW CASTLE		

PLUMBING DETAILS

SHEET NO.
107
TOTAL SHTS.
116



1 P101 FIRE PROTECTION – GROUND FLOOR PLAN
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (———) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (———) SHALL BE EXISTING.
3. DO NOT LOCATE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT.

SHEET KEYNOTES:

1. PROVIDE UPRIGHT SPRINKLER HEADS WITHIN AREA. SPRINKLER PIPING MAY RUN WITHIN SPACE. SIZE, LOCATE AND INSTALL SYSTEM PER SITE AND NFPA 13 REQUIREMENTS.
2. PROVIDE SEMI-RECESSED SPRINKLER HEADS CENTERED IN ACOUSTICAL TILES WITHIN AREA AND ASSOCIATED SPACES. SIZE, LOCATE AND INSTALL SYSTEM PER SITE AND NFPA 13 REQUIREMENTS.
3. REFER TO SHEET MB-P-502 FOR WATER SERVICE DETAIL.

MB-FP-101

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A	
T201680104	DESIGNED BY: CHB	TGK	
COUNTY	CHECKED BY: MAS	N/A	
NEW CASTLE			

FIRE PROTECTION
FLOOR PLAN

SHEET NO.
108
TOTAL SHTS.
116

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	208/120V PANELBOARD, SURFACE MOUNTED
	208/120V PANELBOARD, FLUSH MOUNTED
	CONTROL PANEL/CABINET, SURFACE MOUNTED
	CONTROL PANEL/CABINET, FLUSH MOUNTED
	2' X 4' RECESSED MOUNTED LIGHT FIXTURE
	1' X 4' RECESSED MOUNTED LIGHT FIXTURE
	2' X 2' RECESSED MOUNTED LIGHT FIXTURE
	2' X 4' SURFACE MOUNTED LIGHT FIXTURE
	2' X 4' PENDANT MOUNTED LIGHT FIXTURE
	1' X 4' SURFACE MOUNTED LIGHT FIXTURE
	2' X 2' SURFACE MOUNTED LIGHT FIXTURE
	4' INDUSTRIAL/STRIP FIXTURE, PENDANT MOUNT
	WALL MOUNTED LIGHT FIXTURE
	RECESSED DOWN LIGHT FIXTURE
	LED EXIT SIGN (NUMBER OF FACES AND ARROWS AS INDICATED ON DRAWINGS)
	EMERGENCY BATTERY UNIT – TWO HEADS
OS	OCCUPANCY SENSOR, DUAL TECHNOLOGY, CEILING MOUNTED
PP	LIGHTING POWER PACK
DL	DAYLIGHT SENSOR
Φ^2	125 VOLT, 2 POLE, 3 WIRE, 20 AMP RECEPTACLE "2" DENOTES CIRCUIT NUMBER
	125 VOLT, 2 POLE, 3 WIRE, 20 AMP DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER
	125 VOLT, 2 POLE, 3 WIRE, 20 AMP DOUBLE DUPLEX RECEPTACLE
Φ^{GFCI}	125 VOLT, 2 POLE, 3 WIRE, 20 AMP DUPLEX RECEPTACLE EQUIPPED WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER
$\Phi^{GFCI/WP}$	125 VOLT, 2 POLE, 3 WIRE, 20 AMP WEATHERPROOF DUPLEX RECEPTACLE EQUIPPED WITH GROUND FAULT CIRCUIT INTERRUPTER
	125 VOLT, 2 POLE, 3 WIRE, 20 AMP, DUPLEX RECEPTACLE RECESSED CEILING MOUNTED
	SPECIAL RECEPTACLE, NEMA CONFIGURATION AS INDICATED ON PLANS
Φ	125 VOLT, 2 POLE, 3 WIRE, 20 AMP SINGLE RECEPTACLE
S^{b}_{3}	SWITCH, TOGGLE "b" DENOTES SWITCH CONTROL "k" DENOTES KEY OPERATED SWITCH "3" DENOTES THREE POLE SWITCH "4" DENOTES FOUR POLE SWITCH
S_{LV}	WALL SWITCH, LOW VOLTAGE
S_{OS}	WALL SWITCH, OCCUPANCY SENSOR
J	JUNCTION BOX – WALL MOUNTED
J	JUNCTION BOX
	COMMUNICATIONS – VOICE/DATA – OUTLET BOX. PROVIDE BACK BOX, 1" CONDUIT WITH PULL STRING TO IT ROOM. MOUNT 18" AFF UNLESS OTHERWISE NOTED.
C	CLOSED CIRCUIT SECURITY CAMERA OUTLET BOX. PROVIDE OCTAGON BOX, 1" CONDUIT WITH PULL STRING TO IT ROOM. CEILING MOUNTED UNLESS OTHERWISE NOTED.

SYMBOL	DESCRIPTION
H	HAND HOLE
	EMERGENCY POWER SHUT–OFF PUSH–BUTTON
AF P OR AF/NF/P/3R	NON–FUSED DISCONNECT SWITCH, SIZE AS INDICATED WHERE: "AF" – INDICATES AMPERE SWITCH SIZE "NF" – DENOTES NON–FUSED "P" – DENOTES POLE "3R" – DENOTES NEMA TYPE ENCLOSURE
AF OR AF/AT/P/3R AT 3P L2	FUSED DISCONNECT SWITCH, SIZE AS INDICATED WHERE: "AF" – INDICATES AMPERE SWITCH SIZE "AT" – INDICATES AMPERE FUSE SIZE "P" – DENOTES POLE "3R" – DENOTES NEMA TYPE ENCLOSURE
OR	COMBINATION MOTOR STARTER AND DISCONNECT SWITCH
M	MOTOR TERMINATION
S_M	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION
VFD	VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECT
F	FIRE ALARM MANUAL PULL STATION
F 75cd	FIRE ALARM AUDIO/VISUAL SIGNALING DEVICE WALL MOUNTED 75cd – DENOTES CANDELA RATING (15cd UNLESS OTHERWISE NOTED)
F 75cd	FIRE ALARM VISUAL SIGNALING DEVICE WALL MOUNTED 75cd – DENOTES CANDELA RATING (15cd UNLESS OTHERWISE NOTED)
F	FIRE ALARM AUDIO/VISUAL SIGNALING DEVICE FLUSH CEILING MOUNTED (15cd UNLESS OTHERWISE NOTED)
F	FIRE ALARM VISUAL SIGNALING DEVICE FLUSH CEILING MOUNTED (15cd UNLESS OTHERWISE NOTED)
F	FIRE ALARM VOICE EVACUATION SPEAKER AND VISUAL SIGNALING DEVICE, WALL MOUNTED
H	FIRE ALARM VOICE EVACUATION SPEAKER WALL MOUNTED
SD E	SMOKE DETECTOR "E" – DENOTES ELEVATOR RECALL
HD F	HEAT DETECTOR "F" – DENOTES FIXED TEMPERATURE
S DS R	DUCT MOUNTED SMOKE DETECTOR "S" – DENOTES MOUNTED ON SUPPLY SIDE "R" – DENOTES MOUNTED ON RETURN SIDE
FS	FLOW SWITCH ON FIRE PROTECTION PIPING
TS	TAMPER SWITCH ON FIRE PROTECTION PIPING
D	FIRE ALARM MAGNETIC SMOKE DOOR HOLDER
RAI T	FIRE ALARM REMOTE ALARM INDICATOR WITH TEST SWITCH
FACP	FIRE ALARM SYSTEM CONTROL PANEL
FAAP	FIRE ALARM GRAPHIC ANNUNCIATOR PANEL
KB	FIREMAN'S KNOX BOX
NAC	FIRE ALARM NOTIFICATION APPLIANCE CIRCUIT PANEL
CR	CARD READER OUTLET BOX.
TV	TV OUTLET BOX.

SYMBOL	DESCRIPTION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICE
GFP	GROUND FAULT PROTECTION
KI	KIRK KEY INTERLOCK
	TRANSFORMER
	ENCLOSED CIRCUIT BREAKER
	AUTOMATIC TRANSFER SWITCH
Y	START (WYE) CONFIGURATION
ø	ELECTRICAL PHASE

GENERAL ABBREVIATIONS

A	AMPERES
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ARCH	ARCHITECT
ATS	AUTOMATIC TRANSFER SWITCH
ATC	AUTOMATIC TEMPERATURE CONTROL
AWG	AMERICAN WIRE GAUGE
BFG	BELOW FINISH GRADE
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CL	CENTERLINE
CLF	CURRENT LIMITING FUSE
COL	COLUMN
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CU	COPPER
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
ECB	ENCLOSED CIRCUIT BREAKER
EF	EXHAUST FAN
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EPO	EMERGENCY POWER OFF
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EX	EXISTING
F	FUSE
FA	FIRE ALARM
FLA	FULL LOAD AMPERES
FMC	FLEXIBLE METAL CONDUIT
FT	FEET
G,GND	GROUND OR GROUNDING
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRMC	GALVANIZED RIGID METALLIC CONDUIT
HOA	HAND, OFF, AUTOMATIC SWITCH
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
IMC	INTERMEDIATE METAL CONDUIT
INT	INTERLOCK
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERES
KW	KILOWATTS
LTG	LIGHTING
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
MAU	MAKE–UP AIR UNIT
MC	METAL CLAD CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NO	NORMALLY OPEN OR NUMBER
NTS	NOT TO SCALE
P	POLE
PB	PUSHBUTTON
PNL	PANEL
PVC	POLYVINYL CHLORIDE
PWR	POWER
QTY	QUANTITY
REL	RELOCATE
REQ'D	REQUIRED
REX	REPLACE EXISTING
RMC	RIGID METAL CONDUIT
RMS	ROOT MEAN SQUARED
RNMC	RIGID NON–METALLIC CONDUIT
RTU	ROOF TOP UNIT
RX	REMOVE EXISTING
SW	SWITCH
SYM	SYMMETRICAL
TEL	TELEPHONE
TMCB	THERMAL MAGNETIC CIRCUIT BREAKER
UL	UNDERWRITERS LABORATORIES
V	VOLT
VFC	VARIABLE FREQUENCY CONTROLLER
W	WIRE
WH	WATER HEATER
WP	WEATHERPROOF
XFMR	TRANSFORMER

ELECTRICAL CONVENTIONS

PRESENTATION

ELECTRICAL EQUIPMENT DESIGNATED BY SOLID HEAVY LINE WEIGHT INDICATES NEW WORK TO BE PROVIDED.

ELECTRICAL EQUIPMENT DESIGNATED BY SOLID LIGHT LINE WEIGHT INDICATES EXISTING EQUIPMENT TO REMAIN, UNLESS OTHERWISE INDICATED.

ELECTRICAL EQUIPMENT DESIGNATED BY DASHED HEAVY LINE WEIGHT REPRESENTS EXISTING EQUIPMENT TO BE REMOVED AND DISPOSED, UNLESS INDICATED TO BE REMOUNTED, RELOCATED, OR TURNED OVER TO OWNER.

WIRING

LP2A–1,3,5 — HOMERUN TO PANEL "LP2A", CIRCUITS #1,3,5 (VIA 20A–1P C/B'S). PROVIDE INSULATED GROUND CONDUCTOR IN ACCORDANCE WITH SPECIFICATIONS. NUMBER OF CIRCUITS INDICATED BY QUANTITY OF ARROW HEADS.

HASH MARKS INDICATE QUANTITY OF #12 AWG COPPER CONDUCTORS IN CONDUIT. WHEN NO HASH MARKS ARE INDICATED, CONDUIT SHALL CONTAIN (2) #12 WIRES AND (1) #12 GROUND WIRE. ASSUME 3/4" DIAMETER CONDUIT UNLESS NOTED OTHERWISE. EXAMPLE SHOWN AT LEFT INDICATES 2 HOT, 2 NEUTRAL (LONG LINES), AND 1 GROUND WIRES.

CONCEALED CONDUIT AND/OR WIRING.

BELOW GRADE CONDUIT AND/OR WIRING.

EXPOSED CONDUIT AND/OR WIRING.

CIRCUITRY TURNING DOWN

CIRCUITRY TURNING UP

ANNOTATION

DETAIL REFERENCE
"#" DENOTES DETAIL NUMBER
"SHT" DENOTES SHEET NUMBER

ELEVATION OR SECTION IDENTIFIER
"X" DENOTES ELEVATION OR SECTION NUMBER
"#" DENOTES SHEET NUMBER

SHEET KEYNOTE NUMBER

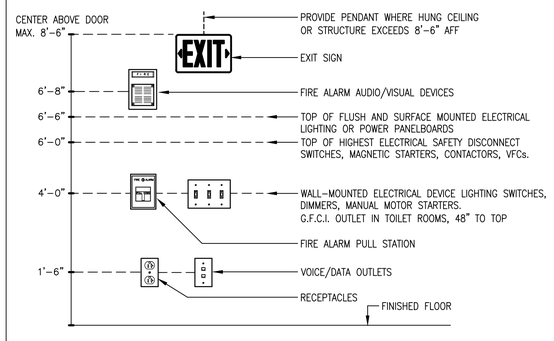
FEEDER TAG (REFER TO FEEDER SCHEDULE)

REVISION NUMBER

LIGHTING

LUMINAIRE TYPE – SEE LUMINAIRE SCHEDULE
CIRCUIT NUMBER
CONTROL POINT DESIGNATION

MOUNTING LEGEND



MOUNTING NOTES:

1. THE ABOVE MOUNTING HEIGHTS SHALL BE ADHERED TO UNLESS SPECIFICALLY NOTED OR DETAILED OTHERWISE ON THE DRAWINGS OR SPECIFICATIONS.
2. LOCATION AND INSTALLATION HEIGHT OF ALL WALL DEVICES TO BE COORDINATE WITH MILLWORKS IN ALL LOCATIONS.
3. RECESSED OUTLETS IN MASONRY CONSTRUCTION THE ABOVE MOUNTING HEIGHTS SHALL BE USED FOR REFERENCE TO NEAREST BLOCK OR BRICK COURSING.

MB-E-001

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DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	T201680104
COUNTY	NEW CASTLE
BRIDGE NO.	N/A
DESIGNED BY:	JDT
CHECKED BY:	JDT

ELECTRICAL SYMBOLS, LEGEND AND ABBREVIATIONS

SHEET NO.	109
TOTAL SHTS.	116

GENERAL NOTES

1. THE SCOPE OF WORK CONSISTS OF FURNISHING AND INSTALLING OF A COMPLETE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN. THE CONTRACTOR SHALL PROVIDE SUPERVISION, LABOR, MATERIALS, EQUIPMENT, MACHINERY, ADDITIONAL DESIGN AND ALL INCIDENTALS NECESSARY TO COMPLETE THE ELECTRICAL SYSTEM. THE CONTRACTOR SHALL PROVIDE AND INSTALL THE NUMBER OF ITEMS OF EQUIPMENT AS INDICATED ON THE DRAWINGS AND/OR AS REQUIRED FOR A COMPLETE SYSTEM. COORDINATE WORK TO BE PERFORMED OR INSTALLED BY OTHERS AFFECTING ELECTRICAL WORK AND PROVIDE AND INSTALL ALL NECESSARY ANCHORS, SLEEVES, HANGERS, ACCESSORIES, ETC. FOR ATTACHING OR CONNECTING ELECTRICAL WORK TO RELATED WORK OF OTHER TRADES. ALL WORK SHALL BE PERFORMED BY A QUALIFIED ELECTRICAL CONTRACTOR LICENSED IN THE STATE OF DELAWARE THAT HAS PREVIOUSLY PERFORMED WORK OF THIS SIZE AND TYPE.

2. REFER TO THE SPECIFICATIONS THAT ARE PART OF THIS CONTRACT AND ARE COMPLEMENTARY TO THESE GENERAL NOTES. IN CASE OF A CONFLICT BETWEEN THE SPECIFICATIONS AND DRAWINGS, THE MOST STRINGENT REQUIREMENTS SHALL APPLY AS DETERMINED BY THE ARCHITECT/ENGINEER/OWNER.

3. PERFORM WORK AS REQUIRED BY CODES, REGULATIONS AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENTS AND OTHER AUTHORITIES WITH LAWFUL JURISDICTION. INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

   a. THE 2014 VERSION OF N.E.C., AND LOCAL N.E.C. AMENDMENTS.
   b. ALL LOCAL CODES.
   c. NFPA 72 AND THE LATEST VERSION OF THE LOCALLY RECOGNIZED BUILDING CODE.
   d. THE AMERICANS WITH DISABILITIES ACT (ADA).
   e. THE 2014 IECC CODE.

4. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN TO "FURNISH AND INSTALL COMPLETE AND READY FOR USE." CONTRACTOR SHALL PROVIDE ALL TESTING AND INSTRUCTION REQUIRED FOR OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEM BY OWNER UNLESS OTHERWISE NOTED.

5. MATERIAL AND EQUIPMENT SHALL BE UL, NEMA, ANSI, IEEE, ADA & CBM APPROVED FOR INTENDED SERVICE. MATERIAL AND INSTALLATION SHALL MEET REQUIREMENTS OF NATIONAL AND STATE ELECTRICAL CODE.

6. ELECTRICAL DRAWINGS WHICH CONSTITUTE A PART OF THIS CONTRACT ARE DIAGRAMMATIC ONLY AND INDICATE THE GENERAL ARRANGEMENT OF CIRCUITS AND OUTLETS, LOCATIONS OF SWITCHES, PANELBOARDS CONDUIT AND OTHER WORK. ALL ITEMS NOT SPECIFICALLY MENTIONED HEREIN, WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED AT NO EXTRA COST.

7. CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND PLUMBING DRAWINGS TO FAMILIARIZE HIMSELF WITH ALL ASPECTS OF THOSE DESIGNS AFFECTING HIS WORK. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH ALL OTHER TRADES.

8. PRIOR TO SUBMITTING BID, THE CONTRACTOR SHALL VISIT THE SITE AND BE THOROUGHLY FAMILIAR WITH THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION. CONTRACTOR SHALL INCLUDE IN THEIR BID ALL MATERIAL, LABOR AND ALL INCIDENTALS FOR A COMPLETE INSTALLATION WHETHER SPECIFICALLY CALLED FOR OR NOT. ALL ERROR, DISCREPANCIES AND MISSED ITEMS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER DURING THE BIDDING PROCESS BY THE CONTRACTOR. THESE ITEMS SHALL BE INCLUDED IN THE BID PRICE. NO EXTRA COST WILL BE ALLOWED FOR ANY DISCREPANCY WHICH COULD HAVE BEEN NOTICED AT THE SITE VISIT BY THE CONTRACTOR.

9. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE REQUIRED NOTICES, PERMITS, LICENSES, FEES, BACK CHARGES AND APPROVALS REQUIRED FOR THIS PROJECT.

10. THE CONTRACTOR SHALL MAINTAIN AT THE SITE FOR THE OWNER ONE COPY OF ALL DRAWINGS, SPECIFICATIONS, ADDENDA, APPROVED SHOP OR SETTING DRAWINGS, CHANGE ORDERS AND OTHER MODIFICATIONS IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES AS THEY OCCUR DURING CONSTRUCTION. THESE SHALL BE AVAILABLE TO THE ARCHITECT/ENGINEER, THE OWNER, THE PROJECT INSPECTOR, THE OWNER'S OTHER INSPECTORS AND TO THE OWNER'S TESTING PERSONNEL. THE DRAWINGS SHALL BE NEATLY AND CLEARLY MARKED IN COLOR DURING CONSTRUCTION TO RECORD ALL VARIATIONS MADE DURING CONSTRUCTION. THE REPRESENTATION OF SUCH VARIATIONS SHALL INCLUDE SUCH SUPPLEMENTARY NOTES, SYMBOLS, LEGENDS, AND DETAILS AS MAY BE NECESSARY TO CLEARLY SHOW THE AS-BUILT CONSTRUCTION. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL DELIVER TO THE ARCHITECT/ENGINEER, ONE COMPLETE SET OF "AS-BUILT DRAWINGS"

11. ALL WORKMANSHIP, MATERIALS AND EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF TWO YEARS AFTER ACCEPTANCE OF AREA BY OWNER. REPAIR OR REPLACE DEFECTIVE MATERIALS OR INSTALLATION AT NO COST TO OWNER DURING THE GUARANTEE PERIOD. CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE AT NO COST TO OWNER.

12. SUBMIT GUARANTEE TO CONTRACT OFFICER BEFORE FINAL PAYMENT.

13. STATEMENT OF GUARANTEE REQUIREMENTS SHALL NOT BE INTERPRETED TO LIMIT OWNER'S RIGHTS UNDER LAW AND THIS CONTRACT.

14. ADDRESS QUESTIONS REGARDING DRAWINGS TO ENGINEER IN WRITING BEFORE AWARD OF CONTRACT. OTHERWISE, ENGINEER INTERPRETATION OF MEANING AND INTENT OF DRAWINGS SHALL BE FINAL.

15. THE CONSTRUCTION ADMINISTRATION PHASE SERVICES ARE INTENDED TO BENEFIT THE CLIENT ONLY. SERVICES RENDERED BY ENGINEER DO NOT RELIEVE CONTRACTOR FROM OBLIGATIONS UNDER THE CONSTRUCTION DOCUMENTS. ENGINEER DOES NOT HAVE AUTHORITY TO SUPERVISE, DIRECT OR CONTROL CONTRACTOR, AND IS NOT RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OF CONSTRUCTION OR FOR SAFETY PROGRAMS OR PRECAUTIONS DURING CONSTRUCTION. NOR IS ENGINEER RESPONSIBLE FOR CONTRACTORS FAILURE TO PERFORM THE WORK IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS OR APPLICABLE LAWS OR CODES.

16. SUBMIT SHOP DRAWINGS AND PRODUCT DATA WITHIN 21 DAYS AFTER AWARD OF CONTRACT. CHECK, STAMP AND MARK WITH PROJECT NAMES SUBMITTALS BEFORE TRANSMITTING TO ARCHITECT. INDICATE DEVIATIONS FROM CONTRACT DOCUMENTS. SHOP DRAWINGS SHALL BE PROVIDED FOR ALL EQUIPMENT SHOWN ON THE DRAWINGS. SUBMITTALS SHALL BE APPROVED BY THE ENGINEER BEFORE PURCHASE OF MATERIALS.

17. DEVIATION FROM CONTRACT DOCUMENTS, OR PROPOSED SUBSTITUTION OF MATERIALS OR EQUIPMENT FOR THOSE SPECIFIED, SHALL BE REQUESTED IN SEPARATE LETTER, WHETHER DEVIATIONS ARE DUE TO FIELD CONDITIONS, STANDARD SHOP PRACTICE, OR OTHER CAUSE.

18. SCHEDULE AT LEAST TEN WORKING DAYS, EXCLUSIVE OF TRANSMITTAL TIME FOR SUBMITTAL REVIEW.

19. ALL WORK SHALL BE EXECUTED IN WORKMANLIKE MANNER AND SHALL PRESENT NEAT, RECTILINEAR AND MECHANICAL APPEARANCE WHEN COMPLETED. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE BEST ENGINEERING PRACTICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL EQUIPMENT IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. THIS SHALL INCLUDE PROVIDING CLEARANCES AS DEFINED IN THE INSTALLATION INSTRUCTIONS AND IN ACCORDANCE WITH NEC REQUIREMENTS. PROVIDE ALL AUXILIARY ITEMS REQUIRED TO PERFORM FUNCTION INTENDED.

20. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER OR HIS AUTHORIZED REPRESENTATIVE AND SHALL BE PERFORMED IN ACCORDANCE WITH ALL BUILDING RULES AND REGULATIONS AS PROVIDED BY THE BUILDING OWNER.

21. LOCATION OF MECHANICAL EQUIPMENT THAT REQUIRE ELECTRICAL CONNECTIONS ARE SHOWN ON THE MECHANICAL DRAWINGS. COORDINATE ALL WORK AND MAKE ALL FINAL CONNECTIONS REQUIRED FOR A COMPLETE INSTALLATION OF MECHANICAL EQUIPMENT AND CONTROLS. MECHANICAL EQUIPMENT RATINGS ARE APPROXIMATE AND MAY VARY BY MANUFACTURERS. VERIFY EXACT ELECTRICAL REQUIREMENTS WITH APPROVED SHOP DRAWINGS ADJUST SIZE OF CIRCUIT BREAKERS, SWITCHES, WIRES, MULTIPLE POWER SOURCES AND MOTOR CONTROLS INCLUDING HEATER ELEMENTS BASED UPON THE ACTUAL EQUIPMENT INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

22. CONTRACTOR SHALL REVIEW ALL TRADES' CONTRACT DOCUMENTS TO DETERMINE SPECIFIC MOUNTING LOCATIONS FOR ELECTRICAL EQUIPMENT.

23. CONDUIT HOMERUNS SHOWN ON THE DRAWING WITH MORE THAN 3 CURRENT CARRYING CONDUCTORS ARE SHOWN DIAGRAMMATIC. THE CONTRACTOR SHALL NOT INSTALL MORE THAN 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY UNLESS DONE SO STRICTLY TO COMPLY WITH THE NATIONAL ELECTRIC CODE REQUIREMENTS FOR APPLYING ADJUSTMENT FACTORS FOR MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN A RACEWAY.

24. ALL CONDUCTORS SHALL BE COPPER, MINIMUM SIZE CONDUCTOR SHALL BE NO. 12 AWG WITH 600 VOLT TYPE "THWN" INSULATION, RATED MINIMUM 75° C. AND ROUTED IN CONDUIT. CONDUCTORS NO. 8 AWG AND LARGER SHALL BE STRANDED. THE USE OF ALUMINUM CONDUCTORS SHALL NOT BE ACCEPTABLE.

25. ALL 120 VOLT CIRCUIT HOME RUNS WHICH ARE OVER 75 LINEAR FEET SHALL BE #10 CONDUCTORS MINIMUM. CONTRACTOR SHALL INCREASE WIRE SIZE AS REQUIRED TO MAINTAIN A MAXIMUM VOLTAGE DROP OF 3%.
26. COLOR CODING AND LABELING OF UTILITIES SHALL BE ACCOMPLISHED PER THE REQUIREMENTS OF DELMARVA POWER.

27. COLOR CODE SECONDARY SERVICE, FEEDERS AND BRANCH CIRCUIT CONDUCTORS AS FOLLOWS:

    <u>208Y/120V</u>
    BLACK FOR PHASE A,
    RED FOR PHASE B,
    BLUE FOR PHASE C,
    WHITE FOR NEUTRAL.
    PROVIDE WITH SOLID GREEN GROUNDING CONDUCTOR.

28. BRANCH CIRCUIT CONDUCTORS #12 AND #10 SHALL HAVE SOLID COLOR COMPOUND, SOLID COLOR COATING. NEUTRALS AND EQUIPMENT GROUNDS SHALL HAVE SOLID COMPOUND OR SOLID COLOR COATING (WHITE, GRAY AND GREEN), EXCEPT THAT NEUTRALS WITH COLORED STRIPE SHALL BE USED WHERE REQUIRED BY NEC. CONDUCTORS #8 AND LARGER WITH STRIPES, BANDS OR HASH MARKS SHALL HAVE BACKGROUND COLOR OTHER THAN WHITE, GREEN, AND GRAY.

35. ALL CIRCUITS MUST HAVE SEPARATE INSULATED GROUND WIRE. THE CONDUIT CANNOT BE USED IN PLACE OF THE GROUND WIRE.

36. A DEDICATED NEUTRAL SHALL BE INSTALLED WITH EACH LIGHTING, COMPUTER AND APPLIANCE PANELBOARD BRANCH CIRCUIT. A SHARED NEUTRAL IS NOT PERMITTED. FOR ELECTRIFIED FURNITURE SYSTEMS, THE PREFERRED FURNITURE WIRING ARRANGEMENT IS TO PROVIDE A SEPARATE NEUTRAL FOR EACH PHASE CONDUCTOR. WHEN A SHARED NEUTRAL IS PROVIDED IN ELECTRIFIED FURNITURE, A COMMON NEUTRAL OF #10 MINIMUM SIZE SHALL BE PROVIDED IN THE BRANCH CIRCUIT(S).

37. CONDUCTORS SHALL BE CONTINUOUS FROM TERMINATION TO TERMINATION. PROVIDE JUNCTION BOXES WHERE SPLICES ARE ABSOLUTELY NECESSARY, SPLICE IN READILY ACCESSIBLE JUNCTION BOX OR OUTLET BOX.

38. CONTROL/POWER WIRING REQUIRED BUT NOT SHOWN FOR, AND NOT LIMITED TO, THERMOSTATS, CONTROLLERS, VARIABLE FREQUENCY DRIVE CONTROLS, EQUIPMENT MANUFACTURER CONTROL PANELS, DAMPER MOTORS, CONTROL MOTORS, VALVES, SENSING DEVICES (TEMPERATURE, PRESSURE, HUMIDITY, LEVEL, FLOW, ON-OFF, FIRE ALARM DEVICES) SHALL BE SUPPLIED AND INSTALLED TO PROVIDE A COMPLETE AND USABLE FACILITY AS SPECIFIED. COORDINATE WITH MECHANICAL DIVISION AND PROVIDE AS REQUIRED.

39. ALL WIRING SHALL BE INSTALLED IN CONDUIT. MINIMUM CONDUIT SIZE SHALL BE 3/4-INCH.

40. ALL WIRING IN FINISHED SPACES SHALL BE INSTALLED CONCEALED IN CEILINGS AND WALLS IN EMT CONDUIT UNLESS SHOWN OR SPECIFIED OTHERWISE. PVC CONDUITS SHALL NOT BE INSTALLED IN ANY INDOOR AREA.

41. GALVANIZED RIGID METAL CONDUIT (GRC) OR GALVANIZED INTERMEDIATE METAL CONDUIT (IMC) SHALL BE USED IN CONCEALED MASONRY WALLS, FLOOR SLABS AND UTILITY ROOMS.

42. INTERMEDIATE METAL CONDUIT (IMC) CONDUIT SHALL NOT BE USED IN WET LOCATIONS OR HIGH CORROSIVE AREAS. OTHERWISE, NFPA 70 ARTICLE 342 FULLY APPLIES.

43. IN HAZARDOUS LOCATIONS GALVANIZED RIGID METAL CONDUIT (GRC) SHALL BE USED.

44. EXPOSED INDOOR CONDUIT SHALL BE GALVANIZED RIGID METAL CONDUIT (GRC).

45. PVC-COATED RIGID GALVANIZED METAL CONDUIT SHALL NOT BE USED INDOORS.

46. GALVANIZED RIGID METAL CONDUIT (GRC) CONDUIT SHALL BE USED FOR ALL FIRE ALARM SYSTEM WIRES AND CABLES.

47. ELECTRICAL METALLIC TUBING (EMT) CONDUIT SHALL NOT EXCEED 2 INCHES DIAMETER FOR POWER FEEDER OR BRANCH CIRCUITS AND SHALL NOT EXCEED 4 INCHES DIAMETER FOR CONTROL CIRCUITS AND COMMUNICATIONS SYSTEMS.

48. CONNECTIONS TO MOTORS AND BUILDING EQUIPMENT THAT CAN BE MOVED BY HAND FOR ACCESS AND SERVICING SHALL BE FLEXIBLE METAL CONDUIT, NO MORE THAN 18 INCHES LONG.

49. EXPOSED OUTDOOR CONDUITS SHALL BE GALVANIZED RIGID METAL CONDUIT (GRC). 3/4-INCH DIAMETER MINIMUM. IN HIGH-TRAFFIC AREAS, AND OTHER AREAS PRONE TO POLLUTION, CONDUITS SHALL BE PVC-COATED RIGID GALVANIZED METAL, 3/4-INCH SIZE MINIMUM.

50. CONDUITS SHALL BE INDEPENDENTLY SUPPORTED; DO NOT SUPPORT CONDUITS FROM DUCTWORK.

51. EXPANSION FITTINGS SHALL BE INSTALLED IN CONDUITS CROSSING EXPANSION JOINTS.

52. CONDUITS IN FINISHED AREAS SHALL BE CONCEALED AND THOSE IN UNFINISHED AREAS SHALL BE SURFACE MOUNTED.

53. PROVIDE POLYETHYLENE CORDS FOR PULLING WIRE.

54. PROVIDE PULLING WIRES FOR COMMUNICATION AND OTHER EMPTY CONDUIT SYSTEMS REQUIRED, WITHOUT SPLICES AND WITH AMPLE EXPOSED LENGTHS AT EACH END.

55. TOP ENTRIES OF CONDUITS INTO ELECTRICAL ENCLOSURES LOCATED IN AREAS SUBJECT TO WATER OR CONDENSATION SHALL NOT BE PERMITTED.

56. ALL CIRCUITRY RUNS INDICATED ARE DIAGRAMMATIC. THE CONTRACTOR SHALL DETERMINE IN THE FIELD THE MOST SUITABLE ROUTES. THE CONTRACTOR SHALL PROVIDE "AS-BUILT" DOCUMENTATION OF ALL CIRCUITRY RUNS.

57. PROVIDE ACCESS PANELS WHERE REQUIRED FOR PROPER ACCESS TO JUNCTION BOXES, PULL BOXES ETC.

58. ALL JUNCTION BOXES ABOVE CEILINGS SHALL BE MARKED WITH PANEL AND CIRCUIT DESIGNATION FOR CIRCUITS CONTAINED WITHIN.

59. CONTRACTOR SHALL PROVIDE ALL FIREPROOFING FOR ELECTRICAL PENETRATIONS.

60. FURNISH AND INSTALL NAMEPLATES ON ALL ELECTRICAL EQUIPMENT (SCREW ON TYPE).

61. ALL GROUNDING SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL AND STATE ELECTRICAL CODES.

62. COORDINATE ALL ELECTRICAL ITEMS WITH EXISTING FIELD CONDITIONS. LOCATIONS SHOWN ARE APPROXIMATE AND MAY REQUIRE MINOR ADJUSTMENT IN THE FIELD TO SATISFY THE DESIGN INTENT.

63. DAMAGE TO EXISTING FACILITIES AND EQUIPMENT SHALL BE REPAIRED OR REPLACED IMMEDIATELY BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.

64. THE LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE AND REQUIRE COORDINATION WITH ALL OTHER TRADES AND VERIFICATION OF EXISTING CONDITIONS. ROUTING OF CONDUIT IS DIAGRAMMATIC IN NATURE AND NOT INTENDED TO SHOW ALL REQUIRED OFFSETS AND DETAILS. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING ASSOCIATED EQUIPMENT AND CONDITIONS. COORDINATE THE LOCATION OF ALL EQUIPMENT WITH THE ENGINEER AND THE OWNER. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL OTHER TRADES' DRAWINGS AND SPECIFICATIONS AND COORDINATING WITH OTHER TRADE DURING BIDDING AND CONSTRUCTION.

65. REPAIR AND PATCH ANY DISTURBED AREA TO MATCH EXISTING CONDITIONS.

66. ALL ELECTRICAL WORK INDICATED TO REMAIN SHALL BE SUITABLY PROTECTED TO PREVENT ANY DAMAGE.

67. ALL ELECTRICAL CURRENT CARRYING PARTS SHALL BE COPPER FOR ALL EQUIPMENT.

68. SWITCHBOARDS AND PANELBOARDS SHALL BE FULLY RATED. SERIES RATING IS NOT ACCEPTABLE. CIRCUIT BREAKERS SHALL BE THE BOLT-ON TYPE WITH FULL COPPER BUSSING, 100% NEUTRAL AND ISOLATED GROUND BUSS REMOVABLE COVER AND NAMEPLATE. U.O.N

69. PROVIDE TEMPORARY POWER AND LIGHTING FOR ALL TRADES AND REQUIRED TO COMPLETE THE PROJECT. ALL TEMPORARY AND INTERIM EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS INCLUDING. BUT NOT LIMITED TO, NFPA 70. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THIS REQUIREMENT WITH ALL OTHER TRADES AND INCLUDING ALL ASSOCIATED COST IN BID PRICE.

70. ENGAGE A QUALIFIED ELECTRICAL TESTING COMPANY TO LOCATE ALL UNDERGROUND UTILITIES IN PROPOSED CONSTRUCTION AREAS FOR ALL TRADES BEFORE DIGGING. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THIS ORGANIZATION AND INCLUDING ALL ASSOCIATED COSTS IN THE BID PRICE.

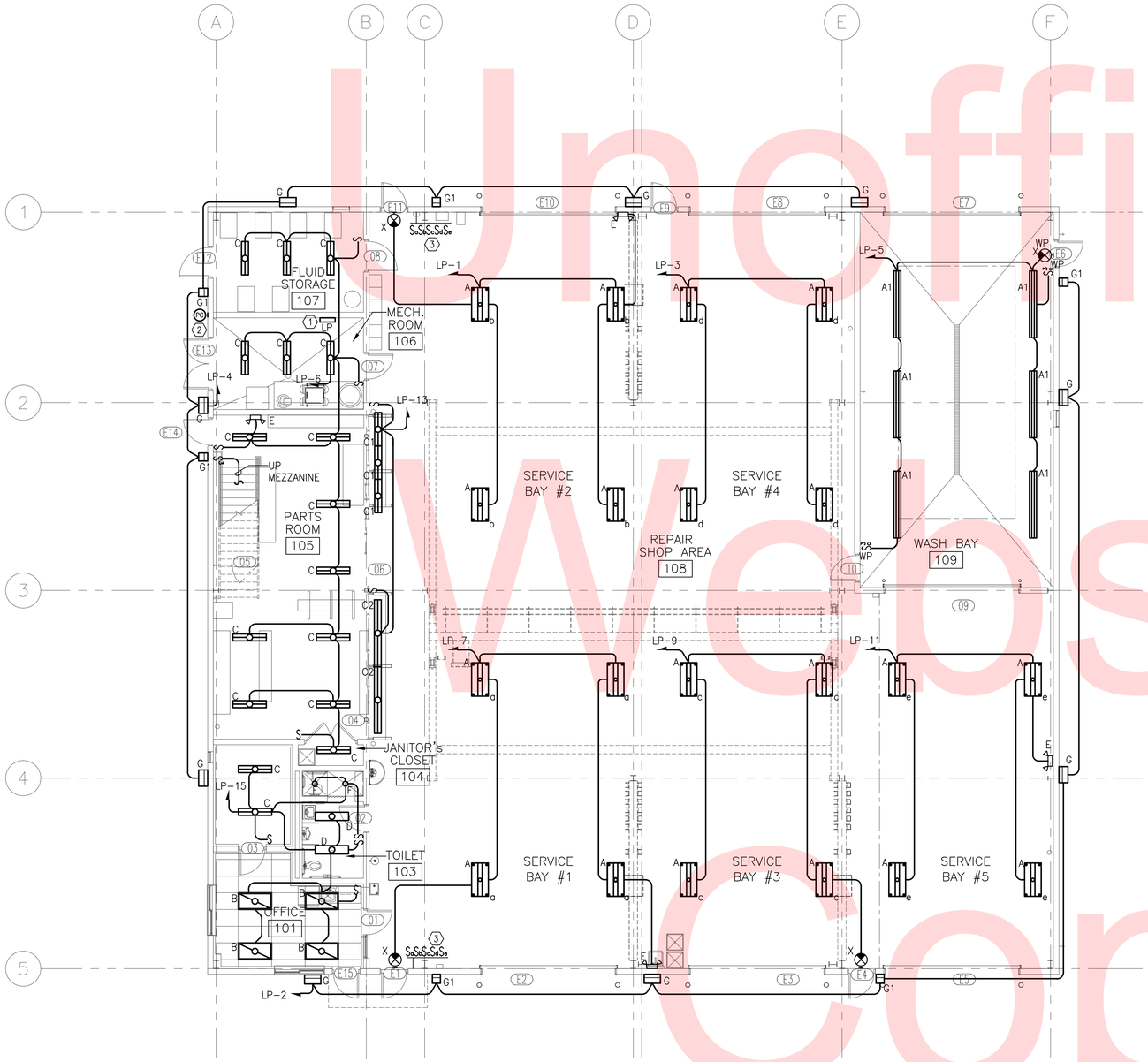
71. PROVIDE FIRE SEALANT FOR PENETRATIONS THROUGH FIRE RATED FLOORS AND WALLS TO MAINTAIN THE APPLICABLE FIRE RATING. ALL WALL PENETRATIONS SHALL BE A MINIMUM OF ONE HOUR FIRE RATED. ALL FIREPROOFING FOR ELECTRICAL PENETRATIONS SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR.

72. PROVIDE CONCRETE FOUNDATION HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED EQUIPMENT.

73. THE EXISTING ELECTRICAL EQUIPMENT AND DEVICES WITHIN DEMOLITION AREA SHALL BE DEMOLISHED ALONG WITH ALL FEEDERS AND CONDUITS BACK TO SOURCE UNLESS OTHERWISE NOTED. CONTRACTOR SHALL DISCONNECT, MAKE SAFE, AND REMOVE ALL LIGHT FIXTURES, CORD DROP RECEPTACLES, AND OTHER ASSOCIATED ELECTRICAL EQUIPMENT AND ALL ASSOCIATED CIRCUITRY WITHIN THIS AREA, EXCEPT AS SHOWN OTHERWISE. UPON REMOVAL, INVENTORY MAJOR ELECTRICAL ITEMS THAT ARE REMOVED AND PROVIDE A LIST TO THE OWNER FOR THEIR SELECTION OF ITEMS TO BE RETAINED. ALL ITEMS REJECTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.

74. THIS DOCUMENT INCLUDES INFORMATION AND DEPICTIONS OF DELMARVA POWER ELECTRIC UTILITIES LOCATED WITHIN THE PROJECT AREA, LOCATIONS, DIMENSIONS, DEPTHS, AND OTHER DETAILS OF ANY SUCH UTILITIES MAY NOT BE AS-BUILT, AND THE INFORMATION SHALL NOT BE RELIED UPON WITHOUT FIELD VERIFICATION, EXCAVATORS MUST EMPLOY SAFE DIGGING BEST PRACTICES WHEN APPROACHING DELMARVA POWER ELECTRIC UTILITIES AND COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, INCLUDING, BUT NOT LIMITED TO, THE "MISS UTILITY LAW". NO REPRESENTATION, GUARANTEES, OR WARRANTIES, EXPRESS OR IMPLIED, ARE MADE BY DELMARVA POWER AS TO THE QUALITY, COMPLETENESS, OR ACCURACY OF THE DELMARVA POWER UTILITY INFORMATION, AND IN ACCEPTING THIS DOCUMENT, THE RECIPIENT EXPRESSLY ACKNOWLEDGES AND AGREES THAT IT IS NOT RELYING ON THE ACCURACY OF THE SAME.

MB-E-002



1 LIGHTING – GROUND FLOOR PLAN
MBE101 SCALE: 1/8" = 1'-0"

SHEET GENERAL NOTES

1. SEE ARCHITECTURAL PLANS, ELEVATIONS, DETAILS AND SPECIFICATION FOR ELECTRICAL EQUIPMENT LOCATIONS AND HEIGHTS. COORDINATE EXACT LOCATION IN FIELD PRIOR TO INSTALLATION.
2. NO ELECTRICAL CORDS ARE ALLOWED TO PENETRATE WALLS, MILLWORK, OR CEILING PANELS. ALL ELECTRICAL OUTLETS MUST BE READILY ACCESSIBLE.
3. ALL WIRING SHALL BE INSTALLED IN CONDUIT, INCLUSIVE OF LOW VOLTAGE/CONTROL WIRING.
4. LIGHTING FIXTURES MOUNTED ON SUSPENDED CEILINGS SHALL BE SUPPORTED FROM THE FLOOR CONSTRUCTION ABOVE BY MEANS OF A MINIMUM OF FOUR SEPARATE GALVANIZED CHAINS OR WIRES PER FIXTURE ONE AT EACH CORNER OF THE FIXTURE. EACH CHAIN SHALL BE CAPABLE OF SUPPORTING 100 LBS AND EACH WIRE SHALL BE A MINIMUM OF 12 AWG MILD STEEL.
5. SEE LIGHTING FIXTURE SCHEDULE ON DWG MB-E-501.
6. LIGHTING SWITCHES TO BE TOGGLE SWITCH WITH PILOT LIGHT ONLY FOR JANITOR CLOSET LIGHTING.
7. COORDINATE TYPE A FIXTURE MOUNTING HEIGHT ON SERVICE BAY WITH CRANE AND HEATERS.

SHEET KEY NOTES:

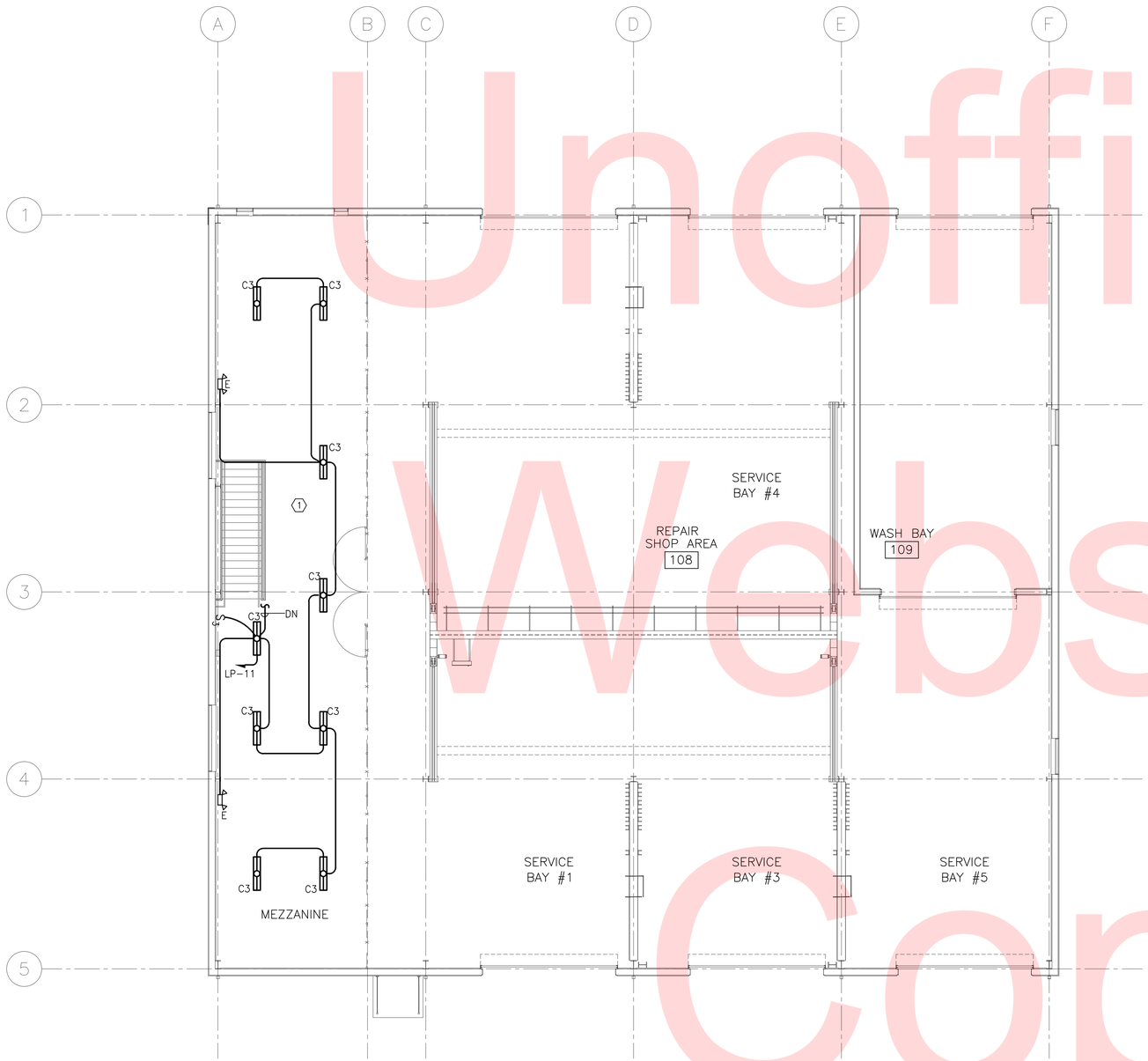
(1) PROVIDE LIGHTING CONTROL PANEL WITH LXTB GRAPHICAL INTERFACE USER SIMILAR TO HUBBELL LXBC-1-IL-B-18-H-1S WITH LXTB GRAPHICAL INTERFACE USER OR EQUAL.

(2) PROVIDE PHOTOCELL TO CONTROL BUILDING FAÇADE LIGHTING (CIRCUITS LP-2 AND LP-4) SIMILAR TO HUBBELL LX PHOTO SENSOR CONTROL MODULE OR EQUAL COMPATIBLE WITH THE LIGHTING CONTROL PANEL. PROVIDE ALL REQUIRED INTERFACES, POWER MODULES AND ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM. EXACT MOUNTING LOCATION TO BE FIELD-DETERMINED PER MANUFACTURER'S RECOMMENDATIONS.

(3) PROVIDE LIGHTING CONTROL SWITCHES SIMILAR TO HUBBELL LX SENTRY SWITCH, TOGGLE STYLE WITH LOCATOR LIGHT OR EQUAL, COMPATIBLE WITH THE LIGHTING CONTROL PANEL. PROVIDE ALL REQUIRED INTERFACES, POWER MODULES AND ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.

MB-E-101

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MAINTENANCE BUILDING ELECTRICAL FLOOR PLAN LIGHTING	SHEET NO. 111
			COUNTY NEW CASTLE	DESIGNED BY: JDT		TOTAL SHTS. 116
				CHECKED BY: JL		



1 MBE102 **LIGHTING – MEZZANINE PLAN**

SCALE: 1/8" = 1'-0"

SHEET GENERAL NOTES

1. SEE ARCHITECTURAL PLANS, ELEVATIONS, DETAILS AND SPECIFICATION FOR ELECTRICAL EQUIPMENT LOCATIONS AND HEIGHTS. COORDINATE EXACT LOCATION IN FIELD PRIOR TO INSTALLATION.
2. NO ELECTRICAL CORDS ARE ALLOWED TO PENETRATE WALLS, MILLWORK, OR CEILING PANELS. ALL ELECTRICAL OUTLETS MUST BE READILY ACCESSIBLE.
3. ALL WIRING SHALL BE INSTALLED IN CONDUIT, INCLUSIVE OF LOW VOLTAGE/CONTROL WIRING.
4. SEE LIGHTING FIXTURE SCHEDULE ON DWG E-X. COORDINATE FINAL FIXTURE SELECTION WITH ARCHITECTS.
5. LIGHTING SWITCHES TO BE TOGGLE SWITCH WITH PILOT LIGHT.

SHEET KEY NOTES:

(1) MOUNTING HEIGHT OF THE MEZZANINE LIGHTS TO BE EQUAL WITH THE BAY FIXTURES.

MB-E-102

DELAWARE
DEPARTMENT OF TRANSPORTATION

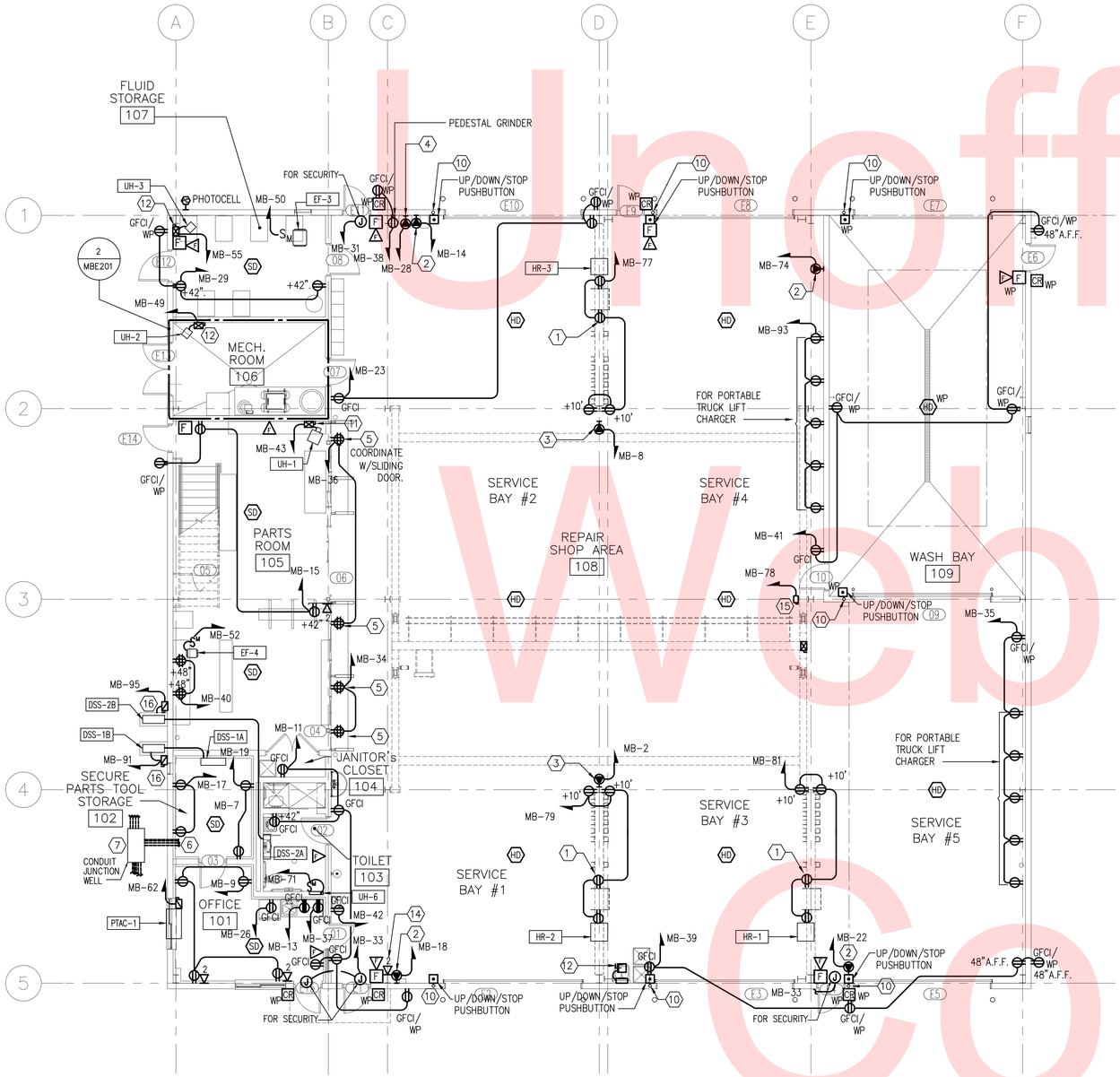
ADDENDUMS / REVISIONS	

ST. GEORGES
MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	JDT
COUNTY		
NEW CASTLE	CHECKED BY:	JL

MAINTENANCE BUILDING
ELECTRICAL MEZZANINE PLAN
LIGHTING

SHEET NO.
112
TOTAL SHTS.
116



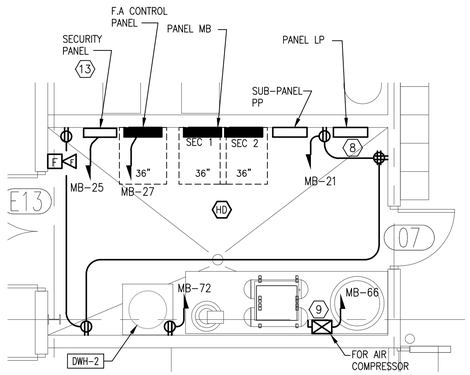
1 MBE201 **POWER – GROUND FLOOR PLAN**
SCALE: 1/8" = 1'-0"

SHEET GENERAL NOTES

1. SEE ARCHITECTURAL PLANS, ELEVATIONS, DETAILS AND SPECIFICATION FOR ELECTRICAL EQUIPMENT LOCATIONS AND HEIGHTS. COORDINATE EXACT LOCATION IN FIELD PRIOR TO INSTALLATION.
2. LOCATION AND INSTALLATION HEIGHT OF ALL WALL DEVICES TO BE COORDINATE WITH MILLWORK IN ALL LOCATIONS.
3. ALL WIRING SHALL BE INSTALLED IN CONDUIT, INCLUSIVE OF LOW VOLTAGE/CONTROL WIRING (I.E. THERMOSTATS, AUDIO, VISUAL, COMM. ETC.)
4. ALL COMMUNICATIONS DEVICES SHALL RETURN TO THE COMMUNICATIONS DEMARCATION IN MINIMUM 1" CONDUIT.
5. ALL OUTDOOR RECEPTACLES SHALL BE WATER RESISTANT AND GROUND FAULT CIRCUIT INTERRUPTER (GFCI) WITH WEATHER PROOF OUTDOOR RATED WHILE IN USE METALLIC COVER.
6. ALL PUSHBUTTON FOR OVERHEAD DOORS SHALL BE INSTALLED INDOORS.
7. CONTRACTOR SHALL FURNISH AND INSTALL ALL DOOR HARDWARE IN ACCORDANCE TO DelDOT SPECIFICATIONS. AS WELL AS ALL CONDUITS, BACKBOXES AND REQUIRED ACCESSORIES AS NECESSARY TO SUPPORT THE COMPLETE INSTALLATION OF ALL ACCESS CONTROLLED DOORS. THE CONTRACTOR SHALL COORDINATE WITH THE DelDOT INTEGRATOR TO DETERMINE ALL CONDUIT REQUIREMENTS PRIOR TO THE COMMENCEMENT OF ANY WORK. (TYPICAL ALL LOCATIONS).
8. CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUITS, BACKBOXES AND REQUIRED ACCESSORIES AS NECESSARY TO SUPPORT THE COMPLETE INSTALLATION OF ALL FIXED VIDEO SURVEILLANCE CAMERAS. THE CONTRACTOR SHALL COORDINATE WITH THE DelDOT INTEGRATOR TO DETERMINE ALL CONDUIT REQUIREMENTS PRIOR TO THE COMMENCEMENT OF ANY WORK. (TYPICAL ALL LOCATIONS).

SHEET KEY NOTES:

1. PROVIDE RECEPTACLE MOUTED ON THE STRUCTURAL BEAM FOR HEAVY DUTY SERIES ELECTRIC CORD REEL. COORDINATE EXACT LOCATION IN FIELD WITH OWNER.
2. PROVIDE SPECIAL RECEPTACLE NEMA 6-50R (208V,1ø,50A), FOR PORTABLE WELDER.
3. PROVIDE SPECIAL RECEPTACLE NEMA L15-30R (208V,3ø,30A TWIST LOCK) FOR VEHICLE LIFT SYSTEM OR PLASMA CUTTER.
4. PROVIDE SPECIAL RECEPTACLE NEMA 15-20R (208V,3ø,20A), FOR DRILL PRESS.
5. PROVIDE SUPPORTS FOR CONDUIT AND SURFACE MOUNTED RECEPTACLE AGAINST WIRE MESH FENCE, MOUNT AT 42" AFF.
6. PROVIDE (2) 4" + (1) 2" + (1) 1" CONDUITS. STUB UP CONDUITS 3" ABOVE FINISHED FLOOR. COORDINATE EXACT LOCATION IN FIELD.
7. SEE DRAWING S-E-201 FOR SITE PLAN AND CONDUIT INFORMATION. SEE DETAIL "5" ON DWG S-E-205 FOR JUNCTION WELL TYPE 4.
8. PROVIDE LIGHTING CONTROL PANEL SIMILAR TO HUBBELL LXBC-1-IL-B-18-H-1S
9. PROVIDE 3P-60A F/SS (FUSED PER MANUFACTURER RECOMMENDATIONS) AND NEMA SIZE 2 COMBINATION STARTER WITH HOA SWITCH IN NEMA 4X ENCLOSURE. MOUNT AT UNIT AND MAKE ALL CONNECTIONS.
10. PROVIDE CONCEALED 3/4" CONDUIT DOWN FROM DOOR UP/DOWN/STOP PUSHBUTTON TO OVERHEAD DRIVE DOOR OPERATOR. COORDINATE EXACT LOCATION WITH DOOR MANUFACTURER. PROVIDE ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM. SEE DRAWING MB-E-202 FOR CONTINUATION.
11. PROVIDE 3P-30A F/SS (FUSED PER MANUFACTURER RECOMMENDATIONS) AND NEMA SIZE 1 COMBINATION STARTER WITH HOA SWITCH IN NEMA 4X ENCLOSURE. PROVIDE ALL CONNECTIONS AND ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.
12. PROVIDE 2P-30A F/SS (FUSED PER MANUFACTURER RECOMMENDATIONS) AND NEMA SIZE 1 COMBINATION STARTER WITH HOA SWITCH IN NEMA 4X ENCLOSURE. PROVIDE ALL CONNECTIONS AND ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.
13. PROPOSED LOCATION FOR SECURITY ACCESS PANEL. COORDINATE EXACT LOCATION IN FIELD WITH OWNER'S REPRESENTATIVE. CONDUITS FROM ALL ACCESS CONTROLLED DOORS (CARD READERS) SHALL RUN TO THE FINAL LOCATION OF THE SECURITY PANEL. SEE SCHEMATIC ACCESS CONTROL SYSTEM RISER DIAGRAM ON DWG. MB-E-401.
14. PROVIDE DATA CONFECTION OUTLET MOUNTED AT 12 FEET FOR WIRELESS INTERNET ROUTER SUPPLIED BY OTHERS.
15. PROVIDE 30A, 208V, 3 PHASE, HEAVY DUTY DISCONNECT SWITCH FOR CRANE. COORDINATE EXACT LOCATION AND INSTALLATION HEIGHT WITH CRANE MANUFACTURER. PROVIDE ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.
16. PROVIDE 208, 30A, 2 POLE, NEMA 4X FUSIBLE DISCONNECT SWITCH FUSED AT 15A, FOR SPLIT SYSTEM, SINGLE POINT OF CONNECTION. CONTRACTOR TO PROVIDE ALL WIRE/CONDUIT AND ACCESSORIES AS REQUIRED FOR CONNECTION WITH INDOOR UNIT.

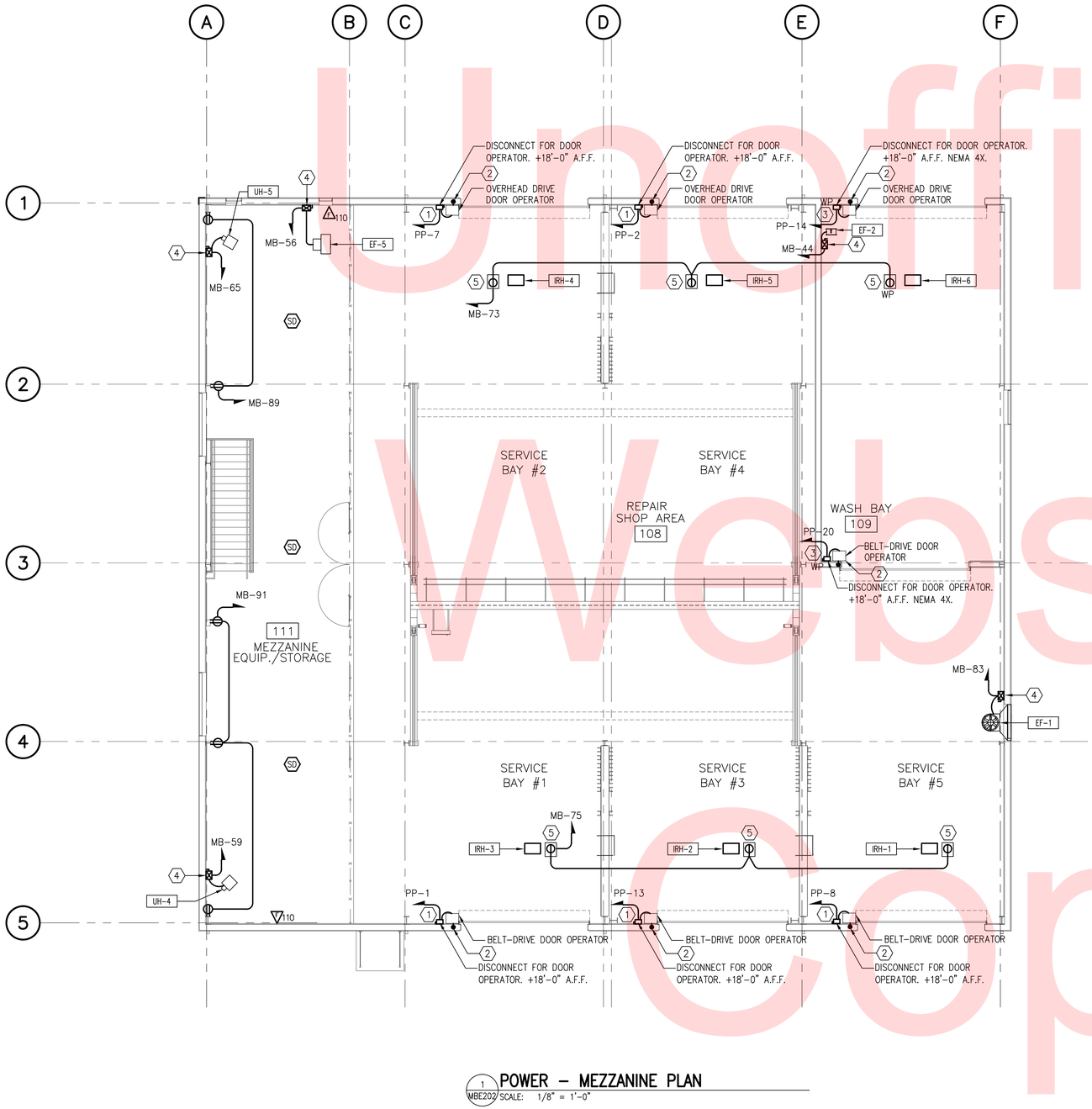


2 MBE201 **POWER – ENLARGED MECH. ROOM 106**
SCALE: 1/4" = 1'-0"

MB-E-201

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	MAINTENANCE BUILDING ELECTRICAL FLOOR PLAN POWER AND SPECIAL SYSTEMS	SHEET NO. 113
				COUNTY NEW CASTLE	DESIGNED BY: JDT		TOTAL SHTS. 116
					CHECKED BY: JL		

JMT Q:\NDE\120995_021_St_Georges_Maintenan\CADD\Electrical\Maintenance Building\MB-E-201 MB Power.dwg



1 MBE202 **POWER – MEZZANINE PLAN**

SCALE: 1/8" = 1'-0"

SHEET GENERAL NOTES

1. SEE ARCHITECTURAL PLANS, ELEVATIONS, DETAILS AND SPECIFICATION FOR ELECTRICAL EQUIPMENT LOCATIONS AND HEIGHTS. COORDINATE EXACT LOCATION IN FIELD PRIOR TO INSTALLATION.
2. LOCATION AND INSTALLATION HEIGHT OF ALL WALL DEVICES TO BE COORDINATE WITH MILLWORK IN ALL LOCATIONS.
3. ALL WIRING SHALL BE INSTALLED IN CONDUIT, INCLUSIVE OF LOW VOLTAGE/CONTROL WIRING (I.E. THERMOSTATS, AUDIO, VISUAL, COMM. ETC.)
4. ALL COMMUNICATIONS DEVICES SHALL RETURN TO THE COMMUNICATIONS DEMARCATION IN MINIMUM 1" CONDUIT.

SHEET KEY NOTES:

1. 30A, 208V 3 PHASE, HEAVY DUTY DISCONNECT SWITCH FOR DRIVE DOOR OPERATOR. PROPOSED DISCONNECT MOUNTING HEIGHT IS 18'-0" AFF. COORDINATE EXACT LOCATION AND INSTALLATION HEIGHT WITH DOOR MANUFACTURER. PROVIDE ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.
2. PROVIDE CONCEALED 3/4" CONDUIT DOWN FROM DRIVE DOOR OPERATOR TO DOOR UP/DOWN/STOP PUSHBUTTON. COORDINATE EXACT LOCATION WITH DOOR MANUFACTURER. PROVIDE ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.
3. PROVIDE 30A, 208V 3 PHASE, HEAVY DUTY, NEMA 4X DISCONNECT SWITCH FOR DRIVE DOOR OPERATOR IN WASH BAY. PROPOSED DISCONNECT MOUNTING HEIGHT IS 18'-0" AFF. COORDINATE EXACT LOCATION AND INSTALLATION HEIGHT WITH DOOR MANUFACTURER. PROVIDE ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.
4. PROVIDE 3P-30A F/SS (FUSED PER MANUFACTURER RECOMMENDATIONS) AND NEMA SIZE 1 COMBINATION STARTER WITH HOA SWITCH IN NEMA 4X ENCLOSURE. PROVIDE ALL CONNECTIONS AND NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.
5. PROVIDE TWIST LOCK RECEPTACLE NEMA L5-20R (125V, 20A) MOUNTED IN THE CEILING SPACE FOR CONNECTION TO PLUG-IN INFRARED RADIANT HEATERS. COORDINATE EQUIPMENT PLUG AND EXACT LOCATION OF OUTLETS WITH MECHANICAL EQUIPMENT. PROVIDE ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.

MB-E-202

DELAWARE DEPARTMENT OF TRANSPORTATION

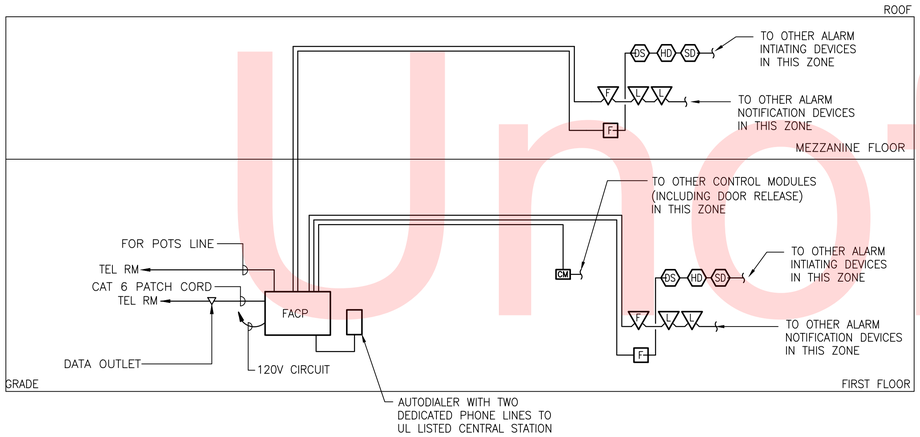
ADDENDUMS / REVISIONS	

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

CONTRACT	BRIDGE NO.	N/A
T201680104	DESIGNED BY:	JDT
COUNTY	CHECKED BY:	JL
NEW CASTLE		

MAINTENANCE BUILDING ELECTRICAL MEZZANINE PLAN POWER

SHEET NO.
114
TOTAL SHTS.
116

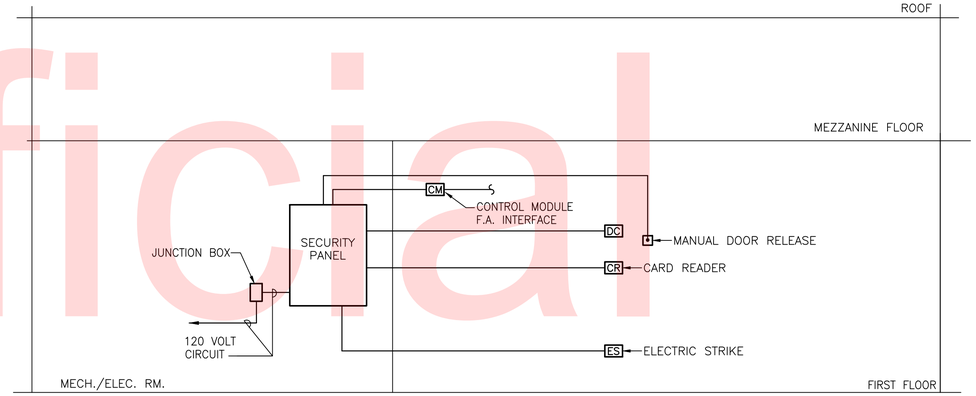


1 SCHEMATIC FIRE ALARM RISER DIAGRAM

SCALE NOT TO SCALE

NOTES:

1. REFER TO FLOOR PLANS FOR EXACT DEVICE COUNT AND LOCATIONS. PROVIDE CONDUIT AND WIRING AS REQUIRED BY SYSTEM MANUFACTURER.

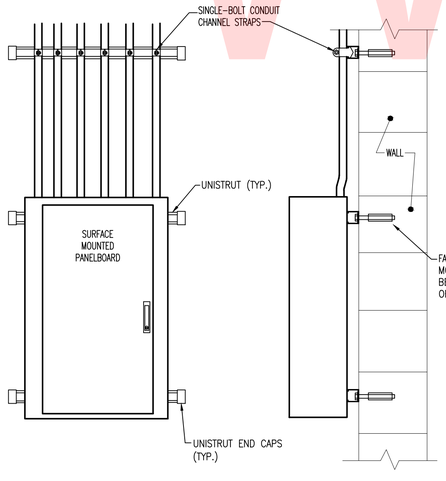


2 SCHEMATIC ACCESS CONTROL SYSTEM RISER DIAGRAM

SCALE NOT TO SCALE

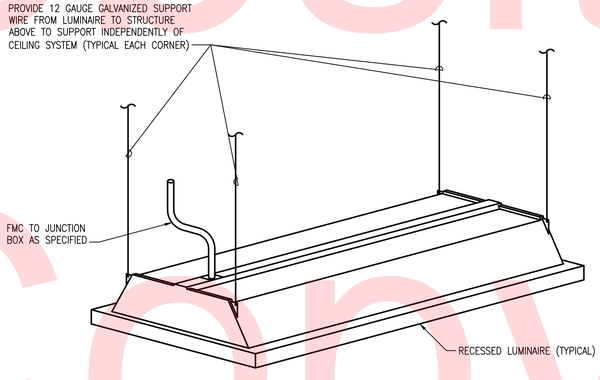
NOTES:

1. REFER TO FLOOR PLANS FOR EXACT DEVICE COUNT AND LOCATIONS. PROVIDE BOXES AND EMPTY CONDUIT WITH PULL STRING AS REQUIRED BY SYSTEM MANUFACTURER.
2. SECURITY PANEL LOCATION SHALL BE COORDINATE IN FIELD WITH OWNER'S REPRESENTATIVE. CONDUITS FROM ALL ACCESS CONTROLLED DOORS (CARD READERS) SHALL RUN TO THE FINAL LOCATION OF THE SECURITY PANEL.
3. CONTRACTOR SHALL FURNISH AND INSTALL ALL DOOR HARDWARE IN ACCORDANCE TO DelDOT SPECIFICATIONS. AS WELL AS ALL CONDUITS WITH PULL STRING, BACKBOXES AND REQUIRED ACCESSORIES AS NECESSARY TO SUPPORT THE COMPLETE INSTALLATION OF ALL ACCESS CONTROLLED DOORS. THE CONTRACTOR SHALL COORDINATE WITH THE DelDOT INTEGRATOR TO DETERMINE ALL CONDUIT REQUIREMENTS PRIOR TO THE COMMENCEMENT OF ANY WORK. (TYPICAL ALL LOCATIONS).



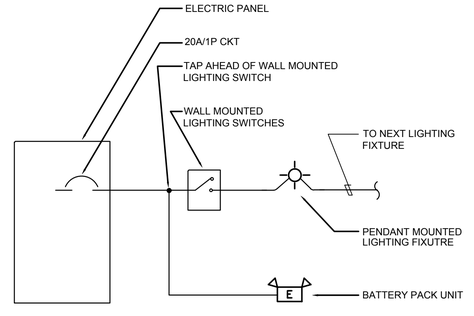
3 PANELBOARD MOUNTING DETAIL

SCALE NOT TO SCALE



4 RECESSED LUMINAIRE SUPPORT DETAIL

SCALE NOT TO SCALE



5 BATTERY PACK UNIT CONNECTION DETAIL

SCALE NOT TO SCALE

MB-E-401

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		ST. GEORGES MAINTENANCE YARD IMPROVEMENTS	CONTRACT T201680104	BRIDGE NO. N/A	CREW QUARTERS BUILDING ELECTRICAL DETAILS
				COUNTY NEW CASTLE	DESIGNED BY: JDT	SHEET NO. 115
					CHECKED BY: JL	TOTAL SHTS. 116

MAINTENANCE BUILDING LIGHTING FIXTURE SCHEDULE

TYPE	SYMBOL	DESCRIPTION	MANUFACTURER	CATALOG NO.	LAMP QTY.	LAMP TYPE	LAMP COLOR	LAMP CRI	LAMP LIFE	FIXTURE VOLTAGE	FIXTURE WATTS	FINISH	MOUNTING	NOTES
A	A	SUSPENDED 4' HIGH BAY LED LUMINAIRE	LITHONIA	IBL 48L WD LP850 IBAC240M20 WGIBL	1	LED	5000 'K	≥80	50,000 HRS	120V	394W	GLOSS WHITE	SUSPENDED @ 19'-0" AFF	SEE NOTE 1, 2, 3, 4 & 5
A1	A1	SUSPENDED LED LUMINAIRE WET LOCATION	LITHONIA	FEM L96 20000LM IMAFL WD 120 GZ10 50K 80CRI WLFEND2 MHHK120SS/FEMDPMB	1	LED	5000 'K	≥80	50,000 HRS	120V	160W	GLOSS WHITE	SUSPENDED @ 19'-0" AFF	SEE NOTE 1, 2, 3, 4 & 5
B	B	RECESSED 2'X4' LED LUMINAIRE WITH FROSTED ACRYLIC TILE.	LITHONIA	2ACL4 48L EZ1 LP835	1	LED	3500 'K	≥80	50,000 HRS	120V	40W	WHITE PAINT	RECESSED IN T-GRID CEILING	SEE NOTE 1, 2, 3, 4 & 5
C	C	SURFACE 4' LOW BAY LED LUMINAIRE	LITHONIA	MSL 4000LM SBL 120 GZ10 50K 90CRI WH ZAC THMSHB	1	LED	5000 'K	≥90	50,000 HRS	120V	30W	GLOSS WHITE	SURFACE OPEN CEILING	SEE NOTE 1, 2, 3, 4 & 5
C1	C1	SURFACE 4' LOW BAY LED LUMINAIRE IN CONTINUOUS-ROW	LITHONIA	MSL 4000LM SBL 120 GZ10 50K 90CRI CRE WH ZACF THMSHB	1	LED	5000 'K	≥90	50,000 HRS	120V	30W	GLOSS WHITE	SURFACE IN METAL FRAMING SYSTEM	SEE NOTE 1, 2, 3, 4 & 5
C2	C2	SURFACE 8' LOW BAY LED LUMINAIRE IN CONTINUOUS-ROW	LITHONIA	TMSL 8000LM SBL 120 GZ10 50K 90CRI CRE WH ZACF THMSHB	1	LED	5000 'K	≥90	50,000 HRS	120V	60W	GLOSS WHITE	SURFACE IN METAL FRAMING SYSTEM	SEE NOTE 1, 2, 3, 4 & 5
C3	C1	SUSPENDED 4' LOW BAY LED LUMINAIRE	LITHONIA	MSL 4000LM SBL 120 GZ10 50K 90CRI WH ZACF MSHBACF120	1	LED	5000 'K	≥90	50,000 HRS	120V	30W	GLOSS WHITE	SUSPENDED @ 11'-0" AFF,	SEE NOTE 1, 2, 3, 4, 5 & 6
D	D	RECESSED 1'X4' LED LUMINAIRE	LITHONIA	AVL4 25L MDR EZ1 LP835	1	LED	3500 'K	≥80	50,000 HRS	120V	30W	WHITE PAINT	RECESSED IN CEILING	SEE NOTE 1, 2, 3, 4 & 5
E	E	EMERGENCY LIGHT WITH BATTERY PACK	LITHONIA	ELM2 LED HO	2	LED	–	–	–	120V	3W	THERMOPLASTIC WHITE	SURFACE WALL 8' AFF	SEE NOTE 1, 2, 3, 4 & 5
F	F	RECESSED 6" LED NON-CONDUCTIVE SHOWER LIGHT	GOTHAM	EVO 35/35 6 DFR 120 EZ1 LS AR	1	LED	3500 'K	≥80	50,000 HRS	120V	30W	SPECULAR(LS). CLEAR(AR)	RECESSED IN CEILING	SEE NOTE 1, 2, 3, 4 & 5
G	G	EXTERIOR 16-1/8" WIDE LED WALL LUMINAIRE	LITHONIA	TWP LED 30C 700 50K T3M 120 DBLXD	1	LED	5000 'K	≥80	50,000 HRS	120V	67W	BLACK	SURFACE @ 17'-0" AFF	SEE NOTE 1, 2, 3, 4 & 5
G1	G1	EXTERIOR 6-3/4" WIDE LED WALL LUMINAIRE	LITHONIA	TWS LED 1 50K 120	1	LED	5000 'K	≥80	50,000 HRS	120V	19W	DARK BRONZE	SURFACE @ 9'-0" AFF AT THE DOOR	SEE NOTE 1, 2, 3, 4 & 5
X	X	LED EMERGENCY EXIT SIGN	BARRON EXITRONIX	402E-WB-BL-G2	1	LED	–	–	–	120V	≤2.5W	BLACK W/ALUMINUM FACE	WALL	SEE NOTE 1, 2, 3, 4, 5 & 7

FIXTURE SCHEDULE NOTES:

1. COORDINATE ALL FIXTURE QUANTITIES AND PLACEMENT REQUIREMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ORDERING AND COORDINATING ALL FIXTURE OPTIONS AND ACCESSORIES TO ENSURE A COMPLETE QUALITY INSTALLATION.
3. FOR ALL LIGHT FIXTURES, FINISH SHOULD BE COORDINATED WITH ARCHITECT.
4. FOR ALL LIGHT FIXTURES, COORDINATE EXACT LOCATIONS AND MOUNTING HEIGHT.
5. ALL LIGHTING FIXTURES SHALL BE APPROVED BY THE OWNER / ARCHITECT PRIOR TO ORDERING AND INSTALLING.
6. COORDINATE MOUNTING HEIGHT OF THE MEZZANINE LIGHTS TO BE EQUAL WITH THE BAY FIXTURES.
7. FOR EXIT LIGHTS PROVIDE SINGLE OR DOUBLE FACE AS INDICATED ON FLOOR PLANS ALSO PROVIDE INTEGRAL BATTERY BACK-UP.

PANEL: LP

MOUNTING: SURFACE — MAIN: MLO

AMP: 100 — VOLT: 208Y/120
PHASE: 3 — 4 WIRE + GND
AIC: 22K AMPS RMS SYM

Branch Circuit Load Description	KVA Load A	KVA Load B	KVA Load C	Trip Poles	Circuit Wiring NO	Size	GND	C	Ckt. No.	Phase	Ckt. No.	Circuit Wiring NO	Size	GND	C	Trip Poles	KVA Load A	KVA Load B	KVA Load C	Branch Circuit Load Description
LIGHTING BAY 2	1.00			20/1	2	#12	#12	3/4"	1	A	2	2	#12	#12	3/4"	20/1	1.00			FAÇADE LIGHTING
LIGHTING BAY 4		1.00		20/1	2	#12	#12	3/4"	3	B	4	2	#12	#12	3/4"	20/1		1.00		FAÇADE LIGHTING
LIGHTING WASH BAY			1.00	20/1	2	#12	#12	3/4"	5	C	6	2	#12	#12	3/4"	20/1			0.80	LIGHTING 105-106-107
LIGHTING BAY 3	1.00			20/1	2	#12	#12	3/4"	7	A	8	-	-	-	-	20/1	0.00			SPARE
LIGHTING BAY 5		1.00		20/1	2	#12	#12	3/4"	9	B	10	-	-	-	-	20/1		0.00		SPARE
LIGHTING MEZZ.			1.00	20/1	2	#12	#12	3/4"	11	C	12	-	-	-	-	20/1			0.00	SPARE
LIGHTING BENCH	1.00			20/1	2	#12	#12	3/4"	13	A	14	-	-	-	-	20/1	0.00			SPARE
LIGHTING 101		0.50		20/1	2	#12	#12	3/4"	15	B	16	-	-	-	-	20/1		0.00		SPARE
SPARE			0.00	20/1	-	-	-	-	17	C	18	-	-	-	-	20/1			0.00	SPARE
	3.00	2.50	2.00	<< PHASE SUB-TOTALS >>													1.00	1.00	0.80	

PHASE A 4.00 kVA
PHASE B 3.50 kVA
PHASE C 2.80 kVA

10.30 kVA TOTAL CONNECTED LOAD
12.88 kVA TOTAL DEMAND LOAD

PROVIDE THE FOLLOWING:

PANEL: PP

MOUNTING: SURFACE — MAIN: MLO

AMP: 100 — VOLT: 208Y/120
PHASE: 3 — 4 WIRE + GND
AIC: 22K AMPS RMS SYM

Branch Circuit Load Description	KVA Load A	KVA Load B	KVA Load C	Trip Poles	Circuit Wiring NO	Size	GND	C	Ckt. No.	Phase	Ckt. No.	Circuit Wiring NO	Size	GND	C	Trip Poles	KVA Load A	KVA Load B	KVA Load C	Branch Circuit Load Description
DOOR OPERATOR BAY 1	0.50			20/3	3	#12	#12	3/4"	1	A	2	3	#12	#12	3/4"	20/3	0.50			DOOR OPERATOR BAY 4
-		0.50		-	-	-	-	-	3	B	4	-	-	-	-	-		0.50		-
-			0.50	-	-	-	-	-	5	C	6	-	-	-	-	-			0.50	-
DOOR OPERATOR BAY 2	0.50			20/3	3	#12	#12	3/4"	7	A	8	3	#12	#12	3/4"	20/3	0.50			DOOR OPERATOR BAY 5
-		0.50		-	-	-	-	-	9	B	10	-	-	-	-	-		0.50		-
-			0.50	-	-	-	-	-	11	C	12	-	-	-	-	-			0.50	-
DOOR OPERATOR BAY 3	0.50			20/3	3	#12	#12	3/4"	13	A	14	3	#12	#12	3/4"	20/3	0.50			DOOR OPERATOR WP1
-		0.50		-	-	-	-	-	15	B	16	-	-	-	-	-		0.50		-
-			0.50	-	-	-	-	-	17	C	18	-	-	-	-	-			0.50	-
SPARE	0.00			20/1	-	-	-	-	19	A	20	3	#12	#12	3/4"	20/3	0.50			DOOR OPERATOR WP2
SPARE		0.00		20/1	-	-	-	-	21	B	22	-	-	-	-	-		0.50		-
SPARE			0.00	20/1	-	-	-	-	23	C	24	-	-	-	-	-			0.50	-
SPARE	0.00			20/1	-	-	-	-	25	A	26	-	-	-	-	20/1	0.00			SPARE
SPARE		0.00		20/1	-	-	-	-	27	B	28	-	-	-	-	20/1		0.00		SPARE
SPARE			0.00	20/1	-	-	-	-	29	C	30	-	-	-	-	20/1			0.00	SPARE
	1.50	1.50	1.50	<< PHASE SUB-TOTALS >>													2.00	2.00	2.00	

PHASE A 3.50 kVA
PHASE B 3.50 kVA
PHASE C 3.50 kVA

10.50 kVA TOTAL CONNECTED LOAD
5.25 kVA TOTAL DEMAND LOAD

PROVIDE THE FOLLOWING:

PANEL: MB SECTION 1

MOUNTING: SURFACE — MAIN: 400 MCB

AMP: 400 — VOLT: 208Y/120
PHASE: 3 — 4 WIRE + GND
AIC: 22K AMPS RMS SYM

Branch Circuit Load Description	KVA Load A	KVA Load B	KVA Load C	Trip Poles	Circuit Wiring NO	Size	GND	C	Ckt. No.	Phase	Ckt. No.	Circuit Wiring NO	Size	GND	C	Trip Poles	KVA Load A	KVA Load B	KVA Load C	Branch Circuit Load Description
LIGHTING PANEL LP	5.00			60/3	4	#6	#10	1 1/4"	1	A	2	3	#10	#10	3/4"	30/3	2.00			VEHICLE LIFT SYSTEM
-		5.00		-	-	-	-	-	3	B	4	-	-	-	-	-		2.00		-
-			5.00	-	-	-	-	-	5	C	6	-	-	-	-	-			2.00	-
RECEPTACLES IT	0.80			20/1	2	#12	#12	3/4"	7	A	8	3	#10	#10	3/4"	30/3	2.00			VEHICLE LIFT SYSTEM
RECEPTACLES 101		0.80		20/1	2	#12	#12	3/4"	9	B	10	-	-	-	-	-		2.00		-
RECEPTACLES 103-104			0.80	20/1	2	#12	#12	3/4"	11	C	12	-	-	-	-	-			2.00	-
RECEPTACLES 101	0.80			20/1	2	#12	#12	3/4"	13	A	14	2	#6	#10	3/4"	50/2	2.00			PORTABLE WELDER
RECEPTACLES 105		0.80		20/1	2	#12	#12	3/4"	15	B	16	-	-	-	-	-		2.00		-
RECEPTACLES IT			0.80	20/1	2	#12	#12	3/4"	17	C	18	2	#6	#10	3/4"	50/2			2.00	PORTABLE WELDER(STAND-BY)
RECEPTACLES IT	0.80			20/1	2	#12	#12	3/4"	19	A	20	-	-	-	-	-	2.00			-
RECEPTACLES 106		0.80		20/1	2	#12	#12	3/4"	21	B	22	2	#6	#10	3/4"	50/2		2.00		PORTABLE WELDER(STAND-BY)
RECEPTACLES BAY 2			0.80	20/1	2	#12	#12	3/4"	23	C	24	-	-	-	-	-			2.00	-
SECURITY PANEL	0.80			20/1	2	#12	#12	3/4"	25	A	26	2	#12	#12	3/4"	20/1	0.50			REFRIGERATOR
FIRE ALARM PANEL		0.80		20/1	2	#12	#12	3/4"	27	B	28	3	#12	#12	3/4"	20/3		1.00		DRILL PRESS
RECEPTACLES 107			0.80	20/1	2	#12	#12	3/4"	29	C	30	-	-	-	-	-			1.00	-
CARD READER	0.50			20/1	2	#12	#12	3/4"	31	A	32	-	-	-	-	-	1.00			-
CARD READER		0.50		20/1	2	#12	#12	3/4"	33	B	34	2	#12	#12	3/4"	20/1		0.50		WORK BENCH
RECECPTACLES BAY 5			1.00	20/1	2	#12	#12	3/4"	35	C	36	2	#12	#12	3/4"	20/1			1.00	WORK BENCH
RECEPTACLES 101	0.80			20/1	2	#12	#12	3/4"	37	A	38	2	#12	#12	3/4"	20/1	1.00			PEDESTAL GRINDER
RECEPTACLE 48"		1.00		20/1	2	#12	#12	3/4"	39	B	40	2	#12	#12	3/4"	20/1		1.00		TOOL CABINET
RECEPTACLE WASH			1.00	20/1	2	#12	#12	3/4"	41	C	42	2	#12	#12	3/4"	20/1			0.50	DRINKING FOUNTAIN
UNIT HEATER UH-1	1.70			30/3	3	#10	#10	3/4"	43	A	44	3	#12	#12	3/4"	20/3	0.20			EXHAUST FAN EF-2
-		1.70		-	-	-	-	-	45	B	46	-	-	-	-	-		0.20		-
-			1.70	-	-	-	-	-	47	C	48	-	-	-	-	-			0.20	-
UNIT HEATER UH-2	0.75			20/2	2	#12	#12	3/4"	49	A	50	2	#12	#12	3/4"	20/1	0.50			EXHAUST FAN EF-3
-		0.75		-	-	-	-	-	51	B	52	2	#12	#12	3/4"	20/1		0.50		EXHAUST FAN EF-4
PROVISION FOR MECH.CONTROLS			1.00	20/1	2	#12	#12	3/4"	53	C	54	2	#12	#12	3/4"	20/1			1.00	PROVISION FOR MECH.CONTROLS
	11.95	12.15	12.90	<< PHASE SUB-TOTALS >>													11.20	11.20	11.70	MECH EQUIP. CIRCUIT BREAKERS SHALL BE HACR RATED

PROVIDE THE FOLLOWING:

PHASE A 23.15 kVA
PHASE B 23.35 kVA
PHASE C 24.60 kVA

61.40 kVA CONNECTED LOAD (SECTION 1)
53.10 kVA CONNECTED LOAD (SECTION 2)
120.50 kVA TOTAL CONNECTED LOAD
82.83 kVA TOTAL DEMAND LOAD

PANEL: MB SECTION 2

MOUNTING: SURFACE — MAIN: MLO

AMP: 400 — VOLT: 208Y/120
PHASE: 3 — 4 WIRE + GND
AIC: 22K AMPS RMS SYM

Branch Circuit Load Description	KVA Load A	KVA Load B	KVA Load C	Trip Poles	Circuit Wiring NO	Size	GND	C	Ckt. No.	Phase	Ckt. No.	Circuit Wiring NO	Size	GND	C	Trip Poles	KVA Load A	KVA Load B	KVA Load C	Branch Circuit Load Description
UNIT HEATER UH-3	0.75			20/2	2	#12	#12	3/4"	55	A	56	3	#12	#12	3/4"	20/3	0.40			EXHAUST FAN EF-5
-		0.75		-	-	-	-	-	57	B	58	-	-	-	-	-		0.40		-
UNIT HEATER UH4			2.00	30/3	3	#10	#10	3/4"	59	C	60	-	-	-	-	-			0.40	-
-	2.00			-	-	-	-	-	61	A	62	2	#10	#10	3/4"	30/2	2.50			PACKAGED AC PTAC-1
-		2.00		-	-	-	-	-	63	B	64	-	-	-	-	-		0.00		-
UNIT HEATER UH-5			2.00	30/3	3	#10	#10	3/4"	65	C	66	4	#6	#10	1 1/4"	60/3			3.00	COMPRESSOR
-	2.00			-	-	-	-	-	67	A	68	-	-	-	-	-	3.00			-
-		2.00		-	-	-	-	-	69	B	70	-	-	-	-	-		3.00		-
WALL HEATER UH-6			1.50	20/1	2	#12	#12	3/4"	71	C	72	2	#12	#12	3/4"	20/1			1.00	WATER HEATER DWH-2
INFRARED HEATERS	0.50			20/1	2	#12	#12	3/4"	73	A	74	2	#6	#10	3/4"	50/2	2.00			PORTABLE WELDER(STAND-BY)
INFRARED HEATERS		0.50		20/1	2	#12	#12	3/4"	75	B	76	-	-	-	-	-		2.00		-
TRUCK HOSE REEL BAY 2			0.80	20/1	2	#12	#12	3/4"	77	C	78	3	#10	#10	1"	30/3			1.00	CRANE
TRUCK HOSE REEL BAY 1	0.80			20/1	2	#12	#12	3/4"	79	A	80	-	-	-	-	-	1.00			-
TRUCK HOSE REEL BAY 3		1.30		20/1	2	#12	#12	3/4"	81	B	82	-	-	-	-	-		0.50		-
EXHAUST FAN EF-1			0.50	20/3	3	#12	#12	3/4"	83	C	84	4	#2	#6	1 1/2"	100/3			3.50	SUBPANEL PP
-	0.50			-	-	-	-	-	85	A	86	-	-	-	-	-	3.50			-
-		0.50		-	-	-	-	-	87	B	88	-	-	-	-	-		3.50		-
RECEPTACLE MEZZ.			0.00	20/1	2	#12	#12	3/4"	89	C	90	-	-	-	-	20/1			0.00	SPARE
SPLIT SYSTEM DSS-1B	0.50			20/2	2	#12	#12	3/4"	91	A	92	-	-	-	-	20/1	0.00			SPARE
-		0.50		-	-	-	-	-	93	B	94	-	-	-	-	20/1		0.00		SPARE
SPLIT SYSTEM DSS-2B			0.50	20/2	2	#12	#12	3/4"	95	C	96	-	-	-	-	20/1			0.00	SPARE
-	0.50			-	-	-	-	-	97	A	98	-	-	-	-	20/1	0.00			SPARE
SPARE		0.00		20/1	-	-	-	-	99	B	100	-	-	-	-	20/1		0.00		SPARE
SPARE			0.00	20/1	-	-	-	-	101	C	102	-	-	-	-	20/1			0.00	SPARE
SPARE	0.00			20/1	-	-	-	-	103	A	104	-	-	-	-	20/1	0.00			SPARE
SPARE		0.00		20/1	-	-	-	-	105	B	106	-	-	-	-	20/1		0.00		SPARE
SPARE			0.00	20/1	-	-	-	-	107	C	108	-	-	-	-	20/1			0.00	SPARE
	7.55	7.55	7.30	<< PHASE SUB-TOTALS >>													12.40	9.40	8.90	MECH EQUIP. CIRCUIT BREAKERS SHALL BE HACR RATED.

PROVIDE THE FOLLOWING:

PHASE A 19.95 kVA
PHASE B 16.95 kVA
PHASE C 16.20 kVA

50.60 kVA TOTAL CONNECTED LOAD
0.00 kVA TOTAL DEMAND LOAD

MB-E-501

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

ST. GEORGES MAINTENANCE YARD IMPROVEMENTS

CONTRACT T201680104
COUNTY NEW CASTLE
BRIDGE NO. N/A
DESIGNED BY: JDT
CHECKED BY: JL

MAINTENANCE BUILDING ELECTRICAL SCHEDULES

SHEET NO. 116
TOTAL SHTS. 116

JMT

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